Transformer Rectifier Monitor - TRM

Rectifier monitoring, Output levels, Pipeline Potentials, Remote Controlled Interruption, Instant-off Analysis, Alerts & Alarms

FEATURES

Rectifier monitoring 24/7

Secondary power supply input for backup power

Remote controlled cycling of normally closed (NC) switch in configurable patterns

GPS time synchronization – also with all other MetriCorr units

Remote controlled instant-off surveys

Remote monitoring - via built-in Masterlink module

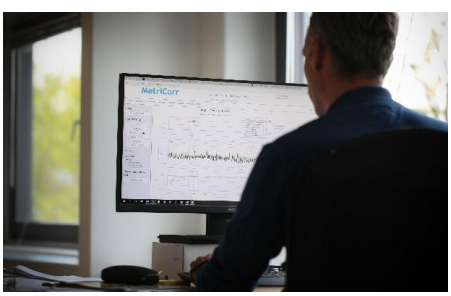
Data presentation, analysis, reporting in CP*Manage Web

On-board temperature sensor

DIN rail mounting

MEASUREMENTS

- ✓ DC voltage (anode/cathode)
- ✓ AC voltage (anode/cathode)
- ✓ DC current (shunt)
- ✓ AC current (shunt)
- ✓ DC potential (pipeline)
  - ✓ On
  - ✓ Instant-off
- ✓ AC voltage (pipeline)



DATA AT YOUR FINGERTIPS – WHEREVER YOU ARE!

The T/R Monitor (TRM) is designed to support surveys via remote controlled interruption of the CP current, to monitor T/R output voltage, output current and pipeline ON- and OFF potential, as well as to send alarms when the T/R settings or functionality is compromised.

The TRM is completely remote controlled through MetriCorr CP*Manage Web. This includes setting intervals for measurements and data transmission to the CP*manage Web where data can be analyzed and compiled into reports together with data from other test stations.

Alert and alarm handling is set up in CP*Manage Web and can be assigned for measured values (pipeline ON- and OFF potential, output voltage and current).

The GPS time-synchronization and designed measurement cycle provides the possibility of getting ON-readings as well as instant OFF-readings synchronized with rectifier switch-off from all MetriCorr units connected to the web via a Masterlink unit. An instant off survey for all your MetriCorr loggers can be set up and completed in minutes. User defined delay after switch-off is offered within the range of 120ms to 3s.

Remote monitoring and communication is done by cellular service with satellite communication as an alternative (limited) option. Remote operation is also obtainable through ethernet LAN.

The TR-Monitor ideally fits onto a DIN rail mounted inside the T/R cabinet itself, or in separate junction box.

Robust surge protection based on spark gaps for high surge current handling:
- Eliminates the risk of leakage current and measurement errors
- Eliminates high voltage isolation requirements



Technical specifications - TRM

Input channels	3 x measurement (analog), 3 x alarm (logic)		
Storage capacity	+ 200 000 readings		
Logging interval	10 min – ∞, Typically 1 hour		
Power supply	- Primary input: 12 - 24 Vdc - Secondary input: 12 - 24 Vdc (for back-up battery)	Max. 100 mA @ 12 V_{DC} Max. 45 mA @ 24 V_{DC}	
Temperature	-40°C to +85°C		
Installation options	- TRM for customer integration (stand-alone unit) - TRM Power Pack (incl. 100-240VAC PSU/UPS pre-mounted on a DIN rail with surge protection) - Complete “Rectifier & T/R-Monitor” installation (ask for details)		
Size L x W x H	156 x 60 x 86 mm		
Communication	- Cellular: LTE Cat M1 (4G LTE, 5G-compatible IoT technology) - Bluetooth Low Energy - Ethernet - GPS/GNSS Position and Time Synchronization - RS232 (GND, RX, TX) - Supply in/out for controlling peripheral relay units		
Measurements		**POT/VOL channel**	**Shunt channel**
	Input resistance	+ 10.0 MΩ	33 kΩ
	Voltage Range	± 100 V_{DC} / 100 V_{RMS}	± 1.2 V_{DC}
	Resolution	0.1 mV	0.2 µV
	DC accuracy	± 1 mV ± 0.3% reading	± 1 µV ± 0.1% reading
	AC accuracy	± 1 mV ± 1% reading	± 5 µV ± 0.1% reading
	AC to DC rejection	- 80 dB	- 80 dB
Surge protection **EN/ISO 61000-4-5, class 4**		**POT/VOL channel**	**Shunt channel**
	Nom. Discharge Current	10 kA, 8/20 µs	10 kA, 8/20 µs
	Lightning Impulse Current	1.1 kA, 10/350 µs	2.5 kA, 10/350 µs
	Optional	50 kA @ 8/20 µs 50 kA @ 10/350 µs	
Shunt examples	Recommended Range	± 200 mV_{DC} (200A @ 1mΩ, 2A @100mΩ)	
	Rectifier output 20A	Shunt 25A / 150 mV (~ 6.0 mΩ, max. 2.4 W power dissipation)	
	Rectifier output 100A	Shunt 125A / 60 mV (~ 0.48 mΩ, max. 4.8 W power dissipation)	
Interrupter/switching	Built-in relay	High speed SSR and mechanical failsafe relay, max. ± 30 V_{DC} / 500 mA	
	External relay	Configurable	

