

Digital IDMT Earth Fault Relay DP-31



features



True RMS Measurement with SPARC¹ and DCOI² Algorithm
 Fundamental Signal Detection³
 Real Time Display of Earth Fault in (%)
 6 Selectable IDMT Graphs + DTL
 Fault / lo-set & hi-set Trip LED Indication
 Fault Start Event Recording & LED Indication + Output⁴
 Pre-Alarm LED Indication + Output⁴
 Trip Event Memory (non-volatile 7 previous records)
 Fault Start Event Memory (non-volatile 4 previous records)
 Selectable Frequency (50/60 Hz)
 Programmable Relay Output Contact for K2
 Last Trip Elapsed Time (up to 99days)
 Software Lock to Prevent Unauthorized Setting
 Complies with :
 IEC-60255-26/27 ; BS EN 50121-5 Standards
 ANSI Code: 50N, 51N
 External Plug-in Module for :-
 A-01s / A-01sp (RS-485 MODBUS RTU) isolated type

technical data

Current Input (In)	: ..5A or ..1A
Fundamental Frequency	: Software selectable 50 or 60 Hz
Burden	: <0.3 VA @ In
Output Relay Rating	: SPDT 5A, 250V AC/DC
Accuracy	: Current protection threshold (±5%) Time delayed (+5% or 50ms)
Display	: 7-Segment LED (3 + 1 digit)
Indication (LEDs)	: x10, pre-alarm, fault start event, lo / hi-set trip, fault
Operating Temp.	: 0°C ~ +55°C
Humidity	: 56 days at 93%RH, 40°C non-condensing
IP Rating	: IP54 (front panel)
Weight	: 230 g

parameter setting

$I_e > (\%)$: lo-set trip	2% ~ 100% (step of 1%)
IDMT $I_e >$	6 IDMT + DTL
TMs $I_e >$: Time multiplier for IDMT	0.05 ~ 1.00 (step of 0.01)
$t_e > (\text{sec})$: lo-set trip time delay for DTL	0.03s ~ 20.0s 0.03s ~ 0.10s (step of 0.01s) 0.10s ~ 1.00s (step of 0.02s) 1.0s ~ 20.0s (step of 0.1s)
$I_e >> (\%)$: hi-set trip	OFF or 20% ~ 1000% (step of 10%)
$t_e >> (\text{sec})$: hi-set trip time delay	Instant or 0.02s ~ 0.5s (step of 0.01s)

aux power

DP-31-220a	: 65 ~ 275 Vac (45~65Hz), 90 ~ 300 Vdc
DP-31-024d	: 18 ~ 72 Vdc
Consumption	: < 3VA

K1 output contact options

Latching (Lc) or non-latching (nLc) trip

K2 output contact options

trP (tripping output)	Lc or nLc
LFS (lo-set fault start signal)	Lc or nLc
HFS (hi-set fault start signal)	Lc or nLc
AFS (any fault start signal)	Lc or nLc
dUF (device failure)	nLc only
CbF (circuit breaker failure)	nLc only
A50 (pre-alarm fault) >50% of $I_e >$	Lc or nLc
A90 (pre-alarm fault) >90% of $I_e >$	Lc or nLc

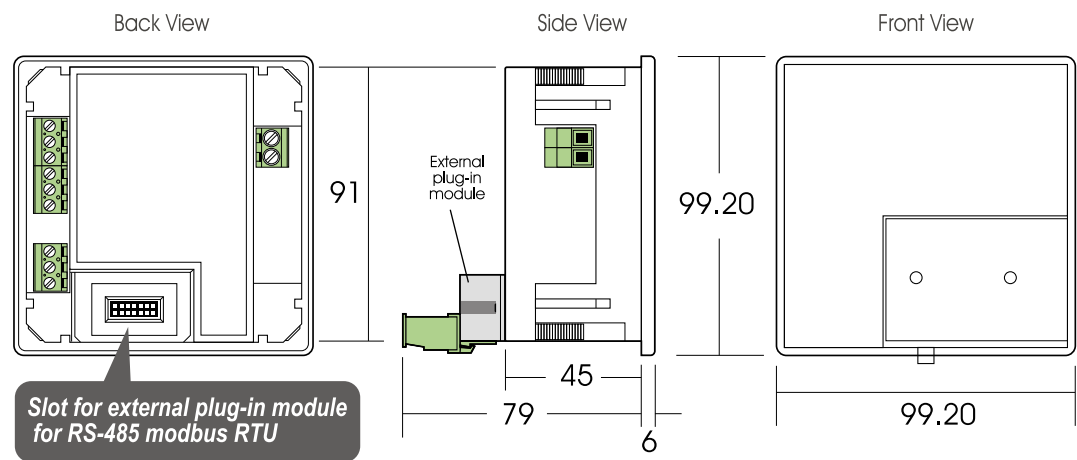
¹SPARC - sampling progressive algorithm for RMS Computation:
Computation of multiple rms values/cycle (Superior response in short circuit situation)

²DCOI - dc offset independent algorithm:
Cancels out dc signal caused by EMI and aging circuitry (Better Immunity against EMI)

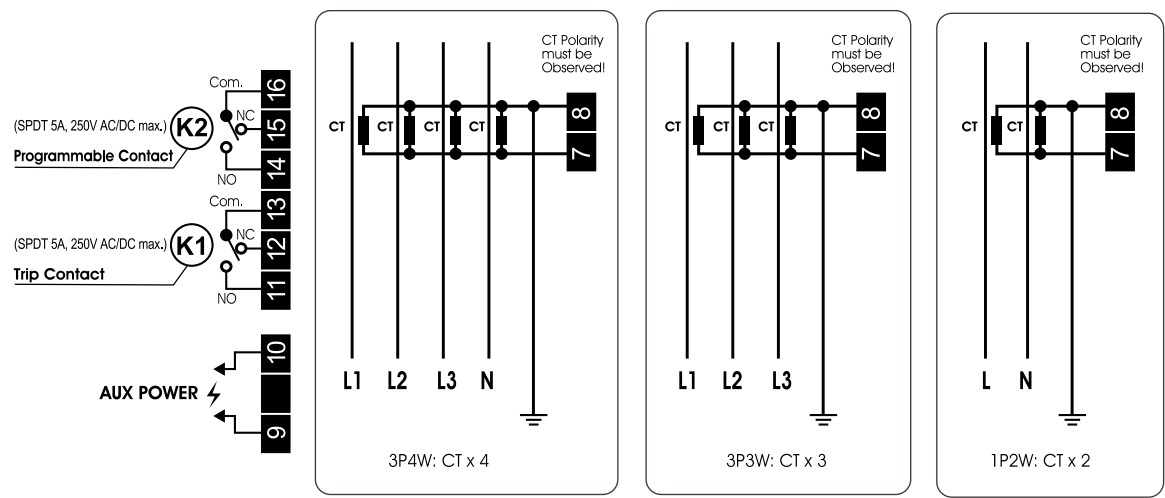
³Fundamental Signal Detection:
To discriminate between signal and noise and eliminate nuisance tripping

⁴Output on K2 dependent on the programmed options

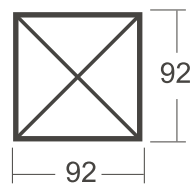
casing dimension



wiring diagram



panel cut-out



Panel Cut-out : 92 x 92

ordering information

Model	Description
DP-31-220a-5A	(CT.../5A) 65 ~ 275 Vac (45~65 Hz), 90~300 Vdc
DP-31-220a-1A	(CT.../1A) 65 ~ 275 Vac (45~65 Hz), 90~300 Vdc
DP-31-024d-5A	(CT.../5A) 18~72 Vdc
DP-31-024d-1A	(CT.../1A) 18~72 Vdc

Note: All measurement in mm.