

GENERAL CATALOGUE



PROTECTION
EARTH LEAKAGE RELAYS

PROTECTION
INSULATION MONITORING DEVICES
MEDICAL INSULATION MONITORING DEVICES

ALARM ANNUNCIATORS
TEMPERATURE MONITOR DEVICES

ENERGY MANAGEMENT
METERING INSTRUMENTS

PROTECTION AND ENERGY MANAGEMENT
CURRENT AND VOLTAGE TRANSFORMERS



EARTH LEAKAGE RELAYS TOROIDAL CURRENT TRANSFORMERS

Network monitoring and protection

The electronic residual current relays allow monitoring and protection of the low voltage distribution network through the use of a toroidal transformer.

Protection is achieved in combination with the MCBs and MCCBs.

Compliance with protection standard IEC/EN 60947-2 Annex M allows to offer a cumulative operational time (residual current relay, shunt-trip, circuit breaker) guaranteed by the manufacturer. The ELR residual current relays are tested for this purpose.

- ADJUSTING FAULT CURRENT $I_{\Delta N}$ AND TRIPPING TIMES
- FAIL SAFE
- REMOTE RESET
- AUTORESET
- FREQUENCY FILTERING
- FAULT MEMORY LED
- DIGITAL DISPLAY
- INCORPORATED TOROIDAL TRANSFORMER
- RS485 FOR REMOTE CONTROL (MODBUS-RTU COMMUNICATION PROTOCOL)
- EARTH LEAKAGE RELAY TYPE A
- EARTH LEAKAGE RELAY TYPE B



ELR-7

FLUSH MOUNT VERSION - DIN 48x48 mm



- Earth leakage relay type A
- 1 operation threshold
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Configurable fail safe operation
- Front TEST and RESET buttons
- Automatic or manual resetting

ELR-4 | ELR-4m

FLUSH MOUNT VERSION - DIN 48x96 mm



- Earth leakage relay type A
- 1 operation thresholds
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time
- Front TEST and RESET buttons
- Automatic or manual resetting
- Flag indicator (ELR-4m type)

ELR-91 | ELR-92

FLUSH MOUNT VERSION - DIN 72x72 mm



- Earth leakage relay type A
- 1 operation thresholds
- 2 operation thresholds (ELR-92 type)
- External toroidal transformer
- Configurable fail safe operation (ELR-92 type)
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Prealarm LED indicator (ELR-92 type)

ELR-1E

FLUSH MOUNT VERSION - DIN 96x96 mm



- Earth leakage relay type A
- 1 operation threshold
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Front TEST and RESET buttons
- Automatic or manual resetting

ELR-2 | ELR-2M

FLUSH MOUNT VERSION - DIN 96x96 mm



- Earth leakage relay type A
- 2 operation thresholds
- External toroidal transformer
- Configurable fail safe operation
- Adjustable tripping $I_{\Delta n}$ and delay time
- Front TEST and RESET buttons
- Automatic or manual resetting
- Flag indicator (ELR-2M type)

ELR-8V | ELR-8tcs | ELR-8mVtcs

FLUSH MOUNT VERSION - DIN 96x96 mm



- Earth leakage relay type A
- 2 operation thresholds
- External toroidal transformer
- Configurable fail safe operation
- Fault current measurement
- Digital display
- Flag indicator
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Shunt tripping circuit operating test (TCS)

ELR-1D

MODULAR VERSION - 1 MODULE



- Earth leakage relay type A
- 1 operation threshold
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Front TEST and RESET buttons
- Automatic or manual resetting

ELR-3B

EARTH LEAKAGE RELAY TYPE B
MODULAR VERSION - 3 MODULE



- Measures in AC, DC or mixed current, type B (IEC 60755)
- External toroidal transformer
- Parameter programming
- Trip current (red display when tripped)
- Instantaneous leakage current
- 2 independent programmable outputs (alarm and prealarm)

ELR-D2

MODULAR
VERSION
2 MODULE



- Earth leakage relay type A
- True RMS
- 1 operation threshold
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Front TEST and RESET buttons
- Automatic or manual resetting
- LCD display
- RS485 serial interface (Modbus RTU)

ELR-3C

MODULAR VERSION - 3 MODULE



- Earth leakage relay type A
- 1 operation threshold
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Front TEST and RESET buttons
- Automatic or manual resetting

ELR-3F

MODULAR VERSION - 3 MODULE



- Earth leakage relay type A
- 1 operation threshold
- External toroidal transformer
- Selectable tripping set-point ($I_{\Delta n}$): fixed 0.3A or 0.5A
- Selectable tripping time: fixed 0.02s or 0.5s
- Front TEST and RESET buttons
- Automatic or manual resetting

ELR-3E

MODULAR VERSION - 3 MODULE



- Earth leakage relay type A
- 1 operation threshold
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Front TEST and RESET buttons
- Manual resetting

ELR-61 | ELR-m61 | ELR-62 | ELR-m62

MODULAR VERSION - 6 MODULE



- Earth leakage relay type A
- 2 operation threshold
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Front TEST and RESET buttons
- Configurable automatic or manual resetting
- Prealarm LED indicator (ELR-62 type)
- Flag indicator (ELR-62 type)

ELRC-B

MODULAR VERSION - 6 MODULE



- Earth leakage relay type A
- 1 operation threshold
- Incorporated toroidal transformer
- Configurable fail safe operation
- Adjustable tripping $I_{\Delta n}$ and delay time
- Front TEST and RESET buttons
- Automatic or manual resetting

ELRC-BL | ELRD-L | ELRD-L2m

PUBLIC LIGHTING
MODULAR VERSION - 6 MODULE



- Earth leakage relay type A
- 2 operation threshold
- External toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time.
- Front TEST and RESET buttons
- Configurable automatic or manual resetting
- Prealarm LED indicator (ELR-62 type)
- Flag indicator (ELR-62 type)

ELRC-1

COMPACT INTERNAL PANEL VERSION



- Earth leakage relay type A
- 1 operation threshold
- Incorporated toroidal transformer
- Adjustable tripping $I_{\Delta n}$ and delay time
- Front test and reset buttons
- 35mm to 110 mm diameter



CTD-1/28



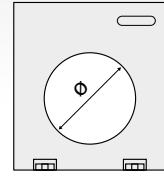
MODEL	Ø (mm)	OPENABLE	MINIMUM CURRENT
CTD-1/28	28	NO	25mA

CT-1/22



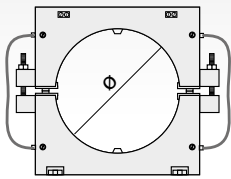
MODEL	Ø (mm)	OPENABLE	MINIMUM CURRENT
CT-1/22	22	NO	25mA

CT-1/35 | 1/60 | 1/80 | 1/110 | 1/160



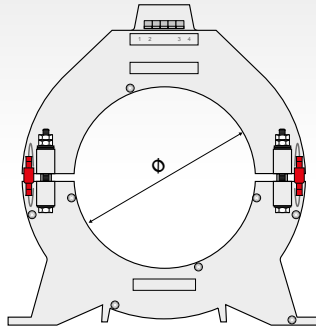
MODEL	Ø (mm)	OPENABLE	MINIMUM CURRENT
CT-1/35	35	NO	25 mA
CT-1/60	60	NO	25 mA
CT-1/80	80	NO	100 mA
CT-1/110	110	NO	250 mA
CT-1/160	160	NO	500 mA

CTA-1/110



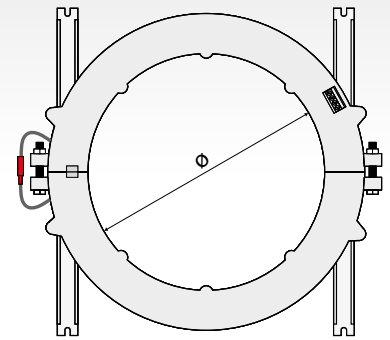
MODEL	Ø (mm)	OPENABLE	MINIMUM CURRENT
CTA-1/110	110	YES	250 mA

CTA-1/160



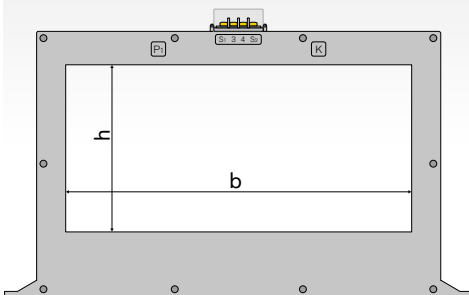
MODEL	Ø (mm)	OPENABLE	MINIMUM CURRENT
CTA-1/160	160	YES	500 mA

CT-1/210 | CTA-1/210 | CT-1/300 | CTA-1/300



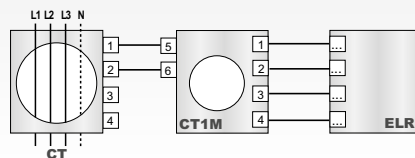
MODEL	Ø (mm)	OPENABLE	MINIMUM CURRENT
CT-1/210	210	NO	250 mA
CT-1/300	300	NO	250 mA
CTA-1/210	210	YES	500 mA
CTA-1/300	300	YES	1 A

CT-1/280R | CT-1/350R | CT-1/415R



MODEL	b x h (mm)	OPENABLE	MINIMUM CURRENT
CT-1/280R	280 x 150	NO	500 mA
CT-1/350R	350 x 170	NO	500 mA
CT-1/415R	400 x 150	NO	250 mA

CT-1M EXTERNAL MULTIPLIER



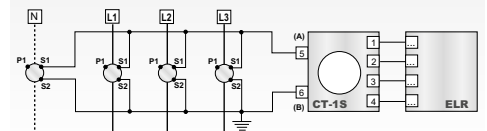
Toroidal multiplier to extend the current calibration of differential relays up to 250 A. To connect between toroid and relay. Reduces the current 10 times. Therefore, the range of the tripping set-point $I\Delta n$ adjustment is multiplied by 10.

CONNECTIONS

Input terminals 5-6 of the multiplier must be connected respectively to terminals 1-2 of the toroid transformer on the controlled line.

N.B. No cables must pass through the external multiplier.

CT-1S EXTERNAL ADDER



Toroidal adder to be used in cases where the conductors of the system to be protected exceed the inside diameter of the reducer.

In this case they are used CT/5A to be installed in line, which will be then connected to the toroid adder and from there to the differential.

TCS A5

RELAY FOR PERMANENT CONTROL OF THE SAFETY CIRCUIT
MODULAR VERSION - 6 MODULE



- Buttons and normally closed contacts used with low voltage power supply for greater safety and to avoid functional problems with long lines
- Active control with signaling interruption or short circuit of line buttons
- Ability to use many buttons (of which 5 with total control) or more buttons which control TCS-A5
- Outputs for control switch, output signaling alarm and emergency exit
- Control of the output line towards the opening coil with continuity check

TCS R6

MULTI-RELEASING DEVICE TO CONTROL OF CONTINUITY AND EFFICIENCY UP TO 5 CIRCUITS, WITH THE POSSIBILITY TO COMMAND SUBSEQUENT DEVICES
MODULAR VERSION - 6 MODULE



- Unaffected by power failures without the use of batteries
- Selection number buttons or contacts
- Opening function selection buttons or alarm in case of line failure and / or coil line
- Isolated Power and stabilized insensitive to microbreaks
- Checking the presence of auxiliary voltage

TCS 1 | 2

RELAY FOR PERMANENT CONTROL OF THE MCCB'S TRIPPING CIRCUIT
MODULAR VERSION - 3 MODULE



- TCS control protection trips.
This protection is used to monitor the trip shunt circuit operation when connected through the current shunt coil
- Voltage control circuit:
13-30VAC/DC or 24-60VAC/DC (TCS 1)
50-260VAC/DC or 250-440VAC/DC (TCS 2)
- 2 changeover outputs

TCS 3 | 4

RELAY FOR PERMANENT CONTROL OF THE MCCB'S TRIPPING CIRCUIT
FLUSH MOUNT VERSION - DIN 96x96 mm



- TCS control protection trips. This protection is used to monitor the trip shunt circuit operation when connected through the current shunt coil
- Voltage control circuit:
13-30VAC/DC or 24-60VAC/DC (TCS 3)
50-260VAC/DC or 250-440VAC/DC (TCS 4)
- 2 changeover outputs

RSR-72

AUTO RESTART MOTORS RELAY

FLUSH MOUNT VERSION - DIN 72x72 mm



- Supply circuit and voltage control
- Circuit of contactor control and of memory activation with separation by photo-coupler
- Circuit of motor stop control by pa pushbutton (stop) and quick memory shutdown separated by photo-coupler.
- Circuit for final relay closing and control circuit are managed by microprocessor

ELM-4

AMMETER FOR CURRENTS LINE OR DIFFERENTIAL CURRENTS

FLUSH MOUNT VERSION - DIN 96x96 mm



- 4 LED displays for excellent readability
- RMS measures (TRMS)
- Up to 4 current inputs
- Measuring differential or residual currents
- Digital outputs
- RS485 communication interface



INSULATION MONITORING DEVICES

RI range performs continuous of IT systems insulation, in order to prevent any faults that may reduce operational continuity and, as a result, the efficiency of the system. Allows monitoring and protection in the most demanding application environments.

Plenty of Benefits

- OPERATIONAL CONTINUITY
- FAULT PREVENTION
- GREATER EFFICIENCY
- 360° MONITORING
- CUTTING MAINTENANCE COSTS AND INEFFICIENCIES
- IMMEDIATE INSTALLATION

Applications

- REFINERIES
- IRON, STEEL AND PETROCHEMICAL COMPANIES
- PHOTOVOLTAIC SYSTEMS
- DATA CENTERS, MOVIE SETS, TV OR RADIO INSTALLATIONS
- FIRE-FIGHTING PUMPS, SAFETY CIRCUITS, UPS
- ELEVATOR CONTROL SYSTEMS
- MOBILE GENERATORS



HRI medical insulation monitoring device assuring patients and medical staff safety in intensive care units, operating theatres, first aid and day hospital premises, ambulatories, nursing homes, dentist's and vet's.

Quality: THE RECOGNIZED STANDARD IN HOSPITAL INSULATION CONTROL

Specialization: PROPERLY DESIGNED FOR HOSPITALS

Completeness: ALL ELECTRICAL AND THERMAL PARAMETERS CONTROLLED BY A SINGLE DEVICE

Flexibility: ADJUSTABLE INTERVENTION THRESHOLDS ACCORDING TO ALL THE PARAMETERS MONITORED

Reliability: SAFE MONITORING UNDER ANY OPERATIONAL CONDITION, THANKS TO THE CODIFIED SIGNAL

Integration: ABLE TO INTERACT WITH SUPERVISING SYSTEMS THROUGH MODBUS-RTU PROTOCOL VIA RS485 SERIAL PORT

Control: COMPLETE CONTROL OF ANY ALARM SIGNALLED THANKS TO THE PROGRAMMABLE RELAY

RI-F48 | RI-R48 | RI-R48N

IT NETWORKS INSULATION CONTROL 24-48 VAC/DC
MODULAR VERSION - 3 MODULE



- Insulation monitoring of IT systems 24-48 VAC/DC
- TRIP manual reset
- Low insulation LED
- Damaged pole LED
- TEST pushbutton
- TRIP threshold setting

RI-R11 | RI-R11D

IT NETWORKS INSULATION CONTROL
UP TO 230 VDC
MODULAR VERSION - 6 MODULE



- Insulation monitoring of IT systems up to 230 VDC
- TRIP and ALARM LED
- Insulation level
- Damaged pole LED
- TRIP and ALARM threshold setting
- TEST and RESET pushbutton

RI-R15

IT NETWORKS INSULATION CONTROL
UP TO 1000 VDC
MODULAR VERSION - 6 MODULE



- Insulation monitoring of IT systems up to 1000 VDC
- 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

RI-F22 | RI-R22 | RI-R38

IT NETWORKS INSULATION CONTROL
UP TO 440 VAC
MODULAR VERSION - 3 MODULE



- Insulation monitoring up to 440 VAC
- RESET pushbutton (only for RI-R22 and RI-R38)
- Indication of functioning instrument
- Low insulation LED
- TEST pushbutton
- TRIP threshold setting (only for RI-R22 and RI-R38)

RI-R44-485 | RI-R44-V-485

IT NETWORKS INSULATION CONTROL
UP TO 440 VAC
MODULAR
VERSION
2 MODULE



- LCD display
- TRIP manual reset
- Low insulation LED
- Insulation monitoring of IT systems up to 440 VAC
- TEST pushbutton
- TRIP threshold setting
- Output relay
- RS485 serial interface (Modbus RTU)

RI-R60

IT NETWORKS INSULATION CONTROL UP TO 1000 VAC
MODULAR VERSION - 6 MODULE



- Insulation monitoring up to 1000 VAC
- 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

RI-SM | RI-SM-485

VOLTAGELESS NETWORK INSULATION CONTROL - MODULAR VERSION 2-3 MODULE



- Indication of functioning instrument
- TEST pushbutton
- Low insulation LED
- FAIL SAFE setting
- TRIP threshold setting
- Output relay
- RS485 serial interface (Modbus RTU)

HRI-R40

MEDICAL INSULATION MONITORING DEVICE
MODULAR
VERSION
6 MODULE



- **Quality:** the recognized standard in hospital insulation control
- **Specialization:** properly designed for hospitals
- **Completeness:** all electrical and thermal parameters controlled by a single device
- **Flexibility:** adjustable intervention thresholds according to all the parameters monitored
- **Strength:** high resistance to network interferences
- **Integration:** able to interact with supervising systems through ModbusRTU protocol via RS485 serial port
- **Flexibility:** alarms sent up to 4 medical locations attended by medical and healthy staff, thanks to remote signalling panels
- **Reliability:** safe monitoring under any operational condition, thanks to the codified signal

PR-5

REMOTE SIGNALLING PANEL
FLUSH MOUNT VERSION



- Compact size
- Installation in a universal 3 modules flush-mounted box type E503
- Reliability: prompt fault recognition
- Simultaneous disconnection of more signalling panels
- Both visual and acoustic signalling

HRI-R24

MEDICAL INSULATION MONITORING DEVICE FOR SCIALITIC LAMPS
MODULAR VERSION
3 MODULE



- Tests the insulation to earth of 24 VAC/DC circuits dedicated to scialitic lamps supply
- **Flexibility:** programmable alarm threshold
- **Compact size:** fits into just 3 module
- **Practicality:** extremely easy to install and use
- **Integration:** ideal complement for HRI-R4

RMS-24

MULTIROOM MONITORING SYSTEM
FLUSH MOUNT VERSION
DIN 96x96 mm



- Graphic TFT color display
- Keep under control electrical parameters of different medical locations
- Output relays
- Alarm page: summarizes in a screen the real time alarm signalling
- Log function
- Configure the device language
- RS485 serial interface (Modbus RTU)
- Ethernet interface (MODBUS TCP)



ALARM ANNUNCIATORS TEMPERATURE MONITOR DEVICES

The Alarm systems are used to inform the operator that a process has gone beyond set limits using a visual and audible alarms.

Our products are used in all environments, including all hazardous areas and across all process and utility sectors. CONTREL supplies alarm systems from a single alarm point to a complete plant-wide alarm and monitoring system.

- SIMPLE STAND ALONE ALARM SYSTEM IN A RACK VERSION
- FLEXIBLE WINDOW SIZE LAMP ARRAYS
- SELECTABLE ALARM SEQUENCES
- COMPLETE CONTROL OF ANY ALARM SIGNALLED THANKS TO THE PROGRAMMABLE OUTPUT RELAY
- VERSION WITH FLAG INDICATOR
- VERSION WITH LCD COLOR DISPLAY
- INTEGRATION ABLE TO INTERACT WITH SUPERVISING SYSTEMS
- RS485 AND ETHERNET FOR REMOTE CONTROL AND DATA-LOGGER.



COMPALARM A

**ALARM ANNUNCIATOR
RACK VERSION**



- Alarm card
- Relay card
- Timing card
- Card holder unit
- Power supply and flashing card
- Power transformers and Dc/Dc converters
- Signalling cells, SQ type (with LED on request)

COMPALARM AP

**ALARM ANNUNCIATOR
FLUSH MOUNT VERSION**



- Horn output
- Alarm cumulative output
- 1 wire expansion line
- 12 contact inputs
- 4 push button inputs (test, horn off, ack, reset)
- Optoisolated inputs
- Normally open / closed input contacts
- Low power consumption
- No lamp maintenance required
- Auto-reset power supply fuse
- 4 pre-selectable sequences: ISA A, ISA M, ISA F1A, ISA F1

COMPALARM CM

**MECHANICAL ALARM ANNUNCIATOR
FLUSH MOUNT VERSION
DIN 96x96 mm**



- Up to 6 channels input
- Mechanical signals
- 3 keys (ACK, RESET, TEST)
- 2 output relays

COMPALARM E

**PROGRAMMABLE ALARM ANNUNCIATOR
FLUSH MOUNT VERSION - DIN 96x96 mm**



- Event log
- Repeat common relays
- Programmable outputs
- Make any system size unit
- Graphic lcd color display
- Each channel programmable from the front
- Alarm detection time 20 ms
- RS485 communication port (modbus-rtu)
- Ethernet communication (modbus-tcp)

COMPALARM C2C

**ALARM ANNUNCIATOR
FLUSH MOUNT VERSION - DIN 96x96 mm**



- First-out function
- 2 output relays
- Remote keys
- 12 LED for alarms display
- 3 keys (ACK, RESET, TEST)
- Configuring NO or NC alarm inputs
- ISA alarm sequences: F1M, F3A, F1A, M, R8, M5, A
- Internal audible device
- RS485 interface (Modbus RTU)
- Ethernet interface (MODBUS TCP)

COMPALARM D2

**DISPLAY ALARM ANNUNCIATOR
FLUSH MOUNT VERSION - DIN 96x96 mm**



- 16 input channels
- 2 outputs
- Each input channel fully programmable
- User-friendly configuration software
- Real Time Clock
- Internal audible device
- RS485 interface (Modbus RTU)
- Ethernet interface (MODBUS TCP)

COMPALARM D2m

**DISPLAY ALARM ANNUNCIATOR
MODULAR VERSION - 6 MODULE**



- 16 input channels
- Up to 8 outputs
- Each input channel fully programmable
- User-friendly configuration software
- Output relays
- Real Time Clock
- Internal audible device
- RS485 interface (Modbus RTU)
- Ethernet interface (MODBUS TCP)

COMPALARM GW

GSM-GPRS MODEM - 4 MODULE



- Up to 12 digital inputs
- 2 digital outputs
- SIM card slot
- Backup battery
- GSM connection to send and receive text messages
- Programmable SMS texts
- SMS command to activate a relay output
- List of 50 users enabled to send and receive messages
- Network status details

COMPALARM CO/sq

**LUMINOUS INDICATOR
FOR FRONT PANEL INSTALLATION
FLUSH MOUNT VERSION
DIN 48x48 mm**



- Number of LEDs: 3 or 4
- Voltage inputs
24 VAC/DC - 48 VAC/DC - 115 VAC - 115 VDC - 230 VAC
- LED color: Red, Yellow, Green, Blue, White, Orange

COMPALARM C2/sq

**LUMINOUS INDICATOR
FOR FRONT PANEL INSTALLATION
FLUSH MOUNT VERSION
DIN 96x96 mm**



- Number of LEDs: 12
- Voltage inputs
24 VAC/DC - 48 VAC/DC - 115 VAC - 115 VDC - 230 VAC
- LED color: Red, Yellow, Green, Blue, White, Orange
- TEST lamps
- Remote test lamps key

COMPALARM C3

**LUMINOUS INDICATOR
FOR FRONT
PANEL
INSTALLATION
FLUSH MOUNT
VERSION
DIN 72x144 mm**



- Number of LEDs: 12
- Voltage inputs
24 VAC/DC - 48 VAC/DC - 115 VAC - 115 VDC - 230 VAC
- LED color: Red, Yellow, Green, Blue, White, Orange
- Remote test lamps key

CTT

**TEMPERATURE MONITOR DEVICE
FLUSH MOUNT VERSION
DIN 96x96 mm**



- Up to 8 sensor probes
- RS485 interface (Modbus RTU)
- Standard auxiliary power supply 24-230 VAC/DC
- Display of the instantaneous temperature and maximum
- Double action level: Alarm (ALARM) and tripping (TRIP)
- Self-diagnostics for faults or incorrect installation (FAULT)
- Programmable outputs for each anomaly or fault condition
- Possibility of activation of the forced ventilation (FAN)
- FDC function for the automatic control of the temperature deviation within a defined time period

MEASUREMENT INSTRUMENTS



The wide range of Measuring devices includes many products aimed at the supervision of electrical energy installations: digital instruments, network analyzers, energy meters for metering applications, power analyzers, and energy management.

There is no doubt that all actions aimed at the supervision of energy consumption will contribute in electrical supply cost savings.

- DIGITAL VOLTMETERS, AMMETERS
- DIGITAL MULTIMETERS AND POWER ANALYZERS, EXPANDABLE, WITH GRAPHIC LCD
- CONNECTION TO SINGLE, TWO, THREE PHASE SYSTEMS
- IDEAL FOR DISTRIBUTION SYSTEMS, ELECTRICITY COGENERATION AND ON-BOARD MACHINERY INSTALLATIONS
- HIGH MEASUREMENT ACCURACY
- MID APPROVED
- TOTALLY PROGRAMMABLE DIGITAL OUTPUTS
- RS485, ETHERNET, PROFIBUS DP SERIAL INTERFACE FOR REMOTE CONTROL AND DATA-LOGGER
- COMMUNICATION DEVICES, PROTECTION COVERS, ACCESSORIES
- CONVERTER GATEWAY

EMM- μ D3VA

VOLTMETER / AMMETER
MODULAR VERSION - 3 MODULE



- Voltage and current measures in True RMS
- Storage of minimum, maximum and average(max demand) values
- Connection by external CT
- Measure in medium voltage by programming the voltage transformer (VT) ratio
- 2 digital outputs

EMM- μ 3VA

VOLTMETER / AMMETER
FLUSH MOUNT VERSION - DIN 72x72 mm



- Voltage and current measures in True RMS
- Storage of minimum, maximum and average(max demand) values
- Connection by external CT
- Measure in medium voltage by programming the voltage transformer (VT) ratio
- 2 digital outputs

EMM-R3VA

VOLTMETER / AMMETER
FLUSH MOUNT VERSION - DIN 96x96 mm



- Voltage and current measures in True RMS
- Storage of minimum, maximum and average(max demand) values
- Connection by external CT
- Measure in medium voltage by programming the voltage transformer (VT) ratio
- 2 digital outputs

EMM-4L

DIGITAL LCD MULTIMETER
FLUSH MOUNT VERSION - DIN 96x96 mm



- Pulse output
- Backlight LCD screen
- Tool-less panel mount
- TRMS measurements
- Digital three-phase multimeter
- Flush-mount, standard 96x96mm housing
- Built-in RS485 interface (Modbus RTU)
- Wide selection of electrical measures, including THD voltage and THD current

EMM-4h

LED MULTIMETER
FLUSH MOUNT VERSION - DIN 96x96 mm



- 4 LED displays for excellent readability
- RMS measures (TRMS)
- 45 measures
- Active, reactive and apparent energy meters
- Minimum and maximum values
- Maximum demand
- Digital outputs
- RS485, Ethernet, Profibus DP, LON interface for remote control

EMM- μ 4h

LED MULTIMETER
FLUSH MOUNT VERSION - DIN 72x72 mm



- Compact 72x72mm size
- 4 LED displays for excellent readability
- RMS measures (TRMS)
- 45 measures
- Active, reactive and apparent energy meters
- Minimum and maximum values
- Maximum demand
- RS485 communication interface

EMM-R4h

LED MULTIMETER
FLUSH MOUNT VERSION - DIN 96x96 mm



- Compact size depth
- 4 LED displays for excellent readability
- RMS measures (TRMS)
- 45 measures
- Active, reactive and apparent energy meters
- Minimum and maximum values
- Maximum demand
- RS485 communication interface

EMM-4dc

LED MULTIMETER
FLUSH MOUNT VERSION - DIN 96x96mm



- 4 LED displays for excellent readability
- DC measurement
- Active energy meter, total and partial
- Average and maximum values
- Maximum demand
- PT100 temperature input
- Digital outputs
- RS485, Ethernet, Profibus DP interface for remote control

EMM-D4h

LED MULTIMETER
MODULAR VERSION - 6 MODULE



- 4 LED displays for excellent readability
- RMS measures (TRMS)
- 45 measures
- Active, reactive and apparent energy meters
- Minimum and maximum values
- Maximum demand
- Digital output
- RS485, Ethernet, Profibus DP, LON interface for remote control

EMM- μ D3h

LED MULTIMETER
MODULAR VERSION - 3 MODULE



- Compact size
- 3 LED displays for excellent readability
- RMS measures (TRMS)
- 45 measures
- Active, reactive and apparent energy meters
- Minimum and maximum values
- Maximum demand
- RS485 communication interface

EMT-4s

MEASUREMENT TRANSDUCER
MODULAR VERSION - 6 MODULE



- Power transducer
- Version for panel interior
- True RMS measurements
- High accuracy
- Harmonic analysis of voltage and current
- Advanced programmable I/O functions
- RS485 communication interface

EMT-1C/50 | EMT-1C/300

AC/DC - MEASUREMENT TRANSUCERS
ARRANGED FOR MOUNTING INSIDE THE PANEL BOARD



- Power transducer
- True RMS measurements
- Measuring accuracy 0.5%
- Total harmonic analysis of voltage and current
- Current up to 50A or 400A AC/DC
- Voltage up to 800VAC or 1000VDC
- RS485 communication interface

EMS 96

TFT NETWORK ANALYZER
FLUSH MOUNT VERSION - DIN 96x96mm



- High accuracy
- Digital power analyzer
- True RMS measurements
- TFT color display, 320x240 pixels
- Reading of more 500 electrical parameters
- Harmonic analysis of voltage and current up to 21st order
- Events storage and management
- Advanced programmable I/O functions
- RS485, Ethernet, Profibus DP interface for remote control

EMA 11

LCD NETWORK ANALYZER
FLUSH MOUNT VERSION - DIN 144x144 mm



- Digital power analyzer
- Graphic LCD display, 128x128 pixels
- True RMS measurements
- Harmonic analysis of voltage and current up to 31st order
- Events storage and management
- Advanced programmable I/O functions
- RS485, Ethernet, Profibus DP interface for remote control

EMA 14

LED NETWORK ANALYZER
FLUSH MOUNT VERSION - DIN 144x144 mm



- Digital power analyzer
- LED display 14 segments
- True RMS measurements
- Harmonic analysis of voltage and current up to 31st order
- Events storage and management
- Advanced programmable I/O functions
- RS485, Ethernet, Profibus DP interface for remote control

EMA 90

LCD NETWORK ANALYZER
FLUSH MOUNT VERSION - DIN 96x96 mm



- Digital power analyzer
- Graphic LCD display, 128x128 pixels
- True RMS measurements
- Harmonic analysis of voltage and current up to 31st order
- Events storage and management
- Advanced programmable I/O functions
- RS485, Ethernet, Profibus DP interface for remote control

EMA D9

LCD NETWORK ANALYZER MODULAR VERSION - 9 MODULE



- Digital power analyzer
- Graphic LCD display, 2x20 characters
- True RMS measurements
- Harmonic analysis of voltage and current
- Events storage and management
- Advanced programmable I/O functions
- RS485 communication interface

TTC V-485/50 TTC V-485/300

AC/DC - CURRENT TRANSDUCERS ARRANGED FORMOUNTING INSIDE THE PANEL BOARD



- True RMS measurements
- Measuring accuracy 0.5%
- Current up to 50A or 300A AC/DC
- Analog output 0...10V
- RS485 communication interface

TTC I / 50

AC/DC - CURRENT TRANSDUCERS ARRANGED FORMOUNTING INSIDE THE PANEL BOARD



- True RMS measurements
- Measuring accuracy 0.5%
- Current up to 50A
- Analog output 4...20mA

EMI 16

DATA CONCENTRATOR MODULAR VERSION - 6 MODULE



The data concentrator EMI-16 provides a function of collected pulses and an interface to supervisory systems. The EMI-16 can be applied as a tool for counting of consumption of energy meters, water, gas, heat, etc.. It supports RS485 communication and TCP/IP communication.

DVH | DDH | MDVH | MDDH

THREE PHASE ENERGY METERS, MID APPROVED MODULAR VERSION 6 MODULE



- MID certified
- Three phase with neutral or without
- Direct connection or by current transformers
- Active energy complies EN 50470 - 3 class C
- LCD display
- Pulse LED for active energy consumption
- Static output for pulse
- RS485 communication interface

WH 6165

SINGLE PHASE ENERGY METER, MID APPROVED MODULAR VERSION 2 MODULE



- Single phase
- MID certified
- Direct connection
- Active energy complies EN 50470-3 class C
- LCD display
- Pulse LED for active energy consumption
- Static output for pulse

EMC 3b

THREE PHASE ENERGY METER FLUSH MOUNT VERSION - DIN 96x96 mm



- Three phase with or without neutral
- Connection by CT /5A or CT /1A
- Active energy measurement and accuracy: Class 1
- 2 static outputs
- 1 digital input
- RS485 communication interface

EMC D3b

THREE PHASE ENERGY METER MODULAR VERSION - 6 MODULE



- Three phase with or without neutral
- Connection by CT /5A or CT /1A
- Active energy measurement and accuracy: Class 1
- 2 static outputs
- 1 digital input
- RS485 communication interface

EMI 1

RS322 / RS485 DESKTOP VERSION



RS232/RS485 galvanically isolated converter supply 220...240VAC (or 110...120VAC). Repeater for bus extension RS485.

EMI-1P USB

USB/RS485 SERIAL CONVERTER



- USB / RS485 serial converter, galvanically isolated at 2.5kV
- USB FTDI CHIP
- Using Windows certified driver with automatic download
- Safe connection to Modbus devices on RS485 serial port.

EMI 3m

COMMUNICATION DEVICES RS485 GATEWAY/3G MODEM MODULAR VERSION - 4 MODULE



- Connection TCP server through 3G or 2G network
- Data is transferred from the 3G side to the serial side and vice versa without protocol conversion
- Settable parameters: TCP server IP and remote port, network operator apn, SIM card pin (with enabling), connection time-out, serial parameters
- RJ45 port for programming parameters and diagnostics with simple software tool
- Antenna compatible with major part of worldwide mobile networks, thanks to the 850/900/1800/1900/2100MHz frequencies

EMI-5s

PROFIBUS DP/RS485 CONVERTER MODULAR VERSION - 6 MODULE



Converter/Gateway to control equipments with Modbus protocol within an installation Profibus.

EMI 10L

RS485/ETHERNET CONVERTER MODULAR VERSION 3 MODULE



- Ethernet 10 / 100Base-T
- RS485 serial interface
- Integration of up to 32 serial devices Modbus
- Support for Modbus TCP/IP serial master
- Web interface for configuration, diagnostics and maintenance
- Customizable security through different levels of access (read-only access or full)
- Log-in safe with a password
- Languages available in Italian, English and German



CURRENT AND VOLTAGE TRANSFORMERS

Measuring transformers

The short circuit on terminals or the connection to earth can be achieved by the double fast-on or connecting two wires on the same terminal.

Protection transformers

The CT when used as a current generator for protection relays has electrical characteristics which differ from those of the measuring transformer.

In fact the measuring CT is expected to give a saturation of the magnetic circuit with 5P in primary currents while, in the case of protective CT, it's necessary for the secondary current value to follow the increase in the primary current up to 10-15-20 I_n , so as to guarantee the intervention of the relay in the case of unforeseen breakdown current.

It's important not to load the CT with a P performance which is greater than that indicated, so as not to modify the saturation value of the CT $P=RI^2$ where:

P = load on the CT

R = resistance of the relay + resistance of the cables

I = nominal secondary current of the CT

Transformers electronic use

These transformers are used for measuring current from 25A to 600A (nominal primary current).

The peculiar characteristic of these transformers is the high number of turns in the secondary cable. This makes it possible to have a very low secondary current, suitable for an electronic measuring circuit. The secondary current can be seen as voltage across a resistor.

The resistor, of low power and cost, is directly fitted onto the printed circuit.

Appliance sphere:

- Current sensor for circuits which protect motors, UPS and similar;
- Current sensor for measuring instruments (current probe).
- Insulation voltage between primary and secondary elements 4kV Frequency 50/60Hz

Double ratio transformers

Dual ratio on secondary: S1-S2 low value, S1-S3 high value.

TCB Series

MEASURING, PROTECTION AND DOUBLE RATIO TRANSFORMERS



TCM Series

MEASURING AND PROTECTION TRANSFORMERS



TC Series

CURRENT TRANSFORMERS WITH ANALOG OUTPUT



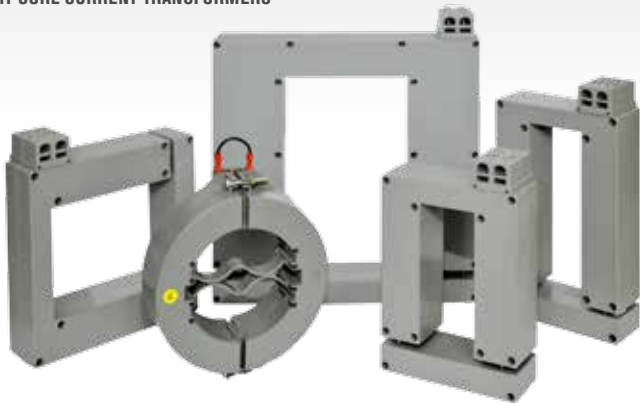
TCC | TCCN Series

MEASURING AND PROTECTION TRANSFORMERS



TCB-A Series

SPLIT CORE CURRENT TRANSFORMERS



TCBDS Series

SUMMATION CURRENT TRANSFORMERS



TCA Series

SPLIT CORE CURRENT TRANSFORMERS



TVB Series

VOLTAGE TRANSFORMERS





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and constant evolution are the best guarantee for our clients**

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manufacturing and marketing of industrial electric protection,
electric energy measurement and control as well as insulation monitoring equipment and alarm systems.

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TECHNOLOGY TO MONITOR, CONTROL AND OPTIMIZE POWER TRANSMISSION
IMPROVING THE SAFETY & RELIABILITY OF THE POWER DISTRIBUTION SYSTEM
PROVIDING GREATER CONTROL TO RESIDENTIAL POWER CONSUMERS
ENSURING SECURE RELIABLE POWER FOR HEALTH CARE, DATA CENTERS AND COMMERCIAL FACILITIES

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DISTRIBUTION | Transmission and distribution of Energy | Hydraulic Energy | Solar Energy




APPLICATIONS | Industry/Buildings | Critical Installations | Infraestructur





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