



ISL Insulation monitoring devices
Continuous monitoring of IT systems
from photovoltaic to
industrial applications.

Ensuring operational continuity

To ensure the operational continuity of an electrical system, IEC 60364-4-41 Standard “Low-voltage electrical installations – Protection for safety – Protection against electric shock” requires the system protection from direct and indirect contacts, according to the methods shown in the table.

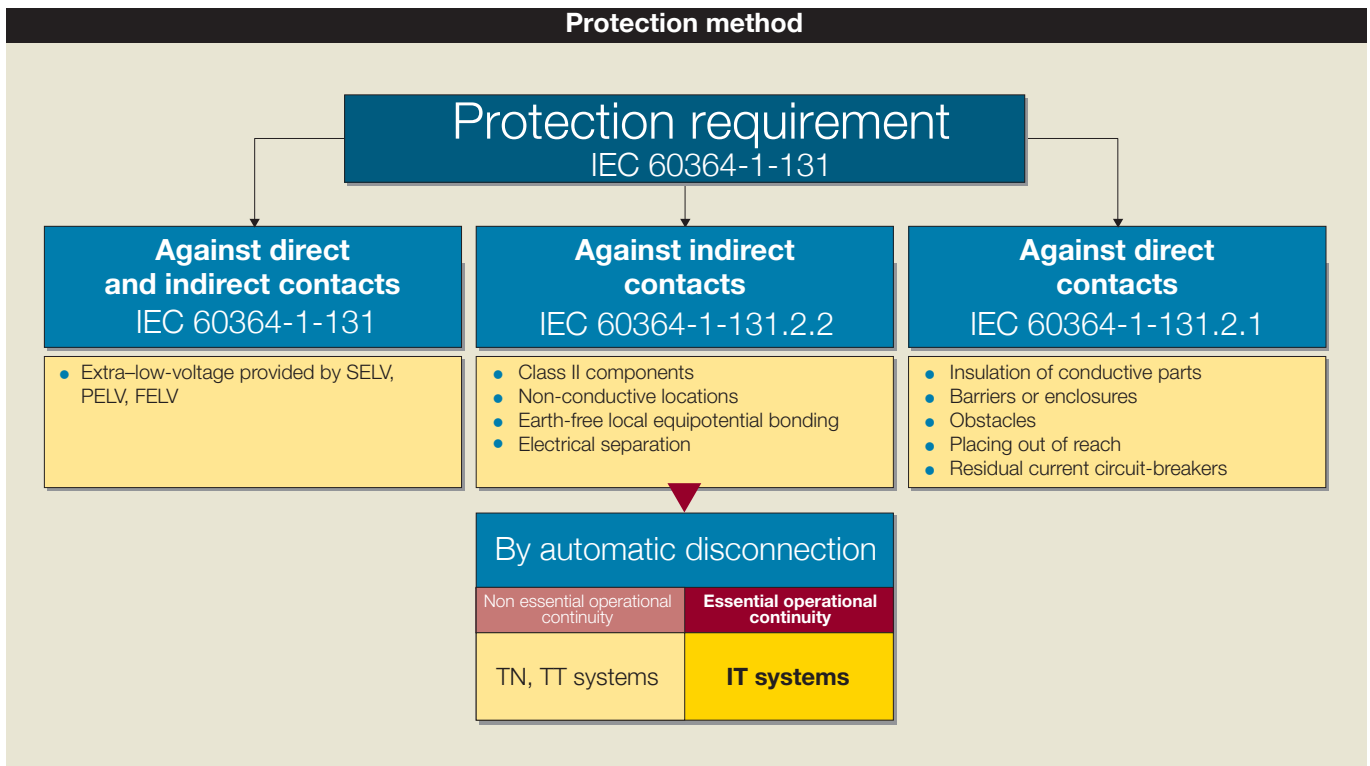
Among all the protection methods identified by the Standard, only IT distribution systems can guarantee greater operational continuity in case of a first fault to earth: in these systems, the circuit-breaker will not trip because the fault current is limited by the high insulation impedance. The IT distribution systems shall avoid the loss of production and ill service that power supply interruption could cause.

Protection + operational continuity
= *IT System*

The first fault to earth should be immediately recovered, because a second fault to earth would cause the tripping of the protection devices (miniature circuit-breakers or residual current circuit-breakers), interrupting the power supply. The Standard requires the installation of an insulation monitoring device to signal the first fault, in order to avoid a second fault that could compromise the required operational continuity.

IT System
= *Insulation Monitor*

ISL range performs continuous monitoring of IT systems insulation, in order to prevent any faults that may reduce operational continuity and, as a result, the efficiency of the system.

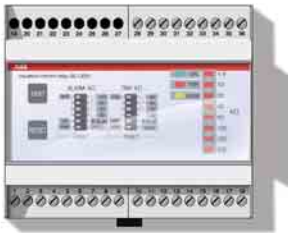


What's new

ISL range allows monitoring and protection in the most demanding application environments. In particular, ISL-C 600 is suitable for large-sized industrial plants, such as refineries, iron, steel and petrochemical companies, whereas ISL-A 600 is used in the photovoltaic plants to monitor the insulation of IT lines downstream the inverter.

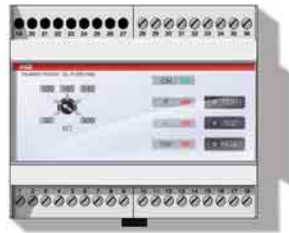


ISL-C 600



- Insulation monitoring up to 1000 V a.c., in case of three-phase IT systems with accessible neutral
- Double monitoring threshold for more effective fault prevention
- Fail safe double relay for effective system control and timely monitoring, even in case of supply failure
- Instant display of insulation level
- Test and Reset can be remotely operated by a pushbutton
- Visual indication of the network status

ISL-A 600



- Insulation monitoring of IT systems up to 600 V d.c.
- Wide tripping threshold adjustment
- Fail safe relay for timely monitoring, even in case of supply failure
- Test and Reset can be remotely operated by a pushbutton
- Visual indication of the network status and indication of the faulty polarity

Plenty of benefits



Operational continuity

When installed in an IT network, the insulation monitoring device continuously controls insulation. In case of first fault, it gives warning about the first fault in order to recover it before the miniature circuit breakers interrupt the power supply.

Fault prevention

ISL gives warning when insulation drops below a set value, preventing greater damages to the network.

Greater efficiency

Thanks to TRIP and ALARM thresholds the fault can be managed even before it actually occurs, therefore preventing service interruption. In addition, the unit can be tested and reset remotely by means of a pushbutton.

360° monitoring

ISL range controls a wide variety of IT systems, providing protection to photovoltaic installations, industrial installations, supervision systems, data centers and other applications.

Cutting maintenance costs and inefficiencies

Thanks to a continuous and timely monitoring of the system, scheduled maintenance operations can be reduced together with overhead costs.

Immediate installation

Quick fixing thanks to 35 mm DIN rail mounting. The front microswitches are preset on the most commonly used settings.

Applications



In the electrical distribution systems that provide power supply to critical applications, ISL insulation monitoring

devices ensure a prompt detection of any type of leakage that may be dangerous for the network.

- **Safety lighting**
- **Data lines**
- **Mobile equipments**
- **Movie sets**
- **TV or radio installations**

ABB offers a whole range of insulation transformers, TM-I range, to create an IT network.



Control room data line protection
ISL-MOT 1000



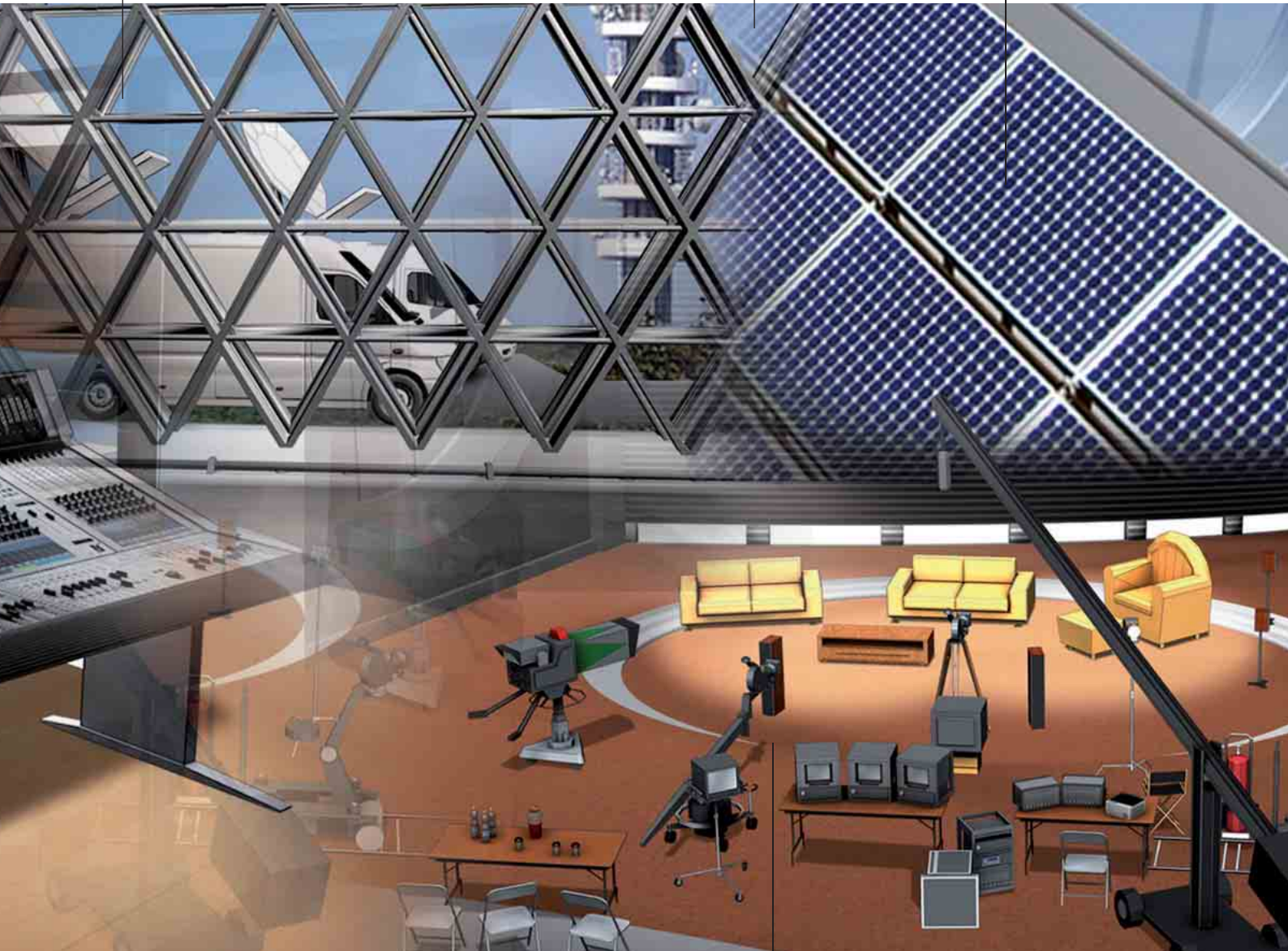
Transmission line on mobile equipments protection
ISL-A 230



Transformation line on fixed structures protection
ISL-C 440



Photovoltaic systems
ISL-A 600



Line protection on movie sets
ISL-A 230

Applications



ISL range measures the impedance of the network in order to implement

a correct preventive and scheduled maintenance.

- **Chemical companies, steelworks, foundries, etc.**
- **Fire-fighting pumps, safety circuits, UPS, rectifiers**
- **Machine control**
- **Photovoltaic systems**
- **Data centers and server farms**
- **Elevator control systems**
- **Industrial automation systems**
- **Mobile generators**

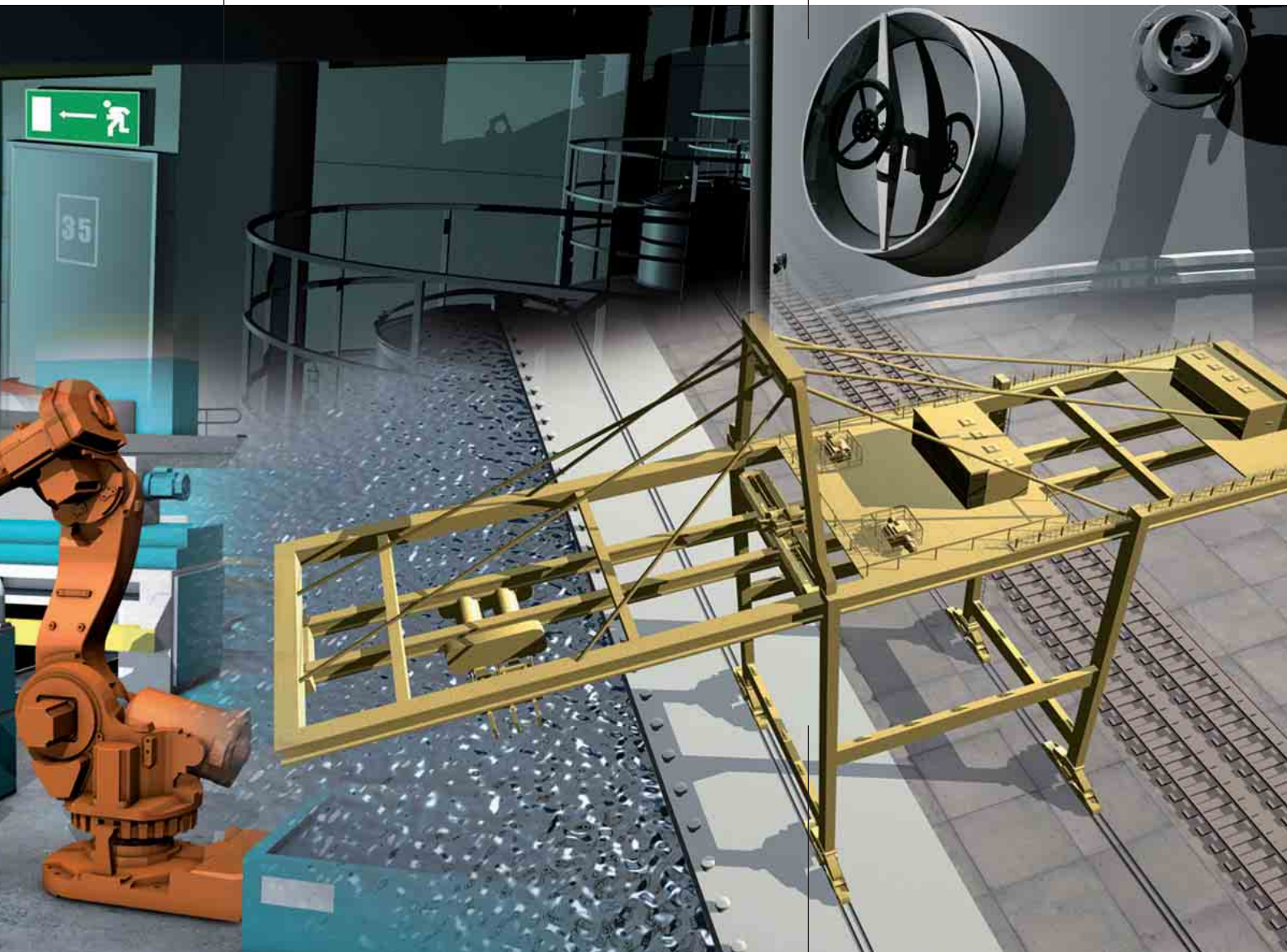


Fire-fighting systems protection
ISL-MOT 1000

Safety lighting
systems protection
ISL-A 24-48



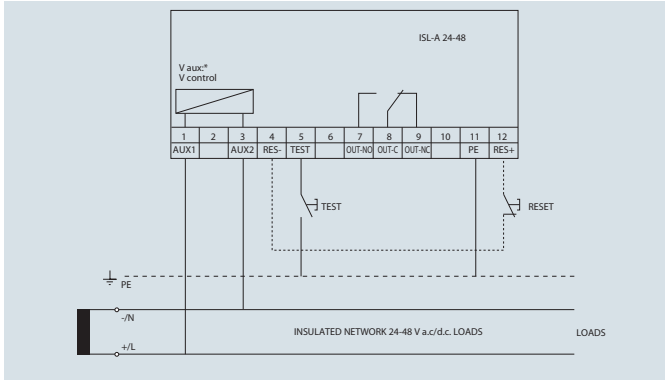
Production plants
protection
ISL-C 440 and ISL-C 600



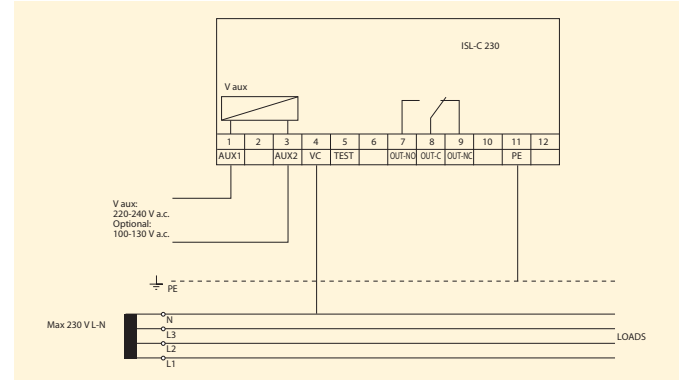
Bridge crane motor
protection
ISL-C 600

Wiring diagrams

ISL-A 28-48

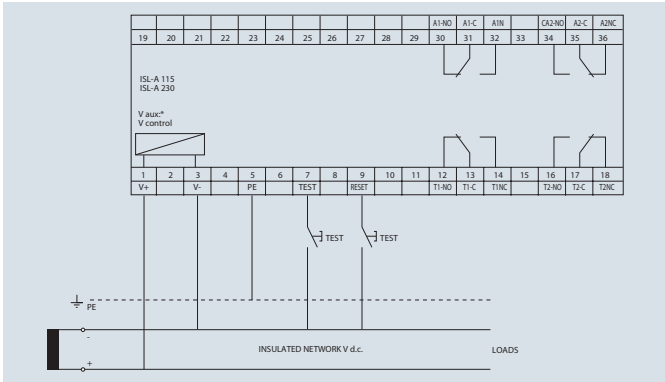


ISL-C 230

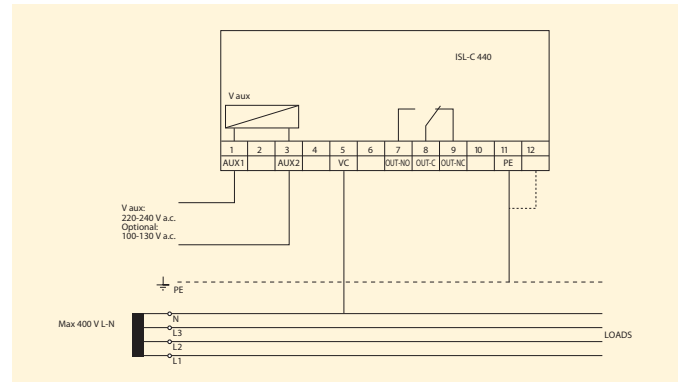


* In case of non accessible neutral, connect terminal 4 to the L3 phase conductor

ISL-A 115 ISL-A 230

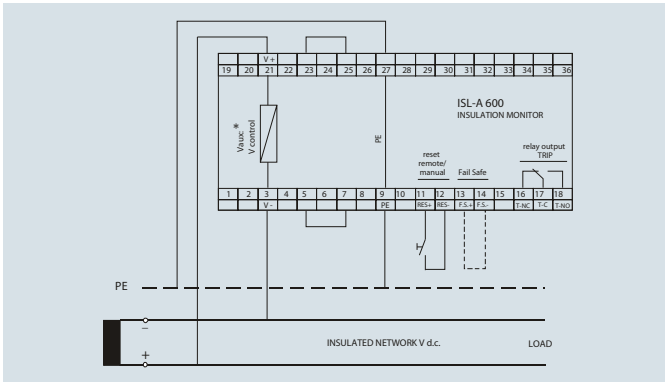


ISL-C 440

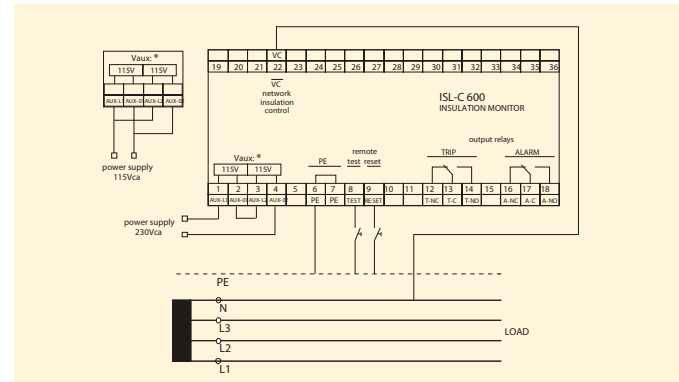


* In case of non accessible neutral, connect terminal 5 to the L3 phase conductor

ISL-A 600

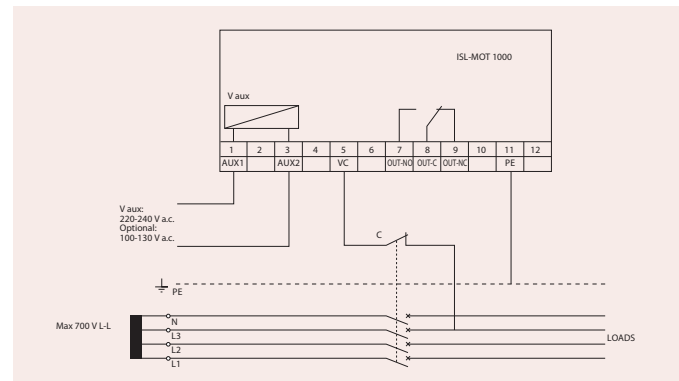


ISL-C 600



* In case of non accessible neutral, connect terminal 22 to the L1 phase conductor

ISL-MOT 1000



Technical features							
Type	ISL-A 24-48	ISL-A 115 ISL-A 230	ISL-A 600	ISL-C 230	ISL-C 440	ISL-C 600	ISL-MOT 1000
Power consumption [VA]	3	4	6	3	3	5	3
ALARM threshold setting [kΩ]	-	30÷300	-	-	-	30÷300	-
TRIP threshold setting [kΩ]	10÷60	10÷100	30÷300	100	10÷150	10÷100	0.1÷1000
Tripping delay	< 5 sec			< 5 sec			< 5 sec
Max measuring current [mA]	0.5	1.8	1.5	0.1	0.1	0.240	0.0015
Max measuring voltage [V d.c.]	-	-	-	12	12	48	20
Internal impedance [kΩ]	50	100 L/PE ⁽¹⁾ 200 kΩ L/PE ⁽²⁾	450 L/PE	250	250	200	1500 d.c.; 1000 a.c.
TRIP Relay number NO-C-NC	1	2	1	1	1	1	1
ALARM Relay number NO-C-NC	-	2	-	-	-	1	-
Max relay contact capacity	250 V 5 A			250 V 5 A			250 V 5 A
Operating temperature [°C]	-10 ÷ 60			-10 ÷ 60			-10 ÷ 60
Storage temperature [°C]	-20 ÷ 70			-20 ÷ 70			-20 ÷ 70
Relative humidity	≤ 95%			≤ 95%			≤ 95%
Max terminal section [mm ²]	4	2.5	2.5	4	4	2.5	4
Protection degree ⁽³⁾	IP 40 / IP 20			IP 40 / IP 20			IP 40 / IP 20
Insulation test	2.5 kV 60 sec. / 4 kV imp 1.2/50 μs			2.5 kV 60 sec. / 4 kV imp 1.2/50 μs		3 kV 60 sec. / 4 kV imp 1.2/50 μs	2.5 kV 60 sec. / 4 kV imp 1.2/50 μs
Modules	3	6	6	3	3	6	3
Weight [g]	200	400	400	200	200	500	200
Standards	EN 61010-1, EN 61557-8, EN 61326-1						

¹⁾ ISL-A 115

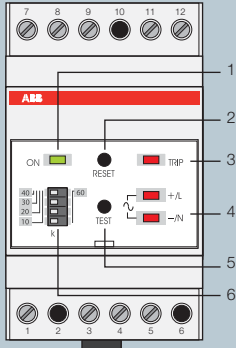
²⁾ ISL-A 230

³⁾ IP40 front, IP20 housing

Function overview

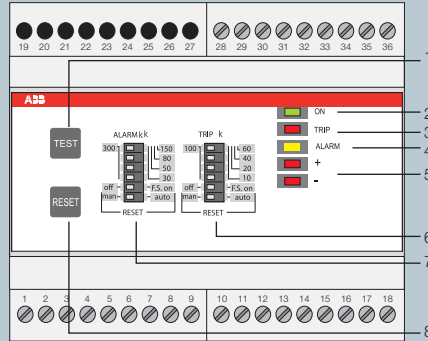
Insulation monitoring devices for direct current networks

ISL-A 24-48



- 1 – Indication of functioning instrument
- 2 – TRIP manual reset
- 3 – Low insulation LED
- 4 – Damaged pole LED
- 5 – TEST pushbutton
- 6 – TRIP threshold setting

ISL-A 115 / ISL-A 230



- 1 – TEST pushbutton
- 2 – Indication of functioning instrument
- 3 – TRIP LED
- 4 – ALARM LED
- 5 – Damaged pole LED
- 6 – TRIP threshold setting
- 7 – ALARM threshold setting
- 8 – RESET pushbutton

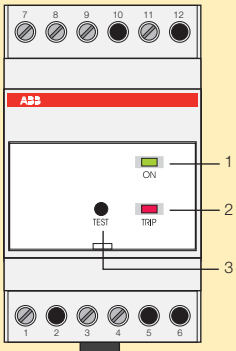
ISL-A 600



- 1 – TRIP threshold adjustment
- 2 – Indication of functioning instrument
- 3 – TEST pushbutton
- 4 – RESET pushbutton
- 5 – TRIP LED
- 6 – Damaged pole LED

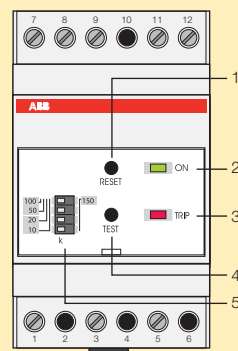
Insulation monitoring devices for alternating current networks

ISL-C 230



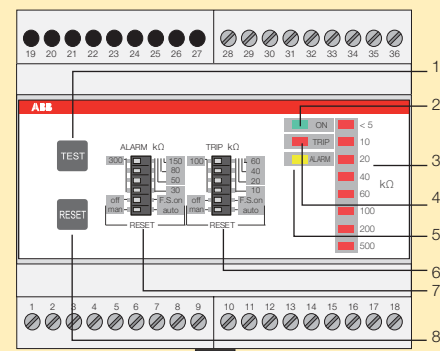
- 1 – Indication of functioning instrument
- 2 – Low insulation LED
- 3 – TEST pushbutton

ISL-C 440



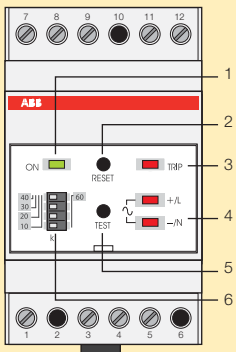
- 1 – RESET pushbutton
- 2 – Indication of functioning instrument
- 3 – Low insulation LED
- 4 – TEST pushbutton
- 5 – TRIP threshold setting

ISL-C 600



- 1 – TEST pushbutton
- 2 – Indication of functioning instrument
- 3 – Insulation level
- 4 – TRIP LED
- 5 – ALARM LED
- 6 – TRIP threshold settings
- 7 – ALARM threshold setting
- 8 – RESET pushbutton

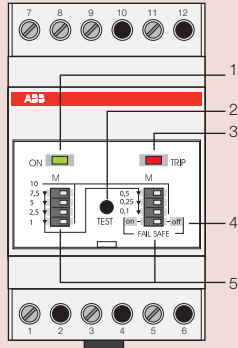
ISL-A 24-48



- 1 – Indication of functioning instrument
- 2 – RESET pushbutton
- 3 – Low insulation LED
- 4 – Damaged pole LED (only for d.c.)
- 5 – TEST pushbutton
- 6 – TRIP threshold setting

Insulation monitoring device for voltageless networks

ISL-MOT 1000



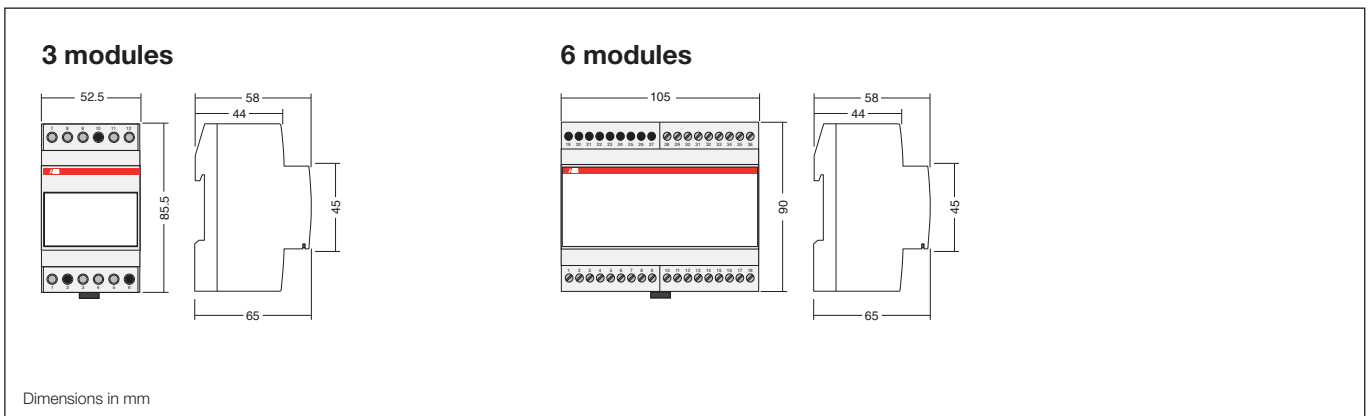
- 1 - Indication of functioning instrument
- 2 - TEST pushbutton
- 3 - Low insulation LED
- 4 - FAIL SAFE setting
- 5 - TRIP threshold setting

Order codes

Type code	Description	Controlled network voltage	Modules	Order code	Bbn 8012542 EAN
ISL-A 24-48	IT networks insulation control 24-48 V a.c./d.c.	24-48 V a.c./d.c.	3	2CSM111000R1500	942504
ISL-A 115	IT networks insulation control 115 V d.c.	100-144 V d.c.	6	2CSM222000R1500	942603
ISL-A 230	IT networks insulation control 230 V d.c.	220 V d.c.	6	2CSM333000R1500	942702
ISL-A 600	IT networks insulation control up to 600 V d.c.	400-600 V d.c.	6	2CSM249853R1500	498537
ISL-C 230	IT networks insulation control 230 V a.c.	220-240 V a.c.*	3	2CSM444000R1500	942801
ISL-C 440	IT networks insulation control 440 V a.c.	380-415 V a.c.*	3	2CSM545000R1500	942900
ISL-C 600	IT networks insulation control up to 760 V a.c.	500-760 V a.c.*	6	2CSM656000R1500	943006
ISL-MOT 1000	Voltageless networks insulation control	20-700 V a.c./d.c.*	3	2CSM808000R1500	943204

* Auxiliary power supply 220-240 V a.c./d.c. 50-60 Hz +/- 20%.

Overall dimensions



Dimensions in mm

Contacts

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