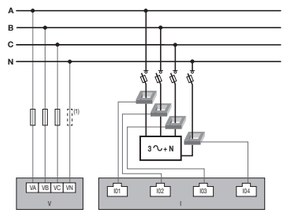
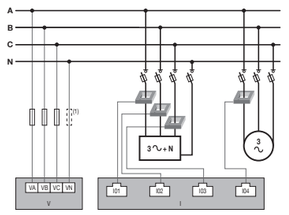
7 Line voltage and load connections for RJ12 smart sensors models

Each current input is independent: see below for some connection examples:

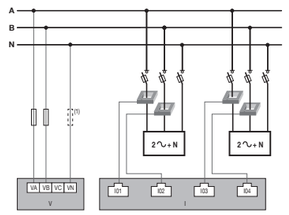
Three-Phase, Four-Wire Wye
3P+N – 4CT
(1 three-phase load + measured neutral)



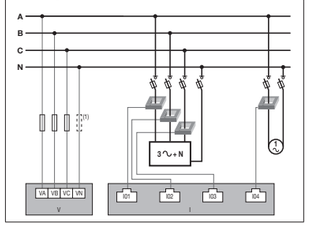
Three-Phase, Four-Wire Wye
3P+N – 3CT & 3P – 1CT
(1 unbalanced three-phase load + calculated Neutral + 1 three-phase balanced load)



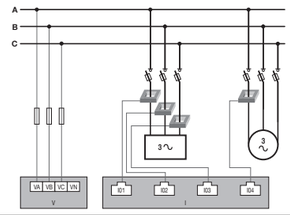
Single-Phase, Three-Wire (Split-Phase)
2P+N – 2CT (x2)
(2 two-phase loads)



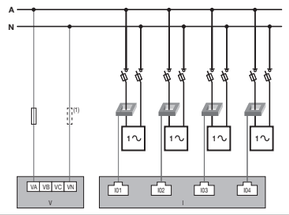
Three-Phase, Four-Wire Wye
3P+N – 3CT & 1P+N – 1CT
(1 three-phase load + calculated Neutral + 1 single-phase load)



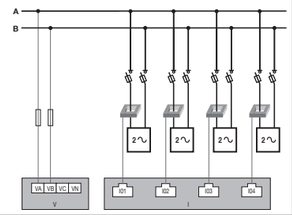
Three-Phase, Three-Wire Delta
3P – 3CT & 3P – 1CT
(1 unbalanced three-phase load + 1 three-phase balanced load)



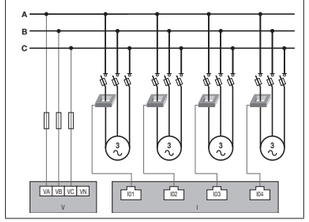
Single-Phase, Two-Wire, Line-to-Neutral
1P+N – 1CT (x4)
(4 single-phase loads)



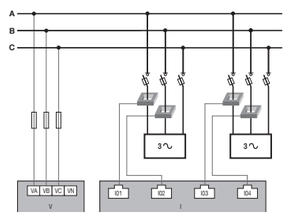
Single-Phase, Two-Wire, Line-to-Line
2P – 1CT (x4)
(4 two-phase loads)



Three-Phase, Three-Wire Delta
3P – 1CT (x4)
(4 three-phase balanced loads)

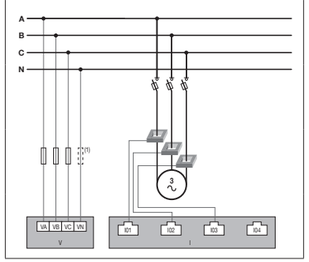


Three-Phase, Three-Wire Delta
3P – 2CT (x2)
(2 three-phase loads*)

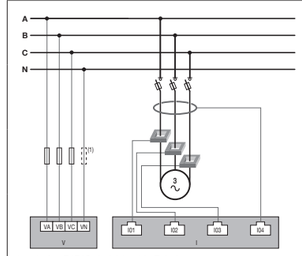


* The solution with 2 CTs with the 2nd phase current calculated via vectoral summation, results in an 0.5% reduction in phase accuracy.

Three-Phase Four-Wire Delta (High Leg)
3P+N – 3CT
(1 three-phase load)



Three-Phase, Four-Wire Wye
3P+N – 3CT
(1 three-phase load with RCM* (IΔ))



* only for DIRIS A-200 with RJ12 smart sensors ref. 48250604.

Fuse: 1 A gG / 1 A class CC
Listed fuses for UL application

TE / TR / iTR / TF sensors

Balanced load

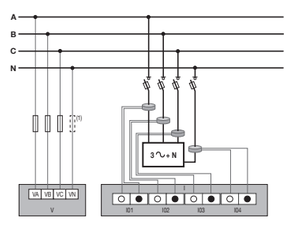
Unbalanced load

(1) For connection to IT system earthing, adapt the protection in accordance with the installation standards currently in force.

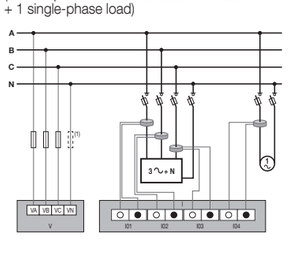
8 Line voltage and load connections for 333mV current transformers models

Each current input is independent: see below for some connection examples:

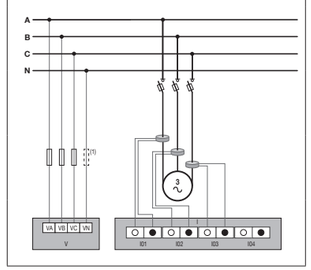
Three-Phase, Four-Wire Wye
3P+N – 4CT
(1 three-phase load + measured neutral)



Three-Phase, Four-Wire Wye
3P+N – 3CT & 1P+N – 1CT
(1 three-phase load + calculated Neutral + 1 single-phase load)



Three-Phase Four-Wire Delta (High Leg)
3P+N – 3CT
(1 three-phase load)



Fuse: 1 A gG / 1 A class CC
Listed fuses for UL application

333 mV current transformers

Balanced load

Unbalanced load

(1) For connection to IT system earthing, adapt the protection in accordance with the installation standards currently in force.

SOCOMEC CONTACT : SOCOMEC INC., 9 GALEN STREET, SUITE 120 WATERTOWN, MA 02472, USA.
Print: 70 g/m² - 279 x 432 mm- R/V - B&W - Folding process attached. Non contractual document. © 2023, Socomec SAS. All rights reserved.

QUICK START GUIDE

EN

552004D

socomec
Innovative Power Solutions

Full user manual and documents available online

www.socomec.us

Multi-function power and energy meter

DIRIS A-100 / A-200

	Models			
	DIRIS A-100	DIRIS A-100	DIRIS A-200	DIRIS A-200
RJ12 smart current sensors	•		•	
333mV current transformers		•		•
RS485 Modbus RTU	•	•	•	•
Ethernet Modbus TCP			•	•
Webview software			•	•
Part No.	48250600	48250601	48250604	48250605

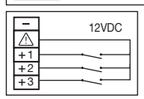
1 System wiring - Exploded view

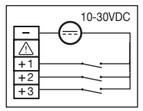
⚠ Use SOCOMEC RJ-12 unshielded twisted pair (UTP) cables, stranded 24 AWG, 600V, -4 to +158°F (-20 to +70°C).

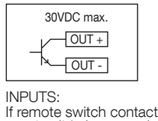
⚠ Do not put USB or RJ45 connectors in contact with hazardous voltage.

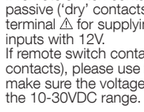
⚠ Do not connect RJ12 sensor cables into an RJ45 connector to avoid any risk of mechanical damage to this connector.

Supply
115-600 - L/L L/N 50-60Hz
1 A gG / 1 A class CC
Listed fuses for UL application



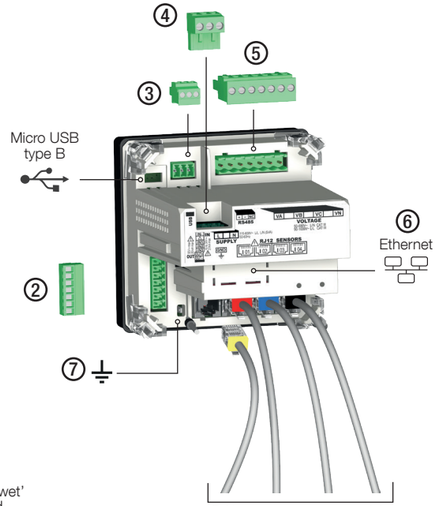




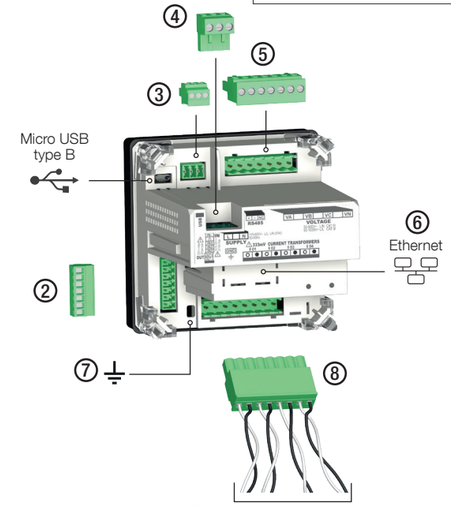


INPUTS:
If remote switch contact inputs are passive ('dry' contacts), please use terminal ⚠ for supplying one of the 3 inputs with 12V.
If remote switch contacts are active ('wet' contacts), please use terminal **IN-** and make sure the voltage applied is within the 10-30VDC range.

OUTPUT: optocoupler, apply max 30VDC and 20 mA of current.



RJ12 smart sensors models



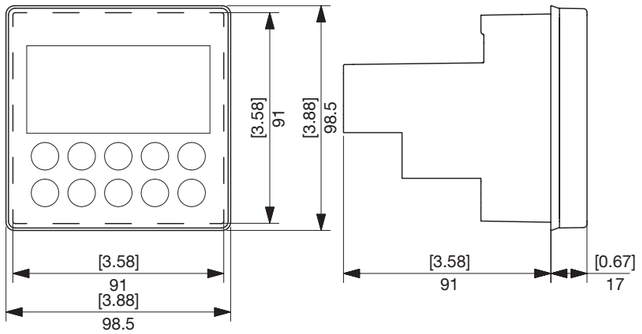
333mV current transformers models

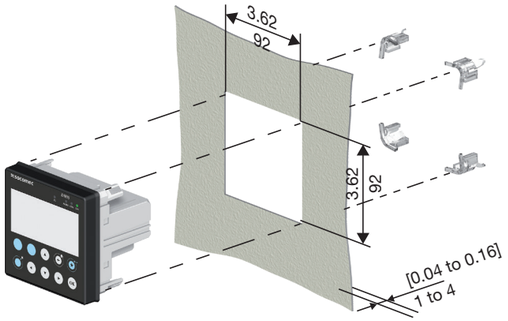
		* x	Screw Torques
②	**3x INPUT** 12 to 24 VDC +/- 20% - 27 mA max. - SELV **1x OUTPUT** 30 VDC max - 20 mA max. - SELV	x = 6 - 7 mm 24~15 AWG 0,2 to 1,65 mm²	0.147 lbf·in (0.2 Nm)
③	**RS485 MODBUS RTU** SELV	x = 6 - 7 mm 24~15 AWG 0,2 to 1,65 mm²	0.147 lbf·in (0.2 Nm)
④	**SUPPLY** 115-600 V~ L/L L/N (7 VA) 50-60 Hz	x = 7 mm 24~14 AWG 0,2 to 2 mm²	0.486 lbf·in (0.66 Nm)
⑤	**VA, VB, VC, and VN** 50-600 V~ L/N CAT III 90-690 V~ L/L CAT III	x = 7 mm 24~13 AWG 0,2 to 2,6 mm²	0.486 lbf·in (0.66 Nm)

		* x	Screw Torques
⑥	**ETHERNET** Modbus® TCP - BACnet® IP	-	-
⑦	⏚ **GROUND**	24~13 AWG 0,2 to 2,6 mm²	0.486 lbf·in (0.66 Nm)
⑧	**333 mV current transformers**	x = 7 mm 28~12 AWG 0,08 to 3,31 mm²	0.486 lbf·in (0.66 Nm)

SELV : Safety Extra Low Voltage.
(*) Use Copper conductors only.

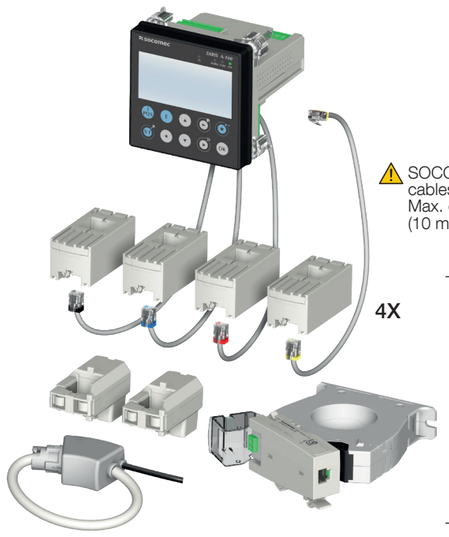
2 Dimensions [in]/mm and mounting





3 Sensors connection

RJ12 smart current sensors



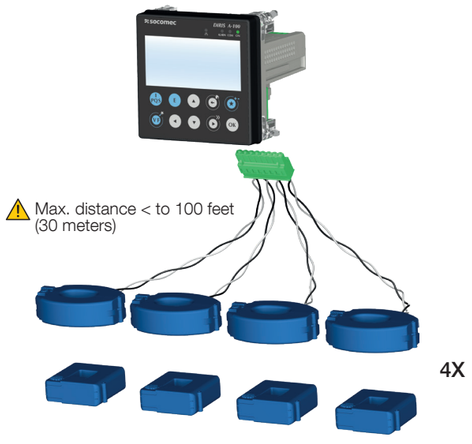
⚠ SOCOMEC RJ12 sensors cables
Max. distance < to 32 feet (10 meters)

4X

TE / TR / iTR
TF / ΔIC sensors

ΔIC* residual CTs
+ T-10 RJ12 adaptor
(for ΔIC Ø 15mm - 200mm)

Current transformers with 0.333 Vac outputs



⚠ Max. distance < to 100 feet (30 meters)

4X

*ΔIC residual current monitoring sensors are only compatible with the DIRIS A-200 with RJ12 sensors, model 48250604; only one ΔIC sensor per DIRIS A-200.

4 HMI

	FIXED	BLINKING
ALARM MAINS (Red)	Ongoing alarm (measurement value, over / under range protection)	Ongoing system alarm (disconnected CT, V/I association, incorrect CT rating)
COM (Orange)	N/A	Device is communicating
ON (Green)	Product powered and operating normally	N/A
Pulse LED	Ongoing RCM alarm (if pulse set to RCM, in which case this LED doesn't display consumptions pulses anymore)	Energy consumed or produced pulses, pulse weight : 0.1 Wh (default, configurable)

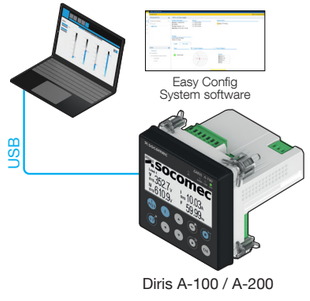
5 Technical characteristics

Measurement characteristics		
Number of current inputs		4 current sensors or 3 current sensors + 1 residual current monitoring sensor
Current sensor inputs		RJ12 100mV smart sensors : solid-core TE, split-core TR and iTR, flexible TF current sensors, ΔIC circular solid-core and ΔIP-R circular split-core residual current transformers, T-10 adaptor. 333 mV current transformers : split-core ACTL-0750-xxx, ACTL-1250-xxx, solid-core TCL-B-xxx.
Electrical / Voltage		Line frequency : 45 to 65 Hz Voltage measurement : 50-600VAC L/N CAT III, 90-690VAC L/L CAT III Power supply : 115-600VAC L/N L/L
Communication characteristics		
Ethernet dual-port 10/100 Base-T – SELV		Modbus TCP (port 502), Modbus RTU over TCP (port 503), BACnet IP (UDP port 47808)
RS485 2 to 3 half duplex wires – SELV		Modbus RTU 9600 to 115200 bauds
Micro USB Type B		Configuration via Easy Config System software and firmware upgrade via Product Upgrade Tool software
Environmental characteristics		
Storage temperature		-40 ... +85°C / -40 to +185°F
Operating temperature		-25 ... +70°C / -13 to +158°F
Humidity		5 to 95% RH non condensing (ANSI C12.1)
Operating altitude		Up to 3000 m (9842 ft)
Pollution degree		2
Protection index		Housing : NEMA 250 Type 1, Front side : NEMA 250 Type 3R*
Overvoltage category		CAT III
Mechanical characteristics		
Location		Indoor
Vibration		30 … 350 Hz, 0.5g (ANSI C12.1)
Shock		Half-sine pulse, 15 g, 11ms (ANSI C12.1)
Standards		
Measurement accuracy	ANSI C12.20	Class 0.2 for active energy, meter alone
	CEC Revenue grade	CEC Revenue grade (<2% accuracy), listed on California Energy Commission's solar equipment list
	IEC 61557-12	Class 0.2 for active energy, meter alone Global accuracy class from 2% to 120% of In (meter + sensors): - Class 0.5 , in case of use with TE, iTR, TF, ACTL-1250, TCL-B sensors - Class 1, in case of use with TR or ACTL-0750 sensors
	IEC 62053-21 -24	Class 0.2 active energy meter alone, class 1 reactive energy meter alone
Safety		UL 61010-1 & UL 61010-2-030 IEC 61010-1 & IEC 61010-2-030 + CB Scheme
EMC		FCC Part 15, Class A (Radiated and Conducted Emissions) IEC 61326-1

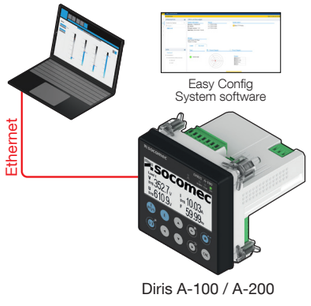
* Front face only. The use of a silicone seal may be required to ensure sufficient sealing of the junction between DIRIS A-xxx display and the panel door.

6 Configuration with Easy Config System or display

USB connection between device and computer



Ethernet connection, either direct or through a LAN connection



Display

Wizard starts automatically at first power on or by long press of the «V F» button