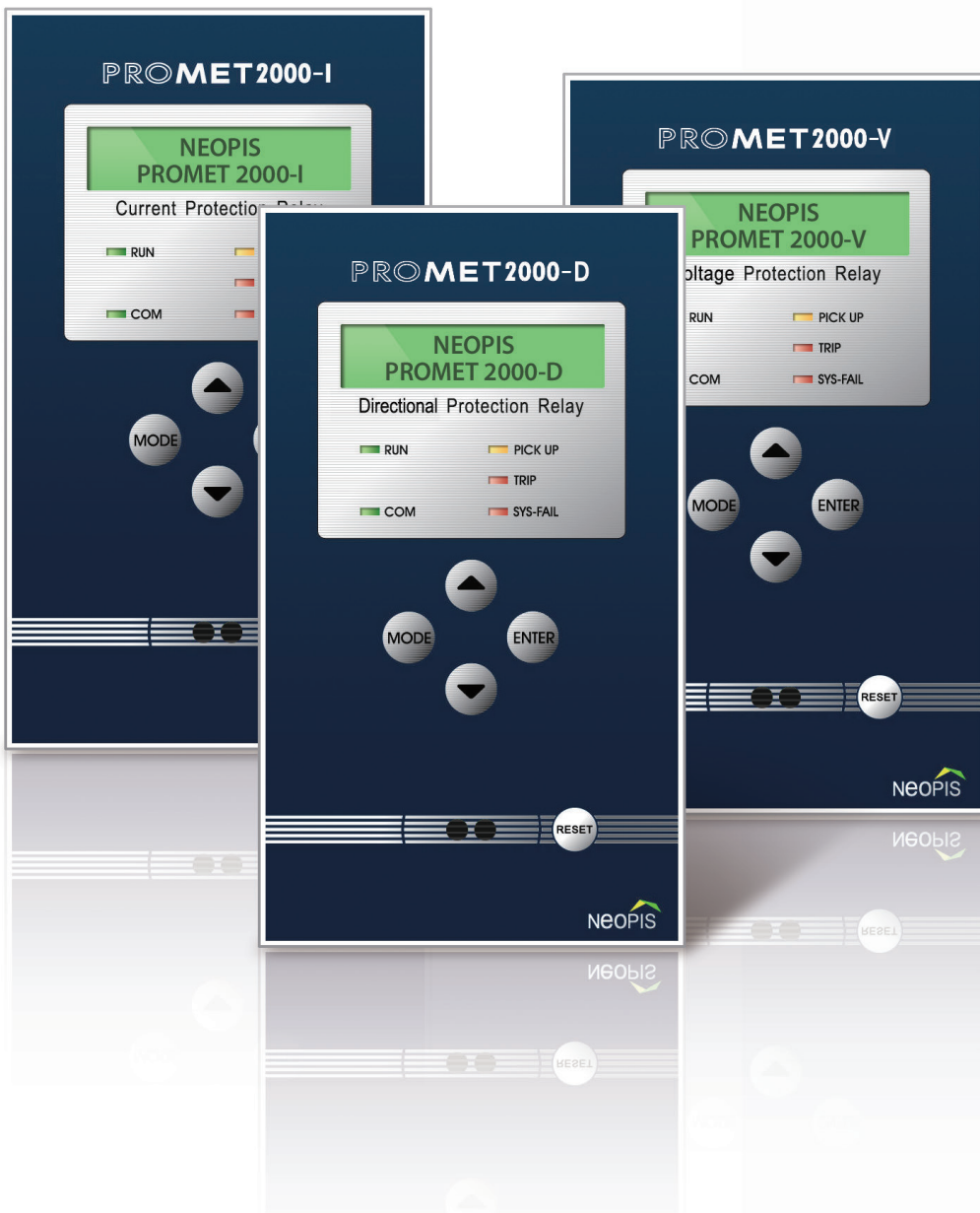
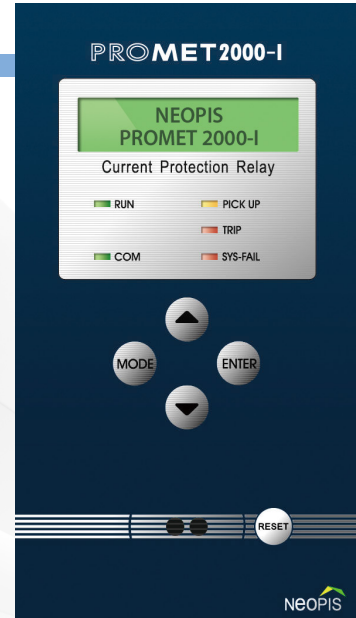


# PROMET-2000Series



# PROMET-2000 is

a product for which a switchboard can be composed more economically and efficiently by providing various protection functions necessary for protection of power systems by type. This can record 32 pieces of trouble information and operation information and communicate with upper systems via Modbus(RS-485).



## Major functions

### Protection of relay elements

- PROMET-2000-I : OCR, OCGR, NSOCR
- PROMET-2000-V : UVR, OVR, OVGR, FR, POR
- PROMET-2000-D : SGR, DGR, OVGR, FR

### Recording of trouble information

- Trouble information : 32 pieces
- Operation information : 32 pieces

### Status contacts

- DI : 4 ea ( 10A 250V )
- DO : 4 ea ( AC/DC 110V )

## Rating

- Wiring method : Grounded type, non-grounded type
- Frequency : 60Hz / 50Hz
- Input burden : CT 1VA or less, PT 0.5VA or less
- CT : 5(A)
- PT : 110/ $\sqrt{3}$ (V)
- GPT : 190/ $\sqrt{3}$ (V)
- ZCT : 200/1.5(mA)

## Communication

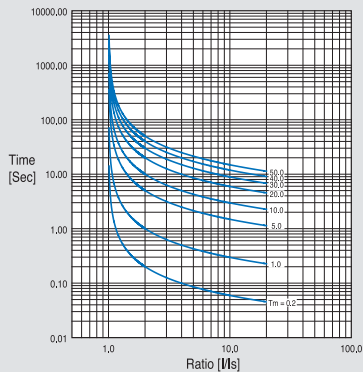
Item	Specification
Type	RS485 Two-wire, Half duplex, isolated
Transmission speed	9600 / 19200 (bps)
Protocol	MODBUS-RTU

## Anti-environmental specification

Item	Specification	
Temperature	Working temperature	-20 ~ 60°C
	Storage temperature	-25 ~ 70°C
Humidity	Daily average 30 ~ 80%	
Test	Electrical fast Transient burst immunity	IEC60255-5 standard satisfied
	AC dielectric voltage	
	Impulse voltage	
	Surge Immunity	

# Characteristic curve

## Overcurrent Normal Inverse-NI

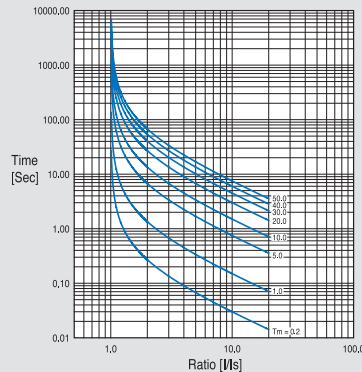


**Application**  
 Overcurrent(50/51)  
 Ground overcurrent(50/51N)  
 Reverse phase overcurrent(46)

t: Operating time  
 I: Input current value  
 Is: Set current value  
 Tm: Operating time lever

$$t = \left[ \frac{0.14}{(I/I_s)^{0.02}} - 1 \right] \times \frac{T_m}{10}$$

## Overcurrent Very Inverse-VI

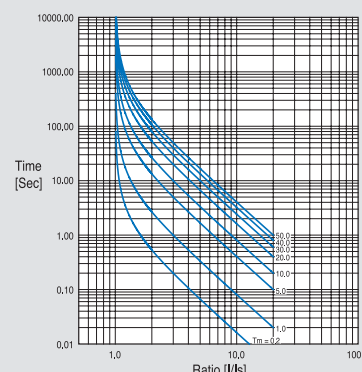


**Application**  
 Overcurrent(50/51)  
 Ground overcurrent(50/51N)  
 Reverse phase overcurrent(46)

t: Operating time  
 I: Input current value  
 Is: Set current value  
 Tm: Operating time lever

$$t = \left[ \frac{13.5}{(I/I_s)^5} - 1 \right] \times \frac{T_m}{10}$$

## Overcurrent Extremely Inverse-EI

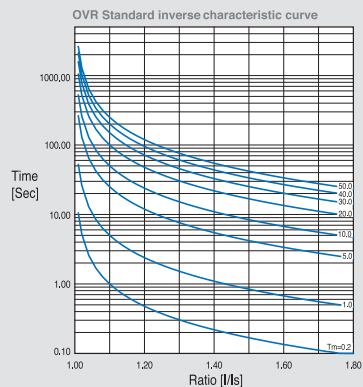


**Application**  
 Overcurrent(50/51)  
 Ground overcurrent(50/51N)  
 Reverse phase overcurrent(46)

t: Operating time  
 I: Input current value  
 Is: Set current value  
 Tm: Operating time lever

$$t = \left[ \frac{80}{(I/I_s)^2} - 1 \right] \times \frac{T_m}{10}$$

## Overvoltage Normal Inverse-NI

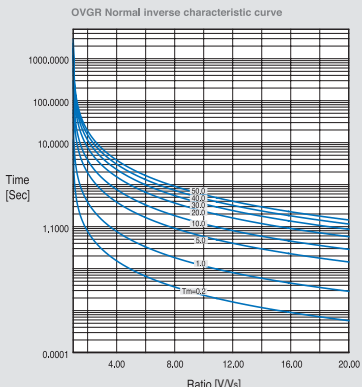


**Application**  
 Overvoltage(59)

t: Operating time  
 E: Input voltage value  
 Es: Set voltage value  
 Tm: Operating time lever

$$t = \left[ \frac{10.5}{(E/V_s)^2} - 1 \right] \times \frac{T_m}{10}$$

## Ground overvoltage Normal Inverse-NI

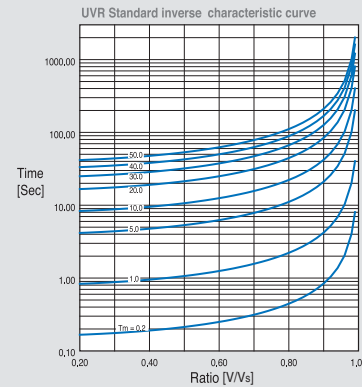


**Application**  
 Ground overvoltage(64)

t: Operating time  
 E: Input voltage value  
 Es: Set voltage value  
 Tm: Operating time lever

$$t = \left[ \frac{11.5}{(E/V_s)^2} - 1 \right] \times \frac{T_m}{10}$$

## Deficient voltage Normal

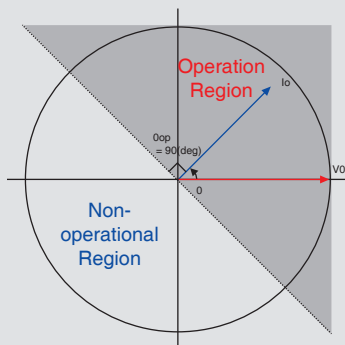


**Application**  
 Deficient voltage(27)

t: Operating time  
 E: Input voltage value  
 Es: Set voltage value  
 Tm: Operating time lever

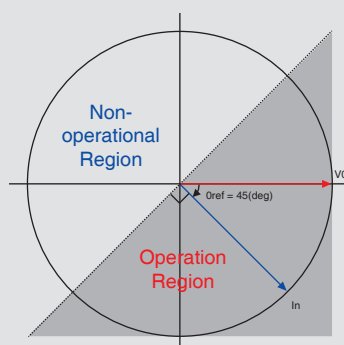
$$t = \left[ \frac{8}{1 - (E/V_s)^2} \right] \times \frac{T_m}{10}$$

## SGR phase characteristics



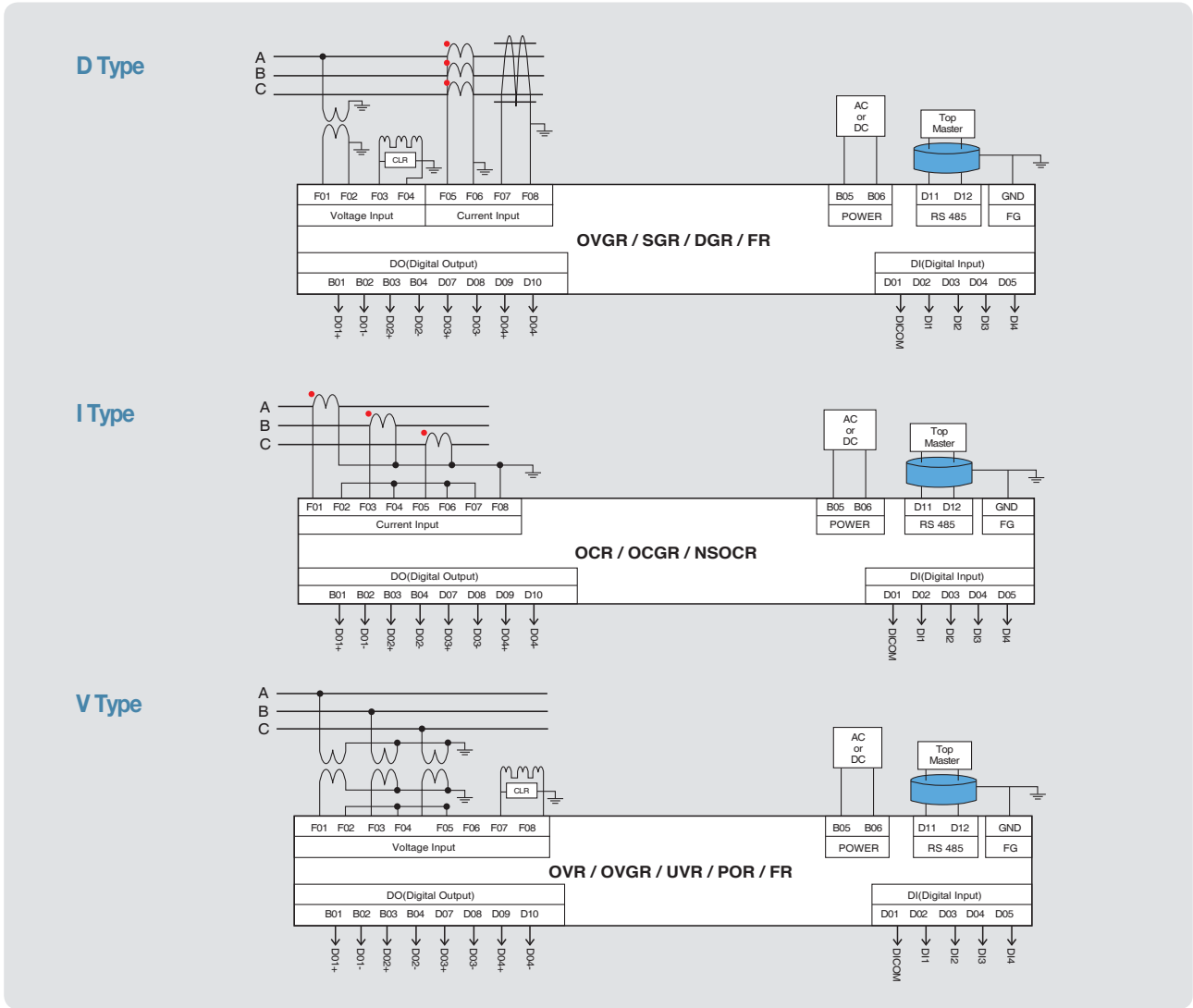
Phase parameters	
Reference Angle	45 [deg]
Directional Angle	90 [deg]

## DGR phase characteristics

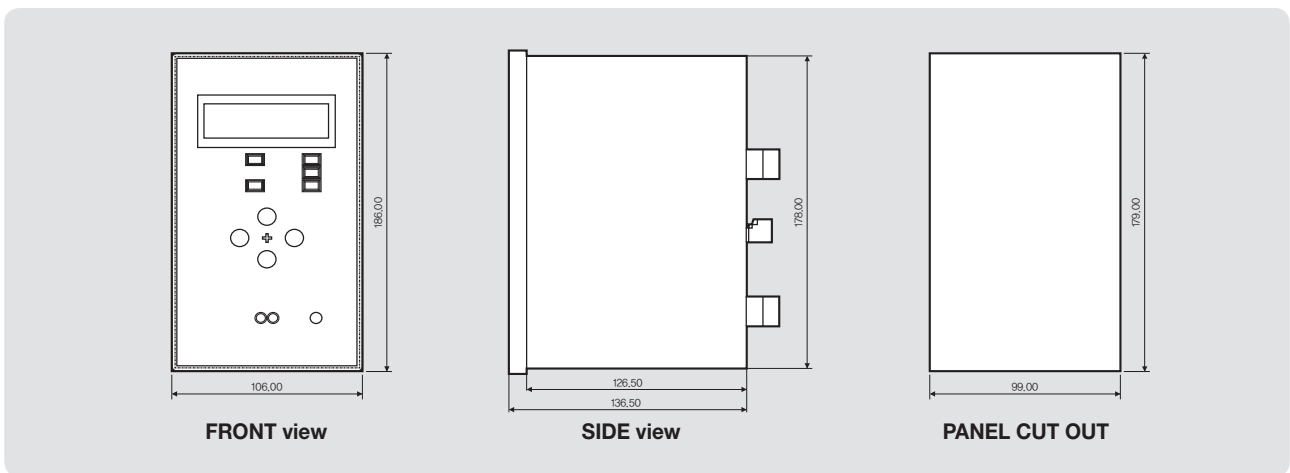


Phase parameters	
Reference Angle	45 [deg]
Directional Angle	90 [deg]

# Wiring diagram



# External dimensions



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