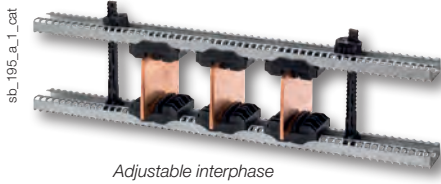




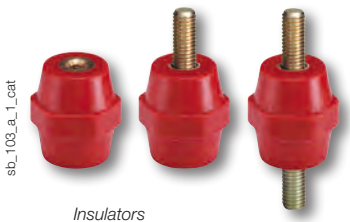
# Busbar supports

## Busbar

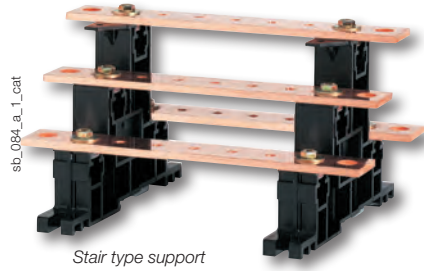
Enclosures  
& accessories



Adjustable interphase



Insulators



Stair type support

### The solution for

- > Industrial Control Panels Manufacturers (UL 508A)
- > Switchboards Manufacturers (UL 891)
- > Distributors
- > OEM/Machine Builders



### Approvals and certifications <sup>(1)</sup>

- > ASEFA/LCIE



(1) Product references on request.

### Available on request

- > Please contact us

## Function

SOCOMEK **insulating busbar supports** enable the fixing of copper or aluminium busbars.

## Characteristics

### Insulators

- Polyester without halogen.
- UL94 VO self-extinguishing.
- Color red RAL 3002.
- Operating temperature from -40 to + 266°F.
- Deformation under load temperature (ASTM D643): > 392°F / 200°C.
- Dielectric constant (ASTM D150): 4/5.
- Arc resistance (ASTM D495): > 180 s.
- Water absorption (ASTM D570): < 0.3%.

### Busbar supports

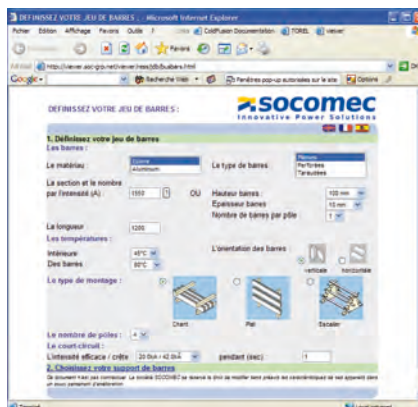
- High dielectric strength.
- High mechanical resistance.
- Non-magnetic assembly parts.
- High resistance to damp heat (supplied "with a conformal coating").

### Stair type supports

- Thermoplastic material.
- UL 94 VO self-extinguishing.
- Insulating voltage: 1000 V.

## Software tool for size selection

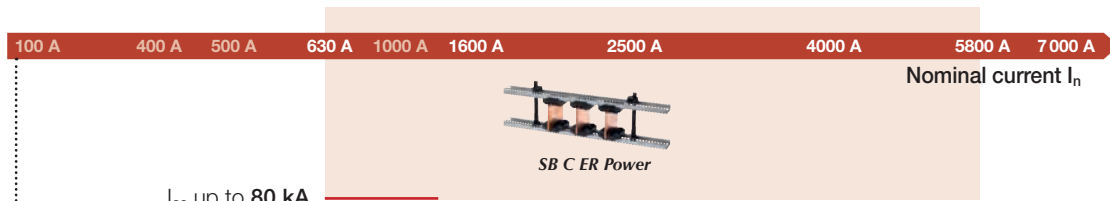
**Mechanical Systems** is a software that can be utilized to size bar sets. It defines the configuration of the busbar system, including bar section and distance between supports, according to the required electrical characteristics of the panel in compliance with standard IEC 61439-1. The software runs on Windows® 7 and 10. Visit our website [www.socomec.us](http://www.socomec.us).



sb\_201\_b\_1\_fr\_cat.eps

## Selection guide

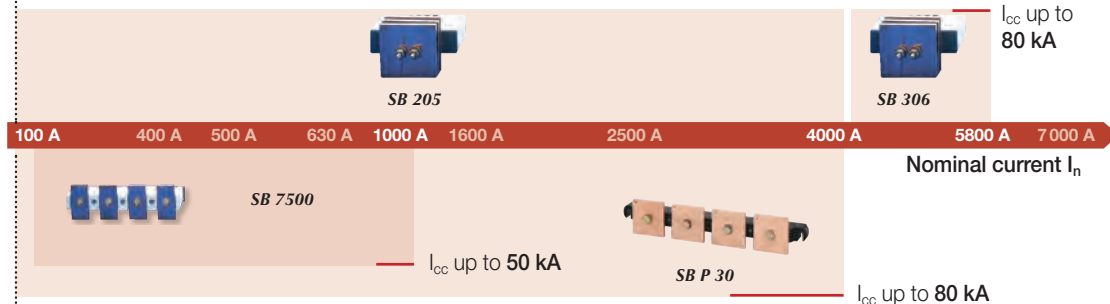
### Edgewise mounting



- Busbar supports with **adjustable interphase**

### Flat mounting

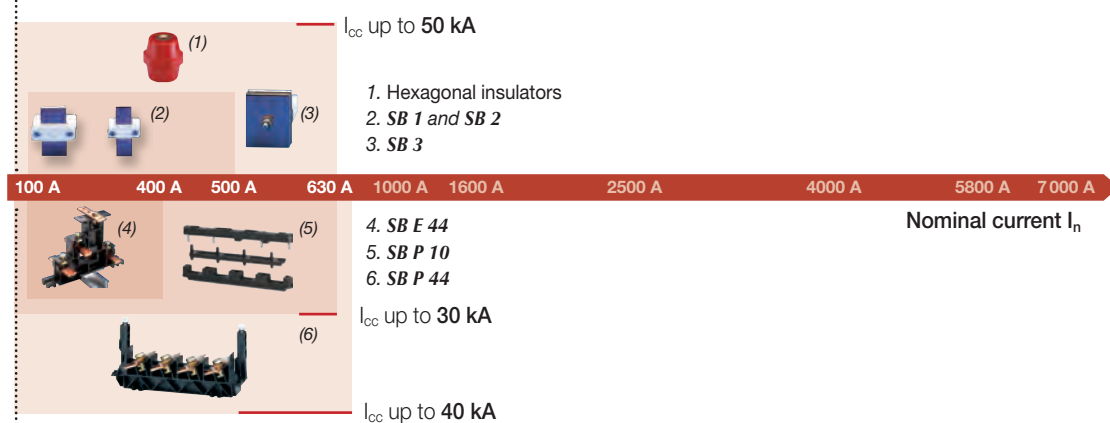
- **Unipolar** busbar supports



- **Multipolar** busbar supports

### Other supports

- **Unipolar** busbar supports



- **4 Pole** busbar supports

# Busbar supports

## Busbar

### SB C ER P multipolar edgewise mounting busbar supports with adjustable interphase

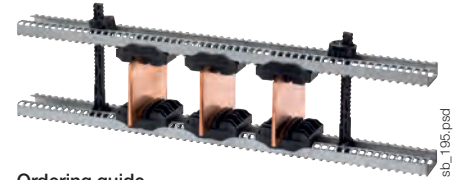
#### References

##### Complete busbar support

Designation	Thickness of bar (mm)	Width of bar (mm)	No. of bars	No. of poles	Reference
Complete support	10	480	1 ... 3	4	5025 5135

##### Insert

Designation	Thickness of bar (mm)	No. of bars	No. of poles	Quantity	To be ordered in multiples of	Reference
Insert for 5 mm bars	5	3	3 P	6 <sup>(1)</sup>	8	5025 5205
Insert for 5 mm bars	5	3	4 P	8 <sup>(1)</sup>	8	5025 5205
Insert for 10 mm bars	10	2	3 P	6 <sup>(1)</sup>	4	5025 5210
Insert for 10 mm bars	10	2	4 P	8 <sup>(1)</sup>	4	5025 5210
Insert for 10 mm bars	10	3	3 P	6 <sup>(1)</sup>	1	5025 5111
Insert for 10 mm bars	10	3	4 P	8 <sup>(1)</sup>	1	5025 5111



##### Ordering guide

- For three poles, order: 6 x inserts, 2 x studs, 2 x profiles.
- For four poles, order: 8 x inserts, 2 x studs, 2 x profiles.

##### Mounting accessories

Designation	Length (mm)	Quantity	To be ordered in multiples of	Reference
Stud kit (bar height 25 to 200 mm)		2 <sup>(1)</sup>	4	5025 5100
Stud kit metal (bar height 0 to 100 mm)		2	2	5025 5101
Stud kit metal (bar height 0 to 200 mm)		2	2	5025 5102
380 mm profile	380	2 <sup>(1)</sup>	4	5025 5124
480 mm profile	480	2 <sup>(1)</sup>	4	5025 5125
580 mm profile	580	2 <sup>(1)</sup>	4	5025 5126
780 mm profile	780	2 <sup>(1)</sup>	4	5025 5128
2 m profile	2000		4	5025 5120
Profile for Prisma enclosure <sup>(2)</sup>	525	1 <sup>(1)</sup>	1	5025 5130

(1) Quantity required for 1 busbar support inserts.

(2) Kit of 2 profiles and 4 brackets.

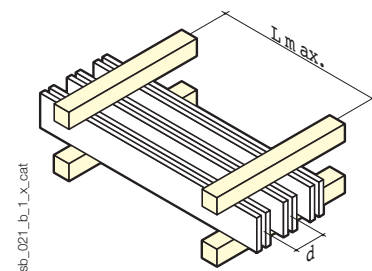
#### Characteristics

##### 5 mm inserts for up to 3 bars and 10 mm inserts for up to 2 bars

peak I <sub>sc</sub>	L max. (support bars in mm) for					d min. (mm)	I <sub>z</sub> (A) <sup>(1)</sup>
	82 kA	114 kA	152 kA	165 kA	187 kA		
rms I <sub>sc</sub>	39 kA	52 kA	69 kA	75 kA	85 kA		
Bar x qty							
50 x 5 x 1	500	325	175	150		75	600
50 x 5 x 2	500	325	175	150	100	75	1050
50 x 5 x 3	500	325	175	150	100	75	1450
63 x 5 x 1	525	350	200	175		75	700
63 x 5 x 2	525	350	200	175	125	75	1250
63 x 5 x 3	525	350	200	175	125	75	1800
80 x 5 x 1	525	350	200	175	125	75	900
80 x 5 x 2	525	350	200	175	125	75	1550
80 x 5 x 3	525	350	200	175	125	75	2200
100 x 5 x 1	550	375	225	200	175	75	1100
100 x 5 x 2	550	375	225	200	175	75	1900
100 x 5 x 3	550	375	225	200	175	75	2650
125 x 5 x 1	575	400	250	225	200	75	1300
125 x 5 x 2	575	400	250	225	200	75	2350
125 x 5 x 3	575	400	250	225	200	75	3250
80 x 10 x 1	1000	750	350	300	200	75	1300
80 x 10 x 2	1000	750	350	300	200	75	2300
100 x 10 x 1	1000	750	375	325	225	75	1550
100 x 10 x 2	1000	775	375	325	225	75	2750
125 x 10 x 1	1000	775	375	325	225	75	1900
125 x 10 x 2	1000	775	375	325	225	75	3350
160 x 10 x 1	1000	775	400	350	250	75	2350
160 x 10 x 2	1000	800	400	350	250	75	4150

(1) Admissible busbar nominal current with a temperature inside the panel of between 113°F and 176°F.

For other mounting configurations, please contact us.



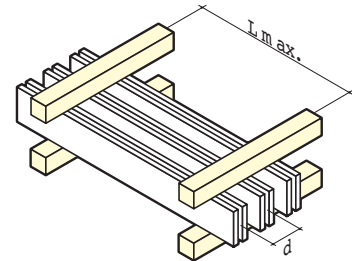
Adhering to the **maximum distance** between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.

## Characteristics (continued)

### 10 mm insert / 3 bars

peak $I_{sc}$	L max. (bar supports in mm)						d (mm)	Iz (A) <sup>(1)</sup>
	63 kA	82 kA	114 kA	152 kA	165 kA	187 kA		
rms $I_{sc}$	30 kA	39 kA	52 kA	69 kA	75 kA	85 kA		
Bar x qty								
50 x 10 x 1	1000	1000	650	250	200	150	70	850
50 x 10 x 2	1000	1000	650	250	200	150	70	1550
50 x 10 x 3	1000	1000	650	250	200	150	70	2150
63 x 10 x 1	1000	1000	675	275	225	175	70	1050
63 x 10 x 2	1000	1000	675	275	225	175	70	1850
63 x 10 x 3	1000	1000	675	275	225	175	70	2600
80 x 10 x 1	1000	1000	700	300	250	175	70	1300
80 x 10 x 2	1000	1000	700	300	250	175	70	2300
80 x 10 x 3	1000	1000	700	300	250	175	70	3200
100 x 10 x 1	1000	1000	725	325	275	175	70	1550
100 x 10 x 2	1000	1000	725	325	275	175	70	2750
100 x 10 x 3	1000	1000	725	325	275	175	70	3250
125 x 10 x 1	1000	1000	725	350	275	200	70	1900
125 x 10 x 2	1000	1000	725	350	275	200	70	3350
125 x 10 x 3	1000	1000	725	350	275	200	70	4650
160 x 10 x 1	1000	1000	750	350	300	200	70	2350
160 x 10 x 2	1000	1000	750	350	300	200	70	4150
160 x 10 x 3	1000	1000	750	350	300	200	70	5800

(1) Admissible busbar nominal current with a temperature inside the panel of between 113°F and 176°F.  
For other mounting configurations, please contact us.



Adhering to the **maximum distance** between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.

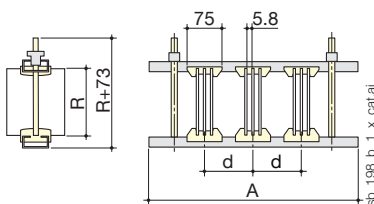
sb\_021\_b\_1\_x\_cat.eps

## Dimensions

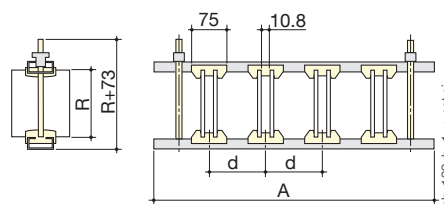
### Mounting

- 1 to 3 bars of 5 mm thickness, per phase.
- 1 to 3 bars of 10 mm thickness, per phase.
- Interphase distance: min. 70 mm and max. 200 mm.
- Use 2 studs positioned symmetrically on the extremity of the poles or between the outermost poles.

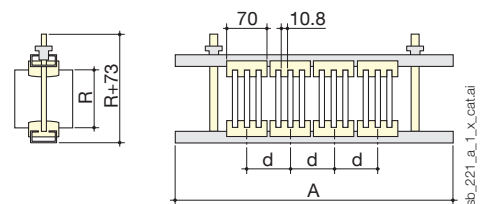
A (mm)	Enclosure (mm)
380	400
480	500
580	600
780	800



5 mm insert / 3 bars



10 mm insert / 2 bars



10 mm insert / 3 bars

# Busbar supports

## Busbar

### SB 205 - SB 306 unipolar flat mounting busbar supports

#### References

Support	Insulation voltage (VAC)	No. of bars	Bar width (mm)	To be ordered in multiples of	Reference
SB 205	1,000	1 - 3	100	6	5022 5110
SB 306	1,000	1 - 3	160	6	5023 6110

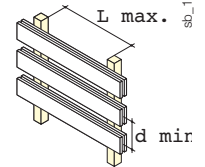
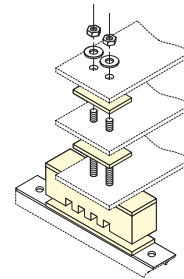


sb\_117.psd

#### Characteristics

Support	Bar x qty	L max. (support bars in mm) for						d min. (mm)	Iz (A) <sup>(1)</sup>	
		peak I <sub>sc</sub>	48 kA	63 kA	82 kA	114 kA	152 kA			165 kA
		rms I <sub>sc</sub>	23 kA	30 kA	39 kA	52 kA	69 kA			75 kA
SB 205	100 x 10 x 1	1000	1000	1000	1000	1000	1000	125	1550	
SB 205	100 x 10 x 2	1000	1000	1000	1000	1000	1000	125	2750	
SB 205	100 x 10 x 3	1000	1000	1000	1000	1000	1000	125	3850	
SB 306	160 x 10 x 1	1000	1000	1000	1000	1000	1000	175	2350	
SB 306	160 x 10 x 2	1000	1000	1000	1000	1000	1000	175	4150	
SB 306	160 x 10 x 3	1000	1000	1000	1000	1000	1000	175	5800	

(1) Admissible busbar nominal current with a temperature inside the panel of between 113°F and 176°F. For other mounting configurations, please contact us.

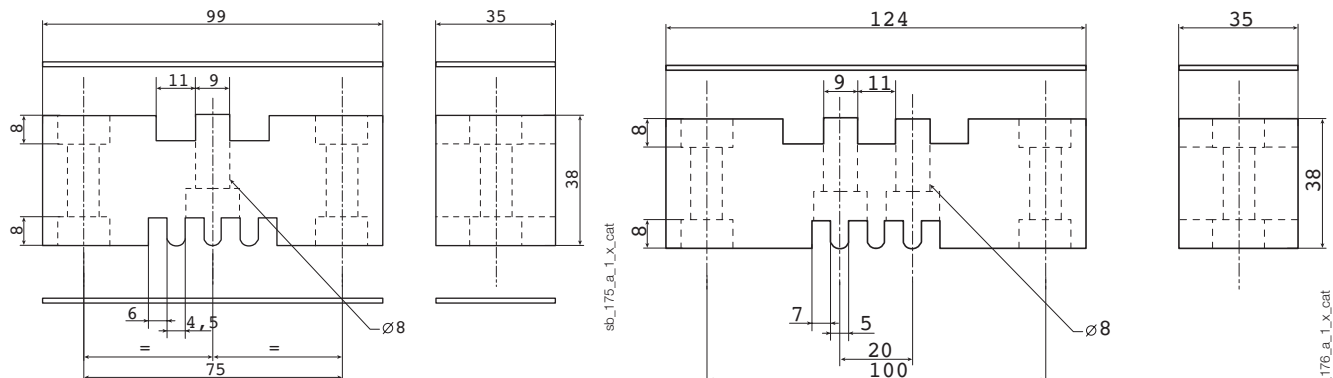


sb\_152\_a\_1\_x\_cat

#### Mounting

- SB 205: 1 to 3 bars of max. recommended width 100 mm.
- SB 306: 1 to 3 bars of max. recommended width 160 mm.

#### Dimensions



sb\_175\_a\_1\_x\_cat

sb\_176\_a\_1\_x\_cat

## ■ SB 7500 multipolar flat mounting busbar supports with fixed interphase

### References

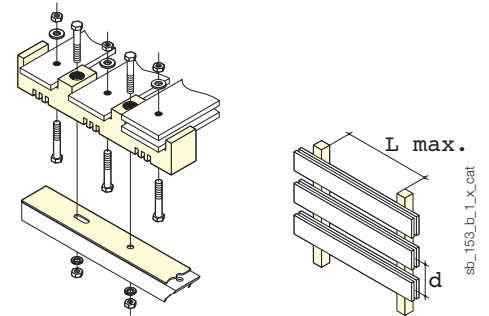
No. of poles	Insulation voltage (VAC)	Bar width (mm)	Pack qty	Reference
3 P	1,000	40 -50	1	5027 5310
4 P	1,000	40 -50	1	5027 5410



sb\_136.eps

### Characteristics

peak $I_{sc}$	L max. (support bars in mm) for						d (mm)	Iz (A)
	24 kA	48 kA	63 kA	82 kA	114 kA	152 kA		
rms $I_{sc}$	12 kA	23 kA	30 kA	39 kA	52 kA	69 kA		
Bar x qty								
50 x 5 x 1	1000	1000	950	725	525	450	75	600
50 x 5 x 2	1000	1000	1000	1000	975	850	75	1,050

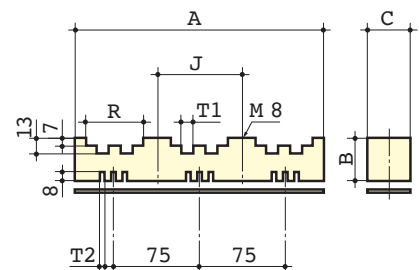


sb\_153\_b\_1\_x\_cat

Mounting: SB 7500: 1 to 2 bars of max. width 50 mm per pole. Fixed interphase of 75 mm.

### Dimensions

No. of poles	A	B	C	J	R	T <sub>1</sub>	T <sub>2</sub>
3 P	220	38	35	75	52.5	11	6
4 P	295	38	35	75	52.5	11	6



sb\_149\_a\_1\_x\_cat

# Busbar supports

## Busbar

### SB P 30 multipolar flat mounting busbar supports with fixed interphase

#### References

No. of poles	Insulation voltage (VAC)	Bar width (mm)	Pack qty	Reference
3 P	1000	50 -100	1	5023 0310
4 P	1000	50 -80	1	5023 0410

Mounting bracket Accessories	To be ordered in multiples of	Reference
2 mounting brackets for SB P 30	1	5024 9002

Bar fixing screws Accessories	To be ordered in multiples of	Reference
Grub screws for mounting 1 bar	25	5119 4601
Grub screws for mounting 2 bars back-to-back	25	5119 4602
Grub screws for mounting 3 back-to-back bars	25	5119 4603



sb\_123.eps



sb\_211\_a\_1\_cat

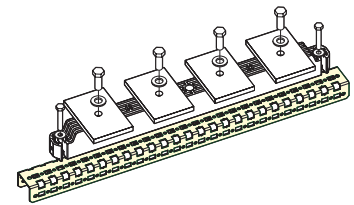


sb\_210\_a\_1\_cat

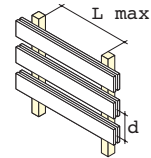
#### Characteristics

d = 123 mm

peak I <sub>sc</sub>	L max. (support bars in mm) for								d (mm)	Iz (A)
	63 kA	84 kA	110 kA	143 kA	165 kA	176 kA	187 kA	220 kA		
rms I <sub>sc</sub>	30 kA	40 kA	50 kA	65 kA	75 kA	80 kA	85 kA	100 kA		
<b>Bar x qty</b>										
50 x 5 x 1	1000	950	525	300	225	200	175	130	123	600
63 x 5 x 1	1000	925	525	300	225	200	175	130	123	700
80 x 5 x 1	1000	900	500	300	225	175	175	125	123	900
80 x 5 x 2	1000	900	500	300	225	175	175	125	123	1,550
50 x 10 x 1	1000	950	525	300	225	200	175	130	123	850
50 x 10 x 2	1000	975	525	300	225	200	175	135	123	1,550
63 x 10 x 1	1000	925	525	300	225	200	175	130	123	1,050
63 x 10 x 2	1000	950	525	300	225	200	175	130	123	1,850
80 x 10 x 1	1000	900	500	300	225	175	175	125	123	1,300
80 x 10 x 2	1000	925	500	300	225	200	175	125	123	2,300
80 x 10 x 3	1000	950	525	300	225	200	175	130	123	3,200



sb\_160\_a\_1\_x\_cat



sb\_200\_a\_1\_x\_cat

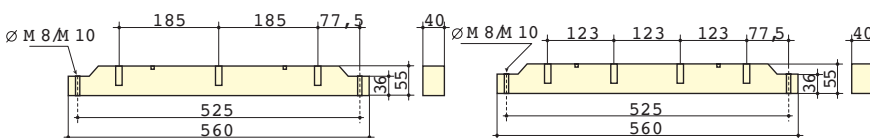
d = 185 mm

peak I <sub>sc</sub>	L max. (support bars in mm) for								d (mm)	Iz (A)
	63 kA	84 kA	110 kA	143 kA	165 kA	176 kA	187 kA	220 kA		
rms I <sub>sc</sub>	30 kA	40 kA	50 kA	65 kA	75 kA	80 kA	85 kA	100 kA		
<b>Bar x qty</b>										
50 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
63 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 5 x 2	1000	1000	800	475	350	300	275	200	185	
100 x 5 x 1	1000	1000	775	450	325	300	250	175	185	1100
100 x 5 x 2	1000	1000	775	450	325	300	250	175	185	1900
100 x 5 x 3	1000	1000	775	450	350	300	250	175	185	2650
50 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
50 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
63 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
63 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 3	1000	1000	800	475	350	300	275	200	185	
100 x 10 x 1	1000	1000	775	450	325	300	250	175	185	1550
100 x 10 x 2	1000	1000	775	450	350	300	250	175	185	2750
100 x 10 x 3	1000	1000	775	450	350	300	275	175	185	3850

#### Mounting

- 3 poles: 1 to 3 bars of max. width 100 mm per pole, fixed interphase of 185 mm
- 4 poles: 1 to 3 bars of max. width 80 mm per pole, fixed interphase of 123 mm

#### Dimensions



sb\_164\_c\_1\_x\_cat

## ■ Hexagonal insulators unipolar flat mounting busbar supports Female to female hexagonal insulator

### References

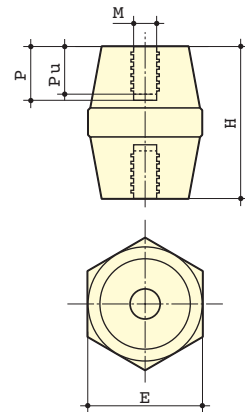
Height H (mm)	Threading M	Depth		Diameter E (mm)	Pack qty	Reference
		P (mm)	Pu (mm)			
20	M4	8	5.5	19	1	5031 2004
20	M6	8	5.5	19	1	5031 2006
25	M6	10	7	21	1	5031 2506
30	M6	10	7	33	1	5031 3006
30	M8	12	9	33	1	5031 3008
35	M6	12	9	33	1	5031 3506
35	M8	12	9	33	1	5031 3508
35	M10	12	9	33	1	5031 3510
40	M8	15	12	40	1	5031 4008
40	M10	15	12	40	1	5031 4010
45	M8	15	12	41	1	5031 4508
45	M10	15	12	41	1	5031 4510
50	M8	20	17	46	1	5031 5008
50	M10	20	17	46	1	5031 5010
50	M12	20	17	46	1	5031 5012
60	M10	20	17	50	1	5031 6010
65	M10	20	17	55	1	5031 6510
70	M12	25	21	55	1	5031 7012



sb\_104\_a\_2\_cat

### Characteristics

Height H (mm)	Threading	Voltage Nominal (V) AC/DC	Insulation voltage (VAC)		Mechanical characteristics (daN)		Tightening torque max. (Nm)
			50 Hz 1 min	Peak	Flexion	Traction	
20	M4	500	3000	5500	70	170	9
20	M6	500	3000	5500	100	190	8
25	M6	500	3000	5500	170	370	12
30	M6	1000	6000	11000	200	650	22
30	M8	1000	6000	11000	360	800	40
35	M6	1400	9000	16000	230	720	25
35	M8	1400	9000	16000	380	900	42
35	M10	1400	9000	16000	320	800	44
40	M8	2000	12000	21500	620	1200	50
40	M10	2000	12000	21500	620	1100	60
45	M8	2000	12000	21500	550	1200	55
45	M10	2000	12000	21500	550	1100	65
50	M8	2000	12000	21500	650	1800	60
50	M10	2000	12000	21500	650	1700	70
50	M12	2000	12000	21500	660	13000	130
60	M10	2400	12000	27000	560	1600	85
65	M10	2400	12000	27000	750	1600	90
70	M12	2400	12000	27000	750	1500	135



sb\_105\_c\_1\_x\_cat



# Busbar supports

## Busbar

### ■ Hexagonal insulators unipolar flat mounting busbar supports (continued) Male to female hexagonal insulator

#### References

Height H (mm)	Threading M	Depth		Diameter E (mm)	Length W (mm)	Pack qty	Reference
		P (mm)	Pu (mm)				
16	M4	6	5	14	26	1	5038 1604
16	M5	6	5	14	26	1	5038 1605
25	M5	10	7	20	35	1	5038 2505
25	M6	10	7	20	35	1	5038 2506
35	M8	12	9	32	50	1	5038 3508
35	M10	12	9	32	65	1	5038 3510
50	M8	15	17	46	75	1	5038 5008
50	M10	20	17	46	80	1	5038 5010
60	M10	20	17	50	85	1	5038 6010



sb\_106\_a\_2\_cat

### Male to male hexagonal insulator

#### References

Height H (mm)	Threading M	Depth		Diameter E (mm)	Length W (mm)	Pack qty	Reference
		P (mm)	Pu (mm)				
16	M4	6	5	14	26	1	5038 1604
16	M5	6	5	14	26	1	5038 1605
25	M5	10	7	20	35	1	5038 2505
25	M6	10	7	20	35	1	5038 2506
35	M8	12	9	32	50	1	5038 3508
35	M10	12	9	32	65	1	5038 3510
50	M8	15	17	46	75	1	5038 5008
50	M10	20	17	46	80	1	5038 5010
60	M10	20	17	50	85	1	5038 6010

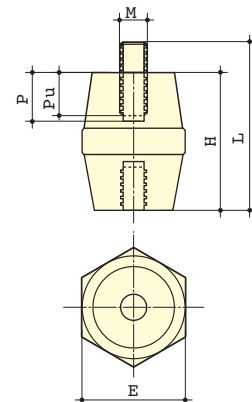


sb\_107\_a\_2\_cat

### Male to female and male to male hexagonal insulator

#### Characteristics

Height H (mm)	Threading	Voltage Nominal (V) AC/DC	Insulating voltage		Mechanical characteristics (daN)		Tightening torque max. (Nm)
			(VAC) 50 Hz 1 min	Peak	Flexion	Traction	
16	M4	500	3000	5500	100	150	3
16	M5	500	3000	5500	100	150	6
25	M5	500	3000	11000	180	400	6
25	M6	500	3000	11000	180	400	12
35	M8	1400	9000	16000	380	900	42
35	M10	1400	9000	16000	320	800	44
50	M8	2000	12000	21500	650	1800	60
50	M10	2000	12000	21500	650	1700	70
60	M10	2400	12000	27000	560	1600	85



sb\_068\_d\_1\_x\_cat

### Grub screw

#### References

Length (mm)	Thread	To be ordered in multiples of	Reference
20	M6	20	5032 2006
20	M8	20	5032 2008
25	M6	20	5032 2506
25	M8	20	5032 2508
30	M6	20	5032 3006
30	M8	20	5032 3008
40	M8	20	5032 4008
40	M10	20	5032 4010
50	M12	20	5032 5012



sb\_121\_a\_2\_cat

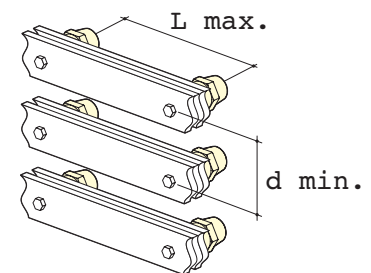
## Define your exact busbar

- > For your busbar, fitted with hexagonal insulators, to be mechanically resistant to a short-circuit, it must correspond to the table below.

Values according to IEC 61439-1.

## General characteristics

Height H (mm)	Threading	Bar x qty	L max. (support bars in mm) for						d min. (mm)	Iz (A) <sup>(1)</sup>
			peak I <sub>sc</sub>	24 kA	48 kA	63 kA	82 kA	114 kA		
			rms I <sub>sc</sub>	12 kA	23 kA	30 kA	39 kA	52 kA		
20	M4	15 x 5 x 1	400	100				45	220	
20	M4	20 x 5 x 1	400	100				45	280	
25	M6	15 x 5 x 1	550	135				45	220	
25	M6	20 x 5 x 1	525	135				45	280	
25	M6	25 x 5 x 1	575	145				50	330	
30	M6	15 x 5 x 1	675	165				45	220	
30	M6	20 x 5 x 1	650	165				45	280	
30	M6	25 x 5 x 1	725	175	105			50	330	
30	M8	15 x 5 x 1	850	250	155			45	220	
30	M8	20 x 5 x 1	1000	250	155			45	280	
30	M8	25 x 5 x 1	1000	275	170	100		50	330	
35	M6	15 x 5 x 1	700	175	100			45	220	
35	M6	20 x 5 x 1	675	170	100			45	280	
35	M6	25 x 5 x 1	750	175	110			50	330	
35	M8	15 x 5 x 1	850	275	160			45	220	
35	M8	20 x 5 x 1	1000	275	160			45	280	
35	M8	25 x 5 x 1	1000	300	175	105		50	330	
35	M8	32 x 5 x 1	1000	325	175	110		55	410	
35	M10	20 x 5 x 1	850	200	125			45	280	
35	M10	25 x 5 x 1	950	225	135			50	330	
35	M10	32 x 5 x 1	1000	250	150			55	410	
40	M8	20 x 5 x 1	1000	325	175	110		45	280	
40	M8	25 x 5 x 1	1000	350	200	125		50	330	
40	M8	32 x 5 x 1	1000	375	225	135		55	410	
40	M10	20 x 5 x 1	1000	325	175	110		45	280	
40	M10	25 x 5 x 1	1000	350	200	125		50	330	
40	M10	32 x 5 x 1	1000	375	225	135		55	410	
45	M8	25 x 5 x 1	1000	425	250	150		50	330	
45	M8	32 x 5 x 1	1000	475	275	170		55	410	
45	M8	50 x 5 x 1	1000	625	350	200	110	75	600	
45	M10	25 x 5 x 1	1000	425	250	145		50	330	
45	M10	32 x 5 x 1	1000	450	250	160		55	410	
45	M10	50 x 5 x 1	1000	600	350	200	110	75	600	
50	M8	25 x 5 x 1	1000	450	250	155		50	330	
50	M8	32 x 5 x 1	1000	475	275	170		55	410	
50	M8	50 x 5 x 1	1000	650	375	225	115	75	600	
50	M10	32 x 5 x 1	1000	525	300	175		55	410	
50	M10	50 x 5 x 1	1000	700	400	225	125	75	600	
60	M10	50 x 5 x 1	1000	700	400	225	125	75	600	
65	M10	50 x 5 x 1	1000	775	450	250	135	75	600	



sb\_164\_a\_1\_x\_cat

(1) Admissible busbar nominal current with a temperature inside the panel of between 113°F and 176°F.  
For other mounting configurations, please contact us.

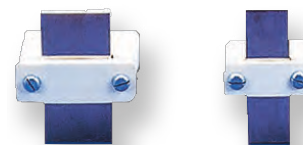
# Busbar supports

## Busbar

### SB 1 - SB 2 multipolar flat mounting busbar supports

#### References

Support	Insulation voltage (VAC)	No. of bars	Bar width (mm)	To be ordered in multiples of	Reference
SB 1	690	1	20 -25	6	5021 0110
SB 2	690	1	32 -40	6	5022 0110



sb\_108.psd

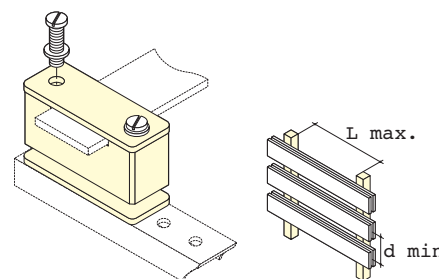
#### Ordering guide

SB 1: bar of max. width 25 mm  
SB 2: bar of max. width 40 mm

#### Characteristics

Support	Bar x qty	L max. (support bars in mm) for					d min. (mm)	Iz (A) <sup>(1)</sup>	
		peak I <sub>sc</sub>	24 kA	48 kA	63 kA	82 kA			114 kA
		rms I <sub>sc</sub>	12 kA	23 kA	30 kA	39 kA			52 kA
SB 1	20 x 3 x 1	650	325	250	175	135	50	210	
SB 1	20 x 5 x 1	850	425	325	250	175	50	280	
SB 1	25 x 5 x 1	1000	525	400	300	200	50	330	
SB 2	32 x 5 x 1	1000	750	575	450	300	70	410	
SB 2	40 x 5 x 1	1000	950	700	550	400	70	500	

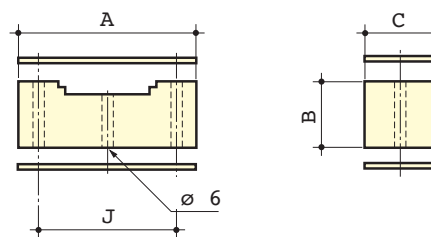
(1) Admissible busbar nominal current with a temperature inside the panel of between 113°C and 176°C. For other mounting configurations, please contact us.



sb\_150\_a\_1\_x\_cat

#### Dimensions

Support	A	B	C	J
SB 1	50	23	20	34
SB 2	68	23	23.5	50



sb\_014\_c\_1\_x\_cat

## SB 3 multipolar flat mounting busbar supports

### References

Support	Insulation voltage (VAC)	No. of bars	Bar width (mm)	To be ordered in multiples of	Reference
SB 3 without screws	690	1 - 2	32 -63	6	5023 0111
SB 3 with screws <sup>(1)</sup>	690	1 - 2	32 -63	6	5023 0110

(1) SB 3 bars and with screws.



sb\_118.eps

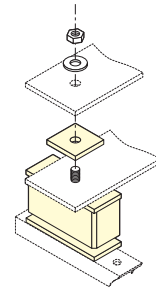
#### Ordering guide

SB 3: 1 to 2 bars of max. recommended width 63 mm.

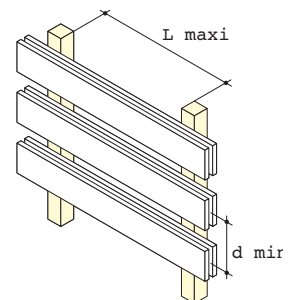
### Characteristics

peak I <sub>sc</sub>	L max. (support bars in mm) for					d min. (mm)	Iz (A) <sup>(1)</sup>
	24 kA	48 kA	63 kA	82 kA	114 kA		
rms I <sub>sc</sub>	12 kA	23 kA	30 kA	39 kA	52 kA		
Bar x qty							
32 x 5 x 2	1000	1000	925	700	500	70	580
40 x 5 x 2	1000	1000	1000	1000	1000	70	700
50 x 5 x 2	1000	1000	1000	925	675	75	850
63 x 5 x 2	1000	1000	1000	1000	1000	85	1000

(1) Admissible busbar nominal current with a temperature inside the panel of between 113°F and 176°F. For other mounting configurations, please contact us.



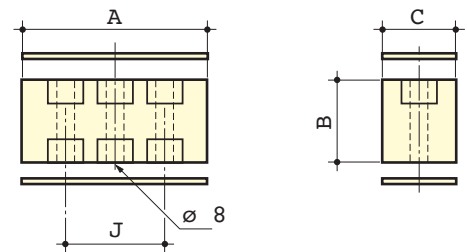
sb\_008\_a\_1\_x\_cat



sb\_023\_b\_1\_fr\_cat

### Dimensions

Support	A	B	C	J
SB 3 without screws	65	32	28	36
SB 3 with screws	65	32	28	36



sb\_089\_b\_1\_x\_cat

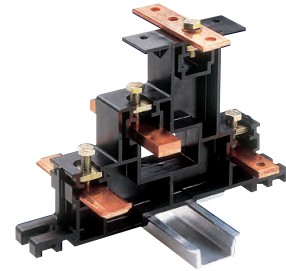
# Busbar supports

## Busbar

### SB E 44 four pole stair type supports

#### References

No. of poles	Pack qty	Reference
4 P	1	5028 0410
Accessories	Pack qty	Reference
270 mm long protection screen kit	1	5028 0411
420 mm long protection screen kit	1	5028 0412
620 mm long protection screen kit	1	5028 0413
Set of 20 protection screen adaption spacers	1	5028 0415



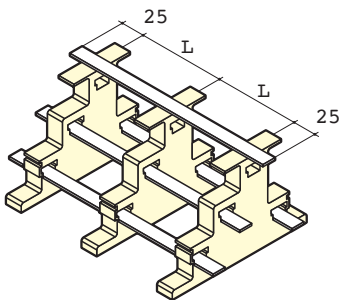
sb\_038.eps

#### Characteristics

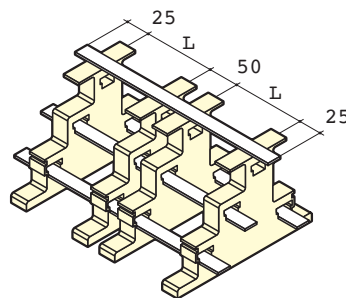
Support	Bar x qty	L max. (support bars in mm) for						Iz (A) <sup>(1)</sup>	
		peak I <sub>sc</sub>	10 kA	15 kA	24 kA	38 kA	48 kA		63 kA
		rms I <sub>sc</sub>	6 kA	9 kA	12 kA	19 kA	23 kA		30 kA
Type 1	15 x 3 x 1	950	625	400	250	175		160	
Type 1	15 x 5 x 1	1000	825	500	300	175		220	
Type 1	15 x 6 x 1	1000	900	550	300	200		250	
Type 1	15 x 8 x 1	1000	1000	650	300	200		290	
Type 1	20 x 3 x 1	1000	825	525	300	175		210	
Type 1	20 x 5 x 1	1000	1000	675	300	175		280	
Type 1	20 x 6 x 1	1000	1000	750	300	175		310	
Type 1	20 x 8 x 1	1000	1000	775	300	175		370	
Type 1	32 x 5 x 1	1000	1000	675	250	170		410	
Type 1	32 x 6 x 1	1000	1000	675	250	170		460	
Type 2	15 x 3 x 1	950	625	400	250	200	150	160	
Type 2	15 x 5 x 1	1000	825	500	325	250	175	220	
Type 2	15 x 6 x 1	1000	900	550	350	275	200	250	
Type 2	15 x 8 x 1	1000	1000	650	400	325	225	290	
Type 2	20 x 3 x 1	1000	825	525	325	250	200	210	
Type 2	20 x 5 x 1	1000	1000	675	425	325	225	280	
Type 2	20 x 6 x 1	1000	1000	750	450	375	225	310	
Type 2	20 x 8 x 1	1000	1000	850	525	375	225	370	
Type 2	32 x 5 x 1	1000	1000	1000	525	325	175	410	
Type 2	32 x 6 x 1	1000	1000	1000	525	325	175	460	

(1) Admissible busbar nominal current with a temperature inside the panel of between 113°F and 176°F.  
For other mounting configurations, please contact us. **N.B.:** Iz indicated is for a solid (undrilled) busbar.

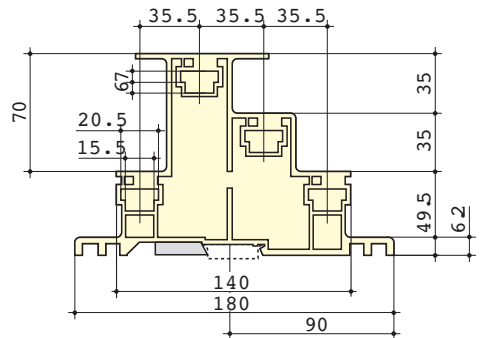
#### Dimensions



sb\_041\_b\_1\_x\_cat



sb\_047\_a\_1\_x\_cat



sb\_036\_e\_1\_x\_cat

Type 1: Busbars including 3 (or more) equally spaced SB E 44 supports.

Type 2: Busbars with 3 (or more) SB E 44 supports with doubled intermediary supports.

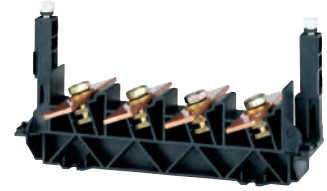
Mounting with elliptical holes: 150 to 170 mm.

■ **SB P 44** four pole flat mounting busbar support with fixed interphase, for mounting angled bars

## References

No. of poles	Insulation voltage (VAC)	Bar width (mm)	Pack qty	Reference
4 P	1,000	20 -32	1	5026 0450

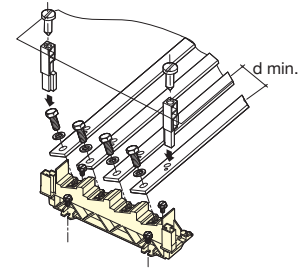
SB P 44: 1 bar of 5 or 10 mm thickness with a width of 20, 25, 30 or 32 mm.  
Please note: protection cover not supplied.



sb\_170.psd

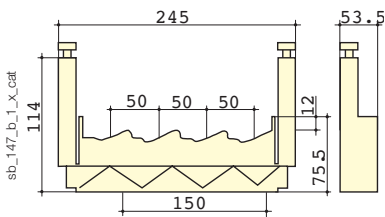
## Characteristics

peak $I_{sc}$	L max. (support bars in mm) for						d min. (mm)	Iz (A)	
	10 kA	15 kA	24 kA	48 kA	63 kA	82 kA			
rms $I_{sc}$	6 kA	9 kA	12 kA	23 kA	30 kA	39 kA			
Bar x qty									
20 x 5 x 1	1000	1000	800	350	200	125	50	280	
25 x 5 x 1	1000	1000	1000	350	200	125	50	330	
32 x 5 x 1	1000	1000	1000	350	200	120	50	390	
25 x 10 x 1	1000	1000	1000	350	200	125	50	500	
30 x 10 x 1	1000	1000	1000	350	200	120	50	580	
32 x 10 x 1	1000	1000	1000	350	200	120	50	610	



sb\_165\_c\_1\_x\_cat

## Dimensions



sb\_147\_b\_1\_x\_cat

# Enclosed disconnect solutions

## Enclosed disconnect switches

Enclosed non-fusible disconnect switches, fusible switches & transfer switches



**UL / NEMA 3R/12**  
Painted steel  
p. 209



**UL / NEMA 4, 4X**  
Fiberglass  
p. 209



**UL / NEMA 4, 4X**  
Stainless steel (304)  
p. 209



**UL / NEMA 1, 3, 3R, 12, 4, 4X**  
Polycarbonate  
p. 209



Enclosed disconnect solutions

# Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches & transfer switches up to 1200 A



UL / NEMA 1, 3, 3R, 12, 4, 4X  
Polycarbonate  
Ref. 2214 3503

coff-ul\_008.eps



UL / NEMA 4, 4X  
Fiberglass  
Ref. 221E 3903

coff-ul\_004.psd



UL / NEMA 4, 4X  
Stainless steel  
Ref. 221X 3903

coff-ul\_034.eps



UL / NEMA 3R, 12  
Painted steel  
Ref. 30VC 3003

coff-ul\_032.psd

## The solution for

- > OEM/Machine Builders
- > Industrial Control Panels Manufacturers
- > Switchboard Manufacturers (UL 891)
- > Distributors



## Strong points

Suitable for use as:

- > Manual motor controller
- > OSHA Lockout/Tagout disconnects
- > Safety switches
- > Emergency power electrical installations

## Conformity to standards<sup>(1)</sup>

- > cULus 508A
- > UL 60947-4-1\*  
CSA-C22.2 No. 14  
Guide NLRV  
File E173959
- > UL 489  
CSA-C22.2 No. 5  
File E255272
- > UL 98  
CSA-C22.2 No. 4  
Guide WHTY  
File E201138
- > UL 1008  
Guide WPYV  
File E317092
- > CSA-C22.2 No. 4  
Class 4651-02  
File 112964
- > CSA-C22.2 No. 5  
Class 4652-06  
File 112964
- > CSA-C22.2 No. 14  
Class 3211-05  
File 112964



<sup>(1)</sup>replaces UL 508

## Function

Enclosed disconnect switches range are used as:

- The NEC required motor disconnect upstream from the motor.
- Main disconnecting means, fusible and non-fusible.
- OSHA Lock Out / Tag Out devices to isolate a load for maintenance, service or repair.
- Transferring low voltage circuits on load.

## Advantages

### A flexible range

- Designed for normal as well as difficult or harsh environments (wash down, mechanical impacts, corrosion...).
- UL / NEMA rated enclosures up to 1, 3R, 12, 4, 4X.
- Metallic and nonmetallic enclosures.
- Compact design.
- For applications up to 1200 A.

### High switching performance, simple wiring

- High short-circuit rating.
- Reliable switching technology.
- Large terminals.

### Robust and ergonomic handle

- Red/Yellow handle (available in black).
- Painted steel enclosure are equipped with heavy duty handle with metallic padlock hasp.
- Clear On - Off positions indication.
- 3 padlocks capability.
- Door interlocking in ON position and padlocked in OFF position.
- Defeatable door interlock in ON position. (The interlocking is automatically reactivated when the door is closed, except for polycarbonate boxes up to 60A).



# Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches  
up to 1200 A

## Applications and range overview



Heavy duty industry



Food and beverage processing



Machinery and safety



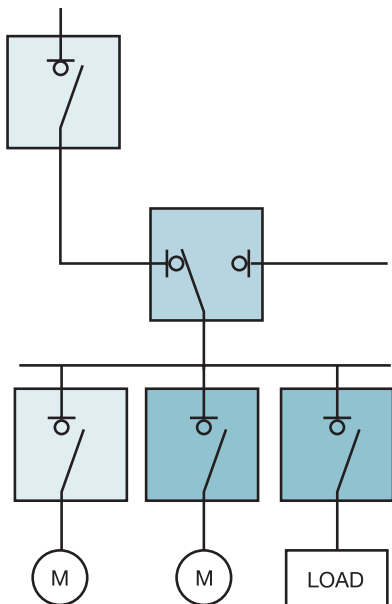
site\_824\_aepps



site\_712\_aepps



corpo\_207\_aepps



conf\_486\_aepps

	Rating (A)	Switch	Enclosure	UL / NEMA
<b>Service Entrance Disconnect or Branch Disconnect</b>	100 A non-fusible	SIRCO M (UL 98)	Polycarbonate	1, 3, 3R, 12, 4, 4X
			Fiberglass	4, 4X
			Stainless steel	4, 4X
<b>Transfer switch</b>	Up to 1200 A non-fusible	SIRCO (UL 98)	Painted steel	3R, 12
	Up to 800 A fusible	FUSERBLOC (UL 98)		
<b>Manual motor Disconnect</b>	Up to 400 A non-fusible	SIRCOVER (UL 1008)	Painted steel	3R, 12
	Up to 1200 A non-fusible	SIRCOVER (UL 98)		
<b>Manual motor Disconnect</b>	Up to 60 A non-fusible	SIRCO M (UL 60947-4-1) <sup>(1)</sup>	Painted steel	3R, 12
			Polycarbonate	1, 3, 3R, 12, 4, 4X
			Fiberglass	4, 4X
			Stainless steel	4, 4X

(1) Meets the requirements of the standard UL 508.





# Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches  
up to 1200 A

## References

### Non-fusible disconnect switch, suitable for use as motor disconnect and service entrance disconnect

UL / NEMA enclosure, 3-pole, 600 VAC, non-fusible

					
Approvals	Rating (A)	UL / NEMA 3R, 12 <sup>(2)</sup> <b>Painted steel</b> color ANSI 61 gray	UL / NEMA 1, 3R, 12, 4, 4X <b>Fiberglass</b> color RAL 7035 light-gray	UL / NEMA 1, 3R, 12, 4, 4X <b>Stainless steel (304)</b> brushed finish	UL / NEMA 1, 3, 3R, 12, 4, 4X <b>Polycarbonate</b> color RAL 7035 light-gray
cULus 60947-4-1	30 <sup>(1)</sup>	221M <b>3703</b>	221E <b>3903</b>	221X <b>3903</b>	2214 <b>3503</b>
	60 <sup>(1)</sup>	222M <b>3706</b>	222E <b>3906</b>	222X <b>3906</b>	2224 <b>3506</b>
cULus 508A	100	30UC <b>3010</b>	30UL <b>3010</b>	30UF <b>3010</b>	30UJ <b>3010</b>
	200	30UC <b>3020</b>	-	-	-
	400	30UC <b>3040</b>	-	-	-
	600	30UC <b>3060</b>	-	-	-
	800	30UC <b>3080</b>	-	-	-
1200	30UC <b>3120</b>	-	-	-	

(1) Suitable for motor disconnect.

(2) Handle with metallic padlocking hasp.

(3) UL 98.

(4) 30 A in large 60 A enclosure.

## Accessories sold separately

Rating (A)	Auxiliary contacts	Unswitched neutral pole	Switched fourth pole	Terminal shrouds / screens	
				3 P	1 P
30	1 AC NO + NC 2299 <b>0001</b> <sup>(6)</sup>	2200 <b>5005</b>	2200 <b>1003</b>	2294 <b>3005</b> <sup>(2)</sup>	2294 <b>1005</b> <sup>(2)</sup>
60		2200 <b>5009</b>	2200 <b>1006</b> <sup>(1)</sup>	2294 <b>3009</b> <sup>(2)</sup>	2294 <b>1009</b> <sup>(2)</sup>
100	1 AC 2 NC 2299 <b>0011</b> <sup>(6)</sup>	2200 <b>5011</b>	2200 <b>1010</b>	2294 <b>3016</b> <sup>(2)</sup>	2294 <b>1011</b> <sup>(2)</sup>
200	1 <sup>st</sup> AC NO + NC 2799 <b>0021</b>	30AC <b>0102</b> <sup>(7)</sup>	-	2798 <b>3021</b> <sup>(3)</sup> 2798 <b>8021</b> <sup>(4)</sup>	
400		30AC <b>0104</b> <sup>(7)</sup>		2798 <b>3041</b> <sup>(3)</sup> 2798 <b>8041</b> <sup>(4)</sup>	
600	2 <sup>nd</sup> AC NO + NC 2799 <b>0022</b>	30AC <b>0106</b> <sup>(7)</sup>	-	2798 <b>3060</b> <sup>(5)</sup>	
800		30AC <b>0108</b> <sup>(7)</sup>		2798 <b>3120</b> <sup>(5)</sup>	
1200					

(1) Not UL.

(2) Top or bottom.

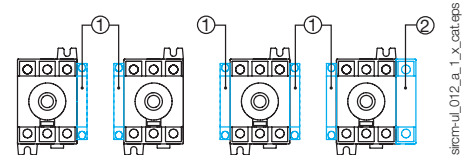
(3) Top.

(4) Bottom.

(5) Load side screen, the line side is included with the switch.

(6) Not UL only for rating 100 A.

(7) UL components



Configuration of the auxiliary contacts for enclosed SIRCO M.  
1. M type auxiliary contacts.  
2. Additional pole.

sircm-ul\_012\_a\_1\_x\_cdt.eps


# Enclosed disconnect switches





Non-fusible disconnect switches, fusible disconnect switches and transfer switches  
up to 1200 A

## Fusible disconnect switch, fuse class CC, J and L suitable for use as motor disconnect and service entrance disconnect

UL / NEMA enclosure, 3-pole, 600 VAC, fusible<sup>(1)</sup>

Accessories sold separately

			
Approvals	Rating (A)	Fuse type	UL / NEMA 3R, 12 <sup>(2)</sup> Painted Steel color ANSI 61 gray
cULus 508A	30	CC	30VC 3A03
	30	J	30VC 3003
	60		30VC 3006
	100		30VC 3010
	200		30VC 3020
	400		30VC 3040
	600	30VC 3060	
800	L	30VC 3080	

			
Unswitched neutral pole	Class T fuses adapter	U-type auxiliary contacts	Terminal shrouds / screens
-	-	1 AC NO 3999 0701	As standard
-	-		
-	-	1 AC NC 3999 0702	3898 3020 <sup>(3)</sup> 3898 3040 <sup>(3)</sup> 3898 3080 <sup>(4)</sup>
30AC 0102	3729 8010		
	3729 8020		
30AC 0104	3729 8040		
30AC 0106	3729 8060		
30AC 0108	3729 8080		

(1) Fuses not included.

(2) Handle with metallic padlocking hasp.


(3) Top or bottom.




(4) Load side screen, the line side is included with the switch.

## Transfer switch

UL / NEMA enclosure, 3-4 poles, 600 V, non-fusible

Accessories sold separately

			
Approvals	Rating (A)	UL / NEMA 3R, 12 <sup>(1)</sup> Painted Steel color ANSI 61 gray	
		3 P	4 P
UL 1008	100	30WC 3010	30WC 4010
	200	30WC 3020	30WC 4020
	400	30WC 3040	30WC 4040
cULus 508A	600	30WC 3060	30WC 4060
	800	30WC 3080	30WC 4080
	1200	30WC 3120	30WC 4120

			
Unswitched neutral pole	Auxiliary contacts	3 P	4 P
30AC 0102	1 AC NO/NC on position 1 and 2 4159 0021	4158 3021	4158 4021
30AC 0104		4158 3041	4158 4041
30AC 0106	NO/NC on position 1 and 2 As standard	1609 3063	1609 4063
30AC 0108		1609 3080	1609 4080
30AC 0112			

(1) Handle with metallic padlocking hasp.

# Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches  
up to 1200 A

## Characteristics

Non-fusible disconnect switch - Characteristics according to UL 60947-4-1, UL 98 and CSA-C22.2 No. 4 and No. 14

General use rating (A)	Motor disconnect			Service disconnect, non-fusible				
	30	60	100	200	400	600	800	1200
Short circuit at 600 VAC (kA)	65	50/65	25 (100)	200	200	200	100	100
Type of fuse	J	J	J	J	J	J	L	L
Max rating (A)	30	100/60	100	200	400	600	800	1200
Max. motor hp / FLA 3 ph motor max.								
208 VAC	7.5 / 24.2	15 / 46.2	-	-	-	-	-	-
220-240 VAC	7.5 / 22	20 / 54	20 / 54	75 / 192	125 / 312	200 / 480	200 / 480	200 / 480
440-480 VAC	20 / 27	40 / 52	50 / 65	150 / 180	250 / 302	400 / 477	500 / 590	500 / 590
600 VAC	25 / 27	40 / 41	50 / 52	200 / 192	350 / 336	350 / 336	500 / 472	500 / 472
Connection terminals								
Min. connection section / AWG	#14 - #14	#14 - #1	#12 - #10	#6 - 300MCM	#2 - 600MCM	#2 - 600MCM	#2 - 600MCM	#2 - 600MCM
Max. connection section / AWG	2x (#14 - #12)	2x (#10 - #6)	-	-	2x (#6-350MCM)	2x (#2-600MCM)	4x (#2-600MCM)	4x (#2-600MCM)
Mechanical characteristics								
Endurance (number of cycles)	10 000	10 000	10 000	8 000	6 000	6 000	3 500	3 500
Operating torque (lbs.in/Nm)	7 / 0.8	8.9 / 1	12.4 / 1.4	88.5 / 10	128.3 / 14.5	327.5 / 37	442.5 / 50	442.5 / 50
Auxiliary contacts								
Electrical characteristics	A300	A300	A300	A300	A300	A600	A600	A600

Fusible disconnect switch - Characteristics according to UL 489, UL 98 and CSA-C22.2 No. 4

General use rating (A)	30 <sup>(1)</sup>	30	60	100	200	400	600	800
Short circuit at 600 VAC (kA)	100	100	200	200	200	200	200	200
Type of fuse	CC	J	J	J	J	J	J	L
Max rating (A)	30	30	60	100	200	400	600	800
Max. motor hp / FLA 3 ph motor max.								
220-240 VAC	7.5 / 22	7.5 / 22	15 / 42	30 / 80	60 / 154	125 / 312	200 / 480	200 / 480
440-480 VAC	15 / 21	15 / 21	30 / 40	60 / 77	125 / 156	250 / 302	500 / 590	500 / 590
600 VAC	20 / 22	20 / 22	50 / 52	75 / 77	150 / 144	350 / 336	500 / 472	500 / 472
Connection terminals								
Min. connection section / AWG	#14 - #10	#14 - #10	#10 - #6	#10 - 2/0	#6 - 300MCM	#2 - 600MCM	#2 - 600MCM	#2 - 600MCM
Max. connection section / AWG	-	-	-	-	-	2x (#6-350MCM)	2x (#2-600MCM)	2x (#2-600MCM)
Mechanical characteristics								
Endurance (number of cycles)	10 000	10 000	10 000	10 000	8 000	6 000	5 000	5 000
Operating torque (lbs.in/Nm)	31 / 3.5	31 / 3.5	71 / 8	71 / 8	90 / 10.2	150 / 17	586 / 66.2	586 / 66.2
Auxiliary contacts								
Electrical characteristics	A600	A600	A600	A600	A600	A600	A600	A600

(1) UL 489.

# Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches  
up to 1200 A

## Transfer switch - Characteristics according to UL 98, UL 1008 and CSA-C22.2 No. 4

General use rating (A)	100 A	200 A	260 A	400 A	600 A	800 A	1200 A
<b>Frame size</b>	<b>B4</b>		<b>B5</b>		<b>B6</b>	<b>B7</b>	
Operation voltage 2 P - 3/4 P	240/600	240/600	240/600	240/600	-/600	-/600	-/600
<b>Short circuit rating at 600 VAC with fuses (kA)</b>							
Short circuit rating at 600 VAC (kA)	100	100	65	65	200	100	100
Type of fuse	J	J	J	J	J	L	L
Max fuse rating (A)	200	400	600	600	600	800	1200
<b>Short circuit rating at 600 VAC with "Specific Circuit Breaker" (kA)</b>							
Square D JJ breaker 250 A - 2 P 240 VAC - 3/4 P 480 VAC	65	65	-	-	-	-	-
Schneider Electric NSX-F 160 A - 3/4 P 480 VAC	35	-	-	-	-	-	-
<b>Short circuit rating at 600 VAC with "Any Breaker" (kA)</b>							
Short circuit rating (kA)	10	10	14	14	35	35	35
Short circuit capacity (ms)	25	25	50	50	50	50	50
<b>Rated operational current</b>							
240 VAC "Total System" (A)	100	200	260	400	480	-	-
240 VAC resistive load (A)	100	200	260	400	480	-	-
480 VAC "Total System" (A)	100	100	260	400	477	-	-
480 VAC resistive load (A)	100	200	260	400	477	-	-
600 VAC "Total System" (A)	100	100	200	200	500	-	-
600 VAC resistive load (A)	100	200	260	400	500	-	-
<b>Mechanical endurance</b>							
Endurance (number of operating cycles)	6050	6050	6050	4050	5000	3500	2500
<b>Connection terminals</b>							
Min. connection section / AWG	#6	#6	#4 / 2 X 1 / 0	#4 / 2 X 1 / 0	-	-	-
Max. connection section / AWG	300MCM	300MCM	600MCM / 2 X 250MCM	600MCM / 2 X 250MCM	-	-	-

# Enclosed disconnect switches

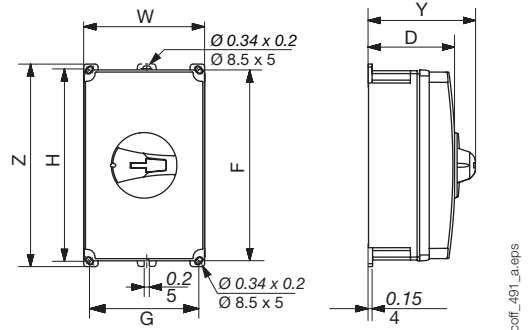
Non-fusible disconnect switches, fusible disconnect switches and transfer switches  
up to 1200 A

## Dimensions (in/mm)

UL / NEMA enclosure 1, 3, 3R, 12, 4, 4X - polycarbonate

Non-fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	Y	Z	Weight (lbs)
0 ... 30	in	5.9	3.9	3.62	0	6	4.37	6.38	4.4
	mm	150	99	92	0	152.5	111	162	
0 ... 60	in	7.8	4.94	3.62	4.45	7.32	4.37	8.27	6.6
	mm	198	125.5	92	113	186	111	210	
0 ... 100	in	11.81	8.27	5.35	7.44	9.37	7.12	11.81	9
	mm	300	210	136	189	238	181	300	

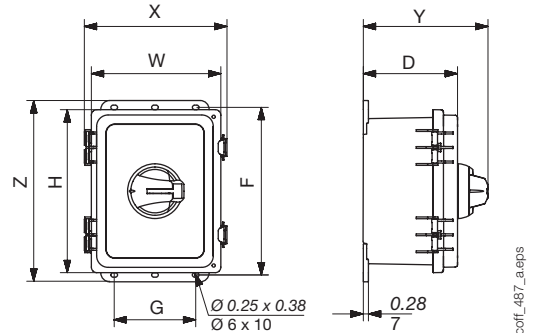


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UL / NEMA enclosure 1, 3R, 12, 4, 4X - fiberglass

Non-fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
0 ... 30	in	7.12	7.24	5.27	4.56	7.36	7.99	6.97	8.15	4.4
	mm	181	184	134	116	187	203	177	207	
0 ... 60	in	9.13	7.24	5.27	4.56	9.37	7.99	6.97	10.16	6.6
	mm	232	184	134	116	238	203	177	258	
0 ... 100	in	12.08	11.23	7.28	8.56	13.34	12.05	8.97	14.08	11
	mm	307	285	185	217	339	306	228	358	

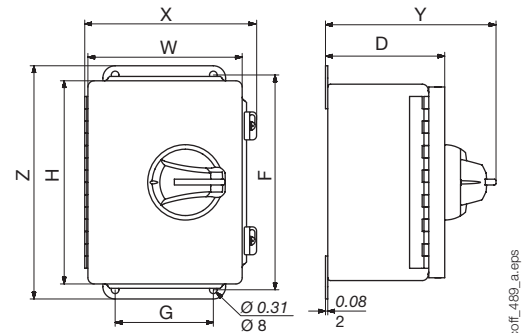


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UL / NEMA enclosure 1, 3R, 12, 4, 4X - stainless steel (grade 304)

Non-fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
0 ... 30	in	6.29	6.26	4.84	4	6.75	6.97	6.38	7.50	4.4
	mm	159	159	123	102	171	177	162	191	
0 ... 60	in	8.26	6.26	4.84	4	8.75	6.97	6.38	9.50	6.6
	mm	210	159	123	102	222	177	162	241	
0 ... 100	in	12	10	6	8	12.75	11	8.4	13.5	12
	mm	305	254	152	203	324	280	213	343	



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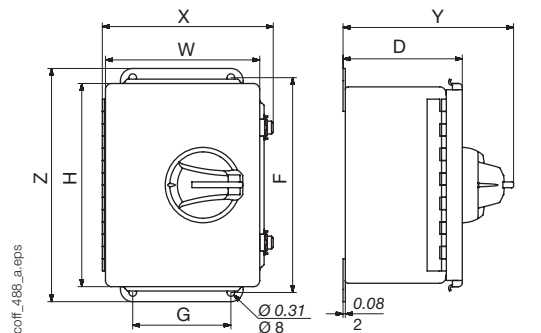
UL / NEMA enclosure 1, 3R, 12 - painted steel

Non-fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
0 ... 30	in	6.0	6.0	4.8	4.0	6.8	6.9	6.6	7.5	6
	mm	152.4	152.4	120.7	101.6	171.5	176.3	167.6	190.5	
0 ... 60	in	8.0	6.0	4.8	4.0	8.8	6.9	6.6	9.5	7
	mm	203.2	152.4	120.7	101.6	222.3	176.3	167.6	241.3	
0 ... 100	in	12.0	10.0	6.8	8.0	12.8	10.9	8.6	13.5	16
	mm	304.8	254.0	171.5	203.2	323.9	277.9	218.4	342.9	

Fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
0 ... 30	in	10.0	8.0	6.8	6.0	10.8	8.9	8.8	11.5	11
	mm	254.0	203.2	171.5	152.4	273.1	227.1	223.5	292.1	
0 ... 60	in	12.0	10.0	8.8	8.0	12.8	10.9	10.4	13.5	18
	mm	304.8	254.0	222.3	203.2	323.9	277.9	264.2	342.9	
0 ... 100	in	14.0	12.0	8.8	10.0	14.8	12.9	10.4	15.5	24
	mm	355.6	304.8	222.3	254.0	374.7	328.7	264.2	393.7	



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# Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches  
up to 1200 A

UL / NEMA enclosure 1, 3R, 12 - painted steel

## Non-fusible disconnect switch > 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
200	in	24.0	16.0	6.8	14.0	24.8	16.9	8.6	25.5	80
	mm	609.6	406.4	171.5	355.6	628.7	430.3	218.4	647.7	
400	in	30.0	20.0	10.8	18.0	30.8	20.9	12.6	31.5	115
	mm	762.0	508.0	273.1	457.2	781.1	531.9	320.0	800.1	
600	in	42.0	24.0	12.8	22.0	42.8	24.9	15.3	43.5	230
	mm	1066.8	609.6	323.9	558.8	1085.9	633.5	387.9	1104.9	
800 ... 1200	in	60.0	36.0	12.8	34.0	60.8	36.9	15.3	61.5	332
	mm	1524.0	914.4	323.9	863.6	1543.1	938.3	387.9	1562.1	

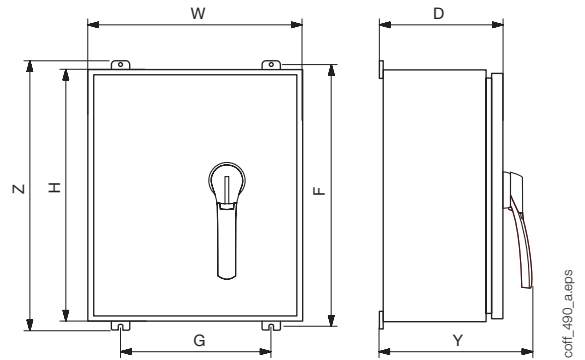
## Fusible disconnect switch > 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
200 A	in	24.0	20.0	10.8	18.0	24.8	20.9	12.6	25.5	92
	mm	609.6	508.0	273.1	457.2	628.7	531.9	320.0	647.7	
400 A	in	42.0	32.0	12.8	30.0	42.8	32.9	14.6	43.5	200
	mm	1066.8	812.8	323.9	762.0	1085.9	836.7	370.8	1104.9	
600 A	in	48.0	36.0	12.8	34.0	48.8	36.9	15.3	49.5	268
	mm	1219.2	914.4	323.9	863.6	1238.3	938.3	387.9	1257.3	
800 A	in	60.0	36.0	12.8	34.0	60.8	36.9	15.3	61.5	332
	mm	1524.0	914.4	323.9	863.6	1543.1	938.3	387.9	1562.1	

## Transfer switch ≥ 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
100 ... 200	in	24.0	20.0	10.8	18.0	24.8	20.9	12.6	25.5	95
	mm	609.6	508.0	273.1	457.2	628.7	531.9	320.0	647.7	
400	in	30.0	24.0	16.8	22.0	30.8	24.9	19.3	31.5	185
	mm	762.0	609.6	425.5	558.8	781.1	633.5	489.5	800.1	
600	in	48.0	36.0	20.8	34.0	48.8	36.9	23.3	49.5	321
	mm	1219.2	914.4	527.1	863.6	1238.3	938.3	591.1	1257.3	
800 ... 1200	in	60.0	36.0	20.8	34.0	60.8	36.9	23.3	61.5	460
	mm	1524.0	914.4	527.1	863.6	1543.1	938.3	591.1	1562.1	

Note: dimensions are subject to change. Please consult us for verification.



# Metering, monitoring & power quality

Integrated technologies . . . . . p. 219  
 Selection guide measurement and monitoring system for electrical installations AC . . . . p. 221  
 Selection guide measurement and monitoring system for electrical installations DC . . . . p. 227  
 Selection guide multifunction meters . . . . . p. 231  
 Selection guide software solutions . . . . . p. 233

## Multi-circuit metering & measurement

### DIRIS Digiware AC



**DIRIS Digiware D and C**  
p. 235



**DIRIS Digiware U**  
p. 241



**DIRIS Digiware S**  
p. 247



**DIRIS Digiware I**  
p. 243

### DIRIS Digiware DC



**DIRIS Digiware Udc**  
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**DIRIS Digiware Idc**  
p. 269



**DIRIS Digiware IO**  
p. 277

## Single-circuit metering, measurement & analysis



**DIRIS A-40**  
p. 289



**DIRIS A-30**  
p. 299



**DIRIS A-20**  
p. 305



**DIRIS A-10**  
p. 309



**DIRIS B**  
p. 281

## Software suite

**WEBVIEW**  
Embedded web server  
p. 315



## Current sensors



**AC current sensors**  
TE, TR, TR/iTR, TF  
p. 257



**DC current sensors**  
p. 273

## Communication interfaces



**Datalogger**  
p. 313

## Enclosed metering solutions



**DIRIS DigiBOX**  
M & A  
p. 279, 293





# Integrated technologies

Groundbreaking technologies for greater simplicity and performance



## PreciSense

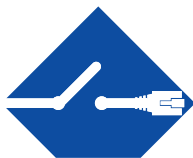
Products that are setting new standards in measurement accuracy

PreciSense technology ensures 100% reliable accuracy over the entire measuring chain.

Be guaranteed of the accuracy of your measurements:

- For the global measurement chain.
- For reliable measurements.
- For relevant corrective actions.

PreciSense technology offers the best accuracy on the market regardless of the type of current sensors used (closed, split-core, flexible or embedded in the DIRIS Digiware S module).



## VirtualMonitor

The simple and cost-saving solution for monitoring your protective devices

Virtual Monitor technology enables a monitoring solution to be installed simply and at all levels of the installation.

Virtual Monitor:

- Detects the position and status of the device.
- Detects tripping of the protective device.
- Meters the number of operations.

VirtualMonitor technology monitors the status of protective devices:

- On your entire electrical installation (without additional space).
- Remotely and in real-time.
- Without additional hardware or wiring (without adding an auxiliary contact).



## AutoCorrect

The software that eliminates wiring errors

AutoCorrect technology ensures that the equipment is properly wired at all times, thus avoiding on-site inspections.

AutoCorrect technology ensures the operation of the measuring system thanks to simple and rapid detection of connection errors:

- Automatic wiring control (phase sequence detection and automatic configuration of the direction of the current).
- Correction of errors with a single click.
- Feature available off-load.

Error correction is carried out without any modification to the wiring.



Discover the video



Discover the video



Discover the video

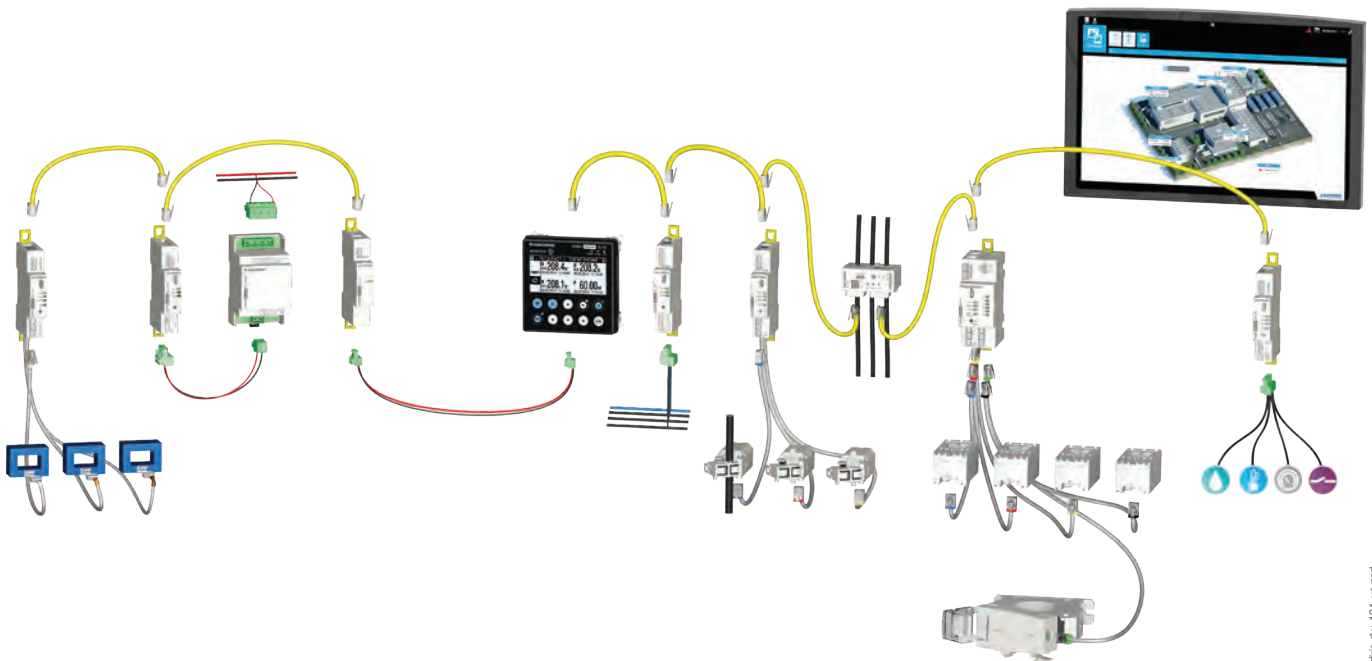


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PreciSense, VirtualMonitor and AutoCorrect technologies are embedded in Socomec's power monitoring devices.

#### Power metering and monitoring system for AC electrical installations

- DIRIS Digiware S with its 3 integrated sensors and DIRIS Digiware I associated with ITR sensors.



#### Multifunction meters

- DIRIS A-40 and DIRIS B with ITR sensors.





# Selection guide

Power monitoring system for electrical installations

DIRIS Digiware

Multi-circuit power monitoring

## Build your own AC system

System interface, displays and gateways  
(24 VDC)

**DIRIS Digiware D** display  
 or  
**DIRIS Digiware M** gateway  
 or  
**DIRIS Digiware C** RS485 interface

Voltage acquisition module

**DIRIS Digiware U**

Current acquisition module with integrated sensors

**DIRIS Digiware S**

Current acquisition modules

**DIRIS Digiware I-3x** 3 inputs  
**DIRIS Digiware I-4x** 4 inputs  
**DIRIS Digiware I-6x** 6 inputs

Current sensors

**TE** Solid  
**TR/iTR** Split-core  
**TF** Flexible

Digital and analogue input/output modules

**DIRIS Digiware IO**







### Find the best DIRIS Digiware configuration!






The Socomec Meter Selector is your digital assistant, helping you find the best DIRIS Digiware configuration for your power monitoring projects, and all in just a few clicks!

- Fill in information regarding your project.
- Download the system diagram and bill of material.
- All your projects are archived in your personal account.

## Control and power supply interface

Application	Centralization and display of data				Data centralization	Repeater
						
<i>DIRIS Digiware</i>	<i>M-50</i>	<i>M-70</i>	<i>D-50</i>	<i>D-70</i>	<i>C-31</i>	<i>C-32</i>
<b>Function</b>						
Centralizing measurement points	•	•	•	•	•	
High-resolution LCD display (configuration, selection and visualisation display of circuits)			•	•		
Repeater						•
<b>Power supply</b>						
24 VDC	•	•	•	•	•	•
<b>Communication</b>						
RS485 Modbus	Input/Output	Input/Output	Input/Output	Input/Output	Output	
Digiware bus	•	•	•	•	•	•
Ethernet	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP		
Embedded web server	WEB-CONFIG	WEBVIEW-M	WEB-CONFIG	WEBVIEW-M		

## Voltage acquisition module









Application	Metering	Monitoring	Analysis
			
<i>DIRIS Digiware U</i>	<i>U-10</i>	<i>U-20</i>	<i>U-30</i>
<b>Multi-measurement</b>			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
<b>Quality analysis</b>			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Crest factors V1, V2, V3, U12, U23, U31			•
Individual harmonics U & V (up to 63rd)			•
Voltage dips, interruptions and swells (EN50160)			•
<b>Alarms</b>			
On threshold			•
<b>History</b>			
Average values			•
<b>Format</b>			
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1

# Selection guide




Power monitoring system for electrical installations

DIRIS Digiware

## Current acquisition modules

Application	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
<i>DIRIS Digiware I</i>	<i>I-30</i>	<i>I-31</i>	<i>I-33</i>	<i>I-35</i>	<i>I-43</i>	<i>I-45</i>	<i>I-60</i>	<i>I-61</i>
Number of current inputs	3	3	3	3	4	4	6	6
<b>Metering</b>								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Load curves		•		•		•		•
Multi-tariff		•		•		•		•
<b>Multi-measurement</b>								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
<b>Quality</b>								
THDi1, THDi2, THDi3, THDin			•	•	•	•		
Individual harmonics I (up to 63rd)				•		•		
Crest factors I1, I2, I3, In				•		•		
Overcurrents				•		•		
<b>Alarms</b>								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
<b>History</b>								
Average values				•		•		
<b>Format</b>								
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1	18 mm / 1	27 mm / 1.5	27 mm / 1.5	36 mm / 2	36 mm / 2

Current acquisition module with integrated sensors

Application	Metering	Analysis	Monitoring
			
<b>DIRIS Digiware S</b>	<b>S-130</b>	<b>S-135</b>	<b>S-Datacenter</b>
Number of current inputs	3	3	3
Basic current $I_b$	10 A	10 A	10 A
Maximum current $I_{max}$	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N
<b>Metering</b>			
$\pm$ kWh, $\pm$ kvarh, kVAh	•	•	•
Multi-tariff (max 8)		•	
Load curves		•	•
<b>Multi-measurement</b>			
$I1, I2, I3, In, \Sigma P, \Sigma Q, \Sigma S, \Sigma PF$	•	•	•
P, Q, S, PF per phase		•	•
Predictive power		•	
Current unbalance (Inba, Inb, Idir, linv, lhom)		•	
Phi, cos Phi, tan Phi		•	•
<b>Quality</b>			
THDi1, THDi2, THDi3, THDin		•	•
Individual harmonics I (up to 63rd)		•	
Crest factors U, V, I		•	
K factor		•	
Overcurrents		•	
<b>Alarms</b>			
Thresholds and combinations		•	•
Load level			•
Wiring errors		•	•
Protective device		•	•
<b>Trends</b>			
Average values		•	•
<b>Format</b>			
Width	54 mm	54 mm	54 mm








# Selection guide

Power monitoring system for electrical installations

DIRIS Digiware





## Current sensors

Suitable for new installations  
match the pitch of protective  
devices

	Solid-core current sensors						
							
	TE-18	TE-25	TE-35	TE-45	TE-55	TE-55	TE-90
Nominal current $I_n$ (A)	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000	600 ... 2000
Real range covered (A)	0.1 ... 24	0.5 ... 75.6	0.8 ... 192	1.26 ... 300	3.2 ... 756	8 ... 1200	12 ... 2400
Aperture (mm)	Ø 8.4	Ø 8.4	13.5 x 13.5	21 x 21	31 x 31	41 x 41	64 x 64
Dimensions (mm)	28 x 20 x 45	28 x 20 x 45	25 x 32.5 x 65	35 x 32.5 x 71	45 x 32.5 x 86	55 x 32.5 x 100	90 x 126 x 24.6
Connection	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12







For currents above 2000 A, the 5A / RJ12 adapter provides compatibility with 1A or 5A secondary CTs.

Suitable for existing installations



	Split-core current sensors			
				
	TR/iTR-10	TR/iTR-14	TR/iTR-21	TR/iTR-32
Nominal current $I_n$ (A)	25 ... 63	40 ... 160	63 ... 250	160 ... 600
Real range covered (A)	0.5 ... 90	0.64 ... 120	1.26 ... 200	4 ... 720
Aperture (mm)	Ø 10	Ø 14	Ø 21	Ø 32
Dimensions (mm)	26 x 44 x 28	29 x 67 x 28	37 x 65 x 43	53 x 86 x 47
Connection	RJ12	RJ12	RJ12	RJ12

For currents above 600 A, the 5A / RJ12 adapter provides compatibility with 1A or 5A secondary CTs.

Suitable for existing installations  
with space constraints or  
with high currents

	Flexible current sensors					
						
	TF-40	TF-80	TF-120	TF-200	TF-300	TF-600
Nominal current $I_n$ (A)	140 ... 400	150 ... 600	400 ... 2000	600 ... 4000	1600 ... 6000	1600 ... 6000
Real range covered (A)	2 ... 480	3 ... 720	8 ... 2400	12 ... 4800	32 ... 7200	32 ... 7200
Aperture (mm)	Ø 40	Ø 80	Ø 120	Ø 200	Ø 300	Ø 600
Connection	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12

Input/output modules

Application	Metering / monitoring / control	
	 <b>IO-10</b>	 <b>IO-20</b>
<b>DIRIS Digiware IO</b>		
Number of digital inputs/outputs	4/2	
Number of analogue inputs		2
<b>Format</b>		
Width/number of modules	18 mm/1	18 mm/1





# Selection guide

Measurement and monitoring system for DC electrical installations

**DIRIS Digiware**

Multi-circuit metering & measurement

Build your own DC system

Control and power supply interface (24 VDC)



*DIRIS Digiware D-x* with display    *DIRIS Digiware M* gateway    *DIRIS Digiware C* without screen

Direct voltage acquisition module



*DIRIS Digiware Udc*

DC voltage adaptors



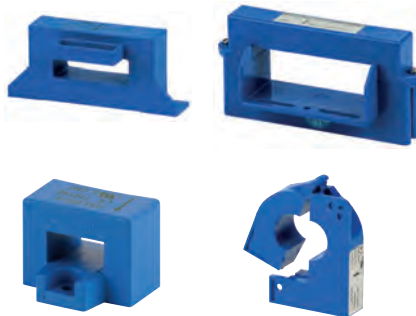
*DIRIS Digiware U500dc/U1000dc/U1500dc*

DC current acquisition module



*DIRIS Digiware Idc*  
3 current sensor inputs





DC current sensors



Solid-core sensors  
50 ... 5000 A

Split-core sensors  
50 ... 2000 A

Control and power supply interface



Application	Centralization and display of data				Data centralization	Repeater
						
<i>DIRIS Digiware</i>	<i>M-50</i>	<i>M-70</i>	<i>D-50</i>	<i>D-70</i>	<i>C-31</i>	<i>C-32</i>
<b>Function</b>						
Centralizing measurement points	•	•	•	•	•	•
High-resolution LCD display (configuration, selection and visualisation display of circuits)			•	•		
Repeater						•
<b>Power supply</b>						
24 VDC	•	•	•	•	•	•
<b>Communication</b>						
RS485 Modbus	input/output	input/output	input	input	•	
Digiware Bus	•	•	•	•	•	•
Ethernet	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP		
Embedded web server	WEBVIEW-M	WEBVIEW-M		•		




# Selection guide

Measurement and monitoring system for DC electrical installations



DIRIS Digiware

## Direct voltage acquisition module (DC)

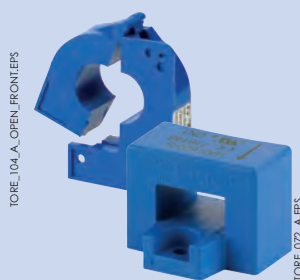
Application	DC voltage measurement	
		
<b>DIRIS Digiware Udc</b>	<b>U-31dc</b>	<b>U-32dc</b>
<b>Nominal voltage range</b>	24 ... 48 VDC	60 ... 150 VDC
<b>Measuring range (min-max)</b>	19,2 ... 60 VDC	48 ... 180 VDC
<b>Multi-measurement</b>		
DC voltage (VDC)	•	•
<b>Power quality</b>		
V ripple (voltage ripple)	•	•
V <sub>rms</sub>	•	•
<b>Alarms</b>		
Thresholds and combinations	•	•
<b>Trends</b>		
Average values	•	•
<b>Format</b>		
Width/number of modules	18 mm / 1	

Application	DC voltage adaptors		
			
<b>DIRIS Digiware Udc</b>	<b>U500dc</b>	<b>U1000dc</b>	<b>U1500dc</b>
<b>Max. voltage range</b>	200 ... 600 VDC	400 ... 1200 VDC	1200 ... 1650 VDC
<b>Association</b>			
U-32dc	•	•	•
<b>Format</b>			
Width/number of modules	54 mm / 3		

## Direct current acquisition module (DC)

Application	Direct current (DC) measurement modules	
		
<b>DIRIS Digiware Idc</b>	<b>I-30dc</b>	<b>I-35dc</b>
Number of current inputs	3	3
Metering		
± kWh	•	•
Load curves		•
Multi-measurement		
DC current (I DC)	•	•
DC power (P DC)	•	•
Predictive power		•
Measurement of current quality		
I ripple (current ripple)		•
I rms		•
Alarms		
Thresholds and combinations		•
Trends		
Average values		•
Format		
Width/number of modules	18 mm / 1	

### DC current sensors



DC current sensors measure the load currents of a DC electrical installation and transmit the information to DIRIS Digiware Idc modules via a quick RJ12 connection with color-coded cables for an easy identification of circuits.

The range comprises solid-core and split-core sensors, from 50 to 5000 A in various sizes, suitable for new or retrofit applications.

- Easy connection to prevent wiring errors.
- Up to 3 sensors on each DIRIS Digiware Idc measurement module.



# Selection guide

## Multifunction meters


### DIRIS A

Single-circuit metering,  
measurement &  
analysis

Which  
application?



Which  
functions?

				
		DIRIS A-40 Modbus	DIRIS A-40 Modbus + Profibus	DIRIS A-40 Modbus + Ethernet
<b>General characteristics</b>	<b>Functions</b>	<b>SMART SENSORS</b>		
	Remote display			
	Number of loads	1		
	Mounting	96 x 96		
	Power supply	AC		
	All In One	•		
	Optional modules			
	Ethernet (Modbus TCP / Bacnet IP)	- / -	- / -	• / •
	RS485 (Modbus / Bacnet MSTP)	• / -	• / -	• / -
	Profibus DPV1	-	•	• / •
	Webserver / File export	o / -	o / o	• / •
Max. number of inputs (digital / analogue)	3 / -			
Max. number of outputs (digital / analogue)	2 / -			
<b>Manage energy consumptions</b>	4-quadrant energy metering (bi-directional)	•		
	Load curves (local memory)	•		
	Rebilling of energy (MID approved)			
	Multi-tariff management	4		
<b>Monitor the electrical installation</b>	Instantaneous, average, min and max values	•		
	Voltage unbalance measurement	•		
	Neutral current (measured / calculated)	- / •		
<b>Check the power quality</b>	Harmonic analysis (THD / Individual)	• / •		
	Dip and swell detection	•		
	Overcurrent detection	•		
<b>Manage the loads</b>	Operating hours	•		
	Number of operations (info / alarm)	• / •		
	Protective device monitoring (on / off / tripped)	•		
	Predictive power analysis and load shedding	•		

•: integrated in the product.

o: optional via DIRIS Digiware M-50/M-70 or modules.

Which dimensions?

Which communication protocol?

Which options?



DIRIS A-30

DIRIS A-20

DIRIS A-10

DIRIS B-30

DIRIS B-10

CURRENT SENSORS			SMART SENSORS	
1	1	1	•	•
96 x 96	96 x 96	DIN	1 to 4	1 to 4
AC / DC	AC	AC	DIN	DIN
•	•	•	AC	AC
•/0	0/-	0/-	•	•
•/-	•/-	•/-	•/0	•/0
0			0	0
0/0	0/0	0/-	0/0	0/0
6/4	3/-	1/-		2/2
6/4	1/-	1/-		2/2
•	•	•	•	•
0			•	
		2	8	8
•	•	•	•	•
•			•	•
-/•	-/•	-/•	•/•	•/•
•/•	•/-	•/-	•/-	•/•
			•	
			•	
•	•	•	•	•
•/-		•/-	•/-	•/•
•	•	•	•	•
•		•	•	



# Selection guide





## Software solutions for energy monitoring and analysis

Software suite

What are the features?

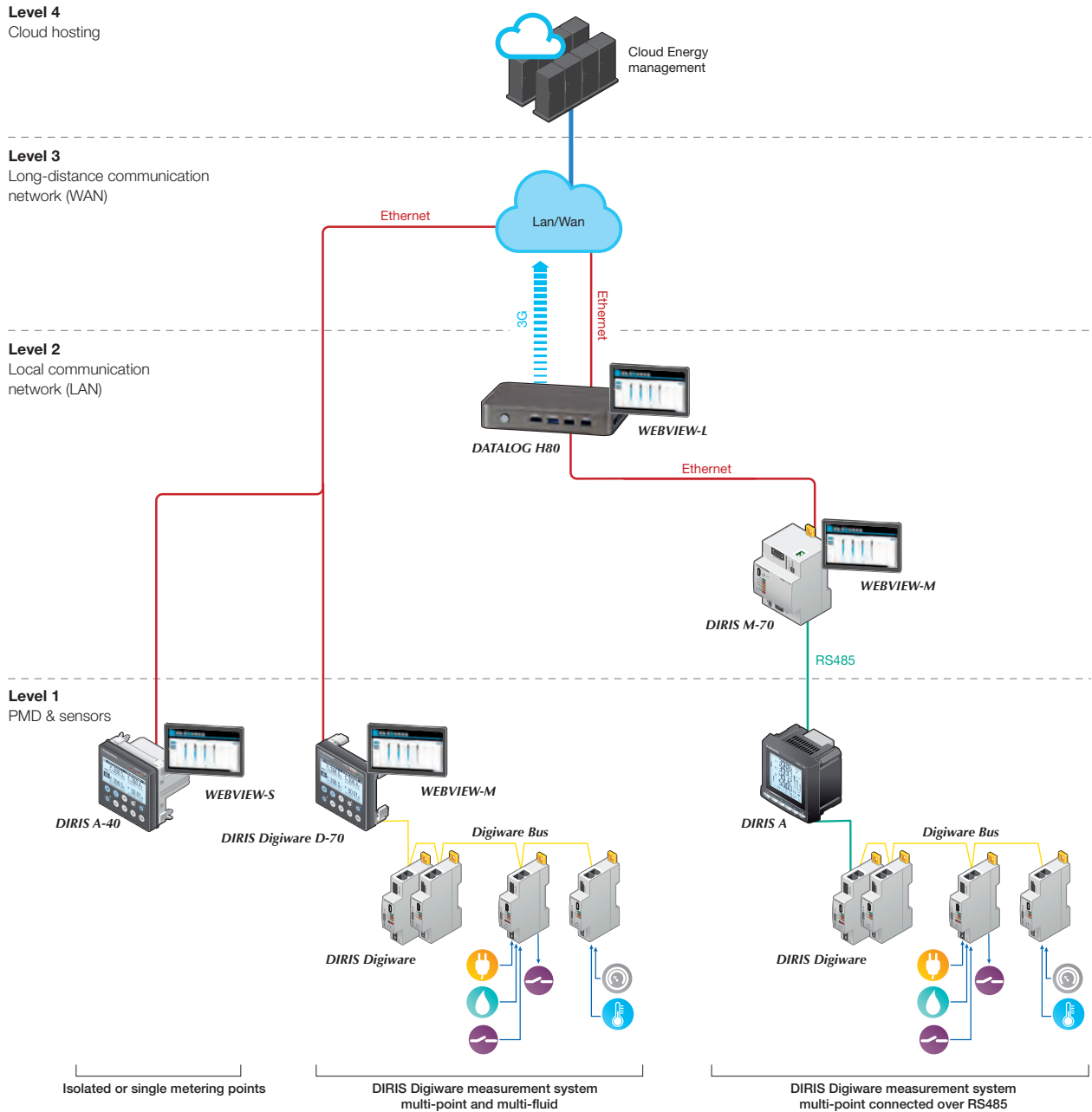
For what size of project?

Where is the data stored?

	WEBVIEW-S	WEBVIEW-M		WEBVIEW-L
				
Hosting of the application <sup>(1)</sup>	DIRIS A-40 Ethernet	DIRIS Digiware M-70	DIRIS Digiware D-70	DATALOG H80/H81
<b>Data collection</b>				
Maximum number of connected measurement devices	1	32	32	100 (WEBVIEW-L100) 200 (WEBVIEW-L200)
Interfacing to third-party applications				via connector
Export of data in CSV format	•	•	•	•
<b>Real time monitoring</b>				
U/V voltages and currents I	•	•	•	•
Powers P, Q, S, Power factor	•	•	•	•
Quality monitoring THDi, THDu, THDv, K factor, Harmonic analysis up to 63 <sup>rd</sup>	•	•	•	•
Energy metering Ea+, Ea-, Er+, Er-, Es	•	•	•	•
Pulse counting	•	•	•	•
Input/Output monitoring	•	•	•	•
Measurement history U, V, I, P, Q, S,	•	•	•	•
<b>Energy analysis</b>				
Energy consumption analysis	•	•	•	•
Multi-parameter analysis				•
<b>Alarm management</b>				
Product alarms	•	•	•	•
Alarms history	•	•	•	•
Transmission of alarms	e-mail	e-mail	e-mail	e-mail
<b>Reporting management</b>				
Customizable user interface		Photoview	Photoview	Photoview
Hierarchy management		•	•	•

<sup>(1)</sup> For more information on the hardware please refer to the appropriate catalogue pages.

## Architecture







# DIRIS Digiware D and C

## Display and system interface

Multi-circuit power monitoring



**DIRIS Digiware D-50/D-70**  
Centralization and display of data



**DIRIS Digiware C-31**  
Centralization



Configuration  
with Easy Config System.

### Function

#### DIRIS Digiware D-50 and D-70

DIRIS Digiware D remote displays allow:

- local visualization the data from DIRIS Digiware modules.
- a power supply to the DIRIS Digiware modules.
- access to measurements over RS485 or Ethernet.

DIRIS Digiware D-50 and D-70 displays also act as a gateway, centralizing measurements from DIRIS Digiware, DIRIS A and DIRIS B devices and making them available over Ethernet.

With the DIRIS Digiware D-70 display, data can be visualized on WEBVIEW-M, the "Power & Energy monitoring" embedded web server.

DIRIS Digiware displays are powered by 24 VDC.

### Advantages

#### DIRIS Digiware D

- High-resolution graphic screen
- Embedded web server (DIRIS Digiware D-70)
- Multi-protocols (Modbus, BACnet, SNMP)
- 24 VDC SELV (Safety Extra Low Voltage) power supply eliminating hazardous voltage on panel doors.
- Ergonomic and easy to use with 10 direct access buttons for:
  - device configuration.
  - circuit selection.
  - display of measurements.

#### DIRIS Digiware C-31

For applications without a local display DIRIS Digiware C-31 interfaces centralize all measurements and communicate data over RS485 to an external software or PLC. DIRIS Digiware C-31 interfaces and C-32 repeaters are 24 VDC powered.

#### Cyber security

Dedicated cyber security features referring to IEC 62443 to guarantee the confidentiality, integrity and availability of data and reduce the risk of cyber attacks:

- secured HTTPS navigation.
- secured data push (FTPS, SMTPS).
- restriction of certain protocols or services.
- firewall to prevent denial-of-service attacks.

#### DIRIS Digiware C-31

Compact: Centralize your measurement data on 1 module without a local screen, for a complete system:

- single 24 V power supply (no dangerous voltage on DIRIS Digiware modules for a connection with no interruption).
- a single RS485 communication.

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data centers



### Strong points

- > Centralizing and displaying measurement data
- > A single power supply for the entire system
- > A single RS485 or Ethernet output for the entire system
- > WEBVIEW-M embedded web server

### Compliance with standards

- > UL 61010-1  
CSA-C22.2  
61010-1  
Guide PICQ  
File E257746



- > IEC 61557-12






- > ISO 14025



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



Application	Control and power supply interface		
			
<b>DIRIS Digiware</b>	<b>C-31</b>	<b>D-50</b>	<b>D-70</b>
Digiware input	•	•	•
RS485 input		•	•
RS485 output	•	•	•
Ethernet output		Modbus BACnet IP SNMP v1, v2, v3	Modbus BACnet IP SNMP v1, v2, v3
Websserver		WEB-CONFIG	WEBVIEW-M

## Functions



soft\_073\_b

### WEBVIEW-M

Embedded web server in the DIRIS Digiware D-70 display

WEBVIEW-M allows the display and remote monitoring of all the electric parameters measured by up to 32 devices. They are displayed in the form of overview screens, graphs or tables for clear and user-friendly analysis.

Access to WEBVIEW is made by a web browser on a PC or tablet and offers multiple features such as the automatic export of data via FTPS or e-mail notification in the presence of alarms (SMTPS).

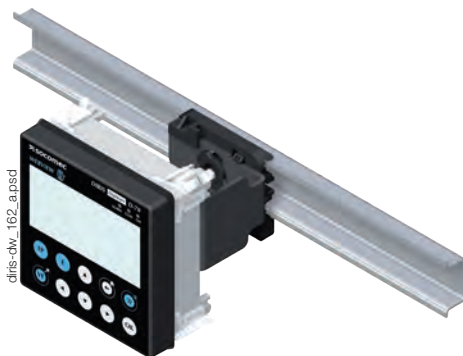
The Photoview application is available via the WEBVIEW interface embedded in the DIRIS Digiware D-70 display. It allows the display of electrical quantities on a customized background picture such as a cabinet, a wiring diagram or the map of a site.

## Accessories

### DIN rail mounting kit

The accessory allows you to install the DIRIS Digiware D-50/D-70 display on a DIN rail.

This kit is not included with the displays and must be ordered separately.



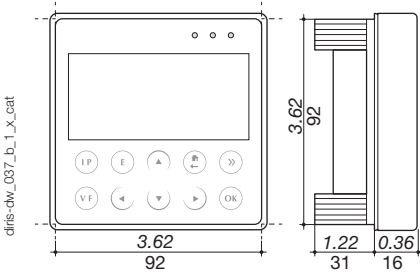
diris-dw\_162\_ap.ssd

# DIRIS Digiware D and C

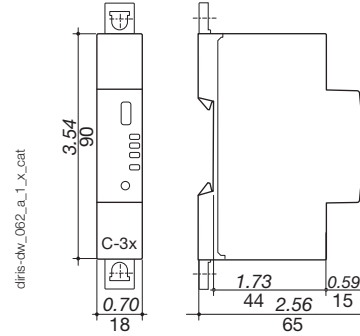
Display and system interface

## Dimensions (in/mm)

DIRIS Digiware D-50/D-70



DIRIS Digiware C-31



## Configuration

### Equipment consumption

Product	Power delivered (W)	Power consumed (W)
<b>Power supply</b>		
P15 100-240 VAC / 24 VDC	15	
P30 100-240 VAC / 24 VDC	20	
<b>Cables</b>		
164 feet / 50 meter package		1.5
<b>System interfaces</b>		
DIRIS Digiware D-50/D-70		2.5
DIRIS Digiware C-31		0.8
<b>Module voltage</b>		
DIRIS Digiware U-xx		0.72
DIRIS Digiware U-3xdc		0.6
<b>Current modules</b>		
DIRIS Digiware I-3x		0.52
DIRIS Digiware I-4x		1.125
DIRIS Digiware I-6x		0.7
DIRIS Digiware I-3xdc (+ 3 DC current sensors)		2
DIRIS Digiware S-xx		0.35
<b>Input/output modules</b>		
DIRIS Digiware IO-10/IO-20		0.5
<b>Repeater</b>		
DIRIS Digiware C-32		1.5

### Calculation rules for the max. number of products on the Digiware Bus

The total power consumed by the equipment connected to the Digiware Bus must not exceed the power from the 24 VDC supply. The power supply must not exceed 20 W/168°F/70°C or 27 W/104°F/40°C.

#### Size with P15 power supply (ref: 4829 0120) delivering 15 W

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 164 feet / 50 meters of cable (1.5 W)

and

- 19 DIRIS Digiware current modules I-3x (19 x 0.52 = 9.9 W)
- ⇒ Total power = 14.845 W

or

- 9 DIRIS Digiware current modules I-4x (9 x 1.125 = 10.125 W)
- ⇒ Total power = 14.345 W.

#### Size with a 24 VDC power supply delivering a maximum of 20 W

(Power supply P30 ref: 4729 0603)

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 164 feet / 50 meters of cable (1.5 W)

and

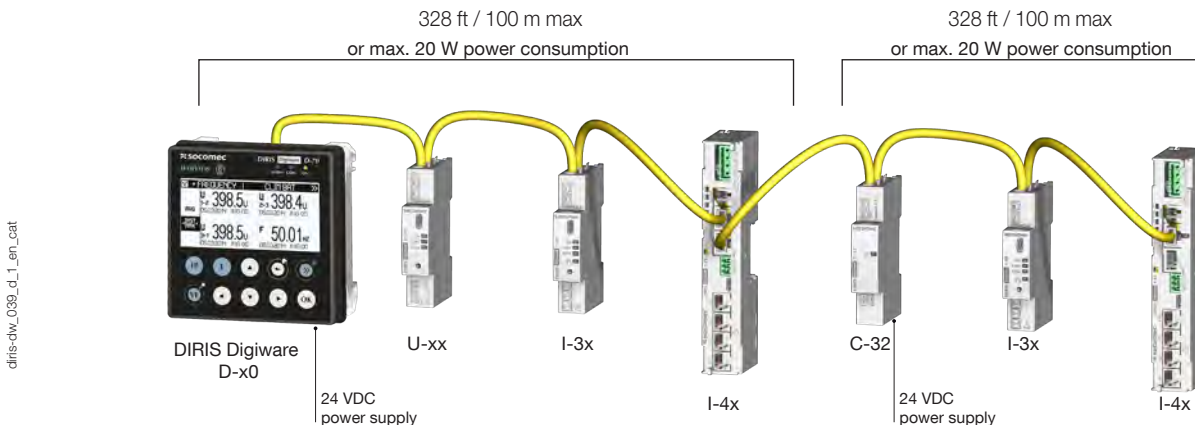
- 29 DIRIS Digiware current modules I-3x (29 x 0.52 = 15.1 W)
- ⇒ Total power = 19.82 W

or

- 13 DIRIS Digiware current modules I-4x (13 x 1.125 = 14.63)
- ⇒ Total power = 19.35 W.

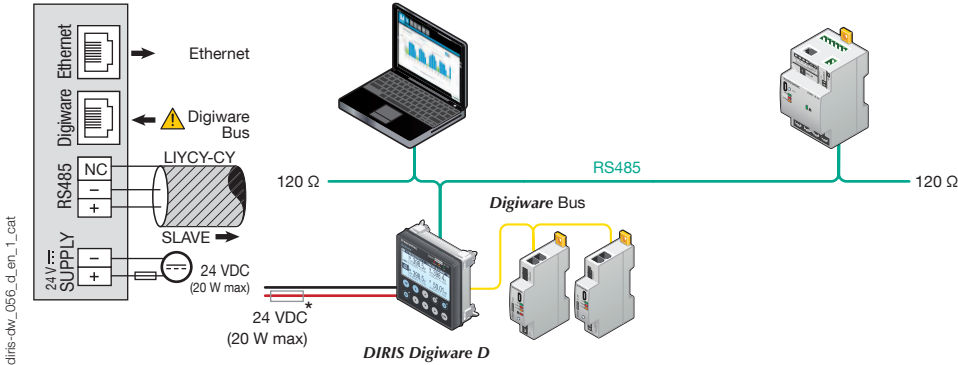
### Repeater

Whenever the power consumption is higher than 20 W or the distance is greater than 328 ft / 100 m, a DIRIS Digiware C-32 repeater is required. In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



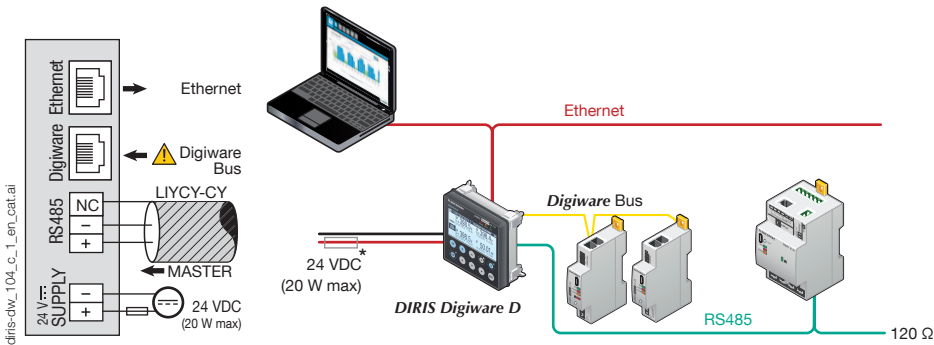
## Connections

### RS485 slave mode



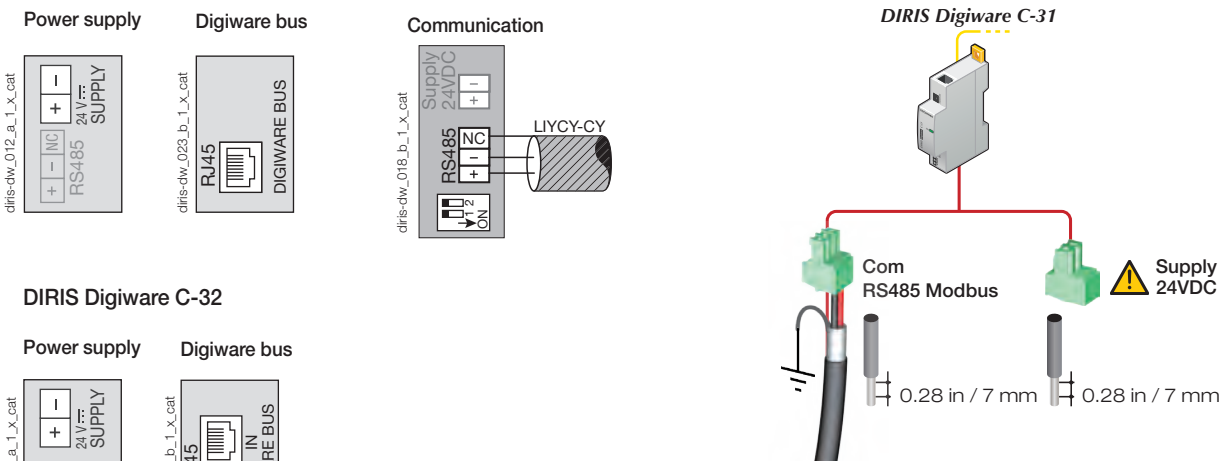
(\*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

### RS485 master mode

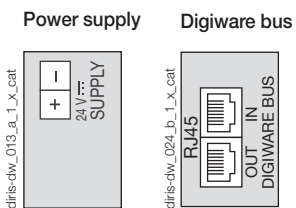


(\*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

### DIRIS Digiware C-31



### DIRIS Digiware C-32



# DIRIS Digiware D and C

Display and system interface

## Technical characteristics

### Electrical characteristics

DIRIS Digiware C-31	
Input voltage	24 VDC ± 20 % - 20 W max
Connection	Removable screw terminal block, 2 positions, stranded or solid 0.2-2.5 mm <sup>2</sup> cable
P15 power supply	Characteristics: 100-240 VAC/ 24 VDC - 0.63 A - 15 W Modular format - Dimensions (H x L): 3.54 x 1.42 in / 90 x 36 mm

### Communication specifications

Digiware Bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

RS485	
Connection type	2 to 3 half duplex wires
Protocol	Modbus RTU
Baudrate	9600 to 115 200 bauds
Function	Data configuration and reading
Location	Single-point on DIRIS Digiware C

### Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 on the nose in modular assembly / IK06

### Environmental specifications

Ambient operating temperature	+14 to +158 °F / -10 to +70 °C
Storage temperature	-13 to +158 °F / -25 to +70 °C
Operating humidity	131 °F / 55 °C / 97% HR
Operating altitude	< 2000 m

### DIRIS Digiware D-50/D-70 features

Mechanical characteristics	
Type of screen	Capacitive touch-screen technology, 10 keys
Screen resolution	350 x 160 pixels
Front panel protection index	IP65

Communication	
Ethernet RJ45 10/100 Mbs	Gateway function (D-50/D-70): Modbus TCP BACnet IP SNMP v1, v2, v3
RJ45 Digiware	Control and power supply interface function
RS485 2-3 wires	Modbus RTU communication function Configurable as input or output
USB	Upgrade and configuration via type B micro USB connector

Electrical characteristics	
Power supply	24 VDC +10 % / -20%
Power consumption	2.5 VA
Battery lifetime	10 years

Environmental specifications	
Storage temperature	-4 to +158 °F / -20 to +70°C
Operating temperature	+14 to +131°F / -10 to +55°C
Humidity	95% at 104°F / 40°C
Installation category, degree of pollution	CAT III, 2

Ports	
Digiware	Input
RS485	Input/Output
Ethernet	Output

## References

DIRIS Digiware		Reference	
D-50	Multipoint display, Ethernet & RS485 output + WEB-CONFIG	4829 0204	
D-70	Multipoint display, Ethernet & RS485 output + WEBVIEW-M	4829 0203	
C-31	System interface - no display, RS485 output	4829 0101	
C-32	Repeater	4829 0103	
Power supply		Reference	
P15	Power supply 100-240 VAC/ 24 VDC 15 W	4829 0120	
P30	Power supply 100-240 VAC/ 24 VDC 20 W	4729 0603	
Digiware connection cables		Reference	
RJ45 cables for Digiware Bus	Length 0.2 ft / 0.06 m	4829 0189	
	Length 0.33 ft / 0.10 m	4829 0181	
	Length 0.66 ft / 0.20 m	4829 0188	
	Length 1.64 ft / 0.50 m	4829 0182	
	Length 3.28 ft / 1 m	4829 0183	
	Length 6.56 ft / 2 m	4829 0184	
	Length 9.84 ft / 3 m	4829 0190	
	Length 16.4 ft / 5 m	4829 0186	
	Length 32.8 ft / 10 m	4829 0187	
164.04 ft / 50 m reel + 100 connectors		4829 0185	
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180	
USB configuration cable		4829 0050	
Single-point display		Reference	
DIRIS D-30 <sup>(1)</sup>	Single-point display for DIRIS Digiware I-4x and DIRIS B	4829 0200	
Accessories		To be ordered in multiples of	Reference
Fuse holder Class CC to protect voltage inputs 2 pole		4	5705 0002
Class CC 0.5 A fuses		10	6CC0 5000
DIN rail mounting kit for D-50 and D-70 displays		1	4829 0230
Panel mounting kit DIN 472.44 x 314.96 in / 144 x 96 mm			4729 0990
IP 65 flexible cover for 472.44 x 314.96 in / 144 x 96 mm panel mounting frame			4729 0991

(1) DIRIS D-30 display characteristics, see page "DIRIS B".

## Expert Services

### Require integration onto your network?

No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, **audit** your system, **commission** selected equipment and **train** your staff on its use.

For further information, please contact your nearest SOCOMEC branch.



# DIRIS Digiware U

## Voltage measurement module

Multi-circuit metering & measurement



diris-dw\_005\_a\_cat

DIRIS Digiware U-10/U-20/ U-30



Configuration with EasyConfig System.

### Function

The **DIRIS Digiware U** module measures voltage for the entire system. This pools together all voltage measurements.

The Digiware RJ45 Bus allows you to pass voltage measurements as well as power supply and communication to all connected products.

### Advantages

- Single voltage measurement point for the entire system
- Single point of protection for voltage measuring
- A complete, dedicated solution:
  - metering
  - monitoring voltage
  - quality analysis of the supplied voltage
- No hazardous voltage on enclosure doors.
- Adapted to all types of network:
  - single phase
  - three-phase

### The solution for

- > Industry
- > Building
- > Infrastructures
- > Data center



### Strong points

- > Single voltage measurement point for the entire system
- > Plug & Play
- > Compact



RJ45 (Digiware Bus) cables are available.

### Conformity to standards

- > UL 61010, CSA-C22.2 61010-1, c Guide PICQ, File E257746






- > IEC 61557-12



- > ISO 14025

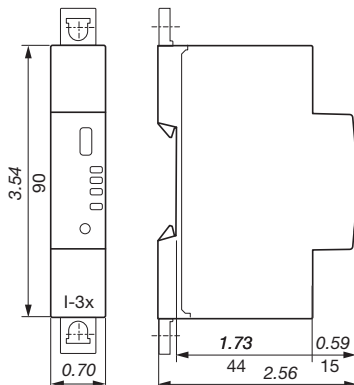
- > CEC compliant



Application	Voltage measurement module		
	Metering	Monitoring	Analysis
			
<b>DIRIS Digiware U</b>	<b>U-10</b>	<b>U-20</b>	<b>U-30</b>
<b>Multi-measurement</b>			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
<b>Quality analysis</b>			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Individual harmonics U & V (up to rank 63)			•
Voltage dips, cutoffs and surges (EN 50160)			•
<b>Alarms</b>			
On threshold			•
<b>History of average values</b>			
45 days (max)			•
<b>Format</b>			
Width/number of modules	0.71 in / 1		

## Dimensions (in/mm)

### DIRIS Digiware U



diris-dw\_059\_b\_1\_x\_cat

## Specifications

### Measuring characteristics

Voltage measurement - DIRIS Digiware U	
Characteristics of the network measured	50-300 VAC (Ph/N) - 87-520 VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65 Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Permanent overload	300 VAC Ph/N
Accuracy of voltage measurement	Class 0.2
Connection	Removable screw terminal block, 4 positions, stranded or solid AWG 10 to AWG 32 or 0.2 ... 2.5 mm <sup>2</sup> cable

### Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

## References

Dirigware connection cables	Reference
RJ45 cables for Digiware Bus	
Length 0.20 feet / 0.06 m	4829 0189
Length 0.32 feet / 0.10 m	4829 0181
Length 0.66 feet / 0.20 m	4829 0188
Length 1.64 feet / 0.50 m	4829 0182
Length 3.28 feet / 1 m	4829 0183
Length 6.56 feet / 2 m	4829 0184
Length 9.84 feet / 3 m	4829 0190
Length 16.4 feet / 5 m	4829 0186
Length 32.8 feet / 10 m	4829 0187
164 feet 50 m + 100 connectors	4829 0185
Replacement reference: Digiware bus terminating resistor (supplied with C and D devices)	4829 0180
USB configuration cable	4829 0050

DIRIS Digiware		Reference
U-10	Metering	4829 0105
U-20	Monitoring	4829 0106
U-30	Analysis	4829 0102

Accessories		
Description of accessories	To be ordered in multiples of	Reference
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6CC0 5000





# DIRIS Digiware I

## Current acquisition modules

Multi-point metering & measurement



DIRIS Digiware I-3x



DIRIS Digiware I-4x



DIRIS Digiware I-6x



Configuration with EasyConfig System.

### Function

DIRIS Digiware I modules measure consumptions and monitor the system at the closest point to the loads. The flexibility of these modules allow you to allocate the loads to be measured or monitored through independent current inputs. The DIRIS I modules can measure and monitor single phase or three phase loads.

For example:

- 1 three-phase load
- OR
- 3 single-phased loads

### Advantages

- RJ45 and RJ12 rapid connection
- Available with 3, 4 or 6 inputs
- Single-output or multi-output for maximum optimization of the number of products
- Compact format: 1 or 2 modules sized for integration at the closest point to the loads
- A complete, dedicated solution for a variety of metering, monitoring, and quality analysis applications:
  - metering
  - monitoring
  - power quality analysis

Plug & Play RJ45 and RJ12 connections allow you to:

- quickly provide power to additional modules via RJ45 daisy chain connections
- quickly connect current sensors to current module via RJ12 cables
- detect automatic configuration of the current sensors including:
  - communication address
  - load type
  - sensor type and ratio
  - automatic rating detection and verification of current flow direction
- eliminates wiring errors simplifying installation

- Bi-directional metering
- Compliant with standard ANSI C12.20 and IEC 61557-12 standards, guaranteeing the quality and accuracy of the system:
  - Class 0.2 for the meter alone
  - Class 0.5 from 2% to 120% of the rated current (full scale), for the global measurement chain (with TE/ITR/ TF current sensors)

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > Multi-point
- > Plug and Play
- > Compact
- > High-precision measurement chain

### Integrated technologies



For more information see our website [www.socomec.us](http://www.socomec.us)

### Conformity to standards









- > UL 61010-1, CSA-C22.2 61010-1, cULus LISTED
- > IEC 61557-12
- > ISO 14025
- > CEC compliant



### Create your project

- > Find the best DIRIS Digiware configuration: [www.meter-selector.com](http://www.meter-selector.com)

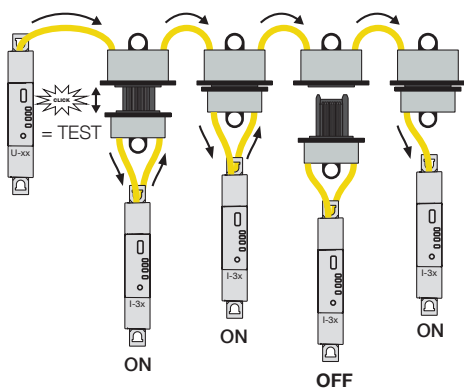


Application	Current measurement modules							
	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
<b>DIRIS Digiware I</b>	<b>I-30</b>	<b>I-31</b>	<b>I-33</b>	<b>I-35</b>	<b>I-43</b>	<b>I-45</b>	<b>I-60</b>	<b>I-61</b>
Number of current inputs	3	3	3	3	4	4	6	6
<b>Metering</b>								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Demand profiles		•		•		•		•
Multi-tariff		•		•		•		•
<b>Multi-measurement</b>								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
<b>Quality</b>								
THDi1, THDi2, THDi3, THDIn			•	•	•	•		
Individual harmonics I (up to 63 <sup>rd</sup> )				•		•		
Overcurrents				•		•		
<b>Alarms</b>								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
<b>History</b>								
Average values				•		•		
<b>Format</b>								
Width/number of modules	0.71 in / 1	0.71 in / 1	0.71 in / 1	0.71 in / 1	1.06 in / 1.5	1.06 in / 1.5	1.42 in / 2	1.42 in / 2

## Accessories

### Digiware plug-in connector

With the Digiware plug-in connector you can disconnect a DIRIS Digiware module from the digiware bus while ensuring the DIRIS Digiware system continues to run downstream. This accessory is particularly useful in applications with retractable drawers or critical applications such as data centers.



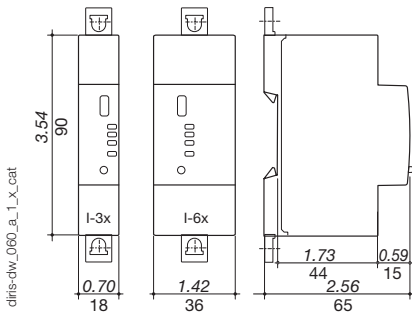
diris-o\_026\_a\_1\_cat.ai

# DIRIS Digiware I

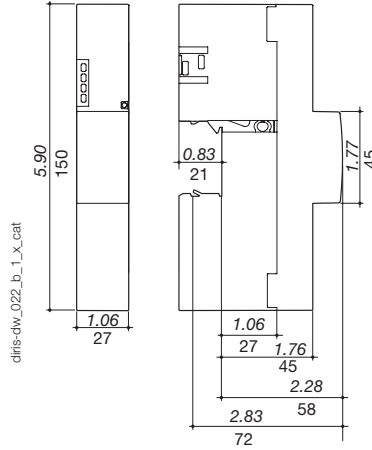
Current acquisition modules

## Dimensions (in/mm)

DIRIS Digiware I-3x / I-6x



DIRIS Digiware I-4x



## Connections

### Associated current sensors

Various types of current sensors are connected to the DIRIS Digiware: solid core (TE), split core (TR/ITR) or Rogowski (TF). This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy, reliable, and error-free. The DIRIS Digiware system automatically recognizes the sensor size and type. This guarantees the overall accuracy of the DIRIS Digiware + current sensor measurement chain.

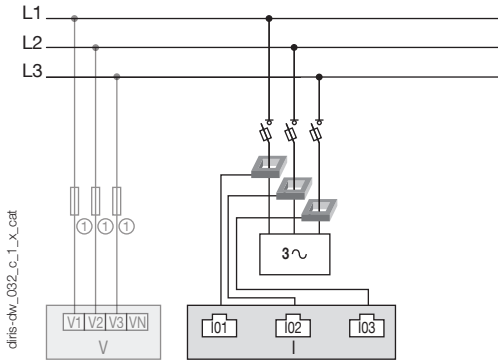
For more information see "TE, TR and TF sensors" pages.

## Network and connection examples

### I-3x

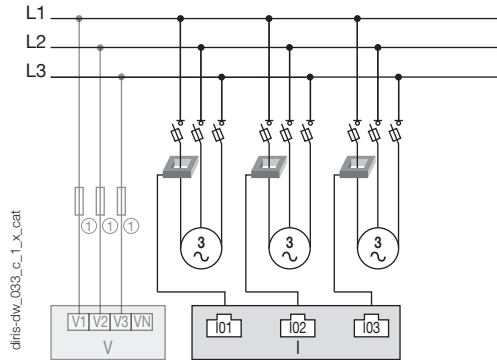
#### Three-phase

3P - 3CT (1 three-phase load)



#### Three-phase

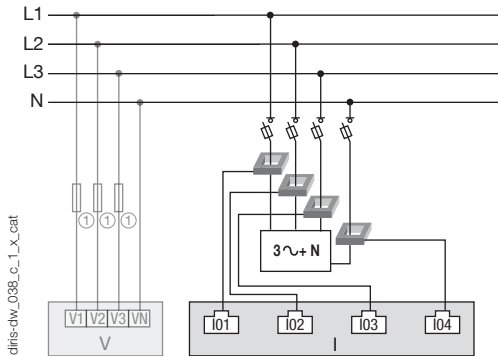
3P - 1CT (3 balanced, three-phase loads)



### I-4x

#### Three phase + neutral

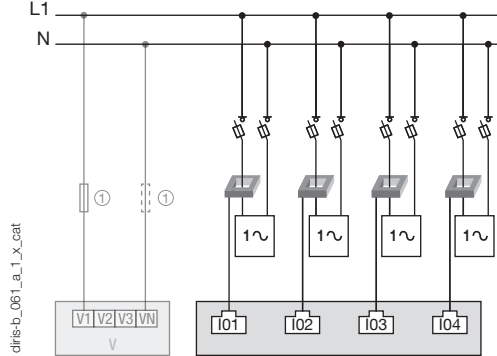
3P+N - 4CT (1 three-phase load + Neutral measured)



1. 0.5 A gG / 0.5 A class CC fuses.

#### Single-phase

1P+N-1CT (4 single-phase loads)



CT: Current sensor      3~ Load

## Specifications

### Measuring characteristics

Current measurement - DIRIS Digiware I	
Number of current inputs	I-3x: 3 / I-45: 4 / I-6x: 6
Associated current sensors	Solid core TE, split-core TR/ITR, flexible TF current sensors
Accuracy of current measurement	Class 0.2 DIRIS Digiware class only Class 0.5 with TE, ITR or TF sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

Inputs - DIRIS Digiware I-45	
Number of inputs	2
Type / Power supply	Non-insulated input, internal polarization 12 VDC max, 1 mA
Input functions	Logical status, pulse meter, multi-tariff
Connection	Removable screw terminal block, stranded or solid AWG 15 to AWG 35 or 0.14 to 1.5 mm <sup>2</sup> cable

Outputs - DIRIS Digiware I-45	
Number of outputs	2
Relay type	230 VAC ±15 % - 1 A 30 VDC - 3 A
Function	Configurable alarm (current, power, etc.) when a threshold is exceeded or remote controlled status
Connection	Removable screw terminal block, stranded or solid AWG 10 to AWG 32 or 0.2 to 2.5 mm <sup>2</sup> cable

### Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

## References

DIRIS Digiware	Reference
I-30	Metering - 3 current inputs 4829 0110
I-31	Metering + demand profiles - 3 current inputs 4829 0111
I-33	Monitoring - 3 current inputs 4829 0128
I-35	Analysis - 3 current inputs 4829 0130
I-43	Monitoring - 2 inputs/ 2 outputs - 4 current inputs 4829 0129
I-45	Analysis - 2 inputs/ 2 outputs - 4 current inputs 4829 0131
I-60	Metering - 6 current inputs 4829 0112
I-61	Metering + demand profiles - 6 current inputs 4829 0113
Accessories	Reference
Digiware x 5 plug-in connector	4829 0605

Digiware connection cables	Reference	
RJ45 cables for Digiware Bus	Length 0.20 feet / 0.06 m	4829 0189
	Length 0.32 feet / 0.10 m	4829 0181
	Length 0.64 feet / 0.20 m	4829 0188
	Length 1.64 feet / 0.50 m	4829 0182
	Length 3.28 feet / 1 m	4829 0183
	Length 6.56 feet / 2 m	4829 0184
	Length 9.84 feet / 3 m	4829 0190
	Length 16.4 feet / 5 m	4829 0186
	Length 32.8 feet / 10 m	4829 0187
	Length 164 feet / 50 m reel + 100 connectors	4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)	4829 0180	
USB configuration cable	4829 0050	



# DIRIS Digiware S

Current measurement module with integrated sensors

Multi-circuit metering and measurement



DIRIS Digiware S



Configuration with EasyConfig System.

## Function

DIRIS Digiware S current acquisition modules have 3 integrated current sensors for the measurement of electrical circuits up to 63 A.

Positioned directly above or below the protective devices, they are powered by the DIRIS Digiware U voltage measurement module to measure consumption, and to monitor the electrical installation and the quality of the power supply.

## Advantages

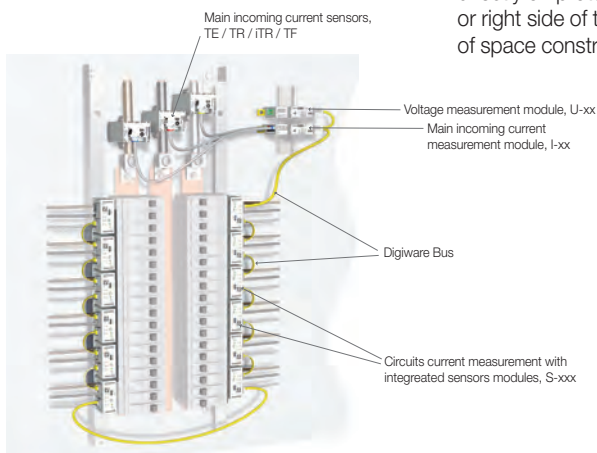
### Plug & Play

- Save wiring time: the current sensors are integrated in the module
- Quick RJ45 connection between modules
- Positioning possible upstream or downstream of the protective device

### Multi-circuit

Multiple DIRIS Digiware S modules can be used within the measurement system enabling the monitoring of a large number of loads

## Functional diagram



### Compact

- A measurement module offering the best compactness/performance ratio on the market
- Current inputs spaced at 3/4" center intervals to align appropriately with the panelboard branch circuit breakers

### Accurate

- Better than revenue grade: Class 0.5 for active energy (kWh) for the global measurement chain and on the full scale
- Bi-directional metering

DIRIS Digiware S modules can be mounted directly on protective devices, on the left side or right side of the panelboard, solving issues of space constraints.

## The solution for

Panelboards in:

- > Data center
- > Building
- > Industry
- > Infrastructure



## Strong points

- > Plug & Play
- > Multi-circuit
- > Compact



RJ45 (Digiware Bus) cables are available.

## Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For more information see our website [www.socomec.com](http://www.socomec.com)

## Conformity to standards

- > UL 61010-1  
CSA-C22.2  
61010-1  
Guide PICQ  
File E257746






- > IEC 61557-12



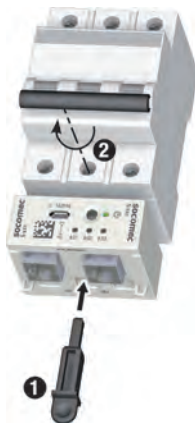
- > ISO 14025



Application	Current measurement module with integrated sensors		
	Metering	Analysis	Monitoring
			
<b>DIRIS Digiware S</b>	<b>S-130</b>	<b>S-135</b>	<b>S-Datacenter</b>
Number of current inputs	3	3	3
Basic current I <sub>b</sub>	10 A	10 A	10 A
Maximum current I <sub>max</sub>	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N
<b>Metering</b>			
± kWh, ± kvarh, kVAh	•	•	•
Multi-tariff (max 8)		•	
Demand profiles		•	•
<b>Multi-measurement</b>			
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•
P, Q, S, PF per phase		•	•
Predictive power		•	
Current unbalance (Inba, Inb, Idir, linv, lhom)		•	
Phi, cos Phi, tan Phi		•	•
<b>Quality</b>			
THDi1, THDi2, THDi3, THDin		•	•
Individual harmonics I (up to 63rd)		•	
Crest factors U, V, I		•	
K factor		•	
Overcurrents		•	
<b>Alarms</b>			
Thresholds and combinations		•	•
Load level			•
Wiring errors		•	•
Protective device		•	•
<b>Trends</b>			
Average values		•	•
<b>Format</b>			
Width	2.12 in		

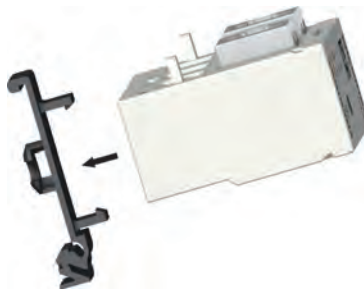
## Mounting accessories

**Temporary MCB insert**  
(for use during panel assembly)



diris-dw\_137\_a.eps

**DIN rail and back plate mounting**



diris-dw\_138\_a.eps

**Cable tie tether**

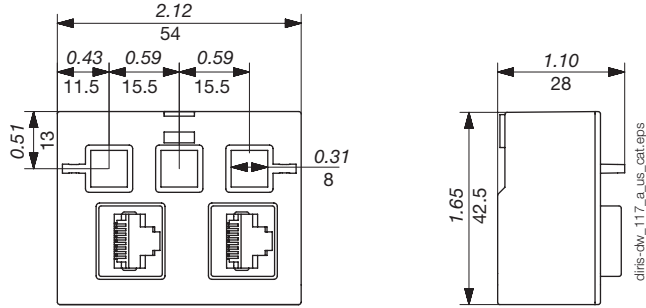


diris-dw\_139\_a.eps

# DIRIS Digiware S

Current measurement module with integrated sensors

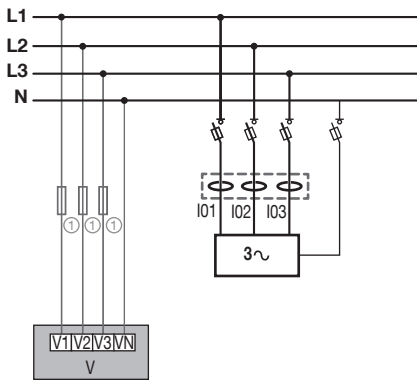
## Dimensions (in/mm)



## Connections

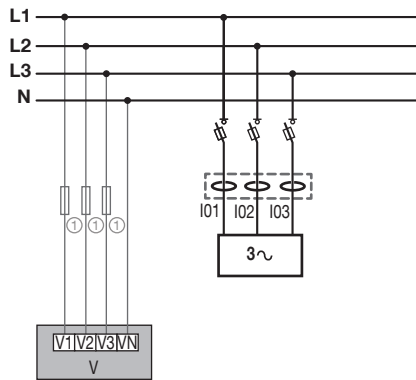
Current is measured by the integrated inputs I01, I02 and I03 on the DIRIS Digiware S module.

### 3P+N - 3CT



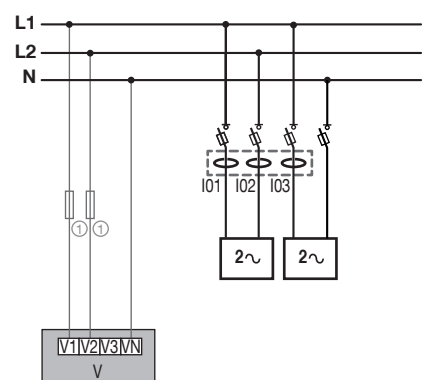
diris-dw\_118\_a\_x\_cat.ai

### 3P - 3CT



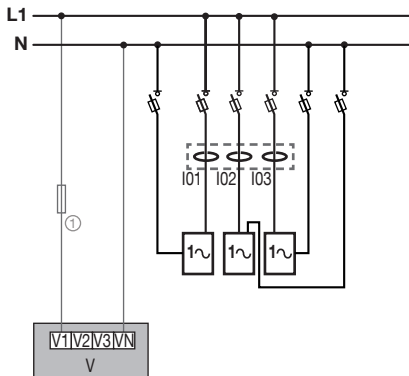
diris-dw\_119\_a\_x\_cat.ai

### 2P+N - 2CT & 2P+N - 1CT



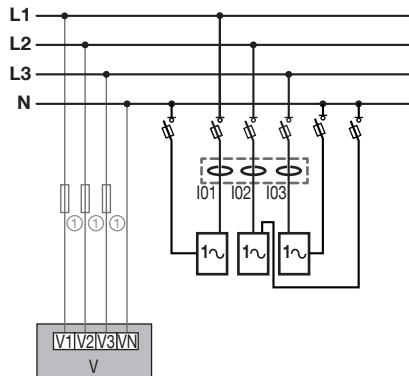
diris-dw\_120\_a\_x\_cat.ai

### 1P+N - 1CT (3x)



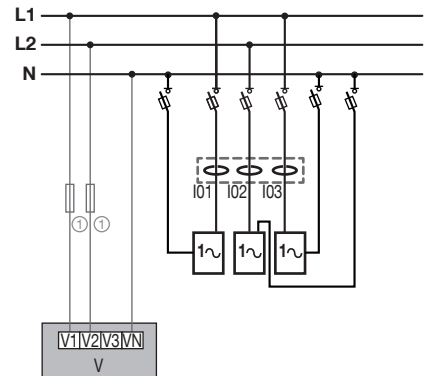
diris-dw\_121\_a\_x\_cat.ai

### 3P+N - 1CT (3x)



diris-dw\_122\_a\_x\_cat.ai

### 2P+N - 1CT (3x)



diris-dw\_123\_a\_x\_cat.ai



Fuses : 0.5 A gG/BS 88 2 A gG/0.5 A class CC

## Technical characteristics

### Measurement characteristics

Measurement of current	
Number of current inputs	3
Associated current sensors	Integrated in the product
Basic current I <sub>b</sub>	10 A
Maximum current I <sub>max</sub>	63 A
Current measurement accuracy	Class 0.5 IEC 61557-12
Measurement of energy	
Accuracy of active energy	Class 0.5 IEC 61557-12
Accuracy of reactive energy	Class 1 IEC 61557-12

### Mechanical characteristics

Casing type	DIN rail or back plate mounting
Casing protection index	IP20/IK08
Weight	2.22 oz / 63 g
Module power consumption	0.35 VA

### Communication specifications

Digiware BUS	
Function	Connection between DIRIS Digiware S, U, I modules and system interfaces
Cable type	Specific Socomec cable with RJ45 connections
USB	
Protocol	MODBUS RTU on USB
Function	Configuration of DIRIS Digiware modules
Location	On each DIRIS Digiware module
Connection	Type B micro USB connector

### Environmental specifications

Ambient operating temperature	+14 ... +131 °F / -10 ... +55 °C
Storage temperature	-13 ... +158 °F / -25 ... +70 °C
Operating humidity	104 °F / 40 °C / 95% RH
Operating altitude	< 6560 feet / 2000 m

## References

DIRIS Digiware S	Reference
S-130	Metering - 3 integrated current inputs 4829 0160
S-135	Analysis - 3 integrated current inputs 4829 0161
S-Datacenter	Single-phase monitoring - 3 integrated current inputs 4829 0162
Accessories	Reference
DIN rail and back plate mounting clip (x10)	4829 0195
Temporary MCB insert (x10)	4829 0196

Digiware connection cables	Part number	
RJ45 cables for Digiware Bus	Length 0.20 feet / 0.06 m <sup>(1)</sup>	4829 0189
	Length 0.32 feet / 0.10 m	4829 0181
	Length 0.64 feet / 0.20 m	4829 0188
	Length 1.64 feet / 0.50 m	4829 0182
	Length 3.28 feet / 1 m	4829 0183
	Length 6.56 feet / 2 m	4829 0184
	Length 9.84 feet / 3 m	4829 0190
	Length 16.4 feet / 5 m	4829 0186
	Length 32.8 feet / 10 m	4829 0187
	164 feet / 50 m reel + 100 connectors	4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)	4829 0180	
USB configuration cable	4829 0050	

(1) The RJ45 0.20-ft cables can be used on 3-pole or 4-pole protective devices.

## Expert Services

### Do you require services for your metering system?

No problem for our local team. They will fully integrate all your Socomec devices, **audit** your system, **commission** selected equipment and **train** your staff on its use. For further information, please contact us.

See page xxx

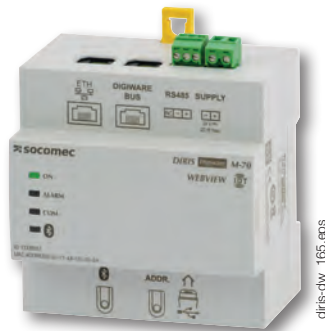




# DIRIS Digiware M

## Multi-protocol communication gateways

Multi-point metering & measurement



DIRIS Digiware M-50 - M-70 gateway



Configuration with EasyConfig System.

### Function

The **DIRIS Digiware M-50 and M-70** communication gateways are the access point for the DIRIS Digiware system, centralizing the 24 VDC power supply and communication in one single point

The M-50 and M-70 act as the Ethernet gateway for all the devices connected on the Digiware or RS485 bus, and integrate a web server to configure the network parameters and to remotely display measurement data

The M-50 and M-70 gateways offer a wide range of functionalities, including:

- memory extension for connected devices
- automatic export of logged consumption and data to an FTP(S) server
- notification emails if there is an alarm on one of the connected devices (SMTPS)
- automatic time synchronization of all connected devices via SNTP

### Advantages

#### Plug & Play

- Direct Digiware and RS485 to Ethernet gateway
- Automatic detection of connected devices.
- Easy setup using the embedded web server
- Safe extra low voltage, 24 VDC, power supply

#### Advanced connectivity

- Ethernet output for communication using multiple protocols: Modbus TCP, BACnet IP and SNMP v1, v2, v3 (encrypted) to suit any metering and power monitoring application
- Possible to configure as RS485 slave, for example to communicate measurement data to a second PLC

#### Embedded web server

WEBVIEW-M embedded in the M-70 and available without license fees, allows users to visualize and analyze real-time and logged data due to graphical tools that are user-friendly and easily accessible to all

#### Cyber security

The M-50 and M-70 gateways allow users to secure the transmission of data and reduce the risk of cyber attacks with special IEC 62443 compliant cyber security features:

- secured HTTPS navigation by uploading TLS/SSL certificates,
- secured data push (FTPS, SMTPS)
- possible to block or restrict certain protocols or services to reduce attack potential
- implementation of a firewall to guard against denial-of-service attacks

### The solution for

- > Building
- > Industry
- > Infrastructure
- > Data Center



### Strong points

- > Plug & Play
- > Advanced connectivity
- > Embedded web server
- > Cyber security



RJ45 (Digiware bus) cables are available.

### Compliance with standards

- > UL 61010, CSA-C22.2 No. 61010, Guide PICQ, File E257746



- > IEC 62974-1 (Energy Server standard)





- > IEC 62443 (Cyber security)



### Create your project

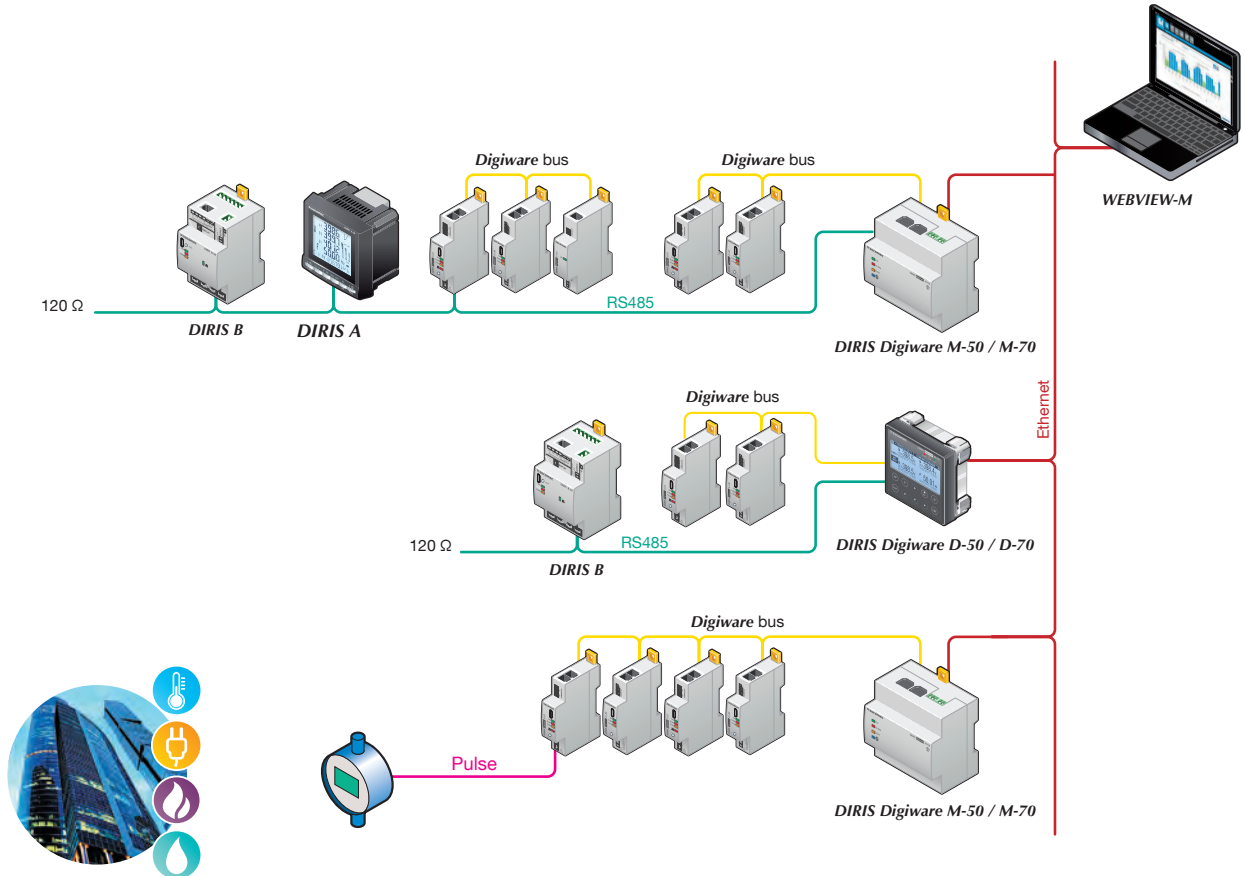
- > Find the best DIRIS Digiware configuration: [www.meter-selector.com](http://www.meter-selector.com)



Application	Multi-protocol communication gateway	
		
<b>DIRIS Digiware M</b>	<b>M-50</b>	<b>M-70</b>
Digiware bus input	•	•
RS485	Input/output <sup>(1)</sup>	Input/output <sup>(1)</sup>
Ethernet output	•	•
Compatible protocols	Modbus RTU Modbus TCP BACnet IP SNMP v1, v2, v3, Traps	Modbus RTU Modbus TCP BACnet IP SNMP v1, v2, v3, Traps
FTP(S) (automatic data export)	•	•
SMTP(S) (email notifications in case of alarm)	•	•
SNTP (time synchronization)	•	•
Web Server	WEB-CONFIG	WEBVIEW-M

(1) The gateways can be configured as Modbus master (RS485 input) or slave (RS485 output).

## Architecture



## Embedded webserver

### WEB-CONFIG (M-50)

The M-50 gateway includes a WEB-CONFIG allowing you to:

- configure the device hierarchy and data access
- block or restrict access to certain peripherals, protocols or services

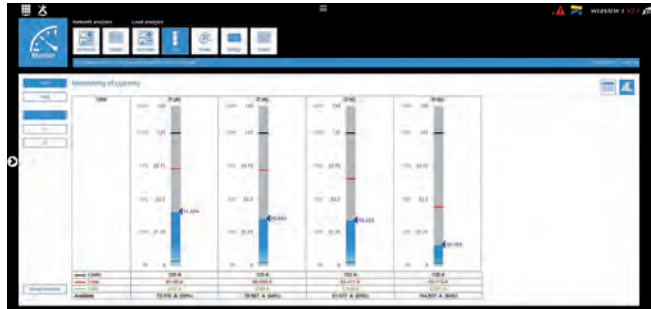
### WEBVIEW-M (M-70)

In addition to the WEB-CONFIG, the M-70 gateway allows a remote visualization of data on the embedded WEBVIEW-M software, available without license fees.

- Real-time measurements
- On-going and terminated alarms
- Consumption curves and load curves per load or usage
- Photoview: displays electrical parameters on a customized background such as a site map, an electrical diagram or a panel picture to provide an overview of your electrical installation

### Data storage

These gateways extend the memory of connected devices so you can log a year's worth of measurements, load curves and consumption curves.



## Configuration

### Device consumption

Device	Power supplied (W)
<b>Power supply</b>	
P15 100-240 VAC / 24 VDC	15
P30 100-240 VAC / 24 VDC	20
Device	Power consumed (W)
<b>Cables</b>	
50-meter package	1.5
<b>System interfaces</b>	
DIRIS Digiware C-31	0.8
DIRIS Digiware D-50/D-70	2.5
DIRIS Digiware M-50/M-70	2.5
<b>Voltage module</b>	
DIRIS Digiware U-xx	0.72
DIRIS Digiware U-3xdc	0.6
<b>Current modules</b>	
DIRIS Digiware I-3x	0.52
DIRIS Digiware I-4x	1.125
DIRIS Digiware I-6x	0.7
DIRIS Digiware I-3xdc (+ 3 DC current sensors)	2
DIRIS Digiware S-xx	0.35
<b>Input/output modules</b>	
DIRIS Digiware IO-10/IO-20	0.5
<b>Repeater</b>	
DIRIS Digiware C-32	1.5

### Calculation rules for the max. number of devices on the Digiware bus

The total power consumed by the devices connected to the Digiware bus must not exceed the power from the 24 VDC supply.

The power supply must not exceed 20 W / 158 °F / 70 °C or 27 W / 104 °F / 40 °C.

#### Size with P15 power supply (ref: 4829 0120) delivering 15 W

For example, it is possible to use

- 1 DIRIS Digiware M-50 gateway (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 164 ft / 50 m of cable (1.5 W)

and

- 29 DIRIS Digiware current modules S-xx ( $29 \times 0.35 = 10.15$  W)
- ⇒ Total power = 14.87 W

or

- 9 DIRIS Digiware current modules I-4x ( $9 \times 1.125 = 10.125$  W)
- ⇒ Total power = 14.845 W.

#### Size with a 24 VDC power supply delivering a maximum of 20 W (P30 ref. 4729 0603)

Possible options include:

- 1 DIRIS Digiware M-50 gateway (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 164 ft / 50 m of cable (1.5 W)

and

- 29 DIRIS Digiware current modules I-3x ( $30 \times 0.52 = 15.08$  W)
- ⇒ Total power = 19.8 W

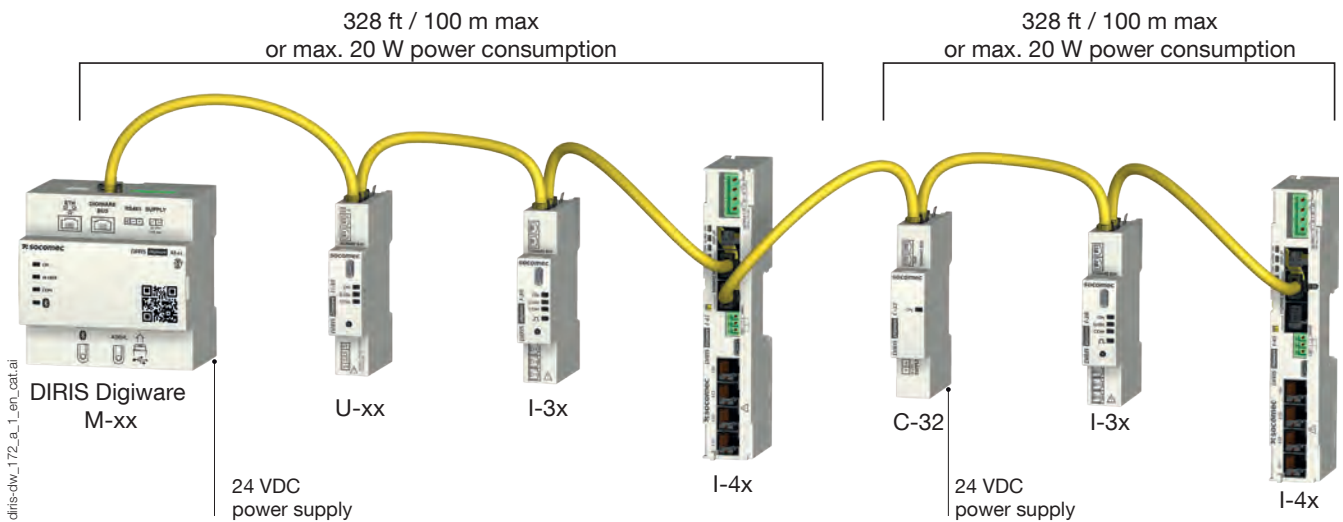
or

- 14 DIRIS Digiware current modules I-4x ( $13 \times 1.125 = 15.72$ )
- ⇒ Total power = 19.345 W.

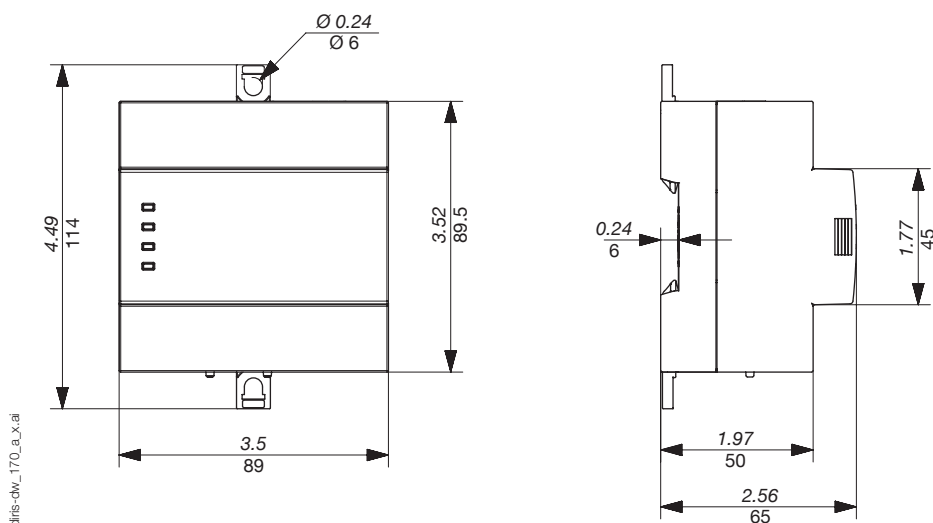
### Repeater

With power consumptions higher than 20 W or distances greater than 328 ft / 100 m, a DIRIS Digiware C-32 repeater is required.

In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



## Dimensions (in/mm)



## Technical characteristics

### Electrical characteristics

Power supply	24 VDC ± 10 % - 20 W max
Power consumption	2.5 W
Battery life	10 years

### Mechanical characteristics

Casing type	DIN-rail or back plate mounting
Weight	0.14 lb / 166 g
Protection degree	IP40 on the nose in modular assembly

### Environmental characteristics

Ambient operating temperature	14 ... 131 °F / -10 ... +55°C
Storage temperature	-13 ... 158 °F / -25 ... +70°C
Operating humidity	95% at 104 °F / 40 °C
Operating altitude	< 6560 ft / 2000 m

### Communication characteristics

Ethernet RJ45 10/100 Mbps	Gateway function (M-50/M-70): Modbus TCP BACnet IP SNMP v1, v2, v3, Traps
---------------------------	--

#### Digiware bus

Function	2 to 3 half duplex wires
Cable type	Specific Socomec cable with RJ45 connection

#### RS485

Connection type	24 VDC +10 % / -20%
Protocol	Modbus RTU
Baudrate	9600 bds (max. 10 devices) 38400 bds - 115200 bds (max. 32 devices)
Function	Communication with PMD and meters or energy management systems (in RS485 slave mode)

#### USB

Protocol	Modbus RTU over USB
Function	Configuration of gateway and connected PMDs/meters

## References

DIRIS Digiware		Reference
M-50	Multi-protocol Ethernet gateway	4829 0221
M-70	Multi-protocol Ethernet gateway with embedded WEBVIEW-M web server	4829 0222
Power supply		Reference
P15	Power supply 100-240 VAC/ 24 VDC 15 W	4829 0120
P30	Power supply 100-240 VAC/ 24 VDC 20 W	4729 0603
Digiware connection cables		Reference
RJ45 cables for Digiware bus	Length 0.2 ft / 0.06 m	4829 0189
	Length 0.32 ft / 0.10 m	4829 0181
	Length 0.64 ft / 0.20 m	4829 0188
	Length 1.64 ft / 0.50 m	4829 0182
	Length 3.28 ft / 1 m	4829 0183
	Length 6.56 ft / 2 m	4829 0184
	Length 9.85 ft / 3 m	4829 0190
	Length 16.4 ft / 5 m	4829 0186
	Length 32.8 ft / 10 m	4829 0187
Terminal for Digiware bus (spare part ref. only as already supplied with M-50 and M-70 gateways)		4829 0180
USB configuration cable		4829 0050
Accessories	Available for order in multiples of	Reference
Fuse holder class CC to protect voltage input 3 pole	4	5705 0003
Class CC 0.5 A fuse	10	6CC0 5000

## Expert Services

### Need help to integrate this system in your network?

No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, **audit** your system, **commission** selected equipment and **train** your staff on its use. For further information, please contact your nearest SOCOMEC branch.

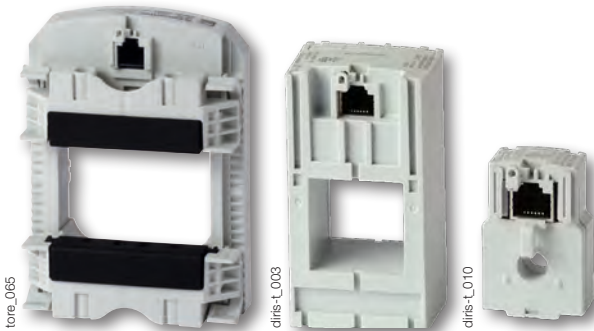


# TE sensors

## Solid current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

Current sensors



TE solid sensors

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > Plug & Play
- > Class 0.5
- > Accuracy as per standard IEC 61557-12
- > Easy Installation

### Conformity to standards

- > UL 61010-1, CSA-C22.2 61010-1, Guide PICQ, File E257746



- > IEC 61557-12



- > ISO 14025



### Function

TE smart **current sensors** measure the load currents of an electrical system and send the data to meters and measurement hubs via an RJ12 plug-and-play output. Featuring a wide measurement range, TE current sensors cover the full current range of 5 to 2000 A, with 7 references. TE solid current sensors can be connected to DIRIS Digiware, DIRIS A-40, or DIRIS B Power Monitoring Devices via a rapid RJ12 connection.

Numerous accessories are available to aid the installation of sensors in any type of cabinet.

### Advantages

#### Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors
- This also allows automatic detection of the sensor type and size/transformation ratio
- The sensors can be installed in both directions

#### Installation

- The TE core sensor range is specially designed for new installations, and has the same pitch as the most common protective devices

#### Accuracy as per standard IEC 61557-12

- Class 0.5 for the global measuring chain (measurement hub + TE current sensors) from **2 to 120%** of the nominal current  $I_n$

**Mounting**

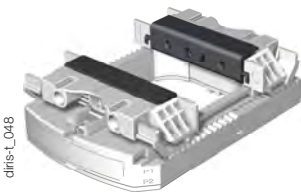
Linear assembly with the protective devices  
TE-25 / TE-35 / TE-45 / TE-55 / TE-90



DIN rail mounted



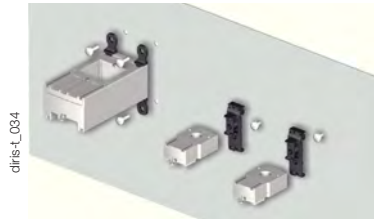
TE-90 clamps



Staggered assembly  
TE-18 / TE-35 / TE-45 / TE-55



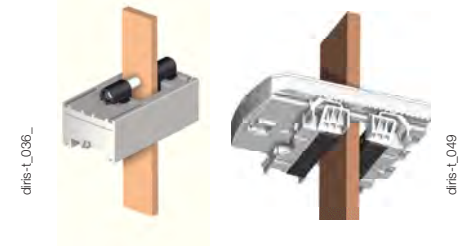
Back-plate mounting



Cable mounting



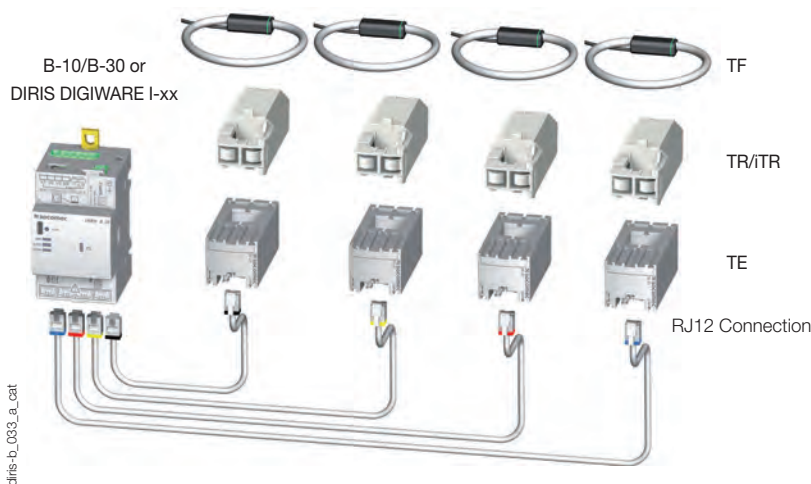
Busbar mounting



**Other Connection Options**

TE / TR / TF current sensors

B-10/B-30 or  
DIRIS DIGIWARE I-xx









# TE sensors

## Solid current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

### Mounting accessories

Mounting accessories delivered with TE sensors:

Switch mounting		TE-18	TE-25	TE-35 TE-45 TE-55	TE-90
	DIN rail and back-plate	1 pc			2 pcs
	DIN rail		2 pcs	2 pcs	
	Back-plate		4 pcs	4 pcs	6 pcs
	Busbar			2 pcs	

diris-t\_042\_a - 043\_a - 044\_a - 045\_a

### Compatible accessories

#### Adapter for CT with 5A secondary

diris-t\_041\_a\_1\_cat



- With this adapter you can use a current transformer with a 5A output on the DIRIS Digiware and DIRIS B-30. For use with standard 5A sensors for measuring applications of > 2000A. The dimensions are the same as the TE-18.

#### Coupling link



diris-t\_020\_a\_1\_cat



- Associated with the TE range, this accessory is for inter-connecting the sensors when linear or staggered mounted.

#### Sealable cover

- Using a sealable cover guarantees the immunity of the sensor connection on TE/TR/iTR/TF current sensors.

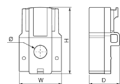


diris-t\_046\_a\_1\_cat

### Dimensions (in/mm)

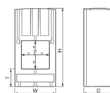
#### TE - Solid current sensors

TE-18

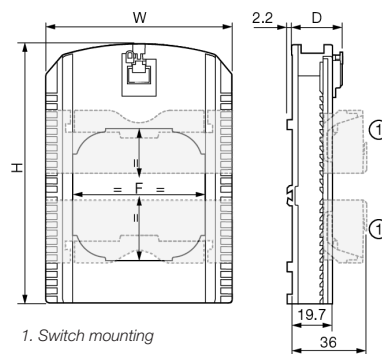


diris-t\_022\_c\_1\_gb\_cat.png

TE-25 / TE-35 / TE-45 / TE-55



TE-90



diris-t\_023\_c\_1\_gb\_cat.png

diris-t\_047\_b\_1\_gb\_cat.png

Model	Nominal current range (A)	Actual coverage range (A)	Pitch (in/mm)	H x W x D (in/mm)	F (in/mm)	T (in/mm)
TE-18	5 ... 20/25 ... 63	0.1 ... 24/0.5 ... 75	0.7/18	1.77 x 1.10 x 0.79/45 x 28 x 20	Ø 0.33/8.6	-
TE-25	40 ... 160	0.8 ... 192	0.98/25	2.56 x 0.98 x 1.28/65 x 25 x 32.5	0.53 x 0.53/13.5 x 13.5	0.69/17.5
TE-35	63 ... 250	1.26 ... 300	1.37/35	2.79 x 1.37 x 1.28/71 x 35 x 32.5	0.82 x 0.82 / 21 x 21	0.69/17.5
TE-45	160 ... 630	3.2 ... 756	1.77/45	3.38 x 1.77 x 1.28/86 x 45 x 32.5	1.22 x 1.22 / 31 x 31	0.77/19.5
TE-55	400 ... 1000	8 ... 1200	2.16/55	3.93 x 2.16 x 1.28/100 x 55 x 32.5	1.61 x 1.61 / 41 x 41	0.85/21.5
TE-90	600 ... 2000	12 ... 2400	3.54/90	4.96 x 3.54 x 0.97/126 x 90 x 24.6	2.52 x 2.52 / 64 x 64	-

## Specifications

TE - Solid current sensors							
Model	TE-18	TE-18	TE-25	TE-35	TE-45	TE-55	TE-90
Nominal current range $I_n$ (A)	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000	600 ... 2000
Actual coverage range (A)	0.1 ... 24	0.5 ... 75	0.8 ... 192	1.26 ... 300	3.2 ... 756	8 ... 1200	12 ... 2400
Max. current (A)	24	75.6	192	300	756	1200	2400
Weight (oz/g)	0.84/24	0.84/24	2.4/69	3.1/89	4.9/140	6.6/187	5.75/163
Max. voltage (phase/neutral)	300 V					600 V	
Rated withstand voltage	3 kV						
Frequency	50/60 Hz						
Intermittent overload	10 x $I_n$ over 1 sec						
Measurement category	CAT III						
Protection degree	IP30 / IK06						
Operating temperature	+14 °F ... +158 °F / -10 ... +70 °C						
Storage temperature	-13 °F ... +185 °F / -25 ... +85 °C						
Relative humidity	95 % non-condensing						
Altitude	< 6560 feet / 2000 m						
Connection	SOCOMEK cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III UL 61010 cable. -40 °F ... +185 °F / -40 °C ... +85 °C						

## References

Model	Nominal current range (A)	Actual coverage range (A)	Pitch (in/mm)	Reference
TE-18	5 ... 20	0.1 ... 24	0.7/18	4829 0500
TE-18	25 ... 63	0.5 ... 75	0.7/18	4829 0501
TE-25	40 ... 160	0.8 ... 192	0.98/25	4829 0502
TE-35	63 ... 250	1.26 ... 300	1.37/35	4829 0503
TE-45	160 ... 630	3.2 ... 756	1.77/45	4829 0504
TE-55	400 ... 1000	8 ... 1200	2.16/55	4829 0505
TE-90	600 ... 2000	12 ... 2400	3.54/90	4829 0506

Accessories	Reference
Coupling link (20 linear assembly parts and 10 for staggered assembly)	4829 0598
CT/5A adapter (measurements of >2000 A) (max primary current 10000 A/5/A)	4829 0599
Sealable caps (20 pieces)	4829 0600

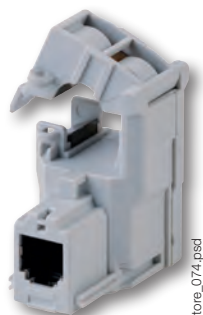
RJ12 connection cables	Cable length (ft/m)									
	0.32/0.1	0.64/0.2	0.96/0.3	1.64/0.5	3.3/1	6.5/2	9.84/3	16.4/5	32.8/10	164/50 + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	4829 0606	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-	-



# TR/iTR sensors

## Split-core AC current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B



TR Split-core current sensors

### Function

The range of **TR** and **iTR split-core current sensors** measures the current of electrical installations. Used with DIRIS Digiware, DIRIS A-40, or DIRIS B Power Monitoring Devices, they can measure currents between 25 and 600 A, with the same guaranteed accuracy. The quick RJ12 connection and the integrated intelligence prevent any configuration errors.

The range of **iTR** current sensors revolutionizes the world of measurement and provides access to VirtualMonitor (monitoring of protective devices) and AutoCorrect (automatic wiring control) technologies.

### Advantages of the TR and iTR ranges

#### Smart sensors

- Sensors with an extended operational range.
- Automatic rating detection.
- Safe on-load disconnection.
- Quick connection via RJ12 color-coded identification of cable.

#### Accurate

- Measurement accuracy is guaranteed according to the most demanding standard (IEC 61557-12): class 0.5 (iTR) or class 1 (TR) for the global measuring chain and on the full scale (from **2%** to **120%** of In)

### Unique advantages of the iTR range

#### VirtualMonitor technology

The VirtualMonitor technology provides monitoring of protective devices:

- Across the entire electrical installation.
- Remotely and in real-time.
- Without additional hardware or wiring.

#### AutoCorrect technology

The AutoCorrect technology guarantees that the measurement system is working correctly, with:

- Automatic identification of wiring errors (verification of phase associations and current flow direction).
- Software correction of errors.
- Available even off-load.

### The solution for

- > Retrofit applications
- > Industry
- > Building
- > Infrastructure
- > Data centers



### Strong points

- > Smart sensors
- > PreciSense technology: Global accuracy in accordance with the IEC 61557-12 standard
- > Easy installation and configuration

### Integrated technologies<sup>(1)</sup>



For more information see our website [www.socomec.us](http://www.socomec.us)

<sup>(1)</sup> AutoCorrect and VirtualMonitor are only available with iTR sensors.

### Compliance with standards

- > UL 61010-1, CSA-C22.2, 61010-1, Guide PICQ, File E257746



- > IEC 61557-12



- > ISO 14025



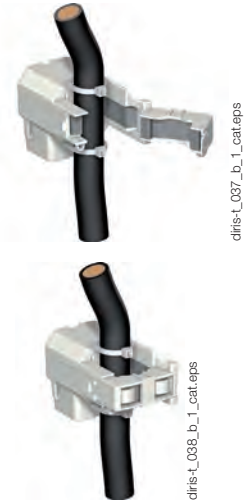
### Create your project

- > Find the best DIRIS Digiware configuration: [www.meter-selector.com](http://www.meter-selector.com)



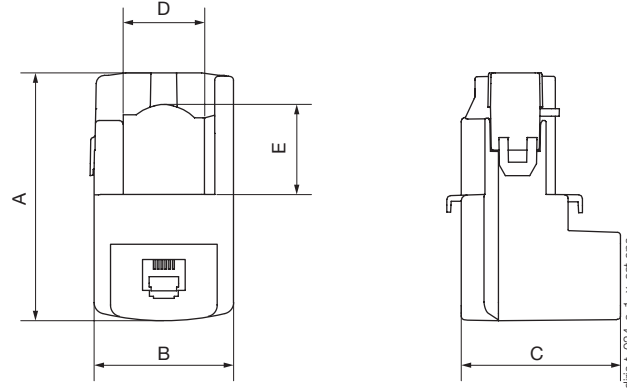
## Installation

Cable mounting



## Dimensions (in/mm)

TR/iTR-10 / TR/iTR-14 / TR/iTR-21 / TR/iTR-32



Model	Nominal current range (A)	Actual coverage range (A)	A (in/mm)	B (in/mm)	C (in/mm)	D (in/mm)	E (in/mm)	Ø (in/mm)
TR/iTR-10	25 ... 63	0.5 ... 75.6	1.73/44	1.02/26	1.10/28	-	-	0.39/10
TR/iTR-14	40 ... 160	0.8 ... 192	2.64/67	1.14/29	1.10/28	0.55/14	0.59/15	0.55/14
TR/iTR-21	63 ... 250	1.26 ... 300	2.56/65	1.46/37	1.69/43	0.83/21	0.91/23	0.83/21
TR/iTR-32	160 ... 600	3.2 ... 720	3.39/86	2.09/53	1.85/47	1.26/32	1.30/33	1.26/32

## Technical characteristics

Model	TR-10	iTR-10	TR-14	iTR-14	TR-21	iTR-21	TR-32	iTR-32
Nominal current range $I_n$ (A)	25 ... 63		40 ... 160		63 ... 250		160 ... 600	
Actual coverage range (A)	0.5 ... 75.6		0.8 ... 192		1.26 ... 300		3.2 ... 720	
Max. current (A)	75.6		192		300		720	
Weight (oz/g)	2.6/74		4.1/117		7.4/211		10.9/311	
Max. voltage (phase/neutral)	300 V							
Rated withstand voltage	3 kV							
Frequency	50/60 Hz							
Intermittent overload	10 x $I_n$ for 1 s							
Measurement category	CAT III							
Global class used with Diris Digiware I / A-40/B-10/B-30	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5
Protection degree	IP20 / IK07							
Operating temperature range	+14 °F ... +158 °F / -10 ... +70 °C						+14 °F ... +131 °F / -10 ... +70 °C	
Storage temperature range	-13 °F ... +185 °F / -25 to +85°C							
Relative humidity	95% RH non-condensing							
Altitude	< 6560 feet / 2000 m							
Connection	SOCOMECS RJ12 cable, straight, twisted pair, unshielded, 600 V, +14 °F ... +158 °F / -10 °C ... +70 °C							

## References

Model	Nominal current range (A)	Actual coverage range (A)	Ø (in/mm)	Part number
TR-10	25 ... 63	0.5 ... 75	0.39/10	4829 0555
TR-14	40 ... 160	0.8 ... 192	0.55/14	4829 0556
TR-21	63 ... 250	1.26 ... 300	0.83/21	4829 0557
TR-32	160 ... 600	3.2 ... 720	1.26/32	4829 0558

Model	Nominal current range (A)	Actual coverage range (A)	Ø (in/mm)	Part number
iTR-10	25 ... 63	0.5 ... 75	0.39/10	4829 0655
iTR-14	40 ... 160	0.8 ... 192	0.55/14	4829 0656
iTR-21	63 ... 250	1.26 ... 300	0.83/21	4829 0657
iTR-32	160 ... 600	3.2 ... 720	1.26/32	4829 0658

RJ12 connection cables	Cable length (ft/m)									
	0.32/0.1	0.64/0.2	0.96/0.3	1.64/0.5	3.3/1	6.5/2	9.84/3	16.4/5	32.8/10	164/50
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	4829 0606	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-	-



# TF sensors

## Flexible TF current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

Current sensors

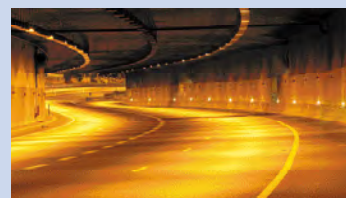


TF Flexible current sensors

diris-L077.eps

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data centers



### Strong points

- > Plug & Play
- > Accuracy according to IEC 61557-12
- > Ideal solution for retrofit applications
- > Simplified installation

### Integrated technologies



PreciSense

For more information see our website  
www.socomec.us

### Compliance with standards

- > UL 61010-1, CSA-C22.2 No 61010-1, Guide PICQ, IEC 61557-12



- > IEC 61557-12



- > ISO 14025



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



DIGITAL TOOL AVAILABLE

### Function

TF flexible **current sensors** measure the load currents of an electrical circuit and send the data to the meters and Power Monitoring Devices or current modules via an RJ12 plug-and-play connection. With a wide measurement range, TF current sensors cover a broad current range from 150 to 6000 A, with only 5 references. TF flexible current sensors can be used with DIRIS Digiware I modules, DIRIS A-40 and DIRIS B.

### Advantages

#### Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and rating.
- The sensors can be installed in both directions.

#### Accuracy according to IEC 61557-12

- Class 0.5 for the global measuring chain (PMD + TF current sensors) from 2 to 120% of the nominal current  $I_n$ .
- Accuracy is guaranteed regardless of the position of the conductor in the loop.

#### Safe locking mechanism

- The locking system prevents the loop from opening, guaranteeing continuous functioning and accuracy even under harsh conditions.

#### Ideal solution for retrofit applications

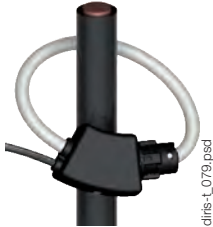
- The TF flexible sensor range is specially designed for existing installations with strict integration constraints or with high-intensity currents.

#### Simplified installation

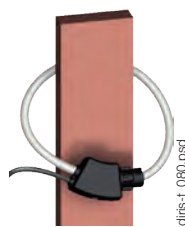
- The Rogowski integrator is built into the RJ12 cable enabling a quick and compact integration (no DIN rail assembly required) inside electrical panels.
- The integrator is self supplied by the PMD through the RJ12 cable and does not need any external power supply.

### Installation

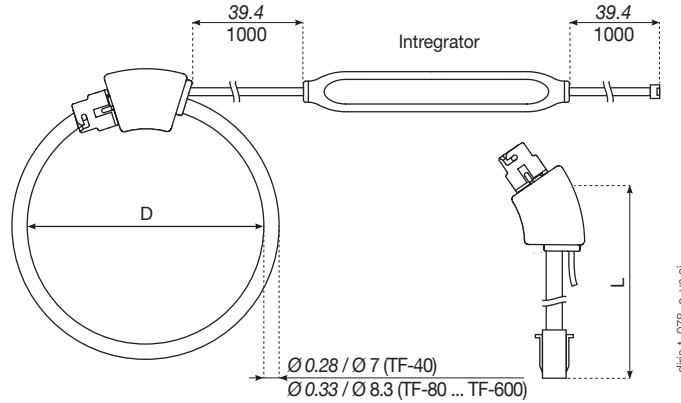
#### Cable mounting



#### Bar mounting



### Dimensions (in / mm)



Model	Nominal current range (A)	Real range covered (A)	D = Ø loop (in/mm)	L = Loop length (in/mm)
TF-55	150 ... 600	3 ... 720	2.16 / 55	6.81 / 173
TF-80	150 ... 600	3 ... 720	3.15 / 80	2.88 / 251
TF-120	400 ... 2000	8 ... 2400	4.72 / 120	14.84 / 377
TF-200	600 ... 4000	12 ... 4800	7.87 / 200	24.72 / 628
TF-300	1600 ... 6000	32 ... 7200	11.81 / 300	37.09 / 942
TF-600	1600 ... 6000	32 ... 7200	23.62 / 600	74.21 / 1885

Integrator dimensions (in / mm): 5.04 x 0.75 x 0.59 / 128 x 19 x 15

### Technical characteristics

Model	TF-55	TF-80	TF-120	TF-200	TF-300	TF-600
Nominal current range $I_n$ (A)	150 ... 600	150 ... 600	400 ... 2000	600 ... 4000	1600 ... 6000	1600 ... 6000
Actual range covered (A)	3 ... 720	3 ... 720	8 ... 2400	12 ... 4800	32 ... 7200	32 ... 7200
Weight (oz/g)	4/114	4.85/130	5/142	5.78/164	6.81/193	9.67/274
Max. voltage (phase/neutral)	600 V					
Rated withstand voltage	3.6 kV					
Accuracy class	Class 0.5 in association with DIRIS Digiware I, DIRIS A-40, DIRIS B					
Frequency	50 / 60 Hz					
Intermittent overload	10 x $I_n$ for 1 s					
Measurement category	CAT III					
Protection degree	IP30 / IK07					
Operating temperature	+ 14°F ... + 158°F / -10°C to +70°C					
Storage temperature	- 13°F ... +185°F / -25°C to +85°C					
Relative humidity	95% RH non-condensing					
Altitude	< 2000 m					
Connection	SOCOMEK RJ12 cable, straight, twisted pair, unshielded, 600 V, + 14°F ... + 158°F / - 10°C ... + 70°C					

### References

Model	Nominal current range (A)	Real range covered (A)	D = Ø loop (mm)	L = Loop length (mm)	Reference
TF-55	150 ... 600	3 ... 720	55	173	4829 0570
TF-80	150 ... 600	3 ... 720	80	251	4829 0574
TF-120	400 ... 2000	8 ... 2400	120	377	4829 0575
TF-200	600 ... 4000	12 ... 4800	200	628	4829 0576
TF-300	1600 ... 6000	32 ... 7200	300	942	4829 0577
TF-600	1600 ... 6000	32 ... 7200	600	1885	4829 0578
<b>Accessories</b>					<b>Reference</b>
Female/female connector for extension of the RJ12 connection between PMD and TF sensor.					4829 0670

RJ12 connection cables	Cable length (ft/m)									
	0.32/0.1	0.64/0.2	0.96/0.3	1.64/0.5	3.3/1	6.5/2	9.84/3	16.4/5	32.8/10	164 / 50 reel + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	4829 0606	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-	-



# DIRIS Digiware Udc

DC voltage measurement module

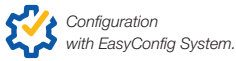
Multi-circuit metering & measurement



DIRIS Digiware U-31dc/U-32dc



DIRIS Digiware U500dc/U1000dc/U1500dc adaptor



Configuration with EasyConfig System.

## Function

The **DIRIS Digiware U-3xdc** module measures DC voltage for the entire system. It measures up to 180 VDC with a direct connection and is therefore compatible with typical nominal voltages (24 VDC, 48 VDC, etc.).

The voltage adaptors make the system compatible with all voltage levels up to 1650 VDC to respond to the needs of all applications.

The RJ45 Digiware Bus transmits voltage measurements along with power supply and communication to all connected products.

## Advantages

### Single voltage measurement

- Single voltage measurement point for the entire system.
- Single point of protection for the voltage measurement.
- No hazardous voltage on panel doors.

### Flexible

- The voltage adaptors make the measurement system compatible with all DC electrical networks.

### Plug & Play

- Easy to configure from DIRIS Digiware D interfaces or from the Easy Config configuration software.

## The solution for

- > Data center
- > Telecommunication
- > Renewable power
- > Transportation



## Strong points

- > Centralization of voltage measurement
- > Flexible
- > Plug & Play



RJ45 (Digiware Bus) cables are available.

## Conformity to standards

- > UL 61010-1, CSA-C22.2 No. 61010-1, Guide PICQ, File E257746








- > IEC 61557-12



- > ISO 14025

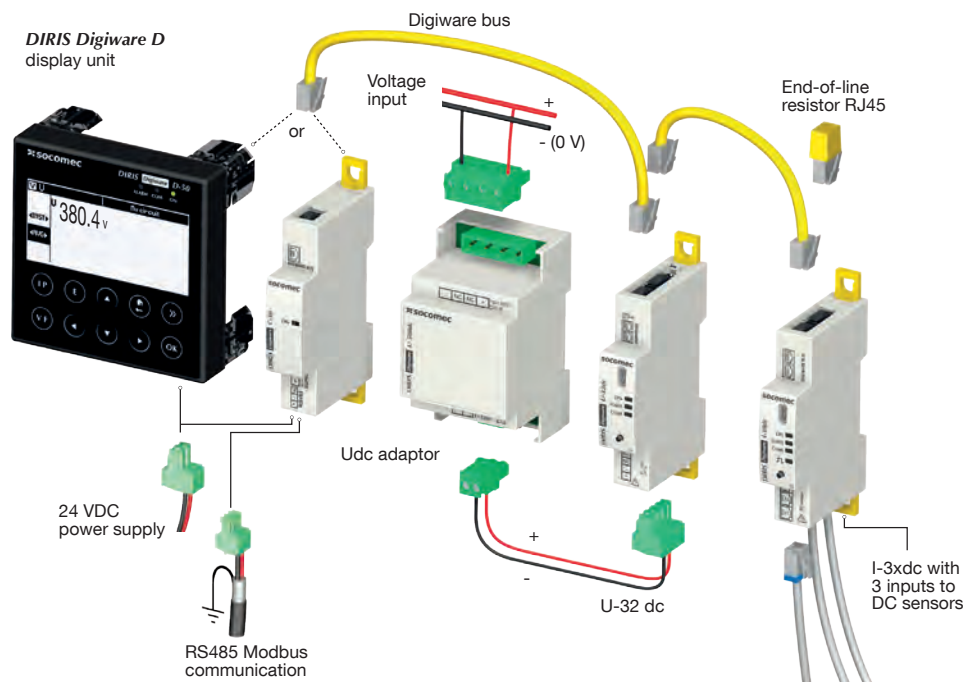


Application	DC voltage measurement	
		
<b>DIRIS Digiware Udc</b>	<b>U-31dc</b>	<b>U-32dc</b>
<b>Nominal voltage range</b>	24 ... 48 VDC	60 ... 150 VDC
<b>Measuring range (min-max)</b>	19.2 ... 60 VDC	48 ... 180 VDC
<b>Multi-measurement</b>		
DC voltage (VDC)	•	•
<b>Power quality</b>		
V ripple (voltage ripple)	•	•
V <sub>rms</sub>	•	•
<b>Alarms</b>		
Thresholds and combinations	•	•
<b>Trends</b>		
Average values	•	•
<b>Format</b>		
Width/number of modules	0.71 in / 1	

Application	DC voltage adaptors		
			
<b>DIRIS Digiware Udc</b>	U500dc	U1000dc	U1500dc
<b>Max. voltage range</b>	200 ... 600 VDC	400 ... 1200 VDC	1200 ... 1650 VDC
<b>Association</b>			
U-32dc	•	•	•
<b>Format</b>			
Width/number of modules	2.13 in / 3		

## Connections

### DIRIS Digiware DC wiring with optional Udc voltage adaptors



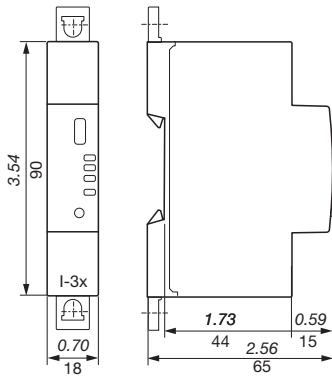


# DIRIS Digiware Udc

DC voltage measurement module

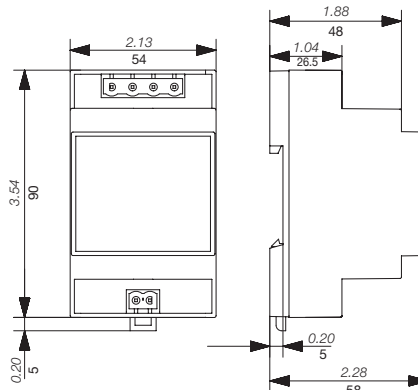
## Dimensions (in/mm)

### DIRIS Digiware U-3xdc



diris-dw\_106\_a\_1\_us\_cat

### DIRIS Digiware adaptors U500dc/U1000dc/U1500dc



diris-dw\_115\_a\_1\_us\_cat

## Technical characteristics

### Measurement characteristics

DC voltage measurement - DIRIS Digiware U	
Features of the network measured (min-max)	Without adaptors: U-31dc : 19.2 - 60 VDC U-32dc : 48 - 180 VDC  With adaptor: U-32dc + adaptor U500dc : 200 - 600 VDC U-32dc + adaptor U1000dc : 400 - 1200 VDC U-32dc + adaptor U1500dc : 1200 - 1650 VDC
Voltage measurement accuracy without adaptor	Class 0.5
Voltage measurement accuracy with adaptor	Class 1
Connection without adaptor	Removable screw terminal block, 2 positions, AWG 10 ... AWG 32 or 0.2 ... 2.5 mm <sup>2</sup> stranded or solid cable
Connection with adaptor	Adaptor input: Removable screw terminal block, 2 positions, AWG 10 ... AWG 32 or 0.2 ... 2.5 mm <sup>2</sup> stranded or solid cable Adaptor output: Removable screw terminal block, 2 positions, AWG 10 ... AWG 32 or 0.2 ... 2.5 mm <sup>2</sup> stranded or solid cable
Module power consumption	0.6 VA

### Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 front face in modular assembly / IK06
Weight	2.26 oz / 64 g

### Environmental specifications

Ambient operating temperature	+14 °F ... +158 °F / -10 ... +70 °C
Storage temperature	-13 °F ... +158 °F / -25 ... +70 °C
Operating humidity	131 °F / 55 °C / 97% relative humidity
Operating altitude	6560 feet / < 2000 m

### Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware modules
Location	On each DIRIS Digiware measurement module
Connection	Type B micro USB connector
Digiware bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

## References

Digiware connection cables		Part number
RJ45 cables for Digiware Bus	Length 0.20 feet / 0.06 m	4829 <b>0189</b>
	Length 0.32 feet / 0.10 m	4829 <b>0181</b>
	Length 1.64 feet / 0.50 m	4829 <b>0182</b>
	Length 3.28 feet / 1 m	4829 <b>0183</b>
	Length 6.56 feet / 2 m	4829 <b>0184</b>
	Length 9.84 feet / 3 m	4829 <b>0190</b>
	Length 16.4 feet / 5 m	4829 <b>0186</b>
	Length 32.8 feet / 10 m	4829 <b>0187</b>
	Length 164 feet / 50 m reel + 100 connectors	4829 <b>0185</b>
Termination for Digiware Bus (supplied with interfaces C and D)		4829 <b>0180</b>
USB configuration cable		4829 <b>0050</b>

DIRIS Digiware		Part number
U-31dc	Voltage measurement 19.2 ... 60 VDC	4829 <b>0150</b>
U-32dc	Voltage measurement 48 ... 180 VDC	4829 <b>0151</b>
U500dc	Voltage adaptor 200 ... 600 VDC	4829 <b>0153</b>
U1000dc	Voltage adaptor 400 ... 1200 VDC	4829 <b>0154</b>
U1500dc	Voltage adaptor 1200 ... 1650 VDC	4829 <b>0155</b>



# DIRIS Digiware Idc

## Direct current measurement module

Multi-circuit metering & measurement



DIRIS Digiware I-30dc/I-35dc



Configuration with EasyConfig System.

### Function

DIRIS Digiware Idc modules measure consumption and monitor the DC electrical installation. Several of these modules can be used within the same system, allowing the measurement of a large number of DC circuits. They are powered with DIRIS Digiware Udc voltage measurement modules.

Direct current is measured using external sensors connected by RJ12-Molex cables, available in multiple lengths. These cables are color coded (brown, orange, white) to easily identify circuits.

### Advantages

#### Multi-circuit

- Measurement of up to 3 DC circuits per Idc module.
- Multiple Idc modules can be connected together which allows the measurement of a large number of DC loads simultaneously.

#### Flexible

- Adapted to suit metering and quality analysis of the direct current.
- A complete range of solid core and split core DC current sensors from 16 to 6000 A.

The associated DIRIS Digiware D screen and the embedded webserver Webview can display electrical measurements from both DIRIS Digiware AC and DC systems simultaneously.

#### Plug & Play

- Quick RJ45 connection between modules and RJ12-Molex to current sensors.
- Easy to configure from DIRIS Digiware D interfaces or from the Easy Config System.

#### Compact

One module wide to address space constraints inside electrical panels.

### The solution for

- > Data center
- > Telecommunication
- > Renewable power
- > Transportation



### Strong points

- > Multi-circuit
- > Plug & Play
- > Flexible
- > Compact



RJ45 (Digiware Bus) cables are available.

### Conformity to standards

- > UL 61010-1, CSA-C22.2 No. 61010-1, Guide PICQ, File E257746





- > ISC 61557-12



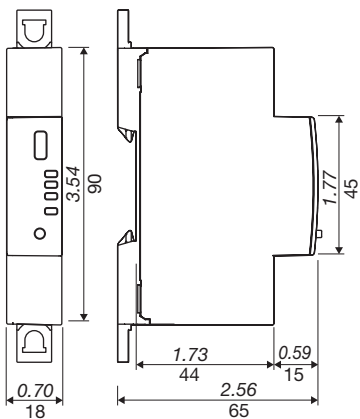
- > ISO 14025



Application	Direct current (DC) measurement modules	
		
<b>DIRIS Digiware I<sub>dc</sub></b>	<b>I-30dc</b>	<b>I-35dc</b>
Number of current inputs	3	3
<b>Metering</b>		
± kWh	•	•
Demand profiles		•
<b>Multi-measurement</b>		
DC current (I DC)	•	•
DC power (P DC)	•	•
Predictive power		•
<b>Measurement of current quality</b>		
I ripple (current ripple)		•
I rms		•
<b>Alarms</b>		
Thresholds and combinations		•
<b>Trends</b>		
Average values		•
<b>Format</b>		
Width/number of modules	0.71 in / 1	

## Dimensions (in/mm)

### DIRIS Digiware I<sub>dc</sub>

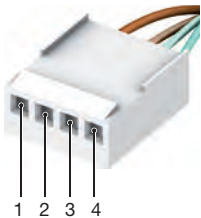
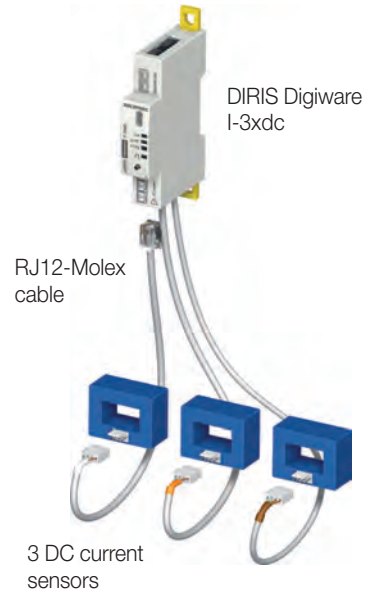


diris-dw\_100\_a\_1\_us\_cat.eps

## Connections

DC current is measured by external sensors connected to the DIRIS Digiware I-3xdc modules via RJ12-Molex cables. Connection of the current sensors is quick and error free. A wide range of current sensors is available from Socomec to suit all installations and applications including split-core current sensors for retrofit applications.

- Open-loop Hall effect sensors
- Solid core or split core.
- Power supply voltage:  $\pm 15$  V.
- Power supply current:  $\pm 25$  mA depending on sensor.
- Output voltage:  $\pm 4$  V.
- 4-point male Molex terminal strip.
- Measuring range: 16 to 6000 A.
- Category III overvoltage.

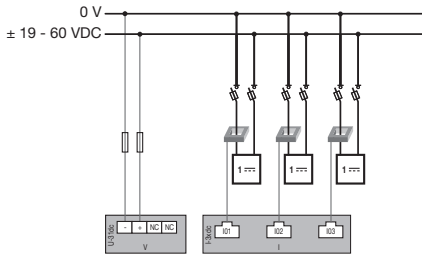


- PIN 1: + 15 V (+ Vc)
- PIN 2: - 15 V (- Vc)
- PIN 3: sensor input (M)
- PIN 4: 0 V sensor (0)

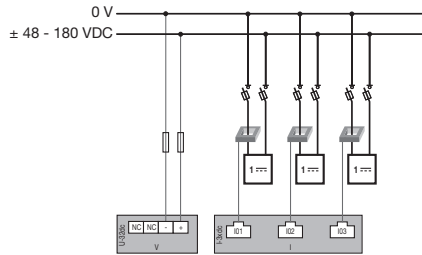
## Network and connection examples

### Measurement of 3 DC loads

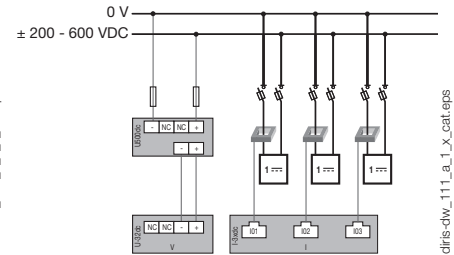
**DIRIS Digiware U-31dc**  
Voltage (VDC): 19 - 60 V



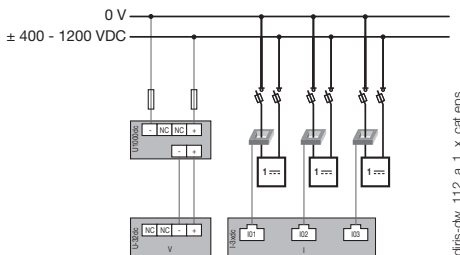
**DIRIS Digiware U-32dc**  
Voltage (VDC): 48 - 180 V



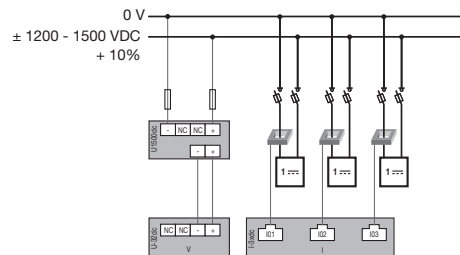
**DIRIS Digiware U-32dc + adaptor U500dc**  
Voltage (VDC): 200 - 600 V



**DIRIS Digiware U-32dc + adaptor U1000dc**  
Voltage (VDC): 400 - 1200 V



**DIRIS Digiware U-32dc + adaptor U1500dc**  
VDC voltage: 1200 - 1500 V +10%



1. Fuse: 2A gPV  DC current sensor  DC load

## Technical characteristics

### Measurement characteristics

DC current measurement - DIRIS Digiware Idc	
Number of current inputs	3
Associated current sensors	Open-loop Hall effect
Accuracy of current measurement	Class 0.5
Precision measurement of power and energy	With U-31dc/U-32dc only: class 1 With U-32dc + adaptor: class 2
Connection	Specific Socomec cable with RJ12-Molex connectors
Power consumption of module	2 VA

### Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 front face in modular assembly / IK06
Weight	2.43 oz / 69 g

### Environmental specifications

Ambient operating temperature	+14 °F ... +158 °F / -10 ... +70 °C
Storage temperature	-4 °F ... +158 °F / -20 ... +70 °C
Operating humidity	131 °F / 55 °C / 97% relative humidity
Operating altitude	< 6560 feet / 2000 m

### Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector
Digiware bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

## References

DIRIS Digiware I-3xdc		Part number
I-30dc	Metering - 3 current inputs	4829 0156
I-35dc	Analysis - 3 current inputs	4829 0157
RJ12-Molex cables		
Number of cables	Length of cables	Part number
3	0.98 feet / 0.3 m	4829 0782
3	1.64 feet / 0.50 m	4829 0783
3	3.28 feet / 1 m	4829 0784
3	6.56 feet / 2 m	4829 0785
1	16.4 feet / 5 m	4829 0786

Digiware connection cables		Part number
RJ45 cables for Digiware Bus	Length 0.20 feet / 0.06 m	4829 0189
	Length 0.32 feet / 0.10 m	4829 0181
	Length 1.64 feet / 0.50 m	4829 0182
	Length 3.28 feet / 1 m	4829 0183
	Length 6.56 feet / 2 m	4829 0184
	Length 9.84 feet / 3 m	4829 0190
	Length 16.4 feet / 5 m	4829 0186
	Length 32.8 feet / 10 m	4829 0187
	Length 164 feet / 50 m reel + 100 connectors	4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180
USB configuration cable		4829 0050

## Expert Services

### Do you require services for your metering system?

No problem for our local team. They will fully integrate all your Socomec devices, **audit** your system, **commission** selected equipment and **train** your staff on its use. For further information, please contact us.



# DC current sensors

Associated with DIRIS Digiware DC

Current sensors



tore\_072\_a.eps

Solid-core sensors 50 ... 600 A



tore\_104\_a\_OPEN\_FRONTeps

Split-core sensors 50 ... 500 A



tore\_068\_a.eps

Solid-core sensors 850 ... 5000 A



tore\_066\_a.eps

Split-core sensors 800 ... 2000 A

## The solution for

- > Data center
- > Telecommunication
- > Renewable power
- > Transportation



## Strong points

- > Plug & Play
- > Wide selection of ratings
- > Simplified installation

## Compliance with standards

- > UL 508, CSA-C22.2 No. 14, Guide NMTR, File E189713
- > IEC 61010-1



## Function

The **DC current sensors** measure the DC load currents of an electrical installation and transmit information to the DIRIS Digiware Idc measurement modules via an RJ12 cable.

The range consists of solid-core and split-core sensors ranging from 50 to 5000 A in various sizes allowing them to be used in new or existing electrical installations.

Up to 3 different DC sensors can be connected to the same DIRIS Digiware Idc module.

## Advantages

### Plug & Play

- A quick RJ12 connection makes wiring easy and reliable.
- Fast configuration of the current sensors.

### Flexible

- A complete range of solid-core and split-core sensors from 50 to 5000 A designed for new or existing electrical installations.

### Installation

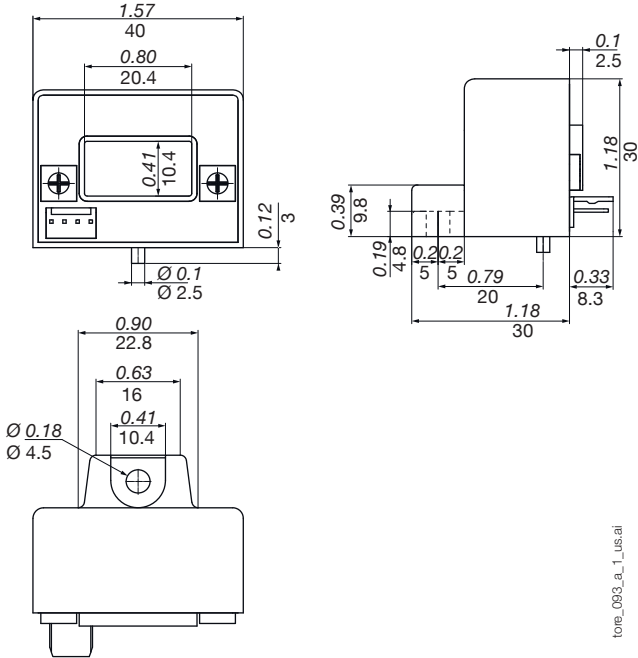
- Easy to install.
- Ideal for installations with limited space available.
- Only 4 different frame sizes cover a wide measurement range.
- Color-coded cables for ease of identification, and to prevent wiring errors.

### Bi-Directional Metering

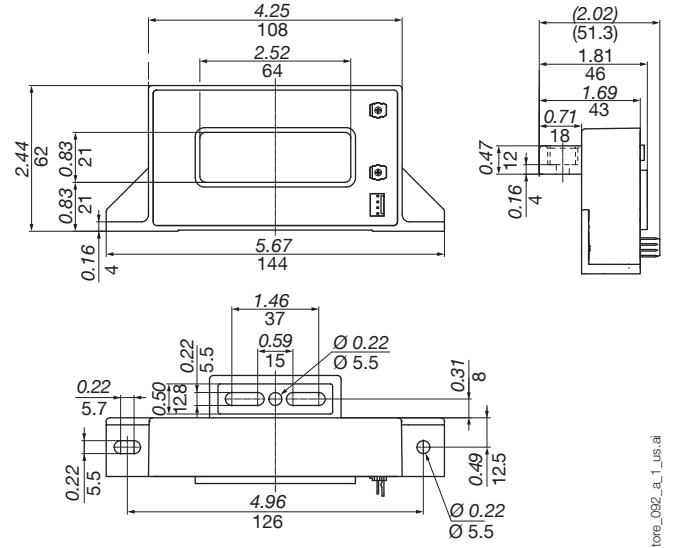
- DIRIS Digiwar DC measure the flow of electricity in both directions.

Dimensions (in/mm)

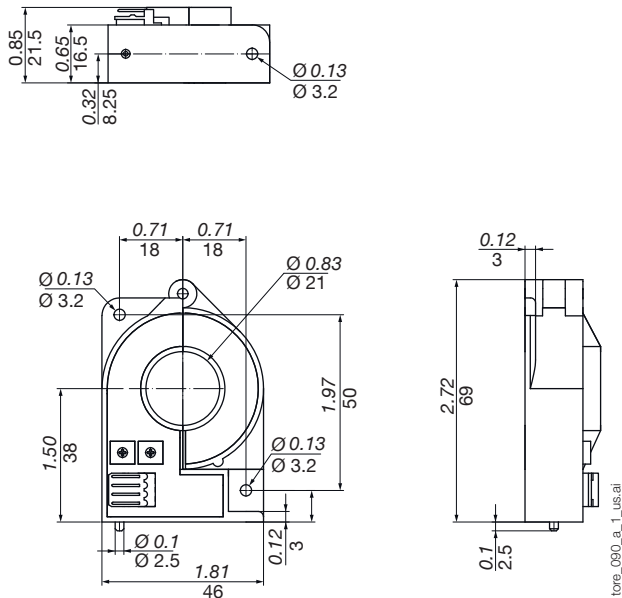
Solid-core sensors 50 ... 600 A (frame size 1)



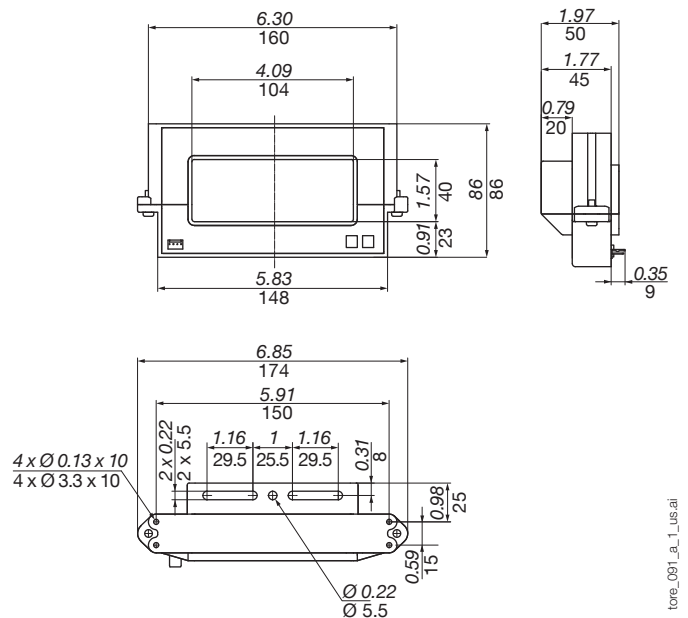
Solid-core sensors 850 ... 5000 A (frame size 2)



Split-core sensors 50 ... 500 A (frame size 1)



Split-core sensors 800 ... 2000 A (frame size 2)





# DC current sensors

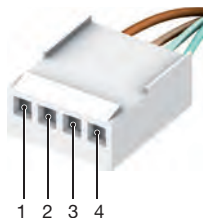
Associated with DIRIS Digiware DC

## Connections

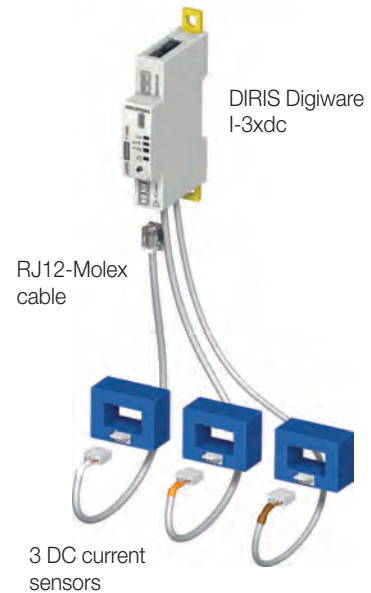
DC current is measured by external sensors connected to the DIRIS Digiware I-3xdc modules via RJ12-Molex cables. Connection of the current sensors is quick and error-free. A wide range of current sensors is available from Socomec to suit all installations and applications including split-core current sensors for retrofit applications.

The DC current sensors have the following technical characteristics:

- Open-loop Hall effect sensors.
- Solid-core or split-core.
- Power supply voltage:  $\pm 15$  V.
- Power supply current:  $\pm 25$  mA depending on the sensor.
- Output voltage:  $\pm 4$  V.
- 4-point male Molex terminal strip.
- Measurement range: 16 to 5000 A.
- Category III overvoltage.



- PIN 1: + 15 V (+ Vc)
- PIN 2: - 15 V (- Vc)
- PIN 3: sensor input (M)
- PIN 4: 0 V sensor (0)



## Technical characteristics

Type of current sensor	Open-loop Hall effect
Connection	Specific Socomec cable with RJ12-Molex connectors
Accuracy of current measurement	Solid-core sensors: 50 ... 600 A: < 1% Solid-core sensors: 850 ... 5000 A: < 1% Split-core sensors: 50 ... 500 A: < 2% Split-core sensors: 800 ... 2000 A: < 2%

Weight	Solid-core sensors 50 ... 600 A	2.12 oz / 60 g
	Solid-core sensors 850 ... 5000 A	15.87 oz / 450 g
	Split-core sensors 50 ... 500 A	2.82 oz / 80 g
	Split-core sensors 800 ... 2000 A	20.8 oz / 590 g
Operating temperature	Solid-core sensors 50 ... 600 A	+14 °F ... +176 °F / -10 ... +80 °C
	Solid-core sensors 850 ... 5000 A	-13 °F ... +185 °F / -25 ... +85 °C
	Split-core sensors 50 ... 500 A	+14 °F ... +158 °F / -10 ... +70 °C
	Split-core sensors 800 ... 2000 A	+14 °F ... +158 °F / -10 ... +70 °C
Storage temperature	Solid-core sensors 50 ... 600 A	-13 °F ... +176 °F / -25 ... +80 °C
	Solid-core sensors 850 ... 5000 A	-13 °F ... +185 °F / -25 ... +85 °C
	Split-core sensors 50 ... 500 A	-4 °F ... +185 °F / -20 ... +85 °C
	Split-core sensors 800 ... 2000 A	-13 °F ... +185 °F / -25 ... +85 °C

## References

DC current sensors	Reference
<b>Solid-core sensors (frame size 1)</b>	
50 A	4829 0700
100 A	4829 0701
200 A	4829 0702
300 A	4829 0703
400 A	4829 0704
500 A	4829 0705
600 A	4829 0706
<b>Solid-core sensors (frame size 2)</b>	
850 A	4829 0707
1000 A	4829 0708
1500 A	4829 0709
2000 A	4829 0710
2500 A	4829 0711
5000 A	4829 0712
<b>Split-core sensors (frame size 1)</b>	
50 A	4829 0750
100 A	4829 0751
200 A	4829 0752
300 A	4829 0753
400 A	4829 0754
500 A	4829 0755
<b>Split-core sensors (frame size 2)</b>	
800 A	4829 0756
1000 A	4829 0757
1500 A	4829 0758
2000 A	4829 0759

RJ12-MOLEX cables		
Number of cables	Length of cables	Reference
3	0.98 feet / 0.3 m	4829 0782
3	1.64 feet / 0.50 m	4829 0783
3	3.28 feet / 1 m	4829 0784
3	6.56 feet / 2 m	4829 0785
1	16.4 feet / 5 m	4829 0786



# DIRIS Digiware IO

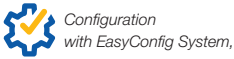
## Digital and analog input/output modules

Multi-circuit metering and measurement



**DIRIS Digiware IO-10**  
4 digital inputs/2 digital outputs

**DIRIS Digiware IO-20**  
2 analog inputs



Configuration with EasyConfig System.

### Function

DIRIS Digiware IO modules enrich the measurement system with multiple features:

- DIRIS Digiware IO-10 modules have 4 digital inputs and 2 digital outputs. The 4 digital inputs can be used to monitor the status of protection devices and removable drawers (ON/OFF, trip counter) or to collect pulses from multi-fluid meters. The 2 digital outputs allow the remote control of switching devices by sending a binary output signal. Alarms can be configured and assigned to the digital outputs.

- Due to the modules 2 analog inputs, DIRIS Digiware IO-20 modules can collect the data from analog sensors (pressure, humidity, temperature...).
- All the information reported by the IO-10 and IO-20 modules  
All the information reported by the IO-10 and IO-20 modules can be viewed on DIRIS Digiware D-xx displays and on Webview, the web server embedded in DIRIS M gateways and in the DIRIS Digiware D-70 display unit.

### Advantages

#### Plug & Play

The IO modules can be easily added anywhere within the measurement system due to a quick RJ45 connection.

#### Multifunction

The combination of voltage measuring modules, current measuring modules, and input/output modules makes DIRIS Digiware a complete and versatile system.

#### Connected

All the reported information is accessible from the displays, from Webview or any other centralized management software.

#### Compact

The modular format allows the quick connection of a large number of IO-10 and IO-20 modules.

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > Plug & Play
- > Multifunction
- > Connected
- > Compact

### Compliance with standards

- > UL 61010-1, CSA-C22.2 No. 61010-1, Guide PICQ, File E257746



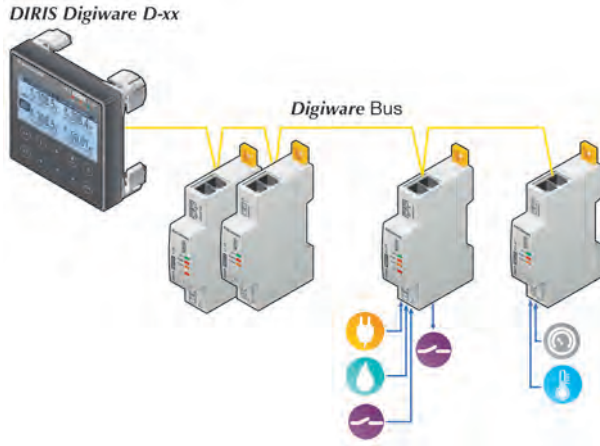
- > IEC 61557-12



- > ISO 14025



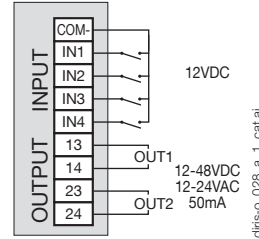
## Application diagram



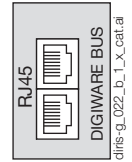
## Connections

### DIRIS Digiware IO-10

#### Digital inputs/outputs

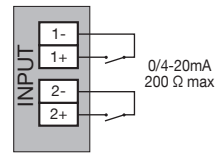


#### Digiware Bus

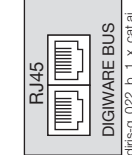


### DIRIS Digiware IO-20

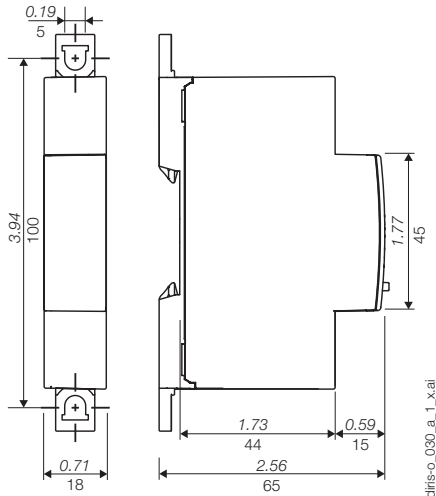
#### Analog inputs



#### Digiware Bus



## Dimensions (in/mm)



## Technical characteristics

### Measuring characteristics

#### Digital inputs/outputs- DIRIS Digiware IO-10

Number of inputs	4
Type/power supply	Insulated input, internal polarisation 12 VDC max., 3 mA
Input function	- Logical status - Status of the circuit breaker, of the drawer (ON/OFF, trip counter) - Pulse counter
Number of outputs	2
Type	Insulated output, 48 VDC max., 50 mA and 24 VAC max.
Output function	- Remote control of status - Alarm signal linked to the inputs (exceeding threshold, status...)
Input/output connection	Removable screw terminal block, 9 positions (5 dedicated to inputs, 4 dedicated to outputs) Stranded or solid 0.14 to 1.5 mm <sup>2</sup> cable

#### Analog inputs - DIRIS Digiware IO-20

Number of inputs	2
Type/power supply	0/4-20 mA, 200 Ω max
Accuracy	0.5% full scale
Function	Connection of analog sensors (pressure, humidity, temperature...) with choice of interpolation (linear or quadratic)
Input connection	Removable screw terminal block 2x2 positions, AWG 15 to AWG 35 or 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

## References

Digiware connection cables	Reference
Length 0.32 feet/0.10 m	4829 0181
Length 0.66 feet/0.20 m	4829 0188
Length 1.64 feet/0.50 m	4829 0182
Length 3.28 feet/1 m	4829 0183
Length 6.56 feet/2 m	4829 0184
Length 4.84 feet/3 m	4829 0190
Length 16.4 feet/5 m	4829 0186
Length 32.8 feet/10 m	4829 0187
Length 164 feet/50 m reel + 100 connectors	4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)	4829 0180
USB configuration cable	4829 0050

DIRIS Digiware input/output modules	Reference
IO-10	4 digital inputs/2 outputs module 4829 0140
IO-20	2 analog input module 4829 0145



# DIRIS DigiBOX M

Enclosed multi-point metering solution for retrofit applications

Enclosed multi-point metering solution



conf-uj\_038\_a.eps

**DIRIS DigiBOX 8**  
Centralization and display of data



Configuration with EasyConfig System.

## Function

Socomec's enclosed metering line **DIRIS DigiBOX** is designed to offer a complete and modular metering solution in NEMA1,3R enclosures for indoor and outdoor use. With ease of installation for retrofit applications and factory pre-wired Plug & Play technology, DIRIS DigiBOX solutions provide considerable savings in installation costs. The solution offers the benefits of the Digiware technology.

## Advantages

### Plug & Play

- Factory pre-wired.
- RJ12 current sensor connection.
- Automatic detection of ratings and verification of current flow direction.
- Disconnection of the current sensor secondary under load.

### Accurate

Accuracy of measurements guaranteed according to ANSI C12.20 and IEC standard 61557-12:

- Better than revenue grade: class 0.5 from 2 % to 120 % of rated current for the global measurement chain (associated with TE / TF current sensors).
- Class 0.2 for the meter alone.

### Safe & reliable

- Durable NEMA 1,3R.
- cULus listed enclosures and components.
- Fused voltage connections.
- Reliable detailed wiring instructions.

### Bi-Directional Metering

DIRIS Digiware measures the flow of electricity in both directions.

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



## Strong points

- > Plug & Play
- > Accurate
- > Safe & reliable

## Conformity to standards

- > cULus 508A
- > UL 61010-1, CSA-C22.2 No. 61010-1, Guide PICQ, File E257746
- > IEC 61557-12



## Specifications

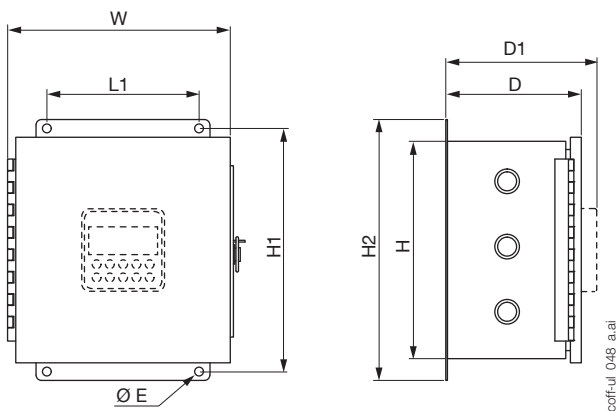
	DigiBOX				DigiBOX Pro				DigiBOX Flex	
	2	4	6	8	2	4	6	8		
Number of metered points	2	4	6	8	2	4	6	8	Customized solution	
Number of current inputs	8	12	18	24	8	12	18	24		
Metering modules	DIRIS Digiware	DIRIS Digiware	DIRIS Digiware	DIRIS Digiware	DIRIS Digiware	DIRIS Digiware	DIRIS Digiware	DIRIS Digiware		
<b>Multi-measurement</b>										
Currents, voltages (ph/ph and ph/n), active/reactive/apparent powers, power factor, frequency	•	•	•	•	•	•	•	•		
Voltage/current unbalance					•	•	•	•		
Power factor, cos Phi, tan Phi					•	•	•	•		
<b>Metering</b>										
kWh(+/-), kvarh (+/-), kVAh	•	•	•	•	•	•	•	•		
Multi-tariff	•				•	•	•	•		
Load curves					•	•	•	•		
<b>Power Quality</b>										
THDV, THDU, THDI	•				•	•	•	•		
Individual harmonics V, U & I (up to rank 63)					•	•	•	•		
Voltage dips, cut-offs and surges (EN50160)					•	•	•	•		
Overcurrents					•	•	•	•		
Alarms					•	•	•	•		
Communication	RS485/Ethernet									
Enclosure rating	NEMA 1/3R									
Display & gateway	Optional									
<b>Dimensions</b>										
H x W x D (inches)	12 x 12 x 6.6	12 x 12 x 6.6	12 x 12 x 6.6	12 x 12 x 6.6	12 x 12 x 6.6	12 x 12 x 6.6	12 x 12 x 6.6	12 x 12 x 6.6		
<b>References</b>										
No display	USDBB02ND0	USDBB04ND0	USDBB06ND0	USDBB08ND0	USDBP02ND0	USDBP04ND0	USDBP06ND0	USDBP08ND0		
With display	USDBB02D50	USDBB04D50	USDBB06D50	USDBB08D50	USDBP02D50	USDBP04D50	USDBP06D50	USDBP08D50		
Display & gateway	USDBB02D70	USDBB04D70	USDBB06D70	USDBB08D70	USDBP02D70	USDBP04D70	USDBP06D70	USDBP08D70		
Customized metering and communication solution	Made to order - contact us									

600V rated available, please consult us.

### DigiBOX accessory enclosures

Description	Reference
12 x 12 x 6.6 - NEMA 3R - Enclosure only with back-plate and 2 DIN rails	USDBENC-001
12 x 10 x 6.2 - NEMA 3R - Polycarbonate Enclosure with display cutout	USDBENC-003

### Dimensions (in)



	H	H1	H2	D	D1	L1	W	Ø E
DigiBOX and DigiBOX Pro 2, 4, 6 & 8 with display	12	13.5	14.6	6.6	-	3	12	0.25
DigiBOX and DigiBOX Pro 2, 4, 6 & 8 without display	12	13.5	14.6	6.6	7	3	12	0.25



# DIRIS B

## Multifunction power monitoring devices

Measurement & wireless metering



DIRIS B-10 / B-30  
RS485

diris\_b\_038.psd



Configuration with EasyConfig System.

### Function

The DIRIS B is a power monitoring device in a modular format that communicates via RS485. The four RJ12 independent current inputs of the device allow it to manage several types and number of circuits: for example, 4 single-phase loads or 1 three-phase load + 1 single-phase load.

The DIRIS B is connected to current sensors (RJ12 connection) that are suitable for all types of installation: solid-core TE, split-core TR / ITR, and Rogowski TF current sensors.

### Advantages

#### Plug & Play

A rapid RJ12 connection makes wiring easy and reliable to prevent wiring errors. Automatically addressing and configuring the product (communication address, load type, type and ratio of current sensor) simplifies implementation and saves time.

#### Better than revenue grade

- Class 0.2 for the meter alone according to ANSI C12.20.
- Class 0.5 according to IEC 61557-12 from 2 to 120% of nominal current for the global measurement chain (associated with TE/ITR/TF current sensors).

#### Bi-Directional Metering

DIRIS Digiware measures the flow of electricity in both directions.

#### Multi-circuit

- Four current measurement inputs allow you to configure multiple circuits in order to optimize the number of measurement devices per installation.

#### Communication

- The DIRIS B can be connected to:
  - a remote DIRIS D-30 screen for displaying measurement and metering data.
  - DIRIS Digiware M-50/M-70 gateways for centralization and communication of data via Ethernet. DIRIS Digiware M-70 embeds WEBVIEW-M, a webserver for remote visualization of measurement data.
  - optional digital or analog input/output modules, as well as temperature input modules can also be connected.

### The solution for

- > Industry
- > Building
- > Infrastructure



### Strong points

- > Plug & Play
- > Revenue grade accuracy ANSI C12.20
- > Multi-circuit
- > Communication

### Integrated technologies



For more information see our website [www.socomec.us](http://www.socomec.us)

### Conformity to standards

- > UL 61010-1, CSA-C22.2 No. 51010-1, Guide PICQ, File E257746





- > IEC 61557-12

- > ISO 14025

- > CEC Compliant

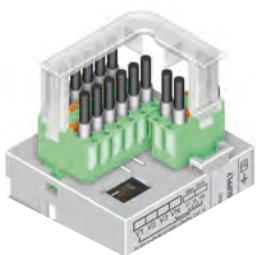


Application	Local metering	Local analysis
		
<b>DIRIS B</b>	<b>B-10</b> RS485	<b>B-30</b> RS485
Number of current inputs	4	4
<b>Metering</b>		
± kWh, ± kvarh, kVAh	•	•
Load curves		•
Multi-tariff (demand)	•	•
<b>Multi-measurement</b>		
U12, U23, U31, V1, V2, V3, f	•	•
U system, V system	•	•
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•
P, Q, S, PF per phase	•	•
Predictive power	•	•
Ph/N unbalance	•	•
Ph/Ph unbalance	•	•
Current unbalance (Inba, Idir, linv, Ihom, Inb)	•	•
Phi, cos Phi, tan Phi	•	•
<b>Power quality analysis</b>		
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31	•	•
THDi1, THDi2, THDi3, THDIn	•	•
Individual harmonics U & V (up to 63 <sup>rd</sup> )		•
Individual harmonics I (up to 63 <sup>rd</sup> )		•
Crest factor I1, I2, I3, In		•
Crest factor V1, V2, V3, U12, U23, U31		•
Voltage sags, interruptions, swells (EN 50160)		•
Overcurrents		•
<b>Alarms</b>		
On threshold		•
Inputs/outputs	•	•
<b>History of average values</b>		
45 days (max)		•
<b>Communication</b>		
RS485 Modbus	•	•
2 inputs (status/pulse)	•	•

## Accessories

### DIRIS B sealing cover

- Prevents access to the cabling of the monitoring device.



### USB configuration cable (6.56 ft / 2 m)

- Advanced configuration of DIRIS B gateways can be achieved using the EASY CONFIG System via Ethernet or direct USB connection.



# DIRIS B

Multifunction power monitoring devices

## DIRIS D-30 display

DIRIS D-30

Connection



diris-d\_001\_a\_1\_cat



diris-d\_004\_b\_1\_x\_cat

DIRIS D-30

DIRIS B

## Optional modules

DIRIS O



diris-b\_001\_a

Optional module

DIRIS B



Optional modules (4 max.)\*

- Digital inputs/outputs
- Analog inputs/outputs
- Temperature inputs

\* maximum 4 optional modules with maximum 1 temperature module.



diris-o\_019\_a

**DIRIS O-iod**

- 2 digital inputs centralizes the metering pulses or the input status changes of the auxiliary contacts.
- 2 digital outputs can be connected to configurable alarms warning of exceeded thresholds (power, current, etc.) or can be piloted remotely.



diris-o\_018\_a

**DIRIS O-ioa**

- 2 inputs (4-20 mA) centralize analog sensors (pressure, humidity, temperature, etc.)
- 2 outputs (4-20 mA) report the measurements (power, currents, etc.) to PLCs.

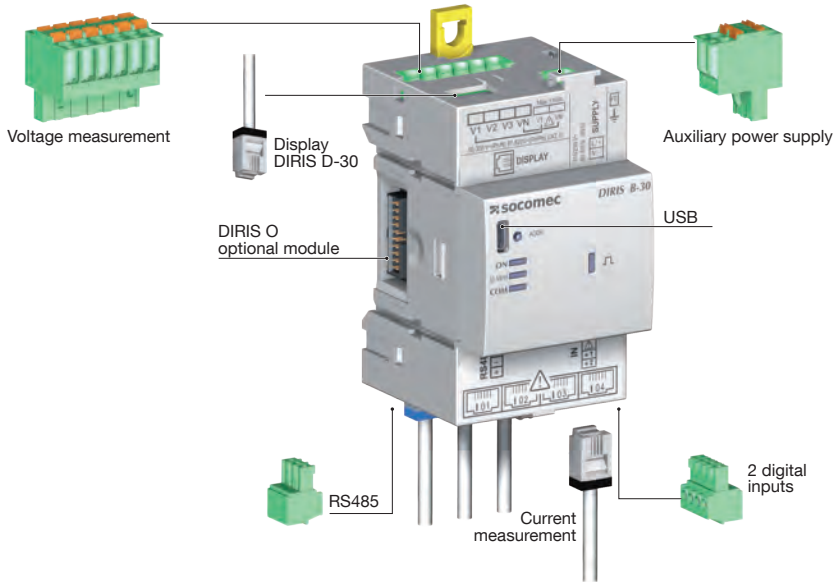


diris-o\_020\_a

**DIRIS O-it**

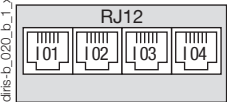
- 3 temperature inputs to be connected to PT100 or PT1000 sensors.
- Ambient air temperature:

**DIRIS B terminals**

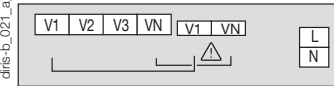


diris-d\_027\_b\_1\_gb\_cat

**Current measurement**

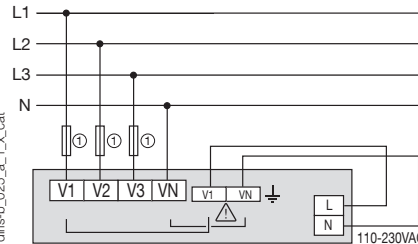


**Voltage measurement and auxiliary power supply**

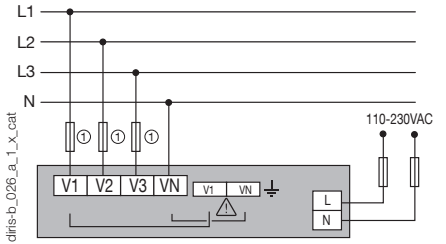


**Self supply**

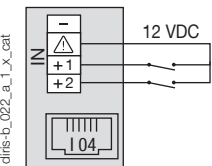
Easy connection of the power supply from the measurement terminal (specific terminals)



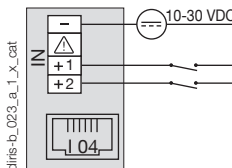
**Separate power supply**



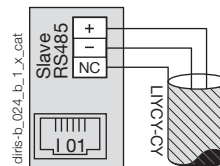
**2 inputs supplied by the product**



**2 inputs with external power supply**



**RS485**

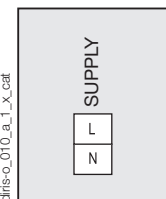


**RJ9 for DIRIS D-30 (self-supply and data)**

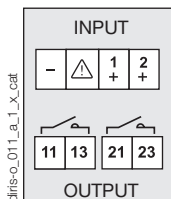


**Terminals of optional DIRIS O modules**

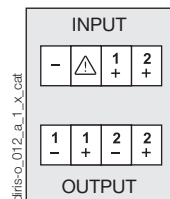
**Optional module power supply**



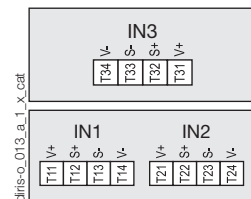
**DIRIS O-iod**



**DIRIS O-ioa**



**DIRIS O-it**



diris-o\_010\_a\_1\_x\_cat

diris-o\_011\_a\_1\_x\_cat

diris-o\_012\_a\_1\_x\_cat

diris-o\_013\_a\_1\_x\_cat

# DIRIS B

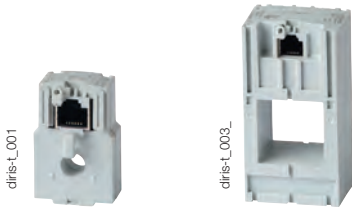
Multifunction power monitoring devices

## Connections

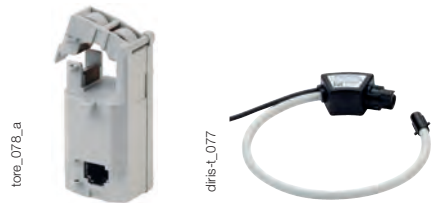
### Associated current sensors

Various types of current sensors can be connected to the DIRIS B: Solid-core TE, split-core TR/iTR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS B automatically recognizes the type of sensor used and its current rating. This guarantees the overall accuracy of the DIRIS B + current sensor measurement chain.  
For more information: see "current sensor" pages.

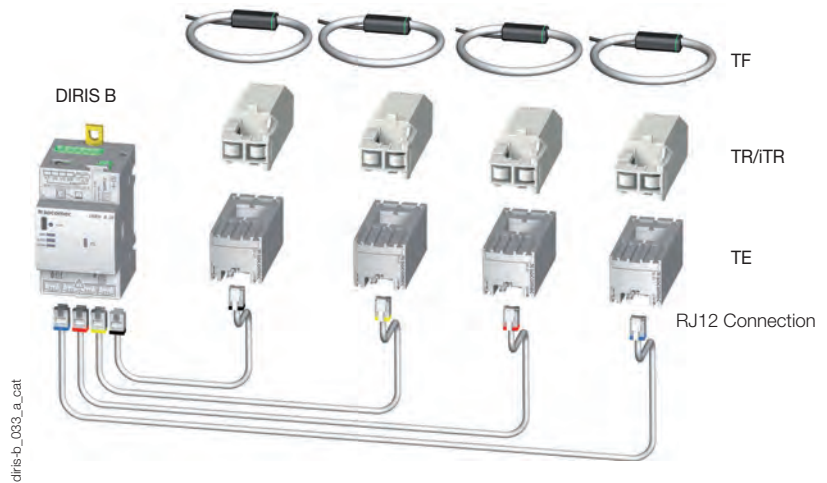
TE solid-core current sensors



TR/iTR split-core current sensors TF flexible current sensors



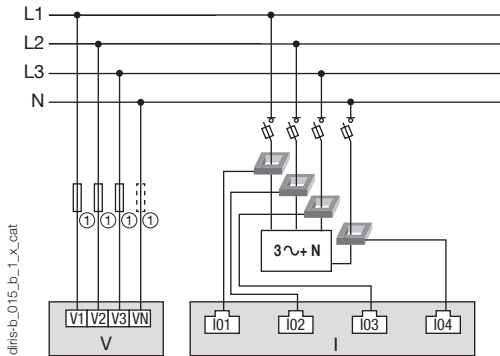
TE / TR/iTR / TF current sensors



### Network and connection examples

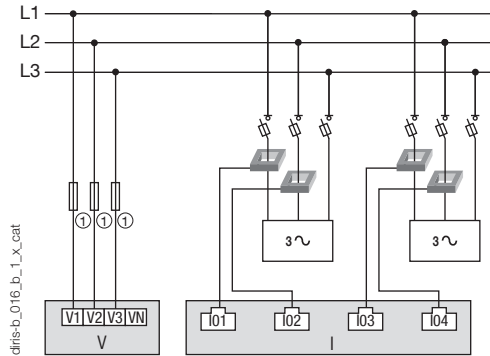
#### Three phase + neutral

3P+N - 4CTs (measurement for 1 three-phase load + Neutral)



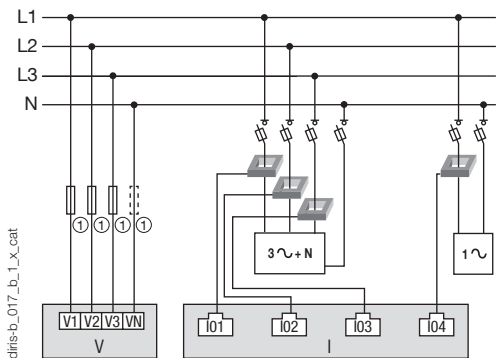
#### Three-phase

3P - 2CTs (2 three-phase loads without neutral)



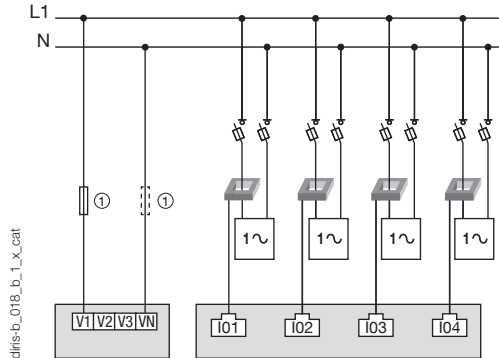
#### Three-phase

3P+N - 3CTs & 1P+N - 1CT (1 three-phase load & 1 single-phase load)



#### Single-phase

1P+N-1CT (4 single-phase loads)

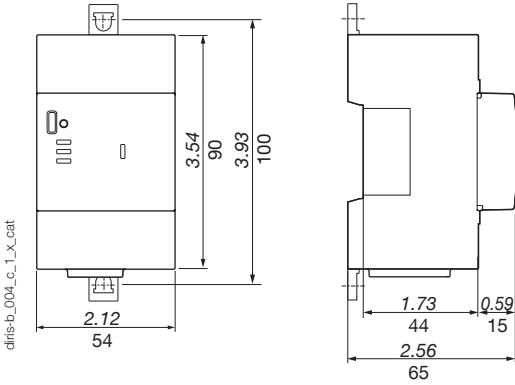


1. Fuses 0.5 A class CC.  
In case of self-supply, a fuse must be added on the neutral.

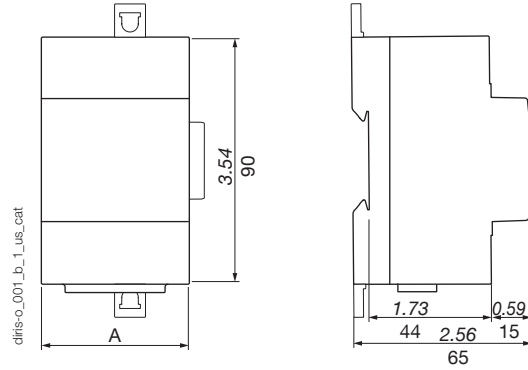


Dimensions (in/mm)

DIRIS B

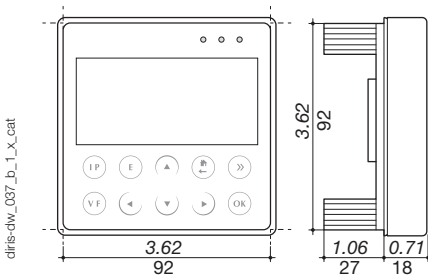


DIRIS O optional modules



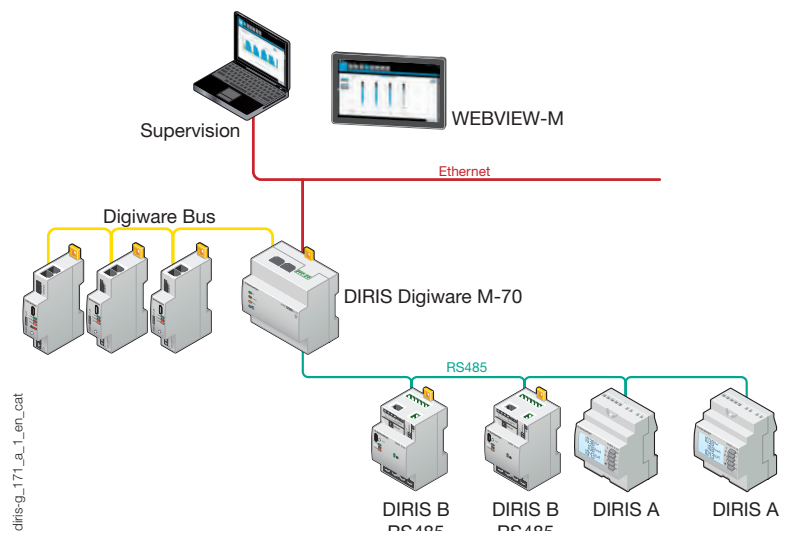
DIRIS O optional modules	A (in / mm)
DIRIS O-iod - DIRIS O-iaa - DIRIS O-it	1.77 / 45

DIRIS D-30



Communication architecture

Example of communication architecture with DIRIS Digiware M-70 gateway and WEBVIEW-M embedded web server.



# DIRIS B

Multifunction power monitoring devices

## DIRIS B characteristics

### Electrical characteristics

Auxiliary power supply	
AC voltage	110-230 VAC ±15 % (Ph/N ou Ph/Ph) Cat III
Frequency	50/60 Hz
Consumption	< 2 VA without display < 6 VA with display
Connection	Removable spring-cage terminal, 2 x 2 positions, AWG 10 ... 24 / 0.5 ... 2.5 mm <sup>2</sup> solid cable or AWG 15 ... 30 / 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule

### Measurement characteristics

Energy and power measurement	
Accuracy	Class 0.2 DIRIS B alone
Active energy and active power	Class 0.5 with TE, ITR or TF current sensors Class 1 with TR current sensors
Reactive energy accuracy	Class 2 with TE, TR/ITR or TF current sensors

Power factor measurement	
Accuracy	Class 0.5 with TE, ITR or TF current sensors Class 1 with TR current sensors

Voltage measurement	
Network characteristics measured	50-300 VAC (Ph/N) - 87-520 VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65 Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Permanent overload	300 VAC Ph/N
Voltage measurement accuracy	Class 0.2
Connection	Removable spring-cage terminal, 2 x 6 positions, AWG 10 ... 24 / 0.5 ... 2.5 mm <sup>2</sup> solid cable or AWG 15 ... 30 / 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule

Current measurement	
Number of current inputs	4
Associated current sensors	Solid TE, split-core TR/ITR, flexible TF current sensors
Accuracy	Class 0.2 DIRIS B alone Class 0.5 with TE, ITR or TF current sensors Class 1 with TR current sensors
Connection	RJ12 connectors with specific SOCOMEC cable

### Input characteristics

Number	2
Type / Power supply	Optocoupler internal polarisation (12 VDC ± 10 %) or external polarisation (10-30 VDC ± 10%)
Input function	Logic status, pulse meter or synchronization pulse status (input 1)

### Communication characteristics

DIRIS B RS485	
Link	RS485
Connection type	2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 ... 115200 bauds
USB	DIRIS B RS485 configuration

### Environment characteristics

Operating temperature	+14 ... +158 °F / -10 ... +70 °C
Storage temperature	-13 ... +185 °F / -25 ... +85 °C
Operating humidity	131 °F / 55 °C / 97% relative humidity
Operating altitude	6560 feet / 2000 m
Vibration	1G from 10 to 100Hz

## DIRIS D-30 display characteristics

Mechanical characteristics	
Screen type	Capacitive touch-screen technology, 10 keys
Screen resolution	350 x 160 pixels
Single product connection	
RJ9	Self-supply and data
Micro-USB	Updating
Degree of protection	IP65 (front face)
Environment	
Storage temperature (°C)	-4 ... +158 °F / -20 ... +70 °C
Operating temperature (°C)	-4 ... +158 °F / -20 ... +70 °C
Humidity	95 % at 104 °F / 40 °C
Installation category	CAT III
Degree of pollution	2

## DIRIS O optional modules characteristics

Power supply <sup>(1)</sup>	
AC voltage	110-230 VAC ±15 %
Frequency	50/60 Hz

(1) No power supply on DIRIS O-it.

DIRIS O-iod - 2 digital inputs/2 digital outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	Optocoupler internal polarisation (12 VDC ± 10 %) or external polarisation (10-30 VDC ± 10%)
Function	Logic status or pulse meter
Number of outputs	2 per optional modules - max. 4 optional modules
Type	Relay / 230VAC ±15 % - 1 A
Function	Configurable alarm (current, power,...) on threshold overruns or remote controlled status
Inputs/Outputs connection	Removable screw terminal, 4 positions, AWG 15 ... 35 / 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

DIRIS O-ioa - 2 analog inputs/2 analog outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Connection of analog sensors (pressure, humidity, temperature...)
Number of outputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Transmission of measurement image (current, power...) to PLCs

DIRIS O-it - 3 temperature inputs	
Number of inputs	3 external inputs + 1 measurement for ambient temperature
Dynamic	-4 ... 302 °F / -20 ... 150 °C
Type	PT100 or PT1000
Function inputs 1, 2 and 3	Temperature measurement

## References

<b>DIRIS B monitoring devices</b>		<b>Reference</b>
DIRIS B-10	RS485 - Modbus - 230 VAC	4829 <b>0010</b>
DIRIS B-30	RS485 - Modbus - 230 VAC	4829 <b>0000</b>
<b>DIRIS O optional modules</b>		<b>Reference</b>
DIRIS O-iod	2 digital inputs / 2 digital outputs	4829 <b>0030</b>
DIRIS O-ica	2 analog inputs/2 analog outputs 4-20 mA	4829 <b>0031</b>
DIRIS O-it	3 temperature inputs PT 100 / PT 1000	4829 <b>0032</b>
<b>Accessories</b>		<b>Reference</b>
DIRIS D-30 - Single-point display		4829 <b>0200</b>
RJ9 cable for DIRIS D-30 display - 4.92 ft / 1.5 m		4829 <b>0280</b>
RJ9 cable for DIRIS D-30 display - 9.84 ft / 3 m		4829 <b>0281</b>
DIRIS B sealing cover for I/O terminals		4829 <b>0049</b>
USB configuration cable		4829 <b>0050</b>



# DIRIS A-40

Multi-function meters

Single-circuit metering  
& monitoring



diris\_9189\_pscd

DIRIS A-40

 Configuration with EasyConfig Systems.

## Function

The **DIRIS A-40** is a panel-mounted power monitoring device (PMD). It is designed for measuring, monitoring and reporting electrical energy.

## Advantages

### Assisted configuration

The configuration wizard guides the user in a step by step process to configure the DIRIS A-40. It also detects and corrects configuration errors. This cuts the commissioning time in half and always delivers a reliable result.

### Smart sensors

Three current sensor formats (solid-core TE, split-core TR/ITR and Rogowski coil TF) allow integration of the DIRIS A-40 into new and existing electrical installations.

The DIRIS A-40 offers a range of functions for measuring voltage, current, power, energy and quality.

It allows the analysis of one single-phase or three-phase load.

### Connected to the Cloud

The range comprises IoT ready connected products that enable data to be exported automatically for remote operation without any limit on time, distance and time in storage.

### Better than revenue grade

Compliant with the IEC 61557-12 standard, guaranteeing the quality and accuracy of the Power Meter:

- Class 0.2 for the meter alone.
- Class 0.5 from 2% to 120% of the rated current (full scale), for the global measurement chain (with TE/ITR/TF current sensors).

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



## Strong points

- > Assisted configuration
- > Connected to the cloud
- > High-precision measurement chain
- > Smart sensors

## Integrated technologies



## Conformity to standards

- > UL 61010-1  
CSA-C22.2  
61010-1  
File E257746



- > IEC 61557-12
- > ISO 14025



- > CEC compliant



## Functions

### Multi-measurement

- Currents
  - I1, I2, I3, In, Isystem
- Voltages & frequency
  - V1, V2, V3, VN, Vsystem, U12, U23, U31, Usystem, f
- Powers
  - P1, P2, P3, ΣP, Q1, Q2, Q3, ΣQ, S1, S2, S3, ΣS
  - Predictive powers ΣP, ΣQ, ΣS
- Power factor
  - PF1, PF2, PF3, ΣPF
- Cos φ & tangent φ
  - Instantaneous values per phase

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent power: kVAh
- Multi-tariff (8 max.)
- Hour Meter

### Quality

- Voltage Unbalance
  - Vdir, Vinv, Vhom, Udir, Uinv, Unba, Vnba, Vnb, Unb
- Current unbalance
  - Idir, Iinv, Ihom, Inba, Inb
- Total harmonic distortion
  - Currents THDi1, THDi2, THDi3, THDiN, TDDI
  - Phase-to-neutral voltage THDv1, THDv2, THDv3
  - Phase-to-phase voltage THDu12, THDu23, THDu31
- Individual harmonics up to 63rd
  - Currents: I1h, I2h, I3h, I1h
  - Phase-to-neutral voltage: V1h, V2h, V3h
  - Phase-to-phase voltage: U12h, U23h, U31h
- Quality events
  - Voltage sags, interruptions and swells EN50160
  - K factor & Crest factor
- Events according to EN 50160
  - Voltage sags, interruptions, voltage swells

### Monitoring of protective devices

- Auxiliary contact monitoring
- Report and alarm on trips
- Number of operations

### Demand profiles and historical records

- Active, reactive and apparent power
- Currents, voltages and frequency

### Alarms

- Alarms for all electrical values, events and input status changes, boolean combinations of multiple alarms
- Time-stamping of events

### Communication

- DIRIS A-40 RS485 Modbus as standard
- DIRIS A-40 Ethernet Modbus
- DIRIS A-40 PROFIBUS DPV1

### Inputs

- 3 digital inputs
  - Power supplied from DIRIS A-40 or an external source
  - Function: logical status, status of circuit breaker, pulse metering of multifluid meters.
- 2 logical outputs
  - Function: Command, energy pulse output, load shedding, alarm

## Functions

### Monitoring

- Real-time measurement of electrical values.
- View data as graphs or tables.
- Power quality analysis of the utility supply and of loads.



### Metering

- Measurement of active, reactive and apparent energies.
- Historical record of measurements.
- Graphic display on monthly, weekly, daily or hourly basis.

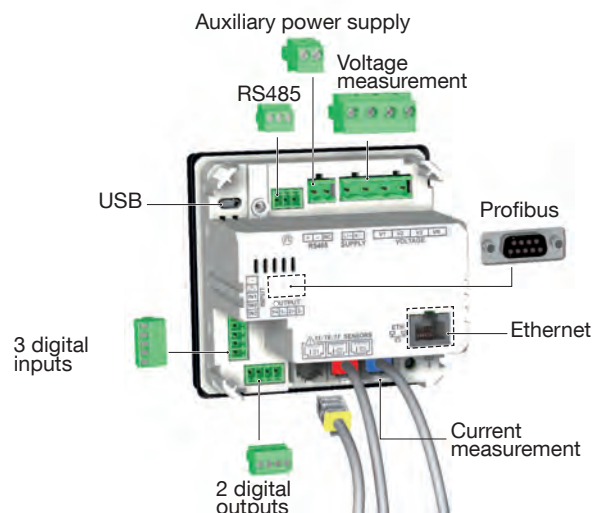


### Alarming

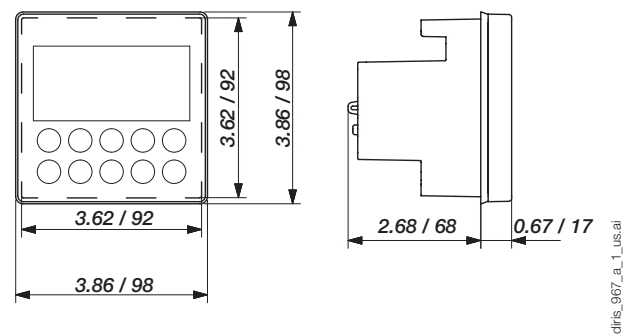
- Display of alarms.
- History of alarms.



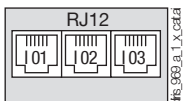
## Terminals



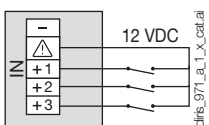
## Dimensions (in/mm)



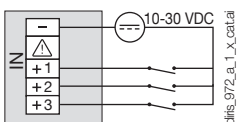
### Current measurement



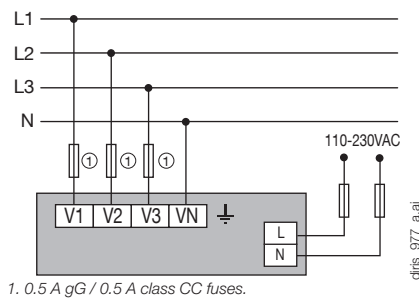
### 3 inputs supplied by the product



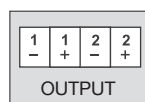
### 3 inputs with external power supply



### Voltage connections inc auxiliary power supply



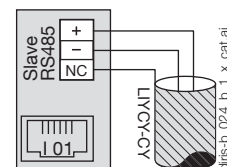
### 2 outputs



### Earth



### RS485





# DIRIS A-40

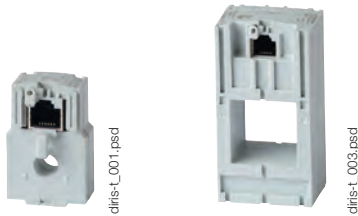
Multi-functions meters

## Connections

### Associated current sensors

Various types of current sensors can be connected to the DIRIS A-40: solid-core (TE), split-core (TR/iTR) or Rogowski (TF). This range of sensors is suitable for all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS A-40 automatically recognizes the sensor type and rating. This guarantees the overall accuracy of the DIRIS A-40 + current sensor measurement chain.

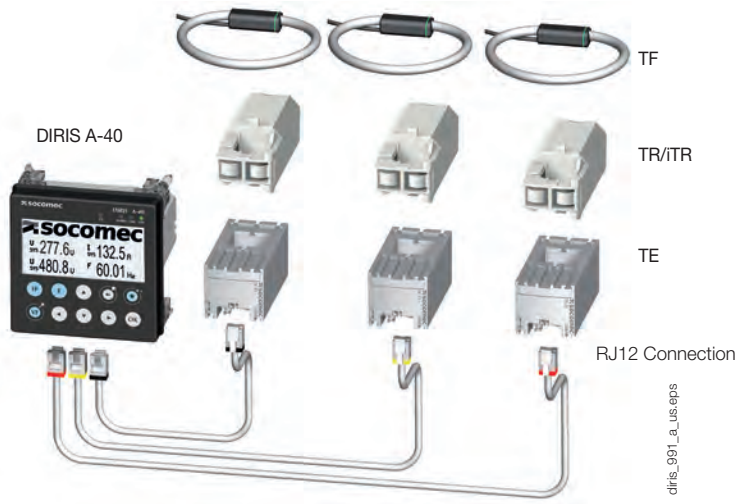
#### TE solid-core current sensors



#### TR/iTR split-core current sensors



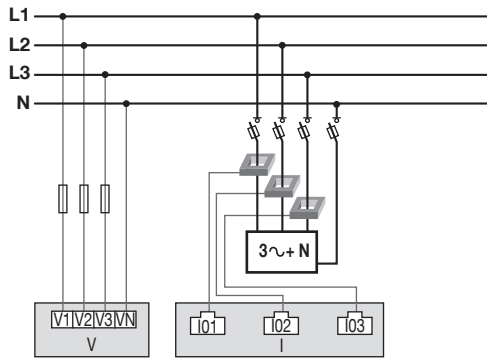
#### TE / TR/iTR / TF current sensors



### Network and connection examples

#### Three phase + Neutral

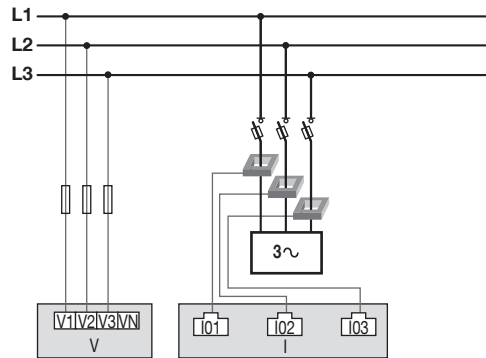
3P+N - 3 CT (1 three-phase load + calculated Neutral)



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#### Three-phase

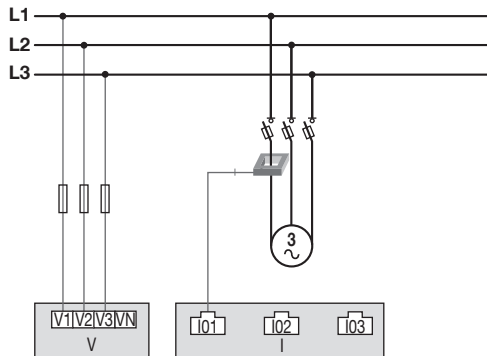
3P - 3CT (1 three-phase load)



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#### Three-phase

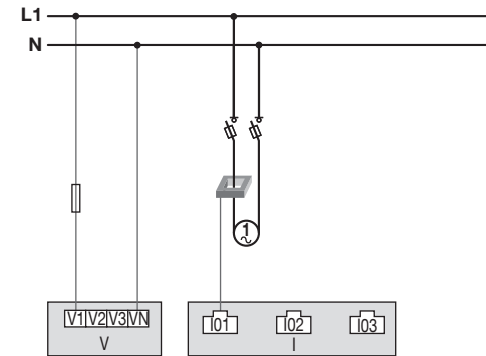
3P - 1CT (1 balanced three-phase load)



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#### Single-phase

1P+N - 1CT (1 single-phase load)



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1.0.5 A class CC fuses.

If self-supplied, a fuse must always be added to the Neutral.



CT: Current sensor



Load

## DIRIS A-40 characteristics

### Electrical characteristics

Auxiliary power supply	
Alternative voltage	110/400 VAC or 120/300 VDC - Cat III
Frequency	50/60 Hz
Power consumption	5 VA AC / 1.5 VA DC (4825 0500) 8 VA AC / 2.5 VA DC (4825 0501 & 4825 0502)
Connection	Removable spring-cage terminal block, 2 x 2 positions, AWG 10 ... 24 / 0.5 ... 2.5 mm <sup>2</sup> solid cable or AWG 15 ... 30 / 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule

### Measurement characteristics

Power and energy measurement	
Accuracy	Class 0.2 for the DIRIS A-40 stand alone
Active energy and active power	Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors
Accuracy of reactive energy	Class 2 with TE, TR or TF sensors
Power factor measurement	
Accuracy	Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors
Voltage measurement	
Characteristics of the network measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 to 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400,000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Accuracy of voltage measurement	Class 0.2
Connection	Removable spring-cage terminal block, 4 positions, AWG 10 ... 24 / 0.5 ... 2.5 mm <sup>2</sup> solid cable or AWG 15 ... 30 / 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule
Current measurement	
Number of current inputs	3
Associated current sensors	Solid TE, split-core TR/iTR, flexible TF current sensors
Accuracy	0.2 DIRIS A-40 class only Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

### Input characteristics

Number	3
Type / Power supply	Optocoupler with internal (12 VDC ± 10%) or external (12-24 VDC ± 20%) polarisation
Input function	Logical status, protective device monitoring, pulse metering of multifluid meters.
Connection	Removable screw terminal block, 5 positions, AWG 15 ... 35 / 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

### Output characteristics

Number	2
Type	Optocoupler 30 Vd.c. max 20mA max - SELV
Output function	Command, energy pulse output, load shedding, alarm
Connection	Removable screw terminal block, 4 positions, AWG 15 ... 35 / 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

### Communication characteristics

Communication	
Ethernet RJ45 10/100 Mbs	Gateway function Modbus TCP BACnet IP SNMP v1, v2, v3
RS485 2-3 wires	Modbus RTU communication function Configurable as input or output
USB	Upgrade RTU communication function Configurable as input or output
Environmental specifications	
Storage temperature	-4 ... +158 °F / -20 °C ... +70 °F
Operation temperature	+14 ... +131 °F / -10 °F ... +55 °F
Humidity	95% at 104 °F / 40 °C
Installation category, degree of pollution	CAT III, 2

## References

DIRIS A-40 monitoring devices		Reference
DIRIS A-40	RS485 Modbus - 3 inputs / 2 outputs	4825 0500
DIRIS A-40	Ethernet Modbus TCP or Bacnet IP - webservice - RS485 Modbus - 3 inputs / 2 outputs	4825 0501
DIRIS A-40	Profibus DPV1 - RS485 Modbus - 3 inputs / 2 outputs	4825 0502

## Expert Services

- > Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.





# DIRIS DigiBOX A

Enclosed single-point metering solution for retrofit applications

Enclosed single-point metering solution



 Configuration with *EasyConfig Systems*.

## Function

**DIRIS DigiBOX A** is an easy-to-install enclosed single-point metering solution. It provides users all they need for installation at site right out of the box, just select the type and the range of CTs from our wide plug and play CT selection. With just three part numbers for the meters you are able to address most of your metering needs.

Manufactured in a UL508 A shop with utmost care for quality and reliability. Factory voltage wiring is clean and safe for installations.

**DigiBOX A** is powered by our DIRIS A-40 meters packed with advanced features, design and performance.

## Advantages

### Easy to order

- Same part number for indoor or outdoor installations (NEMA 3R, 12, 4, 4X)
- Universal system voltage and power supply
- The meter itself comes with features such as I/Os and various communication protocols onboard
- Kits are available that include the DigiBOX A, current sensors and RJ12 cables

### cULus rated electrical design

- cULus listed enclosures and components
- cULus 508 A assembly facility
- Fused voltage connections
- Reliable detailed wiring instructions

### RJ12 current sensor connection

- Fast: automatic detection of ratings and verification of current flow direction
- Reliable: identification of cables by color-coding and wiring control by the system
- Disconnection of the current sensor secondary under load
- Auto-configuration of parameters

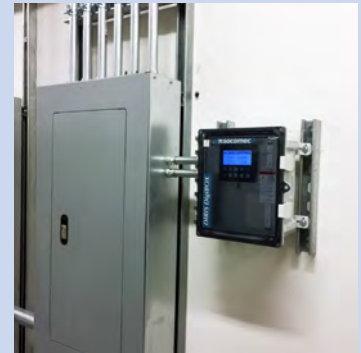
### Accurate

Accuracy of measurements guaranteed according to ANSI C12.20 and IEC 61557-12 standards:

- Class 0.5 from 2% to 120% of rated current for the global measurement chain (associated with TE/ITR/TF current sensors).
- Class 0.2 for the meter alone

## The solution for

- > Industry
- > Infrastructure
- > Buildings



## Strong points

- > Easy to order
- > RJ12 current sensor connection
- > Class 0.5 system accuracy

## Conformity to standards

- > cULus 508A
- > UL 61010-1  
CSA-C22.2 No. 61010-1  
Guide PICQ  
File E257746
- > ANSI C12.20
- > IEC 61557-12



# DIRIS DigiBOX A

Enclosed single-point metering solution for retrofit applications



## Simple integration

The three current sensor technologies, solid-core, split-core and flexible (TE, TR/ITR & TF) allow the ability to implement a monitoring solution in new or existing installations.



## Assisted configuration

The configuration wizard guides the user step-by-step and detects and corrects configuration errors, cutting the commissioning time in half and guaranteeing a reliable monitoring system.



## Connected

The DIRIS A-40 power meter can automatically export logged data for remote processing without any limits on time or storage.



Factory pre-wired



Fused voltage terminations

## DIRIS DigiBOX A Kits

**DIRIS DigiBOX A Kits** have DigiBOX A meter with current sensors and connecting cables ready to be installed. DigiBOX A kits come in various current ratings covering 5 A to 2000 A rated loads. This covers most loads from main to sub feeders in a typical commercial and industrial electrical distribution system.



# DIRIS DigiBOX A

Enclosed single-point metering solution for retrofit applications

## Functions

### Monitoring

- Real-time measurement of electrical values.
- View data as graphs or tables.
- Power quality analysis of the utility supply and of loads.

### Metering

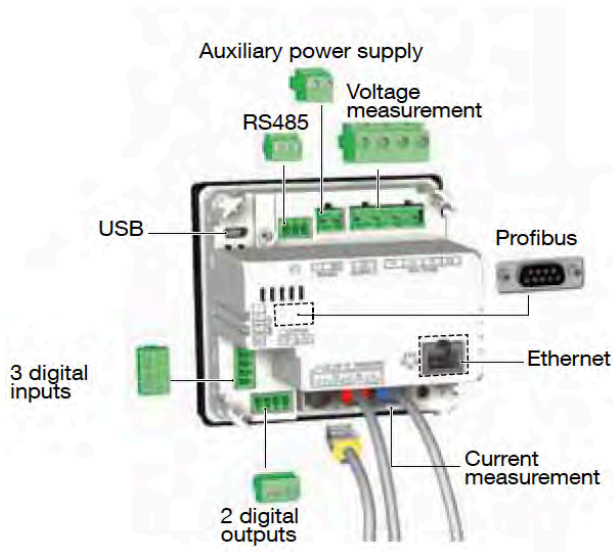
- Measurement of active, reactive and apparent energies.
- Historical record of measurements.
- Graphic display on monthly, weekly, daily or hourly basis.

### Alarming

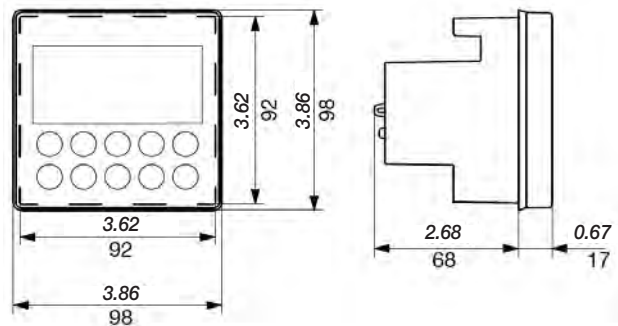
- Display of alarms.
- Alarm logs.



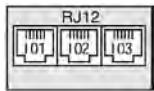
## Terminals



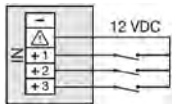
## Dimensions (in/mm)



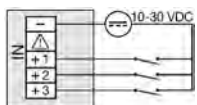
### Current measurement



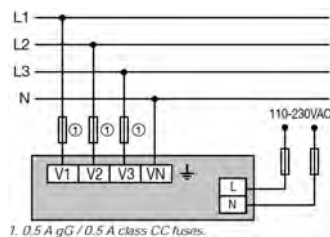
3 inputs supplied by the product



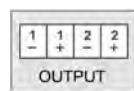
3 inputs with external power supply



### Voltage connections inc auxiliary power supply



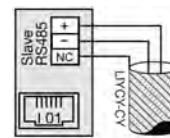
2 outputs



Earth



### RS485



### Connections

#### Associated current sensors

Various types of current sensors can be connected to the DIRIS A-40: solid-core (TE), split-core (TR/iTR) or Rogowski (TF). This range of sensors is suitable for all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS A-40 automatically recognizes the sensor type and rating. This guarantees the overall accuracy of the DIRIS A-40 + current sensor measurement chain.

TE solid-core current sensors



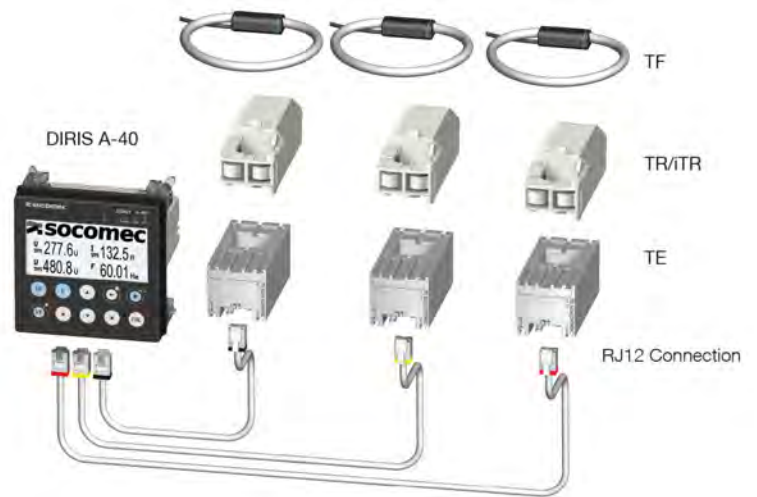
TR/iTR split-core current sensors



TF Rogowski current sensors



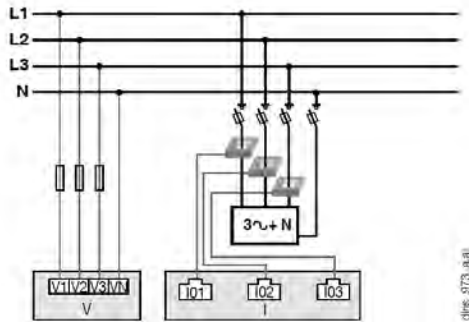
TE / TR/iTR / TF current sensors



#### Network and connection examples

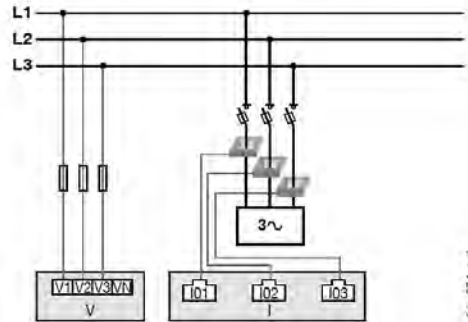
##### Three-phase + Neutral

3P+N - 3 CT (1 three-phase load + calculated Neutral)



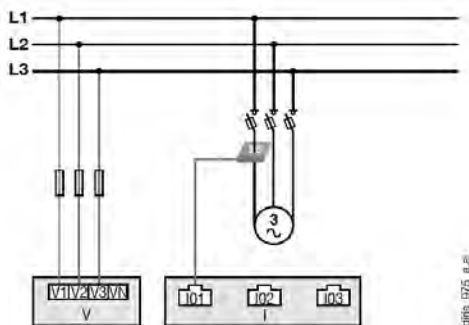
##### Three-phase

3P - 3CT (1 three-phase load)



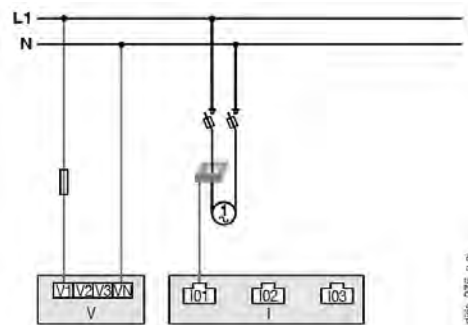
##### Three-phase

3P - 1 CT (1 balanced three-phase load)



##### Single-phase

1P+N - 1CT (1 single-phase load)



1. 0.5 A gG / 0.5 A class CC fuses.  
If self-supplied, a fuse must always be added to the Neutral.

CT: Current sensor Load

# DIRIS DigiBOX A

Enclosed single-point metering solution  
for retrofit applications

## Characteristics

### Electrical characteristics

Auxiliary power supply	
Alternative voltage	110/400 VAC or 120/300 VDC - Cat III
Frequency	50/60 Hz
Power consumption	5 VA AC / 1.5 VA DC (4825 0500) 8 VA AC / 2.5 VA DC (4825 0501 & 4825 0502)
Connection	Removable spring-cage terminal block, 2 x 2 positions, AWG 10 ... 24 / 2.5 ... 0.5 mm <sup>2</sup> solid cable or AWG 15 ... 30 / 1.5 ... 0.25 mm <sup>2</sup> stranded cable with ferrule

### Measurement characteristics

Power and energy measurement	
Accuracy	Class 0.2 for the DIRIS A-40 only
Active energy and active power	Class 0.5 with TE, TF or ITR sensors Class 1 with TR sensors
Accuracy of reactive energy	Class 1 with TE, ITR or TF sensors
Power factor measurement	
Accuracy	Class 0.5 with TE, TF or ITR sensors Class 1 with TR sensors
Voltage measurement	
Characteristics of the network measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 to 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Accuracy of voltage measurement	Class 0.2
Connection	Removable spring-cage terminal block, 4 positions, AWG 10 ... 24 / 0.5 ... 2.5 mm <sup>2</sup> solid cable or AWG 15 ... 30 / 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule
Current measurement	
Number of current inputs	3
Associated current sensors	Solid TE, split-core TR/ITR, flexible TF current sensors
Accuracy	Class 0.2 DIRIS A-40 alone Class 0.5 with TE, TF or ITR sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

### Input characteristics

Number	3
Type / Power supply	Optocoupler with internal (12 VDC ± 10%) or external (12-24 VDC ± 20%) polarisation
Input function	Logical status, protective device monitoring, pulse metering of multifluid meters.
Connection	Removable screw terminal block, 5 positions, AWG 15 ... 35 / 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

### Output characteristics

Number	2
Type	Optocoupler 30 Vd.c. max 20mA max - SELV
Output function	Command, energy pulse output, load shedding, alarm
Connection	Removable screw terminal block, 4 positions, AWG 15 ... 35 / 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

### Communication characteristics

Communication	
Ethernet RJ45 10/100 Mbs	Gateway function Modbus TCP BACnet IP SNMP v1, v2, v3
RS485 2-3 wires	Modbus RTU communication function Profibus DPV1 communication interface
USB	Upgrade and configuration via type B micro USB connector

## DigiBOX A References

Description	Reference
DIRIS A40 Multifunction Meter with Modbus RS485 output Enclosed in NEMA 4X Enclosure prewired with fused voltage connections - 120-480 LL Volt 3Ph 4W Wye	USDBPA40RS
DIRIS A40 Multifunction Meter with Modbus RS485& TCP/IP output with built-in web server Enclosed in NEMA 4X Enclosure prewired with fused voltage connections - 120-480 LL Volt 3Ph 4W Wye	USDBPA40ET

\*For 3Ph 3W Delta connections please contact Socomec for ordering.

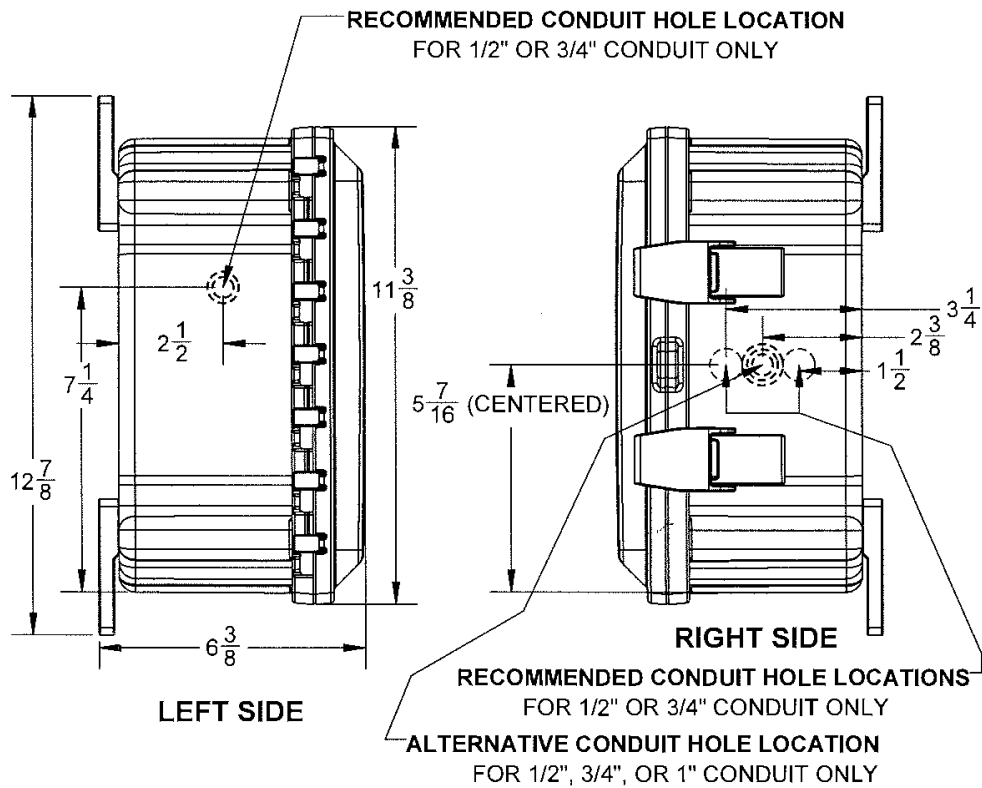
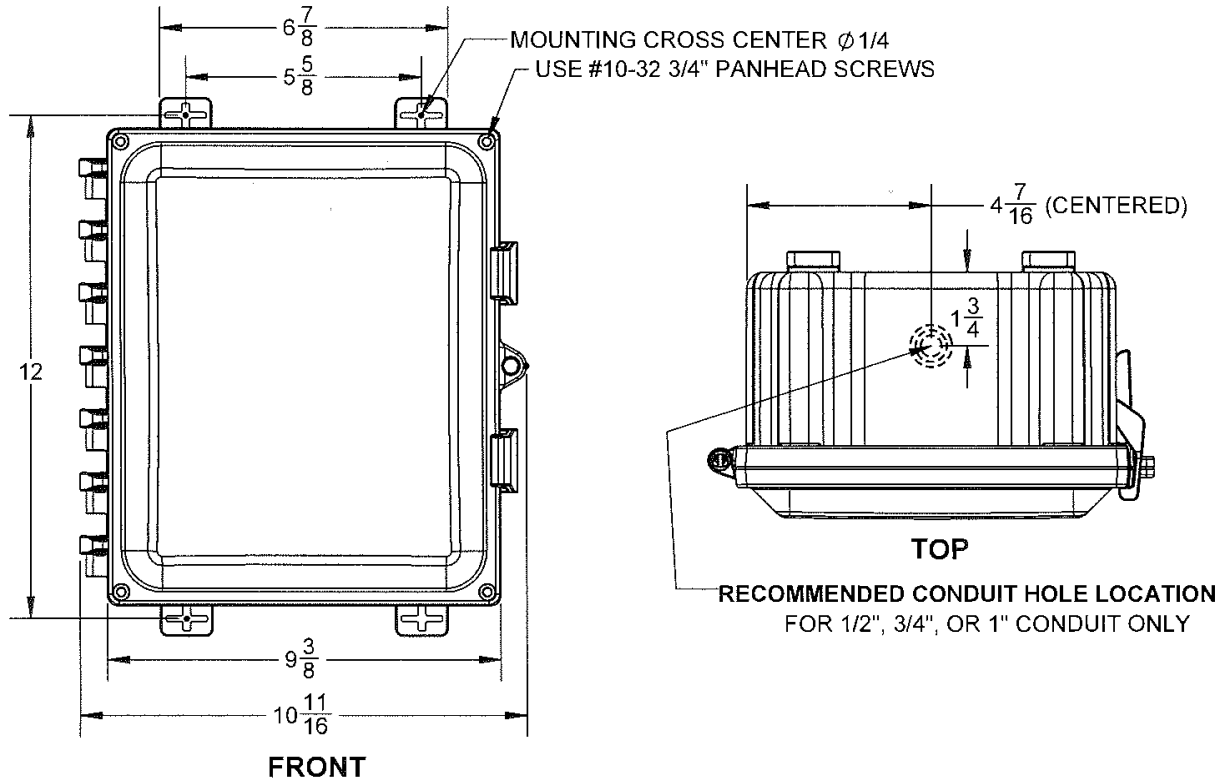
## Kit References

Description	Reference
DIRIS A40 Multifunction Meter Kit with Part # USDBPA40RS, 3x 250 amp split core current sensors and 3x 6.5' RJ12 cables	USDBPA40RS250_KIT
DIRIS A40 Multifunction Meter Kit with Part # USDBPA40RS, 3x 600 amp split core current sensors and 3x 6.5' RJ12 cables	USDBPA40RS600_KIT
DIRIS A40 Multifunction Meter Kit with Part # USDBPA40RS, 3x 2000 amp rogowski coil current sensors and 3x 6.5' RJ12 cables	USDBPA40RS2000_KIT
DIRIS A40 Multifunction Meter Kit with Part # USDBPA40ET, 3x 250 amp split core current sensors and 3x 6.5' RJ12 cables	RSDBPA40ET250_KIT
DIRIS A40 Multifunction Meter Kit with Part # USDBPA40ET, 3x 600 amp split core current sensors and 3x 6.5' RJ12 cables	USDBPA40ET600_KIT
DIRIS A40 Multifunction Meter Kit with Part # USDBPA40ET, 3x 2000 amp rogowski coil current sensors and 3x 6.5' RJ12 cables	USDBPA40ET2000_KIT

# DIRIS DigiBOX A

Enclosed single-point metering solution  
for retrofit applications

## Dimensions







# DIRIS A-30

Multifunction power metering & monitoring device - PMD

Single-circuit metering,  
measurement &  
analysis



DIRIS A-30

diris\_996\_a\_us.ppt4

## The solution for

- ▶ Industry
- ▶ Building
- ▶ Infrastructures



## Strong points

- ▶ User-friendly operation
- ▶ Detects wiring errors.
- ▶ Customizable
- ▶ Compliant with ANSI C12.20

## Compliance with standards

- ▶ UL 61010-1  
CSA-C22.2 No. 61010-1  
Guide PICQ  
File E257746
- ▶ ANSI C12.20
- ▶ IEC 61557-12



## Function

The **DIRIS A-30** is a power metering and monitoring device that provides the user with all of the measurements needed to complete energy efficiency projects and to ensure the monitoring of electrical distribution. All the information can be used and analyzed remotely with energy efficiency software packages.

## Advantages

### User-friendly operation

With its large backlit multiple-display screen and 6 pushbuttons, the DIRIS A-30 is easy to use.

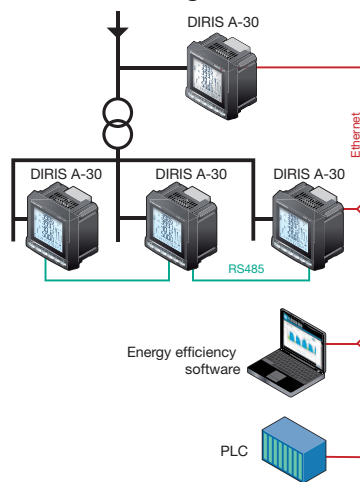
### Detects wiring errors.

The DIRIS A-30 is provided with a correction function for CT wiring errors.

### Customizable

The DIRIS A-30 can be equipped with additional modules that give the user flexibility throughout the service life of the product. Communication modules and additional digital or analog inputs/outputs can be used to increase its range of functionality.

## Functional diagram



diris\_581\_h\_1\_us\_cat

### Compliant with ANSI C12.20

Reference standard for PMDs (Power metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and building applications.

### Bi-directional metering

DIRIS A-30 can measure the flow of electricity in both directions.

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In, Isystem
  - average/max average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F, Vsystem, Ussystem
  - average/max average: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: 3P,  $\Sigma P$ , 3Q,  $\Sigma Q$ , 3S,  $\Sigma S$
  - max average:  $\Sigma P$ ,  $\Sigma Q$ ,  $\Sigma S$
  - predictive: ( $\Sigma P$ ), ( $\Sigma Q$ ), ( $\Sigma S$ )
- Power factors
  - instantaneous: 3PF,  $\Sigma PF$
  - average/max average:  $\Sigma PF$
- Kfactor

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Effective power: kVAh
- Time table:

### Harmonic analysis

- Total Harmonic Distortion
- Currents: thd I1, thd I2, thd I3, thd In
- Phase-to-neutral voltage: thd V1, thd V2, thd V3
- Phase-to-phase voltage: thd U12, thd U23, thd U31

- Individual harmonics up to 63rd
- Currents: HI1, HI2, HI3, HIn
- Phase-to-neutral voltage: HV1, HV2, HV3,
- Phase-to-phase voltages: HU12, HU23, HU31

### Demand profiles

- Active & reactive power:  $\Sigma P$  +/- ;  $\Sigma Q$  +/-
- Voltages & frequency: V1, V2, V3, U12, U23, U31, F

### Events <sup>(1)</sup>

- Alarms on all electrical parameters.

### Communications

- RS485 (Modbus & Profibus-DP)
- Ethernet (Modbus/TCP or Modbus RTU)
- Ethernet with RS485 Modbus RTU gateway over TCP

### Inputs/Outputs

- Pulse metering
- Remote control/command
- Alarm report
- Pulse report

### Analog output

- Analog 0/4- 20 mA

## Front panel



1. Backlit LCD display.
2. Pushbutton for currents and for connection correction function.
3. Pushbutton for voltages and frequency.
4. Pushbutton for active, reactive and effective powers and for power factor.
5. Pushbutton for maximum and average values for currents and power levels.
6. Pushbutton for harmonics.
7. Pushbutton for electrical energy meters, timers and impulse counters.

## Hot swappable modules

DIRIS® A-30

	<p><b>Pulse outputs</b></p> <p>2 configurable pulse outputs (type, weight and run) on <math>\pm</math>kWh, <math>\pm</math>kvarh and kVAh.</p>
	<p><b>MODBUS® communication</b></p> <p>RS485 link with MODBUS® protocol (speed up to 38400 baud).</p>
	<p><b>PROFIBUS® DP communication</b></p> <p>SUB-D9 link with PROFIBUS® DP protocol (speed up to 12 Mbaud).</p>
	<p><b>Analogue outputs</b></p> <p>You can connect a maximum of 2 modules, i.e. 4 analogue outputs. 2 outputs can be allocated to: 3I, In, 3V, 3U, F, <math>\pm</math><math>\Sigma</math>P, <math>\pm</math><math>\Sigma</math>Q, <math>\Sigma</math>S, <math>\Sigma</math>PFL/C, Isys, Vsys, Usys, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C 2, T°C3 and to 30 VDC power supply.</p>
	<p><b>2 inputs - 2 outputs</b></p> <p>You can connect a maximum of 3 modules, i.e. 6 inputs / 6 outputs. 2 outputs can be allocated to: - monitoring: 3I, In, 3V, 3U, F, <math>\pm</math><math>\Sigma</math>P, <math>\pm</math><math>\Sigma</math>Q, <math>\Sigma</math>S, <math>\Sigma</math>PFL/C, THD 3I, THD In, THD 3V, THD 3U, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C2, T°C3 and of time counter, - remote control, - timed remote control, - 2 inputs for pulse counting.</p>
	<p><b>Storage capability</b></p> <ul style="list-style-type: none"> <li>• Memory function up to max. 62 days for P+, P-, Q+, Q- with a TOP for internal or external synchronisation of 5, 8, 10, 15, 20, 30 and 60 minutes.</li> <li>• Memory function for the last 10 timed and dated alarms.</li> <li>• Memory function for the last min and max instantaneous values for 3U, 3V, 3I, In, F, <math>\Sigma</math>P<math>\pm</math>, <math>\Sigma</math>Q<math>\pm</math>, <math>\Sigma</math>S, THD 3U, THD 3V, THD, 3U, THD, 3V, THD, 3I, THD In.</li> <li>• Memory function of average values 3U, 3V and F as a function of synchronisation (maximum 60 days).</li> </ul>
	<p><b>Ethernet communication</b></p> <ul style="list-style-type: none"> <li>• Ethernet link with MODBUS/TCP or MODBUS RTU over TCP.</li> </ul>
	<p><b>Ethernet communication with RS485 MODBUS gateway</b></p> <ul style="list-style-type: none"> <li>• Ethernet link with MODBUS/TCP or MODBUS RTU over TCP.</li> <li>• Connect 1 to 247 RS485 MODBUS slaves.</li> </ul>

# DIRIS A-30

Multifunction power metering & monitoring device - PMD

## Accessory

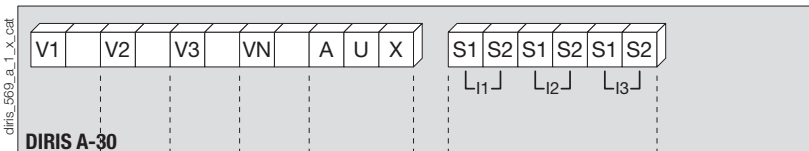
### IP65 protection



dfis\_720\_a\_2\_cat

## Terminals

### DIRIS A-30

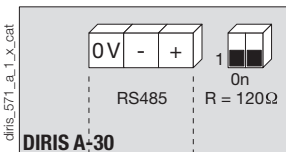


S1 - S2: current inputs

AUX: auxiliary power supplies  $U_s$

V1 - V2 - V3 - VN: voltage inputs

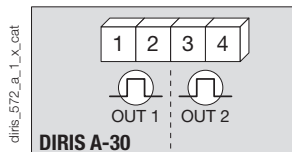
### Communication module



RS485 link.

R = 120 Ω : internal resistance for the RS485 end of line termination.

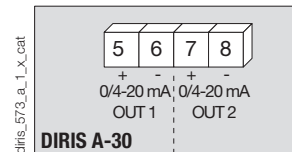
### Pulse output module



1 - 2: pulse output n°1.

3 - 4: relay output n°2.

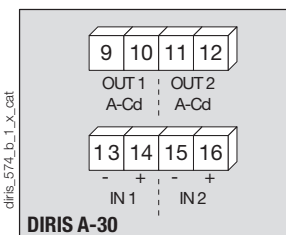
### Analog output module



5 - 6: analog output n°1.

7 - 8: analog output n°2.

### 2 input / 2 output module



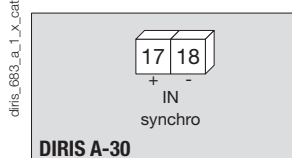
9 - 10: relay output n°1.

11 - 12: relay output n°2.

13 - 14: optical input n°1.

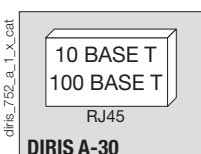
15 - 16: optical input n°2.

### Memory module

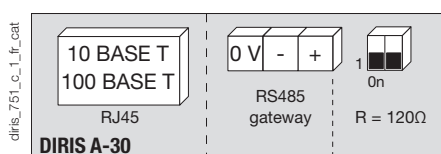


17 - 18: synchronization input.

### Ethernet module



### Ethernet module + RS485 MODBUS gateway



### Electrical characteristics

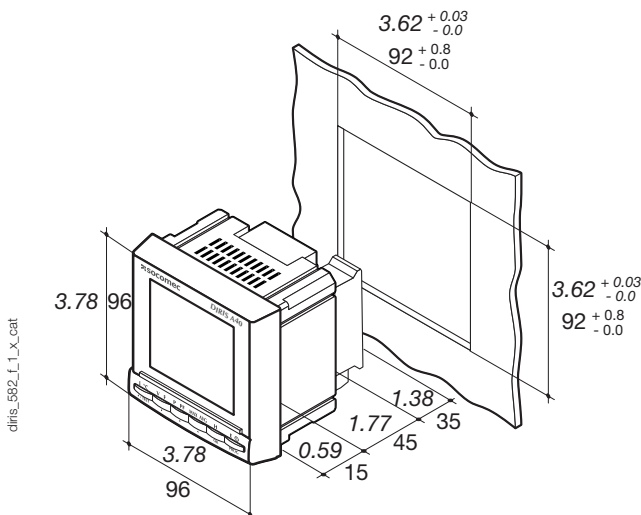
Measurement of currents on insulated inputs (TRMS)	
Via CT primary	9,999 A
Via CT secondary	1 or 5 A
Measurement range	0 ... 11 kA
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	6 A
Intermittent overload	10 I <sub>n</sub> for 1 s
Voltage measurements (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
VT primary measurement	500,000 VAC
VT secondary measurement	60, 100, 110, 173, 190 VAC
Frequency	50 / 60 Hz
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0.2%
Current - voltage product	
Limitation for CT 1 A	10,000,000
Limitation for CT 5 A	10,000,000
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5%
Frequency measurement	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1%
Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternative voltage	110 ... 400 VAC
AC tolerance	± 10 %
Direct current	120 ... 350 VDC / 12 ... 48 VDC
DC tolerance	± 20 % / - 6 ... + 20 %
Frequency	50 / 60 Hz
Power consumption	≤ 10 VA

Module 2 inputs - 2 outputs: outputs (alarms / control)	
Number of relays	2 <sup>(1)</sup>
Type	250 VAC - 5 A - 1150 VA
Module 2 inputs - 2 outputs: optical coupler inputs	
Number	2 <sup>(1)</sup>
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Pulse output module	
Number of relays	2
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 10 <sup>8</sup>
Analog output module	
Number of outputs	2 <sup>(2)</sup>
Type	Insulated
Scale	0 / 4 ... 20 mA
Load resistance	600 Ω
Maximum current	30 mA
MODBUS communication module	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS <sup>®</sup> RTU
MODBUS <sup>®</sup> speed	4800 to 38400 baud
PROFIBUS DP communication module	
Link	SUB-D9
Protocol	PROFIBUS <sup>®</sup> DP
PROFIBUS <sup>®</sup> speed	9.8 kbaud ... 12 Mbaud
Ethernet communication module	
Connection technology	RJ45
Baud rate	10 base T / 100 base T
Protocol	MODBUS TCP or MODBUS RTU on TCP
Operating conditions	
Operating temperature range	+14 ... +131 °F / - 10 ... + 55 °C
Storage temperature	-4 ... +185 °F / - 20 ... + 85 °C
Relative humidity	95%

(1) Max. 3 modules per DIRIS A-30.

(2) Max. 2 modules per DIRIS A-30.

### Dimensions (in/mm)



Type	Panel mounting
Dimensions W x H x D	3.78 x 3.78 x 2.36 in / 96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD display
Type of terminal strips	Fixed or detachable
Section of connection for voltages and other terminals	AWG 34 ... 10 / 0.2 ... 2.5 mm <sup>2</sup>
Section of connection for currents	AWG 20 ... 9 / 0.5 ... 6 mm <sup>2</sup>
Weight	14.11 oz / 400 g

# DIRIS A-30

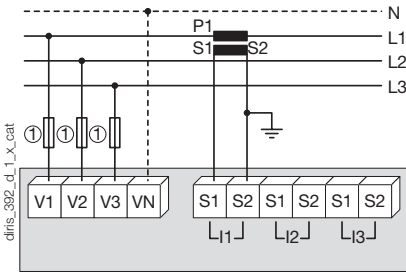
Multifunction power metering & monitoring device - PMD

## Connections

### Balanced low-voltage network for DIRIS A-30

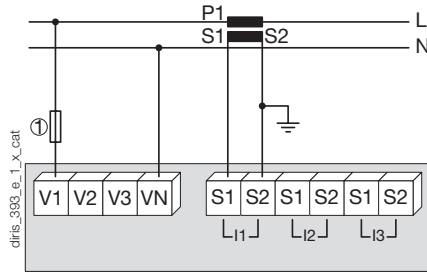
**Recommendation:** When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. In TNC mode, it is advisable to connect the DIRIS A-30 to earth using the functional earth module.

#### 3/4 wires with 1 CTs



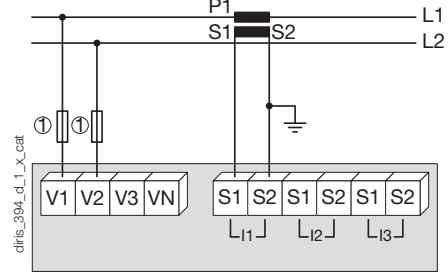
The use of 1 CT reduces by 0.5% the accuracy of the phases, the current for which is worked out by vector calculation.  
1. 0.5 A class CC fuses.

#### Single-phase



1. 0.5 A class CC fuses.

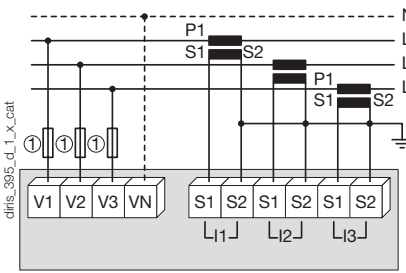
#### Two-phase



1. 0.5 A class CC fuses.

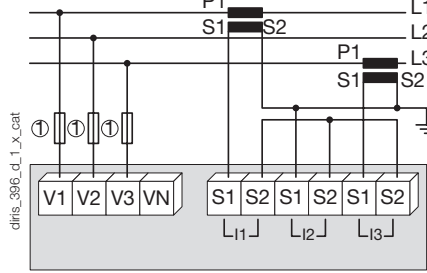
### Balanced low-voltage network for DIRIS A-30

#### 3/4 wires with 3 CTs



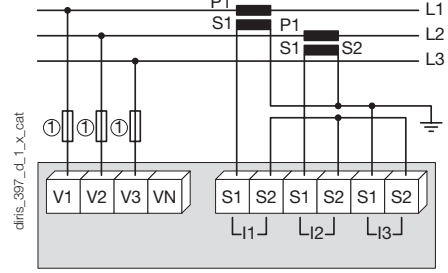
1. 0.5 A class CC fuses.

#### 3 wires with 2 CTs



The use of 2 CTs reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.  
1. 0.5 A class CC fuses.

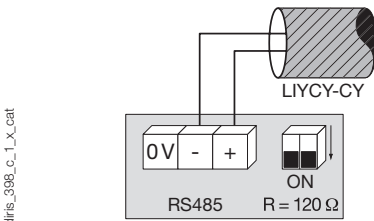
#### 3 wires with 2 CTs



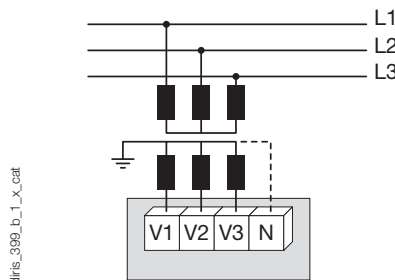
The use of 2 CTs reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.  
1. 0.5 A class CC fuses.

## Additional information

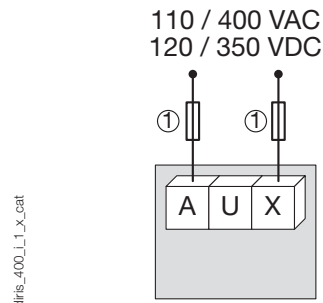
### Communication via RS485 link



### Connection of potential transformer for HV networks



### AC and DC auxiliary power supply



1. 0.5 A class CC fuses.

### References

Basic device	DIRIS A-30
Auxiliary power supply U <sub>s</sub>	Part number
110 ... 400 VAC / 120 ... 350 VDC	4825 0403
12 ... 48 VDC	4825 0405

Options	Part number
Plug-in modules <sup>(1)</sup>	
Pulse outputs	4825 0090
RS485 MODBUS <sup>®</sup> communication	4825 0092
PROFIBUS <sup>®</sup> DP communication	4825 0205
Analog outputs	4825 0093
2 inputs - 2 outputs	4825 0094
Storage capability	4825 0097
Ethernet communication (integrated web server function) <sup>(2)</sup>	4825 0203
Ethernet communication + RS485 gateway (integrated web server function) <sup>(2)</sup>	4825 0204

(1) Ease of integration of additional functions (maximum 4 slots on A-30).

(2) Dimensions: 2 slots.

Accessories	To be ordered in multiples of	Part number
IP65 protection.	1	4825 0089
Integration kit for 5.67 x 3.78 in cutout	1	4825 0088
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6CC0 5000

### Expert Services

- > Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.





# DIRIS A-20

Multifunction power metering & monitoring device - PMD

Multi-measurement

Single-circuit metering,  
measurement &  
analysis



DIRIS A-20

diris\_981\_ea\_front.eps

## The solution for

- > Industry
- > Infrastructures
- > Building



## Strong points

- > User-friendly operation
- > Compliant with ANSI C12.20 and IEC 61557-12
- > Detects wiring errors
- > Customizable

## Compliance with standards

- > UL 61010-1  
CSA-C22.2 No. 61010-1  
Guide PICQ  
File E257746



- > ANSI C12.20
- > IEC 61557-12

## Related software

- > To use Socomec PMDs effectively, we can offer you several dedicated software tools.

See page xxx.

## Function

DIRIS A-20 units are power metering and monitoring devices that provide the user with all of the measurements needed to complete energy efficient projects successfully and to provide assured monitoring of electrical distribution.

All of this information can be used and analyzed remotely with the help of energy efficiency software programs.

## Advantages

### User-friendly operation

With its large backlit multiple-display screen with 4 pushbuttons, the DIRIS A-20 is easy to use.

### Compliant with ANSI C12.20 and IEC 61557-12

References standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and high performance from the PMDs under the environmental conditions typical of industrial and building applications.

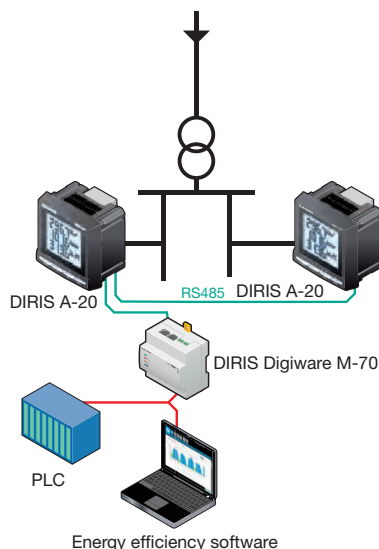
### Detects wiring errors

The DIRIS A-20 is equipped with an error correction function for current transformer connection.

### Customizable

Additional communication and input/output modules can extend the basic functional scope of this product. Equipped with additional modules, the DIRIS A-20 can provide the user with flexibility and expandability throughout the service life of the product.

## Functional diagram



DIRIS\_576\_L1\_en\_cat

## Bi-directional metering

DIRIS A-20 can measure the flow of electricity in both directions.

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, ΣPF

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Time table: ☉

### Harmonic analysis

- Total harmonic distortion (rank 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

### Events

Alarms on all electrical parameters

### Communications<sup>(1)</sup>

RS485 with MODBUS protocol

### Output

- Equipment control
- Alarm report
- Pulse report

### Input

- Information report from a dry external contact

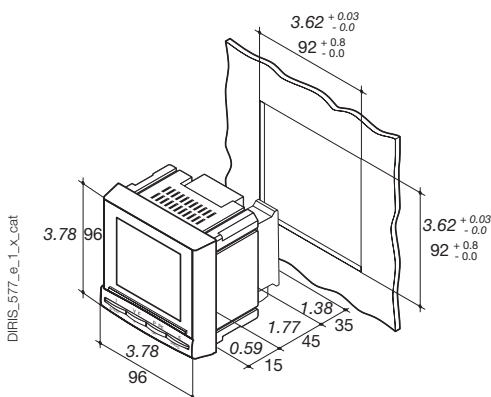
(1) Available as an option (see the following pages).

### Front panel



1. Backlit LCD display
2. Pushbutton for currents (instantaneous and maximum), THD currents and the connection correction function.
3. Pushbutton for voltages, frequency and THD voltages.
4. Pushbutton for power (instantaneous and maximum), active, reactive and effective, power factor.
5. Pushbutton for energy sources and timer counter.

### Dimensions (in/mm)



Type	Panel Mounting
Dimensions L x H x P	3.78 x 3.78 x 2.36 in / 96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD
Type of terminal strips	Fixed or removable
Section for connection of voltages and other terminals	AWG 34 ... 10 / 0.2 ... 2.5 mm <sup>2</sup>
Section for connection of currents	AWG 34 ... 10 / 0.2 ... 2.5 mm <sup>2</sup>
Weight	14.11 oz / 400 g

### Plug-in optional modules

#### DIRIS® A-20



#### 1 output

- 1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
  - Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
  - Equipment control



#### Communication

RS485 link with MODBUS protocol (speed up to 38400 baud).



#### 3 inputs , 1 output

- 3 inputs can be configured into:
- Information report from an external contact.
- 1 output that can be configured for:
- Pulses: configurable (type, weight, duration) to kWh or kVarh.
  - Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
  - Equipment control

### Accessories

#### IP65 protection





# DIRIS A-20

Multifunction power metering & monitoring device - PMD

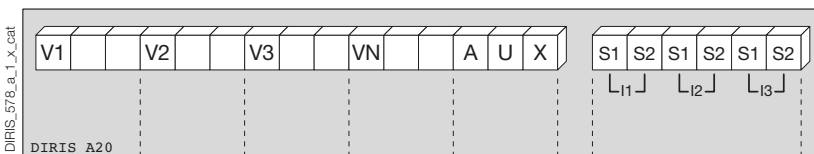
Multi-measurement

## Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	6 A
Intermittent overload	10 I <sub>n</sub> over 1 sec
Voltage measurements (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2%
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5%
Frequency measurement	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1%

Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternative voltage	110 ... 400 VAC
AC tolerance	± 10%
DC voltage	120 ... 289 VDC
DC tolerance	± 20%
Frequency	50 / 60 Hz
Power consumption	10 VA
Pulse or alarm output	
Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 10 <sup>8</sup>
Inputs	
Number	3
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Communication	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® in RTU mode
MODBUS® speed	1400 ... 38400 baud
Operating conditions	
Operating temperature range	+14 ... +131 °F / - 10 ... + 55 °C
Storage temperature	-4 ... +158 °F / - 20 ... + 70 °C
Relative humidity	95%

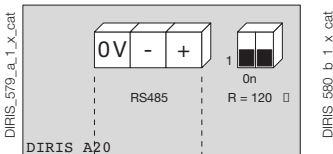
## Terminals



S1 - S2: current inputs.

AUX: auxiliary power supply U<sub>s</sub>.  
V1, V2, V3 & VN: voltage inputs.

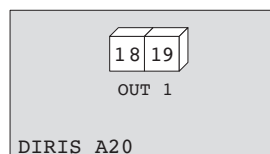
### Module communication



RS485 link.

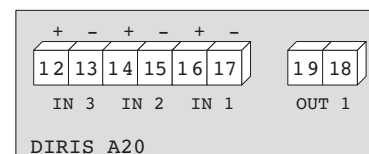
R = 120 Ω : internal resistance for the RS485 link.

### Output or alarm module



18 - 19: output n°1

### Module with 3 inputs, 1 output



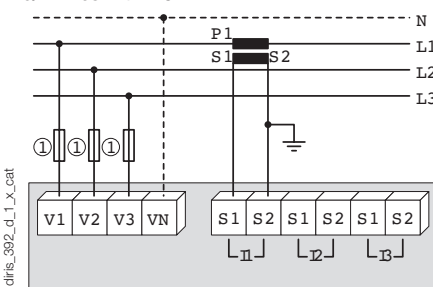
## Connection

### Low voltage balanced network

#### Recommendation

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited.

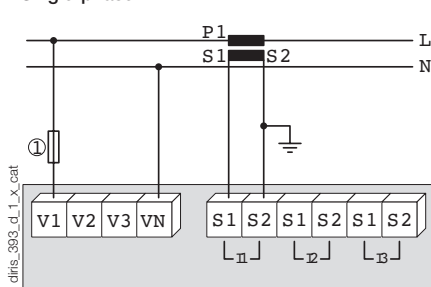
#### 3/4 wires with 1 CT



The 1CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

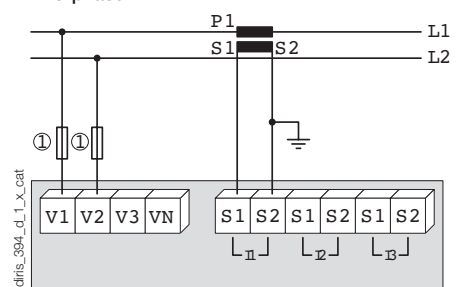
1. 0.5 A class CC fuses.

#### Single-phase



1.0.5 A class CC fuses.

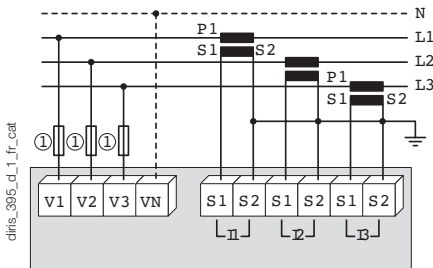
#### Two-phase



1. 0.5 A class CC fuses.

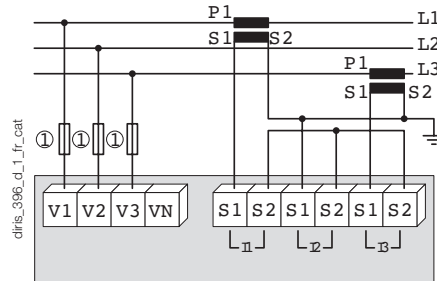
#### Low voltage unbalanced network

##### 3/4 wires with 3 CTs



1. 0.5 A class CC fuses.

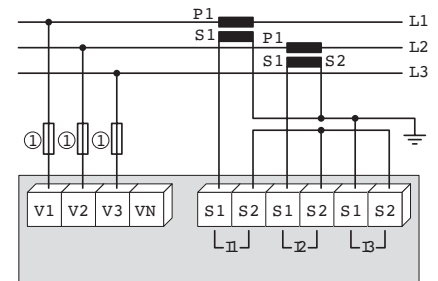
##### 3 wires with 2 CTs



The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

1. 0.5 A class CC fuses.

##### 3 wires with 2 CTs

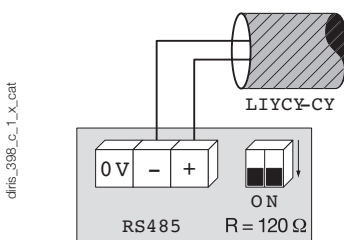


The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

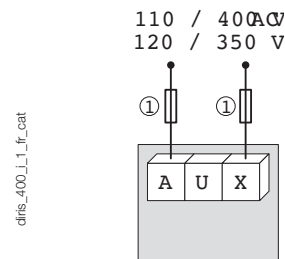
1. 0.5 A class CC fuses.

#### Additional information

##### Communication via RS485 link



##### AC and DC auxiliary power supply



1. 0.5 A class CC fuses.

## References

Basic device		DIRIS A-20
Auxiliary power supply $U_s$		Part number
110 ... 400 VAC / 120 ... 350 VDC		4825 0402
Options		Part number
Plug-in optional modules		
On/Off output.		4825 0080
RS485 MODBUS® communication		4825 0082
3 inputs, 1 output		4825 0083
Accessories		
Designation of accessories		To be ordered in multiples of
Protection IP65		1
Plug-in kit for cutout 144 x 96 mm		1
Fuse holder Class CC to protect voltage inputs 3 pole		4
Class CC 0.5 A fuses		10
Ferrite for use with communication modules		1
		Part number
		4825 0089
		4825 0088
		5705 0003
		6CC0 5000
		4899 0011

## Expert Services

> Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.

See page xxx.





# DIRIS A-10

Multifunction meters - PMD  
modular multifunction meter

Single-circuit metering,  
measurement &  
analysis



DIRIS A-10

## Function

The **DIRIS A-10** is a modular multifunction meter for measuring electrical values in low voltage networks.

It allows all electrical parameters to be displayed and utilized for communication and/or output functions.

## Advantages

### Easy to use

Five direct access pushbuttons enable all measurements to be clearly viewed on the backlit LCD display.

### Integrated temperature sensor

It allows variations in temperature to be detected.

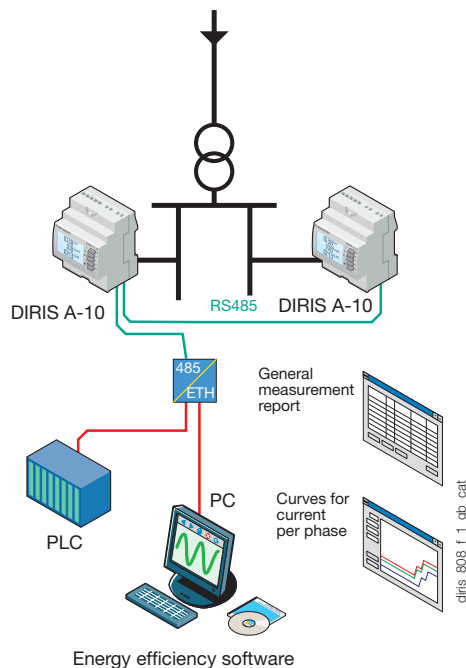
### Detects wiring errors

An integrated test function can be utilized to detect incorrect wiring and to automatically correct CT installation errors.

### Compliant with ANSI C12.20 and IEC 61557-12

IEC 61557-12 is a high-level standard for all PMDs (Performance Monitoring Devices) that are designed to measure and monitor electrical parameters in distribution networks. Compliance with IEC 61557-12 ensures a high level of equipment performance, in terms of metrology, as well as mechanical and environmental aspects (EMC, temperature, etc.).

## Principle diagram



## Bi-Directional Metering

DIRIS A-10 can measure the flow of electricity in both directions.

## The solution for

- › Industry
- › Infrastructures
- › Building



## Strong points

- › Easy to use
- › Integrated temperature sensor
- › Detects wiring errors
- › Compliant with ANSI C12.20 and IEC 61557-12

## Conformity to standards

- › UL 61010-1  
CSA-C22.2 No. 61010-1  
Guide PICQ  
File E257746



- › ANSI C12.20
- › IEC 61557-12
- › CEC compliant

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, ΣPF

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kVarh
- Hours: ⌚

### Harmonic analysis

- Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

### Dual tariff function

Selection of one out of 2 billing tariffs

### Events

Alarms on all electrical values

### Communications<sup>(1)</sup>

RS485 with MODBUS protocol

### Input

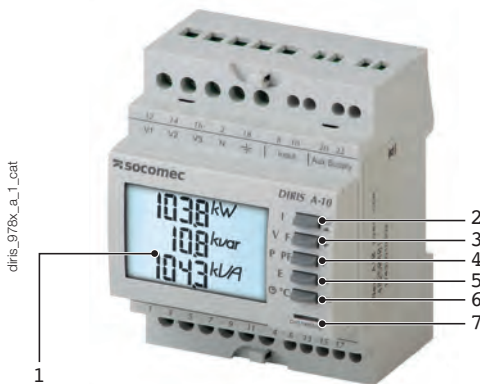
- Tariff selection
- Remote device status

### Output

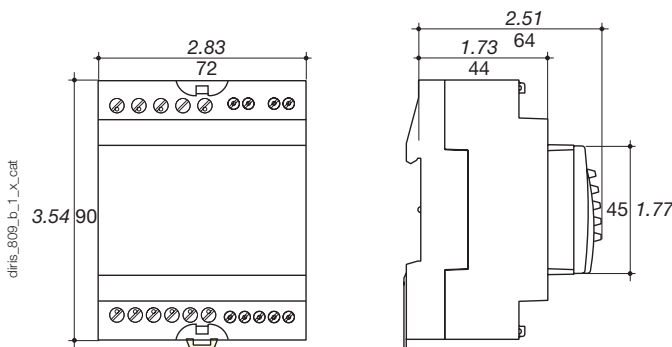
- Remote command of device
- Alarm report
- Pulse report

<sup>(1)</sup> Available on specific version (see the following pages).

## Front panel



## Dimensions (in/mm)



Type	Modular
Number of modules	4
Dimensions W x H x D	2.83 x 3.54 x 2.51 in / 72 x 90 x 64 mm
Case degree of protection	IP 30
Front degree of protection	IP 52
Display type	Backlit LCD display
Voltage and current connection cross-section	AWG 6 / 4 mm <sup>2</sup>
Connection cross-section for AUX supply, input, output and comms.	AWG 10 / 2.5 mm <sup>2</sup>
Weight	7.23 oz / 205 g (4825 0400) 7.58 oz / 215 g (4825 0401)

## Electrical characteristics

<b>Current measurement (TRMS)</b>	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2 %
Permanent overload	6 A
Intermittent overload	10 I <sub>n</sub> for 1 s
<b>Voltage measurements (TRMS)</b>	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
<b>Power measurement</b>	
Measurement updating period	1 s
Accuracy	0.5 %
<b>Power factor measurement</b>	
Measurement updating period	1 s
Accuracy	0.5 %
<b>Frequency measurement</b>	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

<b>Energy accuracy</b>	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
<b>Auxiliary power supply</b>	
Alternating voltage	110 ... 277 VAC
AC tolerance	± 15 %
Frequency	50 / 60 Hz
Consumption	< 3 VA
<b>Digital output (pulses or on/off)</b>	
Number	1
Type	20 / 30 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10 <sup>9</sup>
<b>Input (tariff)</b>	
Number	1
Type	0 VAC: T1 / 200-277 VAC: T2
<b>Communication</b>	
Link	RS485
Type	2 ... 3 half duplex wires
Protocol	MODBUS RTU
MODBUS <sup>®</sup> speed	2400 ... 38400 bauds
<b>Operating conditions</b>	
Operating temperature	+14 °F ... +131 °F / - 10 ... + 55 °C
Storage temperature	-4 °F ... +158 °F / - 20 ... + 70 °C
Relative humidity	85 %

# DIRIS A-10

Multifunction meters - PMD  
modular multifunction meter

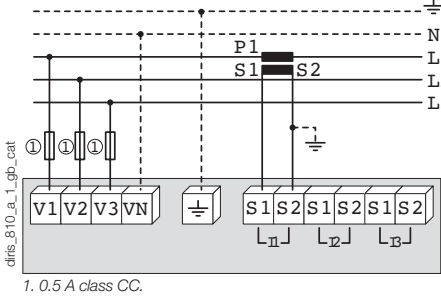
## Connection

### Recommendation:

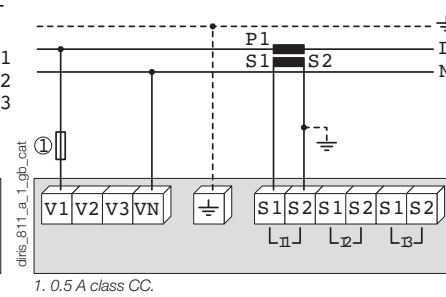
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited.
- It is recommended that the earthing point for the DIRIS A-10 and the current transformer secondaries are not earthed at the same time.

### Low voltage balanced network

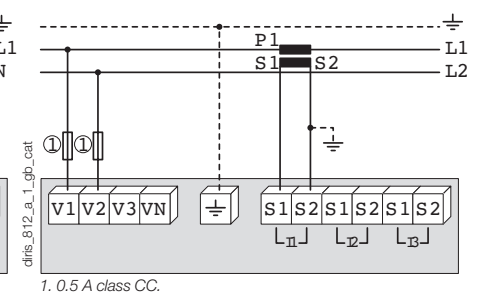
#### 3/4 wires with 1 CT



#### Single-phase

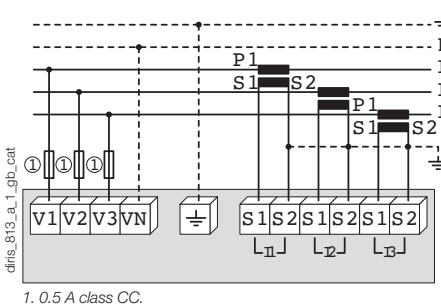


#### Two-phase

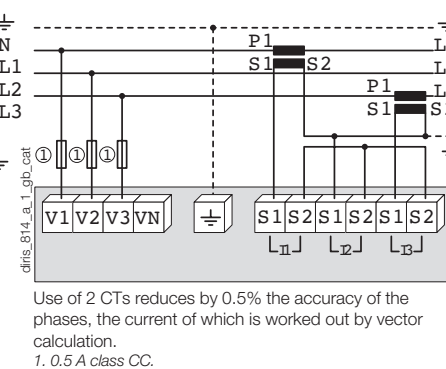


### Low voltage unbalanced network

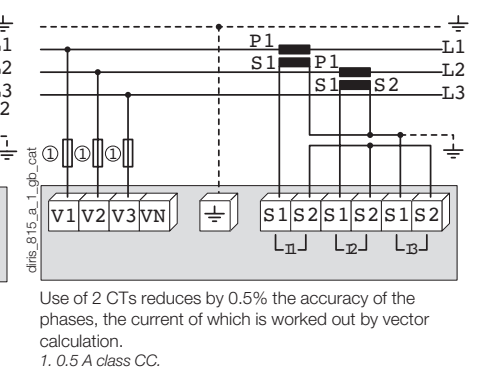
#### 3/4 wires with 3 CTs



#### 3 wires with 2 CTs

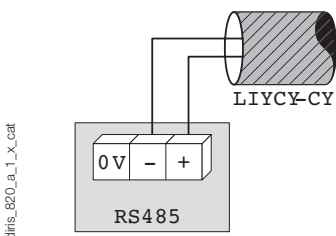


#### 3 wires with 2 CTs

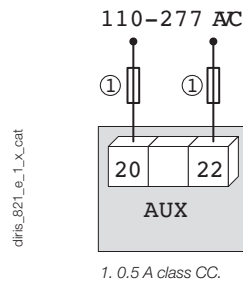


## Additional information

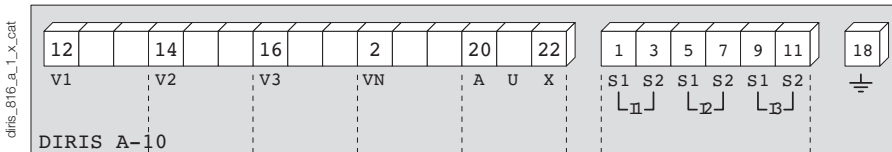
### Communication via RS485 link



### AC auxiliary power supply



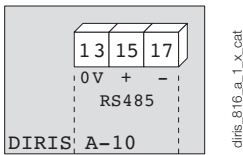
## Terminals



AUX: auxiliary power supply  $U_s$ .  
V1, V2, V3 & VN: voltage inputs.

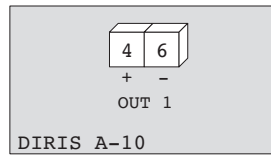
S1 - S2: current inputs.

### Communication terminals



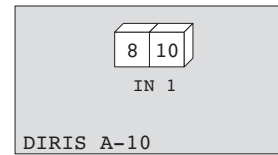
RS485 link.

### Pulse or alarm output terminals



4 - 6: output n°1

### Input terminals



8 - 10: input n°1

## References

Basic device	DIRIS A-10	
<b>Description</b>	<b>Reference</b>	
DIRIS A-10	4825 <b>0400</b>	
DIRIS A-10 with RS485 MODBUS communication	4825 <b>0401</b>	
<b>Description of accessories</b>	<b>To be ordered in multiples of</b>	<b>Reference</b>
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 <b>0003</b>
Class CC 0.5 A fuses	10	6CC0 <b>0500</b>

## Expert Services

- > Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.

See page xxx.





# Datalogger

Communication  
interfaces



## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > Easy to install
- > Reliable collection and transmission
- > Advanced functions

## Expert Services

- > Study, definition, advice, commissioning, maintenance and training. Our "Expert Services" offer complete support for the success of your project.

## Function

**DATALOG H80** dataloggers associated with Socomec wireless interfaces enable you to create a smart energy data communication network in order to:

- Remotely and automatically read multi-fluid energy meters and multi-function meters, isolated or not.
- Pool, secure, store and provide the data to a computer application.
- Connect your meters and multi-function measurement units in a 2G/3G/GPRS network.

## Advantages

### Easy to install

- Quick installation on DIN rail or door mounting.
- Compact.
- Remote configuration.
- Configuration services (SOCOMECS services).

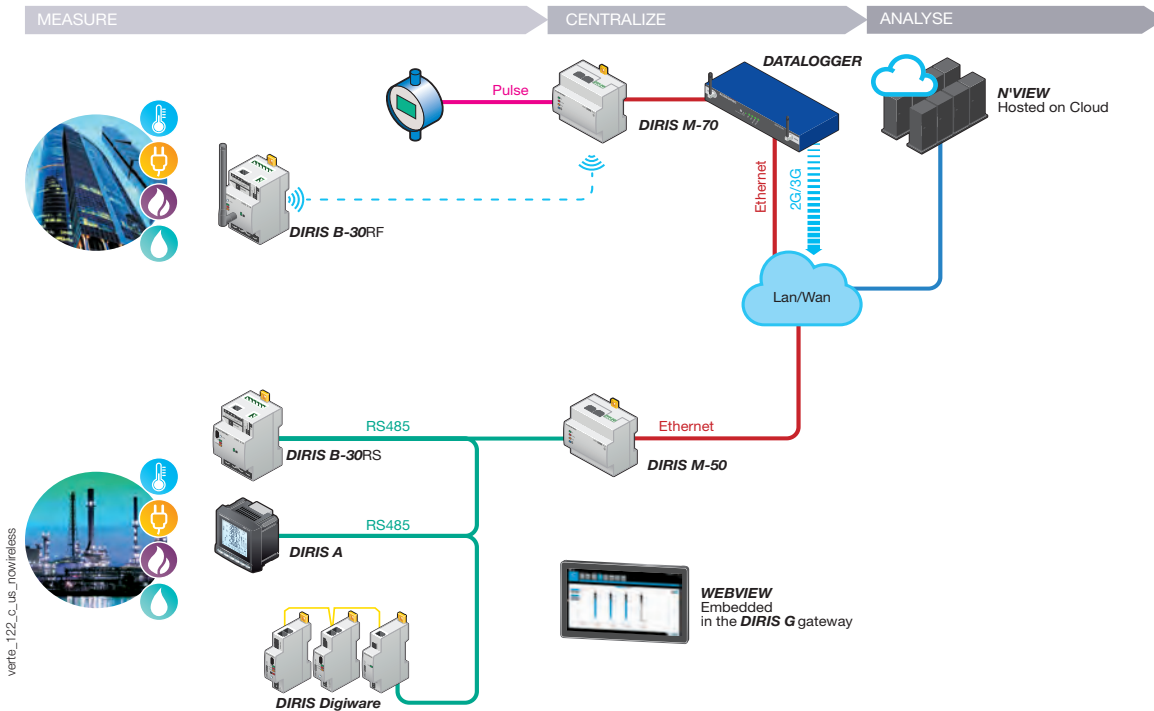
### Reliable collection and transmission

- Configurable collection frequency for each energy and multi-function meter.
- Secure, regular transmission (daily, weekly, etc.).
- Multiple communication protocols (Modbus RTU/TCP, Wireless M-Bus, HTTP(s), FTP(s)).
- Collection interfaces: Ethernet - RS232/485 or Wireless.
- Transmission interface: Ethernet or 2G/3G/GPRS.

### Advanced functions

- Extended data storage capacity (1 year for index data and 2 months for load curves).
- Auto-detects meters and measuring equipment.
- Sends regular activity reports.
- Event alerts (communication errors, data quality, remote server connection).

## The SOCOMEC communicating energy-efficiency solution



## Specifications

	DATALOG H80
<b>Input/output interfaces</b>	
Input	
Output	
<b>Serial interfaces</b>	
Input	
Output	
<b>Wireless interface</b>	
Wireless M-Bus	
<b>Network interface</b>	
Ethernet	2 10/100/1000 Mb port
GSM/GPRS	850/900/1800/1900 MHz
3G	900/2100 MHz
<b>Protocols</b>	
Data collection	Ethernet/Modbus TCP;
Data transmission	FTP(s)/ HTTP(s)
<b>Configuration</b>	
Local	Yes
Distant	by FTP

## References

Datalogger	Reference
DATALOG H80 (without 3G connection)	4854 0010
DATALOG H81 (with 3G connection)	4854 0011
<b>DATALOG H60 accessory description</b>	<b>Reference</b>
16 ft / 5 m remote antenna extension	4854 0105
32 ft / 10 m remote antenna extension	4854 0110
65 ft / 20 m remote antenna extension	4854 0120





# WEBVIEW

Embedded software for power monitoring and energy management

Software suite



soft\_076

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



## Strong points

- > Plug & Play
- > Easy to use
- > Various functions

## Compliance with standards

- > IEC 62974-1<sup>(1)</sup>



(1) Energy Server standard applicable to WEBVIEW-M and L versions embedded in DIRIS Digiware M-70/D-70 and DATALOG H80.

## Function

**WEBVIEW** is a web based software embedded in DIRIS A-40 power monitoring devices, DIRIS Digiware D-70 displays, DIRIS Digiware M-70 communication gateways and DATALOG H80/H81 dataloggers delivering real-time monitoring of all measurements up to 200 devices and displaying the breakdown of energy consumptions.

Uncover the causes of electrical disturbances and anticipate maintenance requirements due to historical records of multiple electrical parameters.

Pre-set alarms defined by the user can be sent by e-mail. Users can access WEBVIEW via a web browser on a PC or a tablet.

## Strong points

### Plug & Play

Quickly configure WEBVIEW due to the automatic detection of Socomec devices. Create geographical and electrical hierarchies to reflect your installation and your processes.

### Easy to use

WEBVIEW centralizes measurements from all downstream devices via a single clear and user friendly interface. The ergonomics of each screen allow users to easily and quickly analyze the parameters and the behavior of the installation.

### Various functions

Very easy to configure and to use, WEBVIEW offers a wide range of features including real-time monitoring, alarm management and notification by e-mail, multi-utility analysis (electricity, water, gas), power parameter logging and allocation of consumption by end-use and location.

## Characteristics

Type	Hosting	Functions	Number of measurement devices
WEBVIEW-S	DIRIS A-40	Monitor, Alarm, Analyse	1
WEBVIEW-M	DIRIS Digiware M-70	Monitor, Alarm, Analyse, Photoview	32
	DIRIS Digiware D-70	Monitor, Alarm, Analyse, Photoview	32
WEBVIEW-L	DATALOG H80/H81	Monitor, Alarm, Analyse, Photoview	100/200

### Functions

#### Monitor

- Automatic detection of connected devices
- Summary of the parameters measured for the electrical network and loads
- Display of voltage, current, power, power factor, total harmonic distortion (THD) and harmonics per rank
- Display of average/instantaneous values with min/max limits depending on the devices
- Total and partial energy consumption per load
- Input/output status
- Synchronisation of device clocks
- Graphical or table representation

#### Alarm

- Alarms for overloads, events and input status changes
- Display of alarms history
- Sorting by type, nature, criticality or state
- Alarms displayed on the main page
- Alarm notification by e-mail (SMTP)

#### Analyze

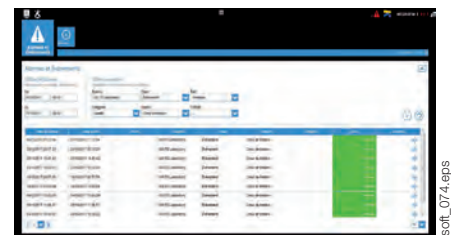
- Historical measurements and consumption
- Historical records of multiple electrical parameters
- Breakdown of consumption by location, by end-use and by utility type (water, gas, electricity, etc.)
- Export of consumption data in a CSV format

#### Photoview

- Photoview: customised dashboard of the WEBVIEW environment via the upload of graphical files (building plans, electrical circuit diagrams, production processes, etc.)
- Real time monitoring via drag and drop of parameters on the background pictures (measurement points, alarms, text, etc.)
- Display of the mapping of the measurement plan by cascading of several images



soft\_076.eps



soft\_074.eps



soft\_075.eps



soft\_064.eps

### References

Type	Host device	Reference
WEBVIEW-S	DIRIS A-40	4825 0501
WEBVIEW-M	DIRIS Digiware M-70	4829 0222
	DIRIS Digiware D-70	4829 0203
WEBVIEW-L 100	DATALOG H80	4854 0020
	DATALOG (3G network)	4854 0021
WEBVIEW-L 200	DATALOG H80	4854 0030
	DATALOG (3G network)	4854 0031






# Easy Config System

## Configuration software

Software suite



### Strong points

-  > Faster
-  > More reliable
-  > More flexible

### Compatible with



- > DIRIS Digiware power monitoring system



- > DIRIS A & B power monitoring devices



- > ATyS C66 and AtyS FT/DT

### Free download Easy Config System



[https://www.socomec.com/easy-config-system\\_en.html](https://www.socomec.com/easy-config-system_en.html)

## Function

With the **Easy Config System**, you can configure your Socomec power monitoring and load-breaking equipment while visualizing all electrical measurements in real time.

Its speed and simplicity make the Easy Config System software an essential tool for:

- Panel builders and system integrators who want to provide correctly configured electrical panels for their customers
- Operators who want to configure their devices on their own or change specific settings

*The bonus:* you can easily save and modify your configurations and also duplicate them from one device to another or from one system to another.

## Advantages

### Quick configuration

Easy Config System is a quick and easy way for system integrators and panel builders to configure their installations:

- Automatic discovery of connected devices
- Configuration of multiple devices at the same time
- Duplication of configurations between devices.

### Local or remote access

You can access Easy Config System either locally by connecting it to devices via a USB cable, or remotely with an Ethernet connection. This system provides great flexibility taking into account the constraints of your facility. With the remote access option, you can change settings and correct any configuration or wiring errors, without having to physically return to site.

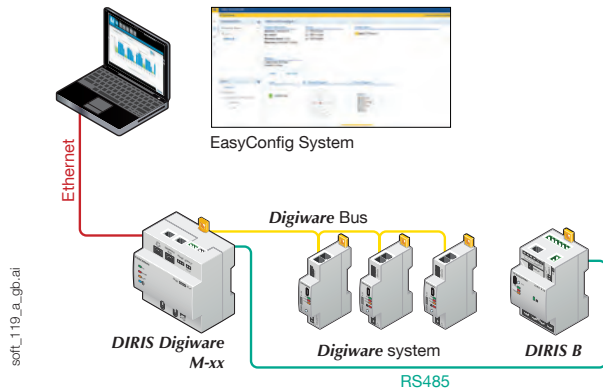
### Reliable data

Easy Config System has a dynamic dashboard (see next page) which adapts to the type of device and can display the phasor diagram, the alarms in progress or detected sensors and their ratings. It also provides an overview of the topology, listing the connected devices, with their firmware versions and internal clock, and the quality of communication.

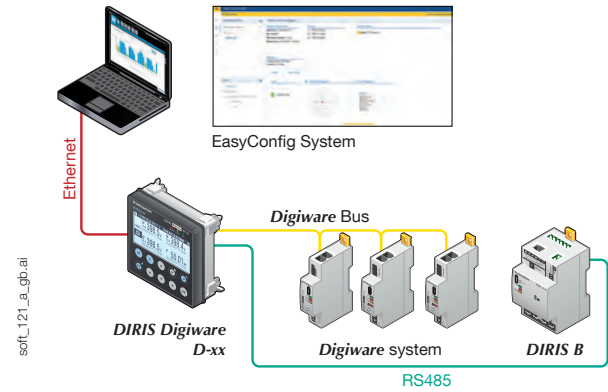
This ensures the user that the wiring and configuration are correct and, as a result, data is reliable.

## Configuration options

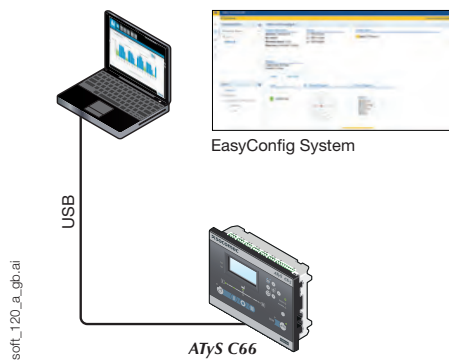
Configure the entire system with an Ethernet connection to a DIRIS Digiware M-xx gateway



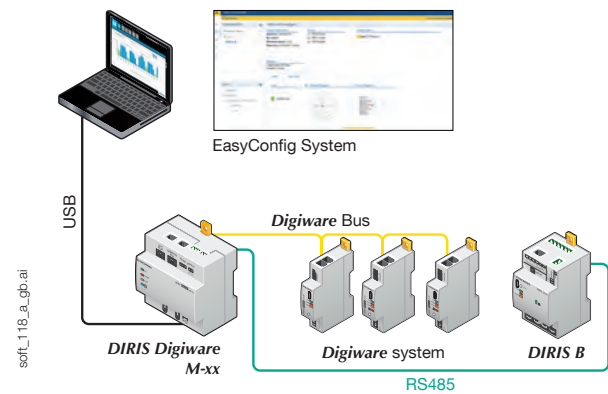
Configure the entire system with an Ethernet connection to a DIRIS Digiware D-xx display



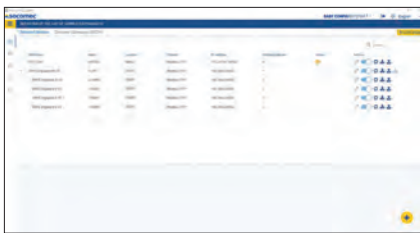
Configure the equipment via USB only



Configure the entire system with a USB connection to a DIRIS Digiware M-xx gateway



## A dashboard adapted to each type of device



### D-xx displays and M-xx gateways

- List of products in the topology
- Firmware versions of connected devices
- Internal clock for connected devices
- Enabled services
- Communication diagnostics

### Multifunction meters

- U/I phasor diagram
- Main electrical readings
- AutoCorrect wiring diagnostics
- Connected sensors and their ratings
- Alarms in progress

### Transfer switches

- Electrical data on each source
- Status of primary and secondary sources
- Input/output state
- Alarms in progress
- Operating modes (AUTO/MANU/TEST)
- Timers

# Power Conversion

## Three-phase UPS



**MODULYS GP-UL**  
25 to 100 + 25 kVA/kW  
p. 321

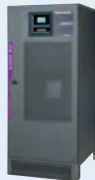
## Static transfer power unit



**STATYS Integrable**  
200 A to 600 A  
p. 327

## On-Grid Energy Storage

Power Conversion System for energy storage



**SUNSYS PCS<sup>2</sup>**  
33 kW up to MW  
p. 329

## Smart Grid LV Energy Storage

Energy Storage System architecture



**SUNSYS Xtend ESS**  
33 kW up to MW  
p. 331

# MODULYS GP-UL

Unique, fully modular and redundant solution from 25 to 100 + 25 kVA/kW



View our video to discover more

With its flexible modularity providing seamless and risk-free power scalability up to 100 + 25 kW, the MODULYS GP-UL range is the ideal solution for unscheduled site upgrades or incremental power evolutions. The installed power can be increased up to 100 + 25 kW by adding hot-swap plug-in power modules for incremental steps of 25 kW.

Designed with no single point of failure, the MODULYS GP-tUL offers all the advantages of the Green Power 2.0 technology.

## Fully modular system

- Plug-in power module.
- Plug-in battery module.
- Plug-in auxiliary mains bypass module.
- Top or bottom connection.
- Top-air exhaust module.

## 'Forever Young' concept

- Exclusive life cycle extension program.
- Eliminates end-of-life criticality.
- Based on an electronics-free cabinet and a set of plug-in parts.
- Module compatibility guaranteed for 20+ years.
- Allows for the implementation of future module technology.
- Company declaration of 20+ year compatibility.

## Totally redundant design

- N+1, N+x redundancy level.
- Designed for no single point of failure.
- No centralized parallel control.
- Totally independent power modules.
- Redundant parallel bus connection (ring configuration).

## Enhanced serviceability performance

- Power module automatic firmware alignment.
- Fast & safe maintenance based on hot-swap parts (power modules, auxiliary mains bypass, electronic boards).
- Load fully protected in online double conversion mode (VFI) during power module replacement.
- 3-color LED bar for quick and easy detection of the power module status.
- Battery can be hot-swapped without shutting down the connected equipment.
- Ready for concurrent maintenance.

## The solution for

- > Computer rooms
- > Datacenters
- > Banks
- > Healthcare facilities
- > Insurance
- > Telecom
- > Transport

## Advantages

- > Ensures absolute business continuity
- > Aligns capacity to business demand
- > Optimizes costs over the full life cycle

## Certifications and attestations



Green Power 2.0 MODULYS GP is certified by MET with regard to product safety (UL 1778 and CSA-C22.2 No. 107.3-05).



SERMA TECHNOLOGIES

Green Power 2.0 MODULYS GP power module MTBF is calculated and verified higher than 1,000,000 hours by SERMA TECHNOLOGIES (IEC 62380)



MODULYS GP has been tested by CESI in compliance with the standard test procedure for the seismic qualification of electrical cabinets. MODULYS GP has successfully passed severe tests to verify its resistance to withstand Zone 4 seismic events.



## Advantages

- > 3-level technology
- > 96% efficiency
- > Power factor = 1
- > Ready for use with Lithium Ion batteries
- > 1,000,000 hours of MTBF

# MODULYS GP-UL

Three-phase UPS

from 25 to 100 + 25 kVA/kW

## Standard electrical features

- Dual input mains.
- Backfeed protection: detection circuit.
- EBS (Expert Battery System) for battery management.
- Auto battery test.
- Battery temperature sensor.
- Energy saver mode.

## Electrical options

- External battery cabinet.
- High capacity battery charger.
- Internal backfeed isolation device.

## Standard communication features

- User-friendly 7" touch-screen multilingual color graphic display.
- 2 slots for communication options.
- USB port to download UPS report and log file.
- Ethernet port for service purpose.
- Commissioning wizard.

## Communication options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or MODBUS.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown

## Hybrid bypass architecture

- Distributed Inverter bypasses in parallel to segregated centralized Aux Mains bypass creating a redundant solution.

## Technical data

UPS MODEL	MODULYS GP-UL						
	MODULYS GP-UL 40 kW		MODULYS GP-UL 25-100 kW				
Number of power modules	1	2	1	2	3	4	5 <sup>(6)</sup>
Power (Sn)	25 kVA	40 kVA	25 kVA	50 kVA	75 kVA	100 kVA	100 kVA (N+1)
Power (Pn)	25 kW	40 kW	25 kW	50 kW	75 kW	100 kW	100 kW (N+1)
<b>INPUT</b>							
Voltage	480 V 3ph (±15%) up to -40 @ 50% of nominal load		3ph 480 V (±15%) up to -40% @ 50% of nominal load				
Frequency	60 Hz ± 10%						
Input power factor	> 0.99 <sup>(1)</sup>						
Total harmonic input current distortion (THDi)	< 3% (@: Pn, Resistive load, Mains THDv < 1%)						
<b>OUTPUT</b>							
Voltage	400 V 3ph+N		480 V 3ph				
Frequency	60 Hz						
Total output voltage distortion (THDv)	< 1% (@ Pn, Resistive load)						
Overload <sup>(2)</sup>	125% for 10 minutes, 150% for 1 minute						
Crest Factor	> 2.7	> 3.3	> 2.7				> 3.3
<b>STATIC BYPASS<sup>(3)</sup></b>							
Bypass input voltage	rated output voltage ± 15%						
Bypass input frequency	60 Hz ± 2% selectable (±8% if Genset is used)						
<b>STORED ENERGY MODE OF OPERATION</b>							
Number of battery blocks (VRLA)	from 18+18 to 24+24						
<b>ENVIRONMENT</b>							
Operating temperature	32 to 104 °F <sup>(4)</sup> / 0 to +40 °C <sup>(4)</sup>						
Storage Temperature	23 to 122 °F / -5 to +50 °C						
Relative humidity	95 % without condensation						
Altitude (max)	3,300 ft (9,840 ft. with derating) / 1,000 m (3,000m with derating)						
Acoustic level at 1 m	< 56 dBA		< 58a dBA				
Required air capacity	470 CFM		1178 CFM				
Dissipated power (max)	3,500 W @ Pn / 11,950 BTU @ Pn		5,200 W @ Pn / 17,750 BTU @ Pn				
<b>DIMENSIONS AND WEIGHT</b>							
Dimensions (W x D x H)	2' 2" 5/8 x 2' 2" 17/64 x 6' 6" 5/64 676 x 895 x 1983 mm						
Empty cabinet	1,380 lbs / 626 kg		1,043 lbs / 473 kg				
UPS module	75 lbs / 34 kg						
Battery module	220.5 lbs / 100 kg		modular battery cabinet				
<b>STANDARD</b>							
Safety	UL1778, CSA-C22.2 No. 107.3-05, MET File E114654						
EMC	FCC part 15 Class A						
Performance	IEC 62040-3 (VFI-SS-111)						
Degree of protection standard	NEMA 1 (IP20)						
SEISMIC	OSHDP (available as option)						

(1) Pout > 50% Sn.

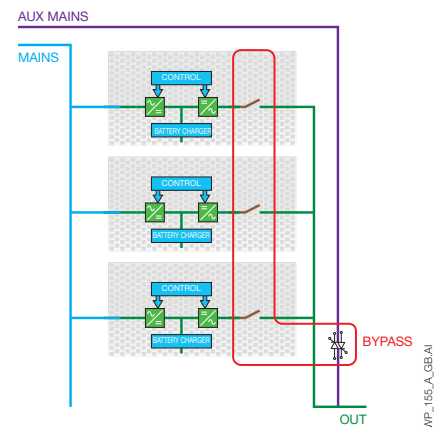
(2) Initial Condition Pout < 80% Pn.

(3) The UPS is not compatible with the use of an external bypass system.

(4) Suggested temperature range for best battery lifetime: 59 to 77 °F

(5) According to IEC 62040-3.

(6) 5th module is for redundancy.



## Best practice award



Frost & Sullivan has awarded SOCOMEC with its prize for Innovation & Excellence in Developing Scalable, Best-in-Class Products and Solutions.

SOCOMECS's vast expertise and technological know-how in modular UPS solutions have enabled it to develop a new modular, three-phase UPS that employs the latest cutting-edge technology combined in a unique design and architecture.

## Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

- Commissioning
- On-site intervention
- Preventive maintenance visits
- Maintenance packages
- Training
- Remote monitoring service



www.socomec.com/services

# MODULYS GP-UL

Three-phase UPS

from 25 to 100 + 25 kVA/kW

## The benefit of a fully modular system

### Easy to manage

- Totally modular system for power scaling or for quickly adapting to business changes.
- Standardised system and modules covering a wide range of power and back-up times.
- Repeatable and standardised scalable architecture for time-saving design for different configuration & architecture requirements.

### Pay as you need

- No prior expenditure for unpredictable future extensions in power and back-up time.
- Space saving thanks to reduced footprint and front access.
- Eliminates installation rework costs when new capacity is required from IT physical infrastructure.
- No risk of design oversizing due to project data uncertainty.

### Everything front-access

- Connections, switches, manual bypass, auxiliary mains static bypass, power modules and all the electric parts have front-access.
- Total footprint is not increased as rear extra clearance for maintenance is not needed.
- Easy, quick, comfortable, safe and risk-free installation and maintenance.
- More reliable system.

## The benefit of a totally redundant design

### Total resilience

- Electronics-free (failure-free) cabinet.
- Totally independent and self-sufficient modules.
- Real module selective disconnection (automatic inverter bypass with galvanic separation).
- No centralized control for parallel and load sharing management.
- Totally segregated, fully sized and centralized auxiliary mains bypass.
- Configurable N+1 to N+x redundancy (power & battery).
- No single point of failure.
- Redundant parallel bus connection (ring configuration).

### Optimum reliability

- Power module designed for superior robustness proved by an independent body (MTBF > 1,000,000 hr).
- Hybrid bypass architecture with distributed module's bypass and centralized mains bypass for ultimate reliability and robustness.
- Highly robust auxiliary mains bypass (MTBF > 10,000,000 hr).
- Acid leak-proof modular battery box.

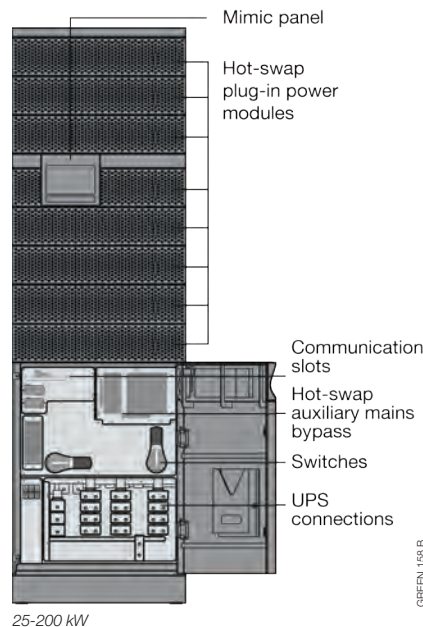
### Maximum availability

- Fast recovery of lost redundancy thanks to minimum MTTR (Mean Time To Repair).
- No risk of downtime during power upgrading and maintenance.
- No risk of failure propagation.

### Cost-effective redundancy

- No need to duplicate the system hardware to get redundancy.
- Redundancy achievable simply by adding one more power and battery module.
- Redundancy can be easily combined with power scalability.
- Upgrading and/or power module replacement can be done by simple plug-in without any commands to the system.

## A flexible modular UPS system



View our video  
to discover more

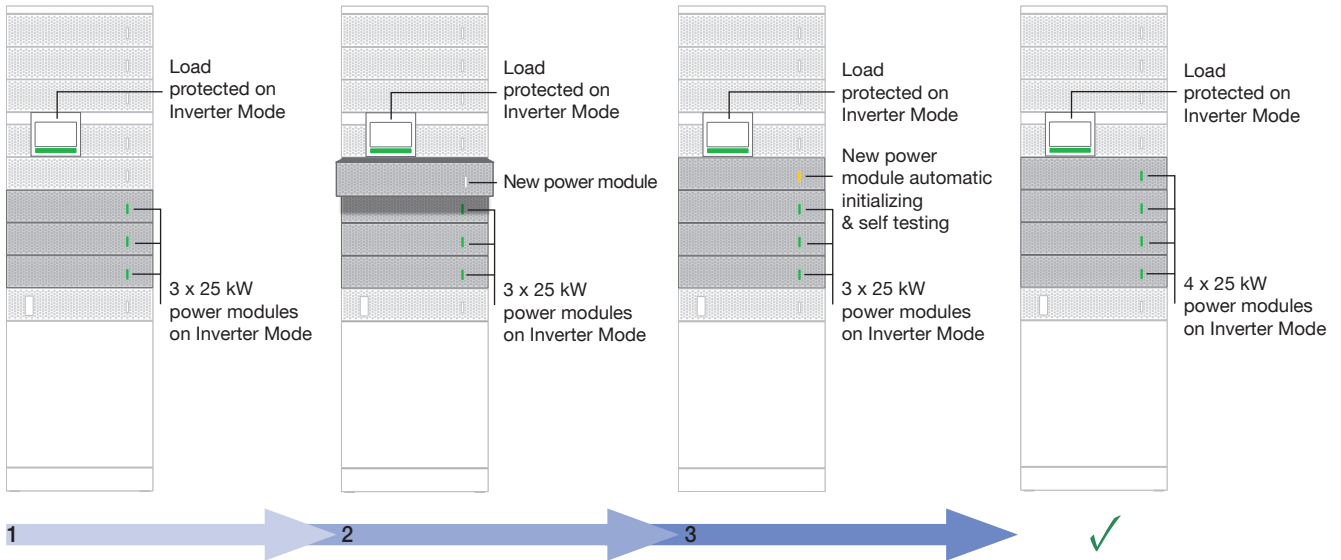


## Seamless and risk-free scalability & upgrading

- MODULYS GP-UL protects critical loads in all conditions, including power upgrading and maintenance procedures.
- No risk of human error and downtime.

### On-line power scalability

- MODULYS GP-UL allows you to increase power scalability and redundancy while keeping the load protected on inverter mode simply by plugging-in a new power module and waiting for its automatic self-configuration, without any human intervention.

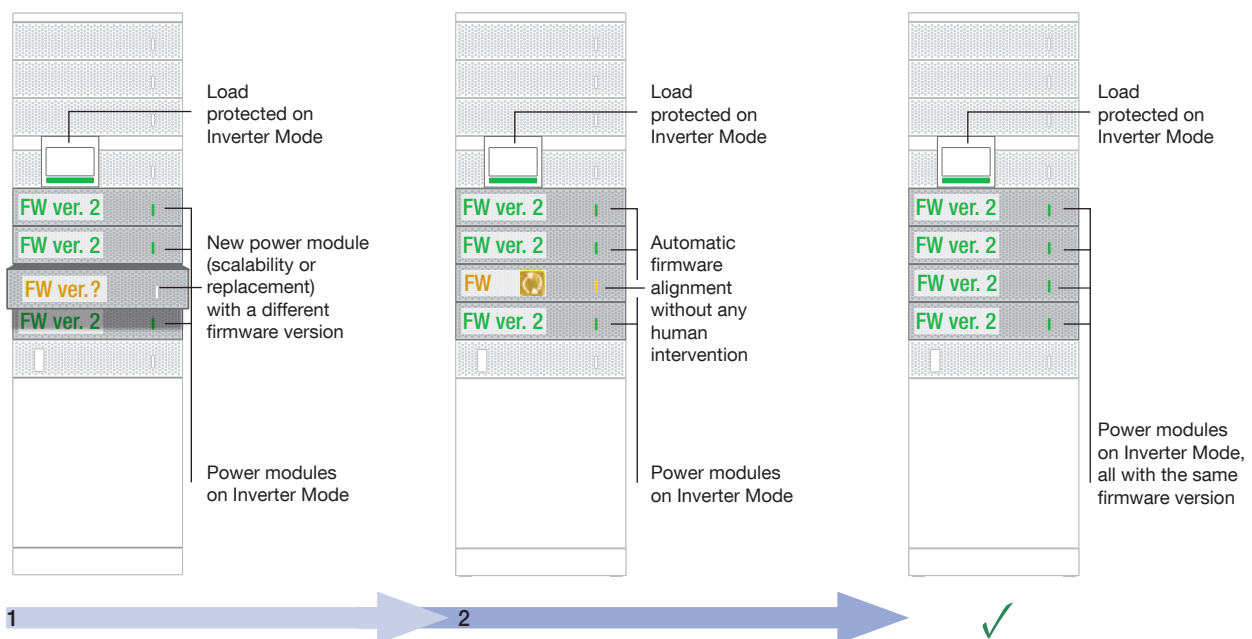


### Power module automatic firmware alignment

- Even the power module firmware alignment is totally risk free.
- When a new power module is plugged in, the system checks what firmware version is embedded and if it is different automatically aligns it to one of the other modules. The load is protected at all times while running on inverter mode.

### On-line global firmware update

- It is also possible to upgrade the global firmware without switching to bypass to keep the load protected on Inverter mode.
- Automatic procedure for a risk-free firmware upgrade.



# MODULYS GP-UL

Three-phase UPS

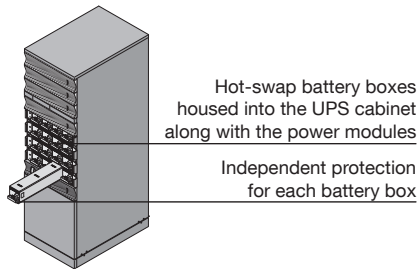
from 25 to 100 + 25 kVA/kW

## Flexible and modular back-up times

MODULYS GP-UL offers modular solutions to meet all your requirements for back-up times (whether a few minutes or several hours) without compromising flexibility and scalability.

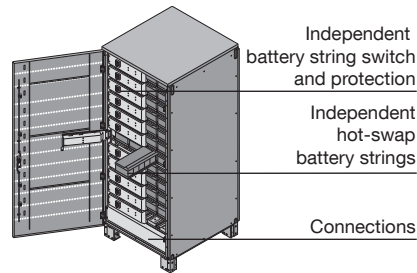
### Internal hot swap battery

- Designed for short back-up time.
- Long-Life batteries available as standard.
- Compact solution with a small footprint.



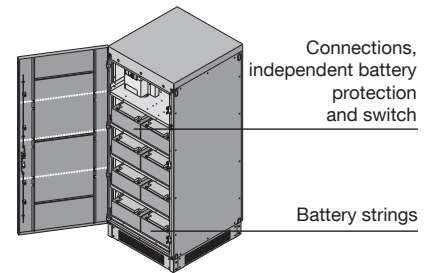
### Modular hot-swap battery cabinets

- Designed for medium and long back-up times.
- Long-Life batteries available as standard.
- Vertical and horizontal modularity ensuring flexible back-up times.



### Modular battery cabinet

- Designed for long back-up times.
- Long-Life batteries available as standard.
- Horizontal modularity ensuring flexible back-up times.

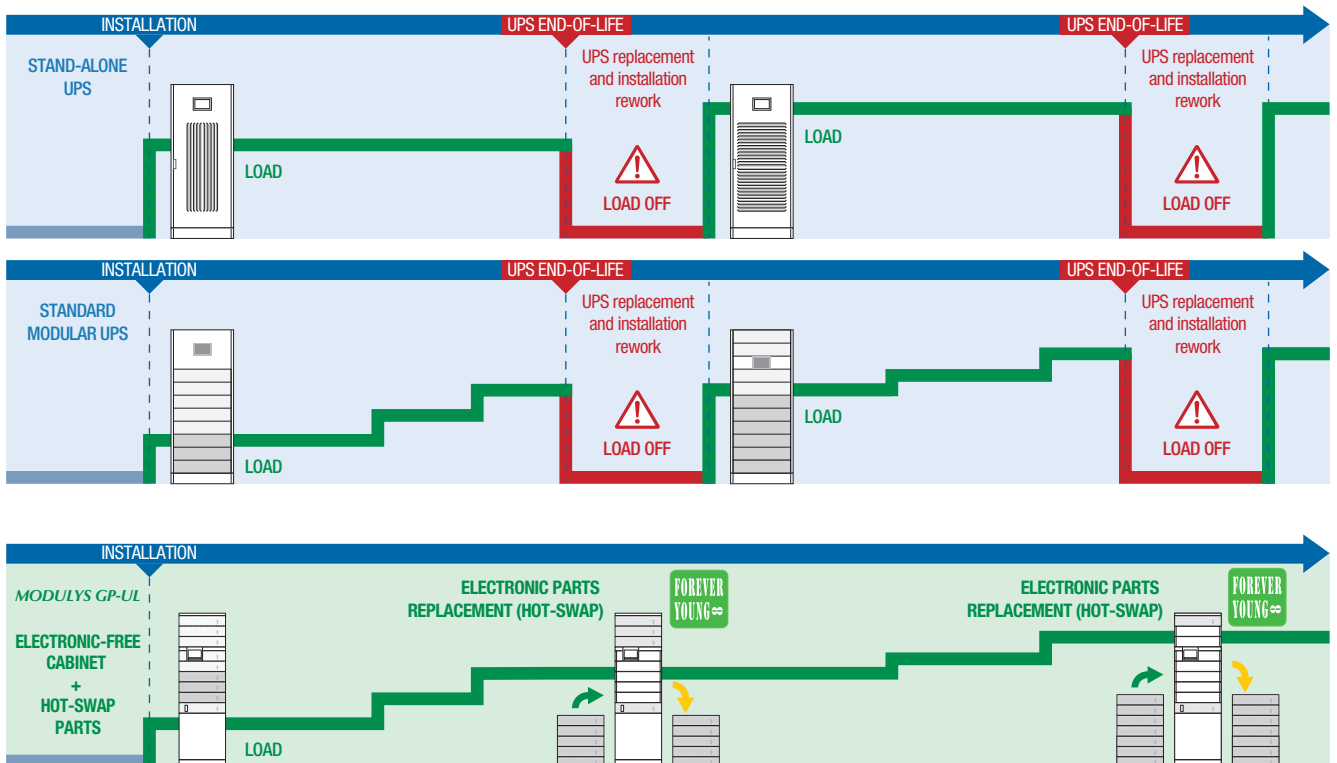


### MODULYS GP-UL "Forever Young" concept

- MODULYS GP-UL excels not only in efficiency, flexibility, capacity management and sustainability - five aspects that are crucial for optimum performance.
- It employs an exclusive concept called 'Forever Young' which allows the life-cycle extension of MODULYS GP-UL and eliminates the criticality of system end-of-life.
- It also keeps the system open for the implementation of future technology improvements without modifying the infrastructure.

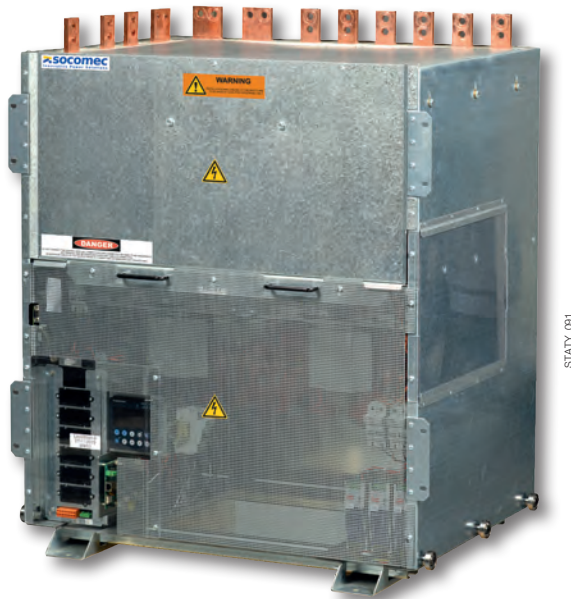
The 'Forever Young' concept:

- Is based on electronic-free (failure-free) cabinets where the components that are subject to ageing are all plug-in and therefore quick and easy to replace.
- Allows life-cycle extension via periodic replacement of power modules before they start ageing.
- Provides an always up-to-date system that uses the latest technology.
- Assures power modules and spare part compatibility and availability for more than 20 years.



# STATYS Integrable

Redundant design for power availability and site maintainability  
from 200 A to 600 A



## Function

**STATYS Integrable** is a fully integrated Static Transfer Power Unit for integration into a cabinet or a power distribution unit (PDU).

Supplied by two independent sources, STATYS Integrable increases the overall electrical infrastructure availability during abnormal events and programmed maintenance.

### Easy integration

- Pre-engineered mechanical and electrical connections for ease of integration into cabinets or PDUs.
- Installed simply by one operator with no special tools required.
- STATYS Integrable is operated by any HMI via a single connection bus using Modbus protocol.

### Unparalleled serviceability

- During preventative maintenance the STATYS Integrable remains fully operational and the load is kept protected.
- STATYS Integrable can be easily integrated or swapped with a new one, without the need of kept specific tools.

### Best resiliency

- Full redundant internal design ensuring no single point of failure.
- Internal segregation between critical functions to prevent a fault propagation.
- Load protection ensured even during an internal fault.

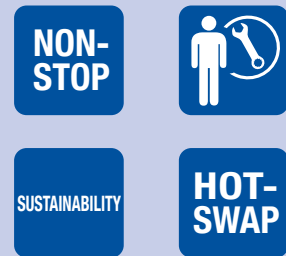
### Robust design

- Compatible with all types of electrical infrastructure and applications.
- Fully rated SCR ensures no restriction to the continuation of operation.

## The solution for

- > Integration in switchboard and PDU
- > Data center
- > Finance, banking and insurance
- > Healthcare sector
- > Telecom & Broadcasting
- > Industry
- > Power generation plants
- > Transport

## Advantages



## Conformity to standard

- > UL 1008 S recognized  
File number: E513909
- > IEC 62310-2 (EMC Immunity & Emission)



## High reliability - Internal redundant design

### Main features:

- Triple redundant power supplies.
- Full redundant DC power bus.
- Redundant microcontroller.
- Redundant SCR drivers.
- Cooling redundancy up to 104 °F/ 40 °C .
- Equipped with an “auto-hold” feature to ensure load continuity in case of internal failure.
- Real-time SCR fault sensing.
- Separation of main functions to prevent internal fault propagation.
- Robust internal field communication bus.
- Internal monitoring of sensors to ensure maximum system reliability.

## Hot maintainability

- Fully functional STATYS Integrable during preventive maintenance.
- Hot replacement of the power supplies.
- Hot replacement of fans with no derating.
- Cold swap of the entire STATYS Integrable power unit.

## Standard features

- A smart and flexible transfer system that can be configured according to the type of load.
- Synchronized and non-synchronized sources compatibility (configurable synchronization tolerance and switching management).
- Output fault current sensing.
- Full breaker management.
- ATSM (Advanced Transformer Switching Management).
- Available in switched and non-switched neutral.

## Standard communication features

- Dry-contact interface (configurable voltage-free contacts).
- Ethernet interface for STATYS Integrable monitoring via WEB pages.
- MODBUS TCP.
- Full digital configuration and setting.
- Single point access for manufacturer HMI.

## Communication options

- Additional dry-contact interface. (configurable voltage-free contacts).
- MODBUS RTU RS485.

## Technical data

Rating [A]	STATYS INTEGRABLE		
	200	400	600
<b>ELECTRICAL SPECIFICATIONS</b>			
Rated voltage	208-220/380-415/480/600 V		
Voltage tolerance	± 10% (configurable)		
Non-synchronized sources management	configurable up to ±180		
Frequency	50 Hz or 60 Hz ± 5 Hz (configurable)		
Number of phases	3ph+N or 3ph (+ PE)		
Number of poles switching	3 or 4-pole switching		
Maintenance bypass (cabinet version)	monitoring up to 6 breakers		
Overload	150% for 2 minutes - 110% for 60 minutes		
Efficiency	99 %		
Admissible power factor	no restrictions		
<b>ENVIRONMENT</b>			
Operating ambient temperature	32-104 °F / 0-40 °C		
Relative humidity	95%		
Maximum altitude	3280 ft / 1000 m a.s.l. without derating		
Acoustic level at 3.28 ft / 1m (ISO 3746)	≤ 60 dBA		
<b>STANDARDS</b>			
Safety	UL 1008 S		
EMC	C2 category IEC 62310-2, FCC part 15		



Pre-engineered solution for easy integration into the cabinet.



# SUNSYS PCS<sup>2</sup>

Power Conversion System for energy storage  
from 33 kW up to MW - UL 1741 SA

On-Grid  
Energy Storage



## The solution for

- MV/LV grids with:
  - > A high proportion of renewable energy
  - > High peak demands

## Strong points

- > High performance
- > Total flexibility
- > Maximum availability
- > Easy to manage and maintain

## Compliance with specifications

- > UL 1741 SA

## Grid code & rules compliance

- > IEEE 1547
- > HECO Rule 14H
- > California rule 21

## Complementary solutions

We can also offer you SUNSYS XTEND ESS, UL 9540 certified Energy Storage System Architecture including batteries and AC and DC distribution modules.



## The manufacturer's guarantee

We offer a comprehensive support service package: commissioning, on-site testing, preventive maintenance visits, 24-hour call out and rapid on-site repairs, genuine spare parts, etc.

## References



[www.socomec.com/references-smart-solutions\\_en.html](http://www.socomec.com/references-smart-solutions_en.html)

The SUNSYS PCS<sup>2</sup> is a modular bidirectional power converter for energy storage. Due to its modular parallel configuration, several MW can be reached.

### High performance

- The SUNSYS PCS<sup>2</sup> modular design provides high output efficiency even with low power due to its Dynamic Power Control function.

### Total flexibility

- The SUNSYS PCS<sup>2</sup> is a modular and scalable solution making it easy to adapt to future evolution. The design also enables it to be used to update existing photovoltaic installations.
- Its compatibility with multiple battery technologies provides ample flexibility to the installation.

### Maximum availability

- The modular design enables fully secure "hot swapping" of conversion modules, allowing extra space after installation. This operation can be performed without special clearance.

### Easy to manage and maintain

- The SUNSYS PCS<sup>2</sup> is a full front access solution allowing quick and easy, comfortable, safe and risk-free installation and maintenance.
- Due to its display on the front face, it also enables ergonomic operation and monitoring.

## Technical data

<b>SUNSYS PCS<sup>2</sup></b>							
Configuration	With transformer			Without transformer			
Model	SUN-ES33KTR20UL	SUN-ES66KTR20UL	SUN-ES100TR20UL	SUN-ES33KET20UL	SUN-ES66KET20UL	SUN-ES100ET20UL	
<b>INPUT (DC)</b>							
Battery voltage	Full power from 450 to 800 VDC - 350 to 850 VDC possible with derating						
Number of independent power modules	1	2	3	1	2	3	
Maximum discharging current	80 A	160 A	240 A	80 A	160 A	240 A	
Maximum recharging current	80 A	160 A	240 A	80 A	160 A	240 A	
<b>OUTPUT (AC)</b>							
Rated power	33.0 kW	66.0 kW	100.0 kW	33.0 kW	66.0 kW	100.0 kW	
Maximum power	36.3 kW	72.6 kW	110.0 kW	36.3 kW	72.6 kW	110.0 kW	
Rated apparent power	33.0 kVA	66.0 kVA	100.0 kVA	33.0 kVA	66.0 kVA	100.0 kVA	
Maximum apparent power	36.3 kVA	72.6 kVA	110.0 kVA	36.3 kVA	72.6 kVA	110.0 kVA	
Rated voltage	480 Vrms <sup>(1)</sup> 3ph			280 Vrms <sup>(1)</sup> 3ph			
Voltage tolerance	423 to 528 Vrms <sup>(1)</sup> 3ph			252 - 308 Vrms <sup>(1)</sup> 3ph			
Rated frequency	60 Hz						
Frequency range	59.3 - 60.5 Hz						
Rated current	40 Arms	80 Arms	120 Arms	69 Arms	137 Arms	206 Arms	
Maximum current	46 Arms	91 Arms	137 Arms	78 Arms	157 Arms	235 Arms	
THDI (%)	< 3%						
Topology	Single conversion						
<b>EFFICIENCY</b>							
Maximum efficiency	96.0%	96.2%	96.3%	97.6%			
<b>ENVIRONMENT</b>							
Environment category	Non air-conditioned indoor space						
Degree of protection	NEMA 1						
Operating ambient temperature	23 to 122 °F / -5 to +50 °C						
Rated temperature	32 to 104 °F / 0 to +40 °C						
Storage temperature	23 °F to 140 °F / -5 °C to +60 °C						
Relative humidity	5 % to 95 % without condensation						
Cooling system	Smart cooling						
Acoustic level at 3.28 ft / 1 m	< 60 dB	< 64 dB		< 60 dB	< 64 dB		
Altitude	0 to 3300 ft. (full power) / 0 to 1000 m (full power)						
<b>MECHANICAL SPECIFICATIONS</b>							
Dimensions (W x D x H)	in.	23.62 x 31.30 x 55.12		47.24 x 31.30 x 55.12		23.62 x 31.30 x 55.12	
	mm	600 x 795 x 1400		1200 x 795 x 1400		600 x 795 x 1400	
Weight	lbs.	782.64	1168.45	1798.97	326.28	390.22	454.15
	kg	355	530	816	148	177	206

(1) Depending on the specific country and regulations.



# SUNSYS Xtend ESS

## UL 9540 certified Energy Storage System architecture

Smart Grid  
LV innovations



### The solution for

- > Commercial applications
- > Industrial applications

### Strong points

- > Extendable installation
- > Compact design
- > Customer oriented services
- > Simplified logistics

### Conformity to standards

- > UL 1741 SA: Standard for Grid Support Inverters
- > UL 1642: Standard for Lithium Batteries
- > UN 38.3: Transport of Dangerous Goods – Lithium-ion batteries
- > UL 1973RU: Standard for Batteries for Use in Light Electric Rail Applications and Stationary Applications
- > UL 9540 certified solution: Standard for Energy Storage Systems and Equipment
- > IEEE 1547: Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces



SUNSYS XTEND ESS - UL 9540 certified Energy Storage System architecture - combines lithium ion batteries with Socomec's Power Converters to offer a completely integrated Energy Storage System, optimized for use in commercial and industrial applications. This architecture can be combined with third-party software to provide the widest range of energy services.

### Extendable installation

SUNSYS XTEND ESS enables modular flexibility later on. This solution may evolve and extend at a later date by adding additional SUNSYS PCS<sup>2</sup> and/or batteries with their associated protection equipment.

With UL 9540 certification, the architecture will not require further certifications in case of future growth.

### Compact design

SUNSYS XTEND ESS is designed to have compact installation, either indoors, or in a weather-tight outdoor enclosure.

The complete system includes:

- SUNSYS PCS<sup>2</sup> bidirectional power converters,
- Batteries,
- AC distribution cabinet,
- String Battery Coupling Panel (SBCP).

### Customer oriented services

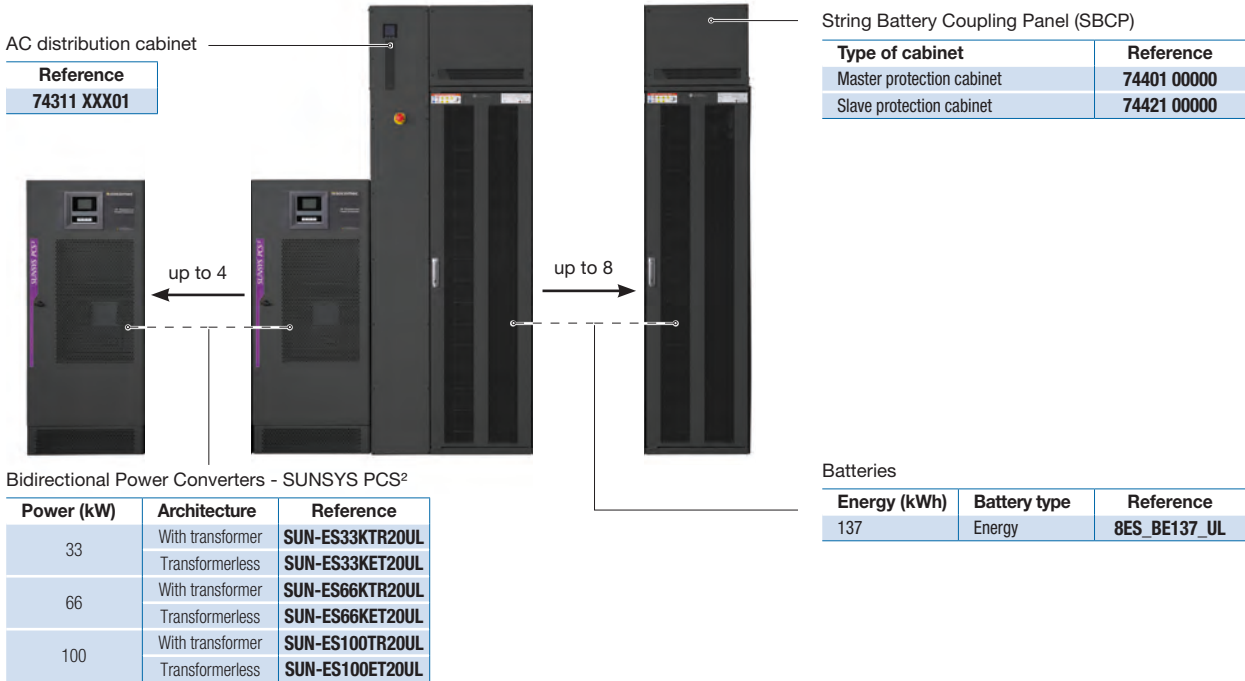
SUNSYS XTEND ESS offers services dedicated to commercial and industrial installations.

This system is a fundamental component in providing peak shaving, load shifting and photovoltaic self-consumption functionalities in association with a third party EMS.



## Simplified logistics

SUNSYS XTEND ESS creates a complete solution with a limited number of references for easy ordering and covering a wide range of configurations, power and back-up time.



## Possible SUNSYS Xtend ESS architectures

		Batteries							
		1 x 137 kWh	2 x 137 kWh	3 x 137 kWh	4 x 137 kWh	5 x 137 kWh	6 x 137 kWh	7 x 137 kWh	8 x 137 kWh
SUNSYS PCS²	1 x 33 kW	3.5 hours	-	-	-	-	-	-	-
	1 x 66 kW	1.5 hours	3.5 hours	-	-	-	-	-	-
	2 x 66 kW	-	1.5 hours	2.5 hours	3.5 hours	-	-	-	-
	3 x 66 kW	-	1 hour	1.5 hours	2.5 hours	3 hours	3.5 hours	4 hours	-
	4 x 66 kW	-	-	1 hour	1.5 hours	2 hours	2.5 hours	3 hours	3.105 hours
	1 x 100 kW	1 hour	2 hours	3.5 hours	4.5 hours	-	-	-	-
	2 x 100 kW	-	1 hour	1.5 hours	2 hours	3 hours	3.5 hours	4 hours	-
	3 x 100 kW	-	-	1 hour	1.5 hours	2 hours	-	2.5 hours	3 hours
	4 x 100 kW	-	-	-	1 hour	1.5 hours	-	2 hours	-

## Characteristics

Architecture based on	SUNSYS PCS² 33TR	SUNSYS PCS² 66TR	SUNSYS PCS² 100TR	SUNSYS PCS² 33TL	SUNSYS PCS² 66TL	SUNSYS PCS² 100TL
<b>INPUT (DC)</b>						
Battery chemistry	Lithium-Ion					
Number of independent power modules	1	2	3	1	2	3
<b>OUTPUT (AC)</b>						
Rated apparent power	33.000 VA	66.000 VA	100.000 VA	33.000 VA	66.000 VA	100.000 VA
Rated voltage (Un)	480 V rms 3ph			288 V rms 3ph		
Voltage range	423 - 528 V rms 3ph			252 - 308 V rms 3ph		
Rated frequency (Fn)	60 Hz					
Frequency range	59.3 - 60.5 Hz					
Efficiency	-					
Maximum efficiency	≥ 96 %					
<b>ENVIRONMENT</b>						
Environmental category	Non-air-conditionned indoor space					
Degree of protection	NEMA 1					
Operating ambient temperature	0 to +104 °F / 40 °C					
<b>CERTIFICATIONS</b>						
Power converter	UL1741 SA - IEEE 1557					
Battery	UL 1642 - UN 38.3 - UL 1973 RU					
Product certification	UL 9540					

## Dimensions

Number of SUNSYS PCS²	Number of batteries	Dimensions (W x D x H) (inch)
1	1	55.9 x 36.6 x 90.5
1	2	76.3 x 36.6 x 90.5
1	3	96.8 x 36.6 x 90.5
1	4	117.3 x 36.6 x 90.5
2	2	100 x 36.6 x 90.5
2	3	120.5 x 36.6 x 90.5
2	4	141 x 36.6 x 90.5
2	5	161.4 x 36.6 x 90.5
2	6	181.9 x 36.6 x 90.5
2	7	202.4 x 36.6 x 90.5
3	2	123.6 x 36.6 x 90.5
3	4	164.6 x 36.6 x 90.5
3	5	185 x 36.6 x 90.5
3	6	205.5 x 36.6 x 90.5
3	7	226 x 36.6 x 90.5
3	8	246.5 x 36.6 x 90.5
4	3	167.8 x 36.6 x 90.5
4	4	188.2 x 36.6 x 90.5
4	5	208.7 x 36.6 x 90.5
4	6	229.2 x 36.6 x 90.5
4	7	249.6 x 36.6 x 90.5
4	8	270.1 x 36.6 x 90.5