Protection Equipment

OCR-P101_EF series

Earth fault numerical overcurrent relay

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The OCR-P101_EF is an earth fault non-directional relay and provides features for easy adaptation and is suitable for all applications where earth-fault protection is required.
User-friendly Human Machine Interface for easy setting of the relay (that can be fully set through the front HMI or using ***RMCI*** interface software).
In addition to its protection function, OCR-P101_EF provides measurement and monitoring information necessary for efficient maintenance and post-fault analysis.

APPLICATION

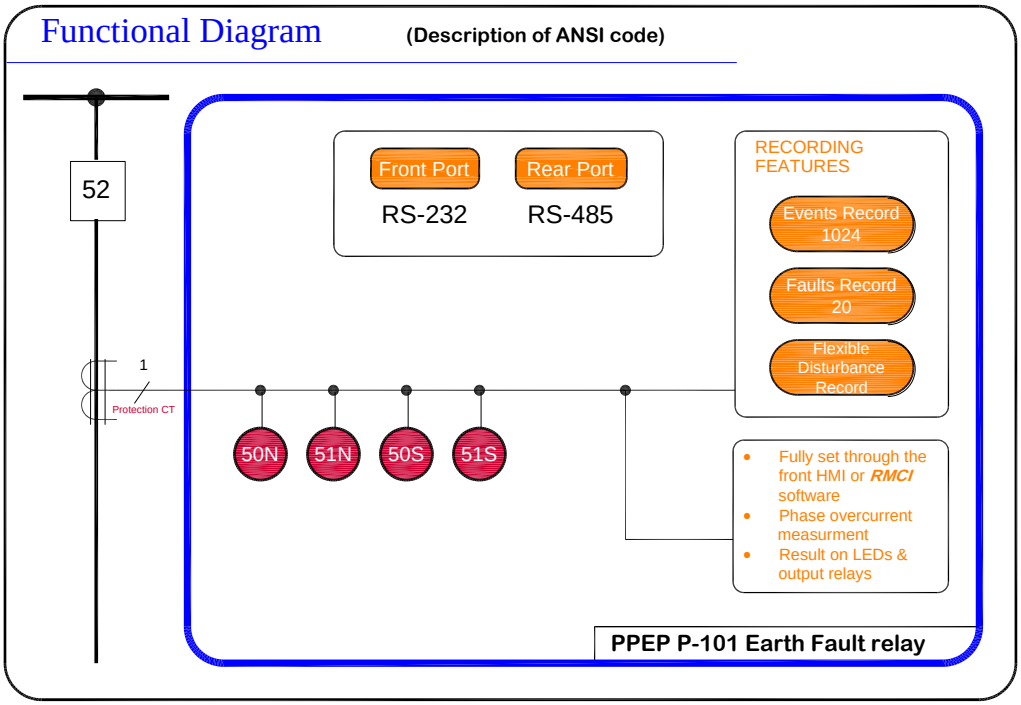
OCR-P101 provides a wide range of protection functions allowing its use in several applications:

- Main or backup protection on MV&HV systems.
- Overhead lines and underground cables as a backup on HV systems.
- Neutral overcurrent protection.
- MV subscribers, Industry, Transport.

OVERVIEW

The following functions are available in OCR-P101_EF range of the devices:

- Unified rated current 1A/5A.
- Multiple setting groups.
- Measurement and metering.
- True-RMS for the current measurements.
- Disturbance recording including the CT inputs and logic status.
- Faults recording.
- Events recording.
- Free software.
- Easy to communicate with ***RMCI*** interface software.
- User friendly interface software with ***PERSIAN*** language.
- Fully communicable. If connected to a local network, allows to be monitored, reported and set local and remotely.
- All of devices in network can be synchronized with interface software by protocol synchronization messages.



- **50N N**eutral instantaneous overcurrent unit
- **51N N**eutral time delayed overcurrent unit
- **50S S**ensitive neutral instantaneous overcurrent unit
- **51S S**ensitive neutral time delayed overcurrent unit
- **M**easurement
- **E**vents recorder
- **F**aults recorder
- **D**isturbance recorder
- **F**ront panel with 4 push-buttons
- **L**CD alphanumeric display
- **D**igital Inputs and Digital Outputs
- **F**ront 9 pin RS232 port
- **R**ear RS485 communication port

PPEP Relay Description

Earth Fault relay

	ANSI	P-101
Frequency 50/60 Hz		■
Dual rated 1A/5A		■
CT Inputs		1
VT Inputs		
3 Phase overcurrent	50/51 P	
Neutral overcurrent	50/51 N	■
Sensitive neutral overcurrent	50/51 NS	■
Residual neutral overcurrent	50/51 NR	
Multi-shot Autoreclose	79	
Circuit breaker failure	50BF	
Cold load pickup(CLP)		
Trip and close circuit supervision	74TC/CC	
Setting groups		2
Event records		1024
Fault records		20
Disturbance records		5 (15s max)
Opto digital inputs		3
Output relays		1
Output relays latching	86	■
Output relays energized		■
LED indication		■
LCD display		Alphanumeric
Front port		RS-232
Rear port(Isolate)		RS-485
Modbus	Yes	EIA(RS)485 EIA(RS)232
Measurements		RMS current
Terminals		Ring

Model Coding Form

P101 overcurrent protection relay										
RATED IN CURRENT										
High sensitivity [20mA to 5A]	A									
Medium sensitivity [40mA to 20A]	B									
Low sensitivity [100mA to 50A]	C									
RATED Ip CURRENT										
Medium operation [100mA to 50A]		A								
Low operation [500mA to 100A]		B								
None		C								
PARTICULAR CODE										
Basic			A							
Basic + CLP + 74 + CBF			B							
Basic + CLP + 74 + CBF + 79			C							
ADDITIONAL FUNCTION										
Basic				0						
Oscillography + 2 Tables				1						
DIGITAL INPUTS										
No DI					0					
3 DI					1					
AXUILIARY VOLTAGE										
110 Vdc (80% to 110% Rated Voltage)						Y				
80-373 Vdc / 80-264 Vac						Z				
COMMUNICATION										
Modbus							1			
PPEP							2			
REAR COMMUNICATION PORT										
No port								0		
RS-485								4		
FRONT COMMUNICATION PORT										
No port									0	
RS-232									2	
INTERNAL SUPPLY MEASUREMENT										
None										0
Supply voltage measurement										1

Non-Directional Earth Fault Numerical Overcurrent Relay

Get certificate according to ***IEC 60255-1, 2009*** standard.
Including protection functions:
[50/51]N
Including 2 settings table.
True-RMS currents measurement.
Including a backlit alphanumerical LCD display.
4 digits password for settings from front panel keypad.
Internal voltages can be displayed on the front LCD display.
Including front separate LEDs for faults and protection functions.
Measurement line current and displayed on the front LCD display.
Including non-volatile memory for save events, faults and disturbance data.
Including real time clock for update to the timekeeper registers when absence of external power.
Records up to 1024 last events with time tag (date and time to a resolution of 1 m.second).
Records up to 20 last faults with time tag (date and time to a resolution of 1 m.second).
Up to 5 last disturbance files are stored in the relays with pre-fault and post-fault settings.
Disturbance files are stored in ***COMTRADE IEEE Std C37.111.1999.***
A support software ***RMCI*** is available for this protection relay and is fully Windows compatible.
RMCI software allows easy settings, reading measurements and downloading events, faults and disturbance with two languages ***Persian*** and English.
Communicate to the computer to use the RS-485 rear port.
Communicate to the computer to use the RS-232 front port.
The self-checking constantly performed by the unit, can detect the hardware error with output relay, two-state LED (red/green) and message on the front LCD display.
Select settings table via programmable digital inputs.

Technical data description

Earth Fault overcurrent protections

51N / In> / TOC / Time overcurrent
2 settings table
Function permission: Enable / Disable
Pickup range: 100mA to 50A (step 0.01) / Low sensitivity 40mA to 20A (step 0.01) / Medium sensitivity 20mA to 5A (step 0.01) / High sensitivity
Curves: IEC 60255-151
Operating time: Definite time, Normal, Short, Long, Very and Extremely Inverse curves. Definite time: 0.00 ~ 600 sec. (step 0.01s)
TMS: 0.05 ~ 1.2 (step 0.01)
Activation level: 100%
Reset level: 95%
Reset time: Curve IEC 60255-151
Time accuracy: 5% or 30ms (the higher of them)
50N / In>> / IOC / Instantaneous overcurrent
2 settings table
Function permission: Enable / Disable
Pickup range: 100mA to 50A (step 0.01) / Low sensitivity 40mA to 20A (step 0.01) / Medium sensitivity 20mA to 5A (step 0.01) / High sensitivity
Definite time: 0.00 ~ 60 sec. (step 0.01s)
Activation level: 100%
Reset level: 95%
Instant reset
50N / In>>> / HIOC / Instantaneous overcurrent
2 settings table
Function permission: Enable / Disable
Pickup range: 100mA to 50A (step 0.01) / Low sensitivity 40mA to 20A (step 0.01) / Medium sensitivity 20mA to 5A (step 0.01) / High sensitivity
Definite time: 0.00 ~ 60 sec. (step 0.01s)
Activation level: 100%
Reset level: 95%
Instant reset

Functions protections

Settings table
2 Protection table
Activated by Front Panel, Interface software or programmable digital inputs
Latch function
50N, 51N
Real Time Clock
10 years of data retention and clock operation in the absence of external power
Event records
1024 (4 groups x 256) records
Time stamp: year / month / day hour:min:sec.msec
Trigger: any selected protection alarm and threshold, Logic inputs, setting changes and self-test events
Fault records
20 records
Time stamp: year / month / day hour:min:sec.msec
Trigger: any selected protection threshold, Trip command
Disturbance records
16 sample / cycle
5 records 3 sec.
Pre-Time: 0.1~ 3 sec. (step 0.1s)
Format: ***COMTRADE IEEE Std C37.111-1999***
Communications
Local port: Front-RS-232
Remote port: Rear-RS-485 (Isolate)
Up to 32 relays industrial control local area networks

رله حفاظتی خطای زمین نیومریکال
طراحی و ساخت برای اولین بار در ایران

دارای ***Certificate*** مطابق با استاندارد ***IEC 60255-1,2009***
دارای دوگروه تنظیمات رله
اندازه گیری جریان بر اساس ***True-RMS***
دارای صفحه نمایشگر LCD برروی پانل جلوی رله
رمز عبور ۴ رقمی جهت تنظیمات از روی پانل جلوی رله
قابلیت نمایش ولتاژهای کار داخلی رله برروی نمایشگر LCD
دارای نمایشگر LED های مجزا برای نمایش هر خطا و عملکردهای رله
قابلیت نمایش جریان اولیه(جریان عبوری از خط) برروی نمایشگر LCD
دارای حافظه غیر فرار داخلی جهت ثبت اطلاعات رویدادها، خطاها و شکل موج ها
دارای ساعت داخلی(Real Time Clock) جهت بروز ماندن تاریخ وساعت به هنگام قطع برق شبکه
قابلیت ثبت ۱۰۲۴ رویداد (Event recorder) بر حسب تاریخ، ساعت، دقیقه، ثانیه و میلی ثانیه
قابلیت ثبت ۲۰ خطا (Fault recorder) بر حسب تاریخ، ساعت، دقیقه، ثانیه و میلی ثانیه
قابلیت ثبت ۱۵ ثانیه شکل موج (Disturbance recorder) با قابلیت تنظیم زمان های Pre-fault و Post-fault
قابلیت ثبت شکل موج بر اساس قالب استاندارد ***COMTRADE IEEE Std C37.111-1999***
قابلیت نمایش شکل موج های ثبت شده در برنامه **نرم افزارطراحی شده RMCI**
قابلیت اتصال به رایانه از طریق پانل جلو و پورت RS-232
قابلیت اتصال به رایانه از طریق ترمینال پشت رله و پورت RS-485
تغییر تنظیمات و برداشت اطلاعات رله با اتصال به رایانه و **نرم افزار RMCI** با دو زبان **فارسی** و انگلیسی
دارای سیستم تشخیص عیب خودکار داخلی (Self-Monitoring) همراه با رله ی خروجی اعلام آلارم و نمایش پیغام برروی نمایشگر LCD و همچنین نمایشگر LED مجزا
امکان تغییر جدول تنظیمات با استفاده از ورودی های دیجیتال قابل تعریف