

# DPM 400-D

## DIGITAL MULTIFUNCTION DRAW-OUT TYPE DIRECTIONAL CURRENT VOLTAGE FREQUENCY PROTECTION RELAY

DPM 400-D , is the digital Overcurrent, Voltage and Frequency relay that is designed with 50 years of experience in the relay sector and strong cooperation with our clients. It is widely implemented in Smart Grid and Substation Automation System, therefore it provides us easy-to-use advanced solutions of high protection, control and measurement application for the HV and MV system.



### FUNCTION

### ANSI CODE

FUNCTION	ANSI CODE
Phase Overcurrent (3 Thresholds)	50 / 51P
Earth Overcurrent (3 Thresholds)	50 / 51N
Intermittent transient Earth-Fault	51N / IEF
Voltage Restrained Time Overcurrent	51V
Negative Sequence Overcurrent (2 Thresholds)	46
Undercurrent Protection (1 Thresholds)	37
Thermal Overload Protection (2 Thresholds)	49
Automatic Reclosing (4 shot)	79
Broken Conductor Detection	46BC
Cold Load Pickup	CLPU-50/50N
Latching	86
Trip Circuit Supervision	74TCS/
CT/VT Supervision	74VT/74CT
Switch onto Fault	50HS (SOTF)
Breaker Failure Settings	50BF
Blocking Relay	68
Undervoltage/Overvoltage	27/59
Neutral Voltage Displacement	59N
Directional Phase/Earth Fault	67P / 67N
Negative Sequence Overvoltage	47
(Under/Over)Directional Power Supervision	32U/O
Wattmetric Zero-Sequence Directional	32N
Under/Over Frequency	81U/O
Rate-of-Change Frequency	81R
Inrush Current Detection	68

### APPLICATION AREAS



### SPECIFICATIONS

- Wide range IEC, ANSI and Special Curves
- Visualization of activated functions on main screen (8 Group)
- Function Test without using Relay Test Set
- Visibility of R-S-T-N currents within 2m distance thanks to the large LCD Screen (3.5" TFT LCD )
- Logic functions for 8 differ. scenarios
- 1-5 A Current transformer flexibility in usage (Selectable from menu)
- Blocking Selectivity by delaying the previous breaker
- Breaker Supervision (Spring Supervision, trip/close pulse, I2t...)
- Temperature/Buchholz/Pressure Protection
- 6 INFO LED (Phase Fault, Earth Fault, Internal Fault, Trip, Alarm)
- 10 Programmable Virtual LED
- Remote or local Alarm-Reset
- Displaying Alarm and Fault Records with one click
- Remote or local breaker trip/close
- Different authorization levels of users for security
- R-S-T/R-T-S Phase Rotation Selection
- Locking relay from 0.2 sec. to 5 hour
- IP52 and IP20 protection for front and rear panel respectively

### CERTIFICATIONS





## MEASUREMENTS / RECORDS

RMS Current/Voltage Meas.	Automatic reclosing Meas.
Max RMS Current Meas.	(Apparent, Active, Reactive) Power-Energy, cosFI Meas.
Fundamental Current/Voltage Meas.	Energy-Demand Meas.
P/N Sequences Current/Voltage Meas.	1000 Event Records
Phasor Diagrams	Fault Records
Frequency Meas.	Alarm Records
Thermal ( $\theta$ ) Meas.	COMTRADE Waveform Records
Circuit Breaker Monitoring	



## COMMUNICATION

- 2 Ethernet (rear port)
- 1 Ethernet (front port)
- 2 Fiber Optic Port
  - MODBUS TCP
  - IEC61850
- Ed 2.MMS-GOOSE
- RS485
  - MODBUS RTU
  - IEC60870-5-103
  - IEC60870-5-104



## INPUT/OUTPUT

- 8 Input / 8 Output
- 18 Input / 10 Output



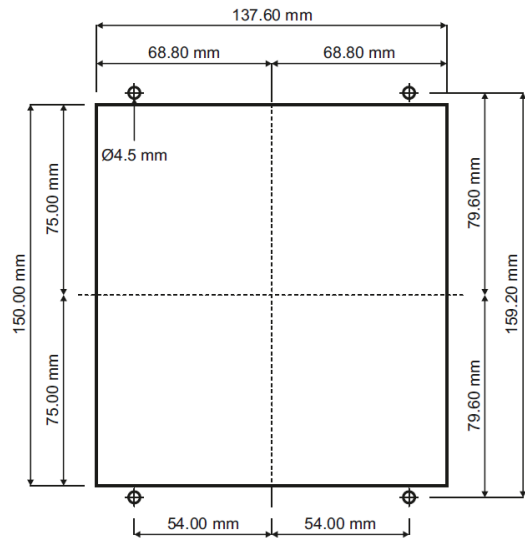
## TIME SYNCHRONISATION

- SNTP
- IRIG-B

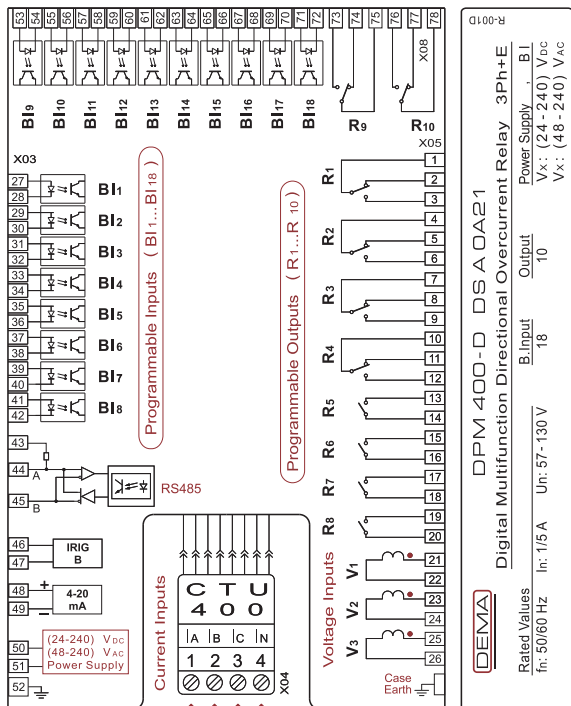
## TECHNICAL SPECIFICATIONS

Nominal Auxiliary Voltage	(24-240) V <sub>DC</sub> / (48-240) V <sub>AC</sub>
Auxiliary Voltage Variation	(22-264) V <sub>DC</sub> / (38-264) V <sub>AC</sub>
Burden of Auxiliary	Max. 8 W / 10 VA
Secondary Current Inputs	(1/5)A, 3 Phase / 1 Earth
Voltage Inputs	57 - 130 V
Secondary Burden	I <sub>n</sub> : 1A if 0.01VA, I <sub>n</sub> : 5A if 0.2VA
Phase/Earth Measurement Tech.	Fundamental harmonics
Thermal Measurement Tech.	RMS Current (ANSI 49)
Programmable Inputs Quantity	8+10 inputs, opto isolation
Programmable Outputs Quantity	8+2 outputs
Language Options	English / Turkish
Communications Baudrate	Max 115200 baud
Drop-out Time	40 ms
Storage&Operation Ambient Temp.	-25°C / +85°C
Weight	2.684 kg net

## PANEL CUTTING DIMENSIONS

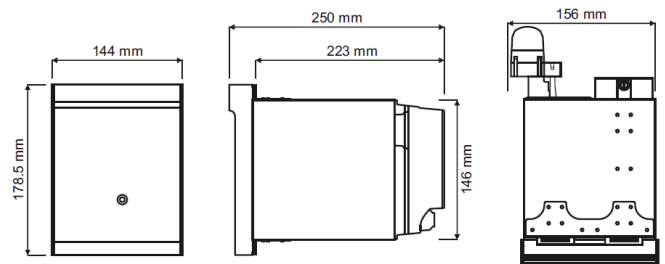


## DPM 400-D CIRCUIT DIAGRAM



\* This scheme indicates the relay which has an extra I/O.  
 \*\* DPM 400-D Standard type relay is also available. (8 Inputs + 8 Outputs)

## DPM 400-D DIMENSIONS



## DEMA RELAY INDUSTRY INC.

Tel: +90(216) 352 77 34-35 / Fax: +90(216) 442 17 95 / info@demarole.com.tr / www.demarole.com.tr

