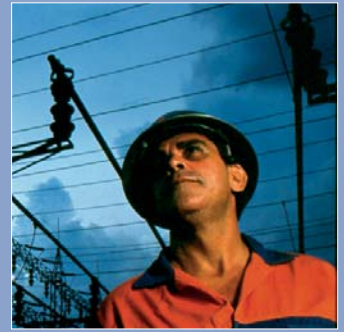


D 050



> Measurement and Faults Detection Module

Power Systems Automation and Telecontrol



50/51
50/51N

DESCRIPTION

The D 050 is an intelligent module conceived to be used with the micro URR, aiming to add measurement and fault detection functions especially appropriate for electrical distribution network automation.

Nevertheless, this product can be used as an autonomous faults detection and measurement unit.

As a fault detection unit, it offers phase-phase and phase-earth fault detection, with local or remote signalling of the fault type. As current sensors, the unit uses three external toroidal transformers, mounted over the three phases of the switch. As an option, and concerning the earth fault, it can use an additional external toroidal transformer.

As a measurement unit, it supplies the three phase currents, as well as the voltage. It also offers earth current measurement, through the total sum (electric sum) of the three phase currents, or as an alternative, through one earth current input. The average three phase current is also available.

The module is configured via a frontal serial port (RJ11) via the WinUnits EFACEC software. It can also be configured through the local Human Machine Interface (optional), or remotely, through the MODBUS protocol, either through direct communication with the D 050, or through an intelligent module, such as the micro URR or third parties.

APPLICATION

The D 050 is an intelligent module that offers fault detection functions as well as measurement functions, especially appropriate for electric power distribution automation.

CHARACTERISTICS

Fault Detection

- Fault detection between phases
- Earth fault detection
- Fault reset:
 - By press button
 - By timeout
 - By voltage restoration
 - By telecontrol
- Fault signalling:
 - Signalling on bay's front face
 - Telesignalling
 - Dry contact / External indicator
- 3 phase current inputs
- 1 earth current input (optional)
- 1 voltage input
- 3 binary inputs
- 3 binary outputs
- Self diagnostic tests and watchdog

Measurements

- RMS phase current value measurement
- Earth current measurement
- Voltage measurement
- Three phases current average value

Interfaces

- Isolated serial communication RS485 port, MODBUS protocol
- Serial communication RS232 port, on bay's front face (RJ11)
- LCD Human Machine Interface (optional)



TECHNICAL SPECIFICATION

Power Supply

Available ranges	19 V dc - 150 V dc 88 V dc - 300 V dc 80 V ac - 265 V ac
Consumption	3 W

Frequency

Nominal value	50 Hz / 60 Hz
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Current Input

Quantity	3 + 1 (optional)
Nominal current	1 A / 5 A
Consumption	< 0.25 VA @ In

Voltage Input

Quantity	1
Nominal voltage	100 V ac / 110 V ac / 115 V ac / 120 V ac
Consumption	< 0.25 VA @ Un

Signaling Binary Inputs

Quantity	3
Nominal voltage	12 V dc / 24 V dc / 48 V dc / 110 (125) V dc

Signaling Binary Outputs

Type	Dry contacts
Quantity	3
Nominal current	5 A
Nominal voltage	250 V ac / 250 V dc

Isolation

Isolation	EN 60255-5 (2 kV, 50 Hz, 1 min)
Shockwave	EN 60255-5 (5 kV, 1.2/50 µs, 0.5 J)

Electromagnetic Compatibility - Immunity

1 MHz burst disturbance test	EN 60255-22-1 Class III (2.5 kV, 1 kV)
Electrostatic discharge	EN 60255-22-2 Class III (6 kV contact, 8 kV ar)
Electrostatic discharge	EN 61000-4-2 (4 kV contact, 8 kV ar)
Radiated RF immunity	EN 61000-4-3 (10 V/m, 80 MHz - 1 GHz)
Fast transient	EN 60255-22-4 Class IV (4 kV / 2 kV, 5/50 ns, 5 kHz)
Fast transient	EN 61000-4-4 (2 kV, 5/50 ns, 5 kHz)
Surge immunity	EN 61000-4-5 (2 kV, 1 kV)
Conducted RF immunity	EN 61000-4-6 (10 V rms, 150 kHz - 80 MHz, @ 1 kHz 80% AM)
Power frequency H-field immunity at 50 Hz	EN 61000-4-8 Class V (100 A/m continuous, 1000 A/m 3 s)

Electromagnetic Compatibility - Emission

Conducted emission	EN 55022 (0.15 MHz - 30 MHz Class A)
Radiated emission	EN 55022 (30 MHz - 1 GHz Class A)

CE Marks

Low voltage directive	EN 60950
CEM - Immunity	EN 61000-6-2
CEM - Emission	EN 61000-6-3

Ambient Conditions

Temperature	-10 °C to +70 °C, 40 °C humid
Relative humidity	10% to 95%

Dimension and Weight

Dimension (H x W x D) (mm)	120 x 55 x 100
Weight (kg)	1

FAULT DETECTION SPECIFICATION

Phase - phase (high)	0.2 p.u. to 10 p.u., 0.001 p.u. step
Phase - phase (low)	0.2 p.u. to 5 p.u., 0.001 p.u. step
Phase - earth (high)	0.05 p.u. to 2 p.u., 0.001 p.u. step
Phase - earth (low)	0.05 p.u. to 1 p.u., 0.001 p.u. step
Timeout	0.04 s to 60 s, 10 ms step
Reset	- By press button - Timeout (1 s to 1000 min) - By voltage restoration (>70%) - By telecontrol
Fault signalling	- Signalling on bay's front face - Telesignalling - Dry contact / External indicator
Accuracy	5% (minimum 3% In)

MEASUREMENT SPECIFICATIONS

Earth current measurement	Electronic sum of three phase currents, or in option, through an independent transformer
A/D converter	12 bit
Current measurement accuracy	0.5% In
Voltage measurement accuracy	0.5% Un

VERSIONS

D050	A	BCD	E	FG
Power supply				
19 V dc - 150 V dc	0			
88 V dc - 300 V dc / 80 V ac - 265 V ac		1		
Binary inputs voltage				
12 V cc		012		
24 V cc		024		
48 V cc		048		
110 (125) V cc		110		
Nominal current of the current external sensors				
In = 1 A			1	
In = 5 A			5	
Language				
Portuguese				PT
English				UK
French				FR
Spanish				ES

