MiCOM P115

Numerical CT and auxiliary voltage powered overcurrent relays

MiCOM P115 are numerical relays designed to offer overcurrent and earth fault protection without requiring any external auxiliary supply.

They can be applied to medium and high voltage electrical systems as either main or backup protection.

MiCOM P115 can be ordered in self-powered or in a dual-powered version.

P115 can be fully configured manually, without using of setting software.

MiCOM S1 setting software allows via USB port to customize configuration parameters to specific application.

The relay offers additional measurement, monitoring and recording function available via communication port

A capacitance discharge output capable of putting out sufficient power to a low energy trip coil of circuit breaker

An external flag indicator is used for remote or local indication that a trip has occurred

Rear RS485 port allows to control of CB (with close and trip command).

Housed in optional Flush or Wall mounting metal case, it can be easily adapted to various applications

CUSTOMER BENEFITS

- No need of guaranteed auxiliary power supply
- Small dimensions of relay
- USB port for local communication with self-powering facilities
- Excellent for retrofit of old technology relays
- FRAM memory: no back-up battery inside

APPLICATION

MiCOM P115 numerical overcurrent protection relays provide optimized and cost efficient solution where no external auxiliary power supply is available or guaranteed.

- Typical applications are:
- A cost optimized MV switchboard with small dimensions
- HV back up protection (HV/MV transformers)
- Utility and industrial substations
- Retrofit of old technology relays.

MiCOM P115: A part of SCADA system today or in the future

Schneider Electric

GLOBAL FUNCTIONS

The power supply to the electronic circuits of the MiCOM P115 has been optimised so that it can trigger the circuit-breaker with a load current of 0.2 In on at least one phase.

The following functions are generally available:

- CT powered
- Ordering option: 1A and 5A with possibility to order different nominal current for phase and earth fault inputs
- Two types of case (HxWxD): flush (183x160x107) or wall (203x138x95) mounting
- Settings referred to nominal current.

MAIN FUNCTIONS

The hardware architecture and software algorithms have been studied to operate on very short failure detection times.

P115 relay is equipped with the circuit breaker trip output for sensitive CB coil/striker (12-24Vdc/0.1J) or MiTOP offered by Schneider Electric. A capacitance discharge output capable of putting out sufficient power to low energy trip CB coil.

Thanks of changeover outputs and self-supplying facility P115 can be used in tripping current transformer application (current tripping CB coil).

An external Flag Indicator can be connected to independent energy output (24VDC, 0.01J)

Communication via USB (Modbus RTU protocol) and rear RS485 port (Modbus RTU or IEC 103 protocol) allows to download information about settings, measurements and inputs, outputs, starting, tripping, LEDs status.

IDMT (IEC, IEEE, US) time characteristics can be with instantaneous, time delayed or IDMT reset.

FUNCTIONS

Three-Phase Overcurrent Protection (50/51)

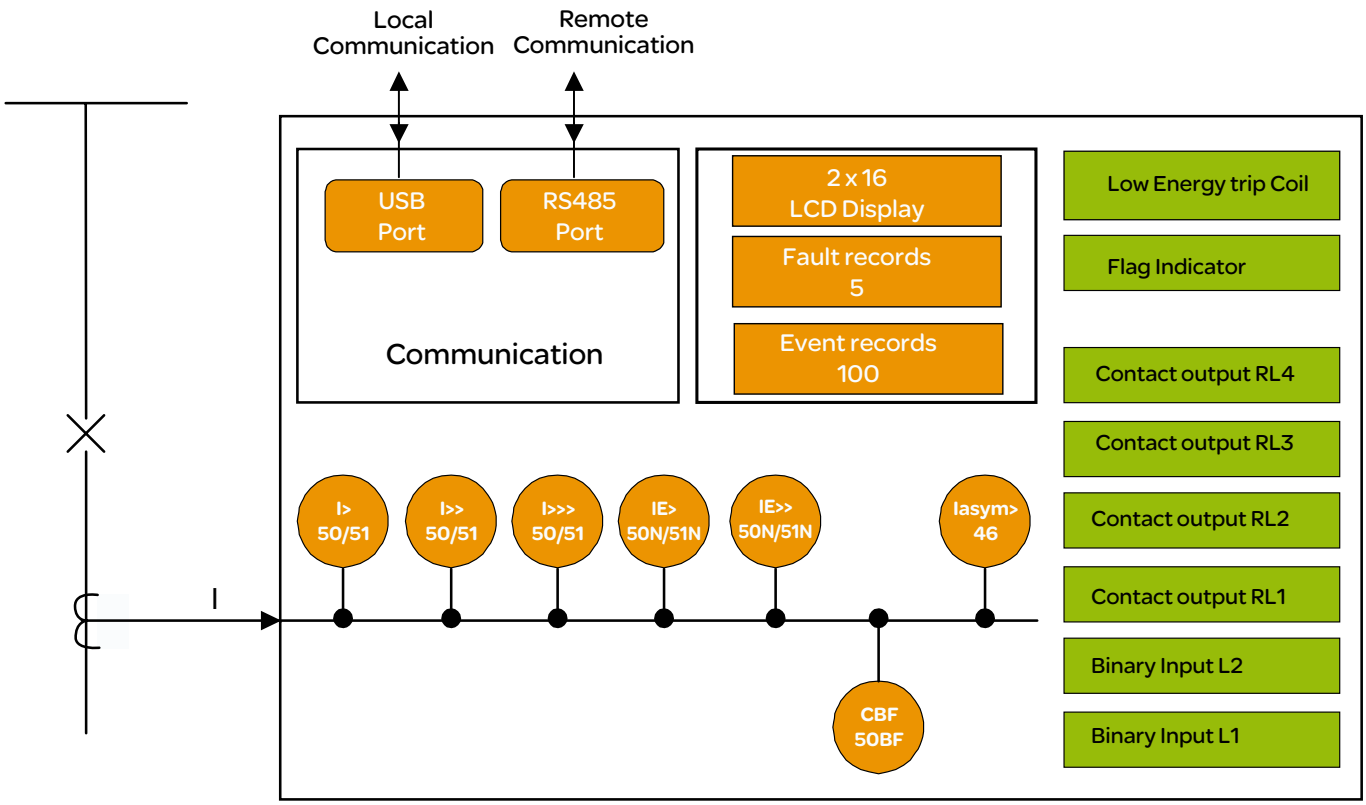
MiCOM P115 relays provide three phase current inputs. Three independent stages are available (I>, I>>, I>>>).

For I> and I>> the user may independently select definite time delay or inverse time delay with different type of curves IDMT (IEC SI, VI, EI, UK LTI, STI, RI, Rect, IEEE: MI, VI, EI, US: CO2, CO8).I>>> can be configured with definite time only.

Functions overview	
	Powering from auxiliary supply voltage (ordering option)
50/51	Three-phase overcurrent I>>> (DT)
50/51	Three-phase overcurrent I>> with DT or IDMT (IEC SI, VI, EI, UK LTI, STI, RI, IEEE: MI, VI, EI, US: CO2, CO8)
50/51	Three-phase overcurrent I> with DT or IDMT (IEC SI, VI, EI, UK LTI, STI, RI, IEEE: MI, VI, EI, US: CO2, CO8)
50N/51N	Earth fault overcurrent IN>> (DT)
50N/51N	Earth fault overcurrent IN> with DT or IDMT (IEC SI, VI, EI, UK LTI, STI, RI, IEEE: MI, VI, EI, US: CO2, CO8)
	Asymmetry overcurrent Iasym> (DT)
	Circuit Breaker Failure protection (CBF) with undercurrent criteria
	Instantaneous / IDMT delayed reset for IEC, IEEE and US characteristics
	Two settings group
	Blocking logic and selective relay scheme logic (Note 1)
	External Trip or Alarm via Binary Input (timers: AUX1 and AUX2) (Note 1)
	Changeover contacts output for current trip coil (RL1 and RL2)
	Output for low energy CB coil/striker (12-24Vdc/0.1J) or MiTOP
	Output for Flag Indicator (24V, 0.01J)
	Up to 4 Binary Contacts (RL1, RL2, RL3, RL4)
	8 signalling LEDs (6 freely configured) (Note 1)
86	Output relay latching (Note 1)
	Two Binary Opto Isolated Inputs (L1, L2) (Note 1)
	Freely I/O configuration
	Fault records for the 5 most recent trips
	Event records (up to 100 events)
	Front USB port for local downloading of settings, events and/or fault records with self supplying facilities
	Rear port RS485 communications (Modbus RTU or IEC103) (Note 1)
	Measurements (true RMS) available via communication ports (Note 1)
	Setting software MiCOM S1

(Note 1): Function not available if auxiliary power supply fails

Functional Overview (Description of ANSI code nos., see Protection Function Overview)



Earth Fault Overcurrent Protection (50N/51N)

MiCOM P115 relays provide two independent stages earth fault current input (IN> and IN>>).

For the first stage (IN>) the user may independently select definite time delay or inverse time delay with different type of curves IDMT (IEC SI, VI, EI, UK LTI, STI, RI, Rect, IEEE: MI, VI, EI, US: CO2, CO8).

The second stage (IN>>) can be with definite time only E/f input, depends on the way of connection (terminals), can supply or not supply P115.

Assymetry Overcurrent Protection

Asymmetry overcurrent stage (DT) is based on difference between phase currents and average current in three phases.

Circuit Breaker Failure (50BF)

The circuit breaker failure verifies the effective opening of CB by dedicated undercurrent threshold.

The CBF can be used for tripping upstream circuit too.

Two Setting Groups

Two setting group includes protection settings, output and LED configuration.

MiCOM P115: Innovative Solution with Compact Design

I/O Configuration

Every input and output can be freely configured to available functions (blocking of protection element, reset LED or outputs, start, trip of every protection element, etc).

Remote Trip via Binary Input

Opto isolated binary input can be freely configured to timers AUX1 or/and AUX2. Timers can be used for ALARM signalling or TRIP of circuit breaker. This function works if powering of relay is assured.

Blocking and Selective Scheme Logic

When the P115 relays are used in critical networks, management of protection relays must take surrounding devices into consideration. Two digital inputs can be independently configured to lock any combination of selected elements (i.e. current stages or AUX timers).

Fault and Event Recording

The last 5 faults and 100 logic events are stored in FRAM memory. All events are time stamped to 1ms.

MICOM S1 SUPPORT SOFTWARE

Support Software MiCOM S1 Studio is available for the entire MiCOM family, including P115 relays. MiCOM S1 Studio is fully Windows™ compatible.

This Support Software allows to set all parameters in P115 or download settings parameters, fault and event records.

PC connection with P115 is available via USB port.

TRACK RECORD - MiCOM POWERED OVERCURRENT RELAY

- MiCOM P124 (P124S & P124D)
  First released in September 2000.
  Over 13 000 devices installed.
- MiCOM P115
  First released in 2008
  Over 1600 devices installed

THE WAY OF ORDERING: CATALOGUE NO. (for example: MICOM P115, REL10100)

MiCOM P115 ordering variants available via SE International Distribution Centre (IDC)		
Catalog No.	**Cortec type (see below)**	**Description:**
REL1010x	**P1157461111xxx1**	**Dual powered (Vx&CT: current transformers or/and auxiliary voltage); Flush mounting case; Energy trip output for: low energy coil/striker (12-24Vdc/0.1J) or MiTOP; Language: English/German/Polish/French/Spanish**
REL10100	P11574611110001	In=1A , o/c: 0.2-40In; Ien=1A, e/f: 0.01-2Ien; Vx=60-240Vac/250Vdc;
REL10101	P11574611111001	In=1A , o/c: 0.2-40In; Ien=1A, e/f: 0.01-2Ien; Vx=24-60Vac/60Vdc;
REL10102	P11574611110101	In=1A , o/c: 0.2-40In; Ien=1A, e/f: 0.05-10Ien; Vx=60-240Vac/250Vdc;
REL10103	P11574611111101	In=1A , o/c: 0.2-40In; Ien=1A, e/f: 0.05-10Ien; Vx=24-60Vac/60Vdc;
REL10104	P11574611110311	In=5A , o/c: 0.2-40In; Ien=5A, e/f: 0.01-2Ien; Vx=60-240Vac/250Vdc;
REL10105	P11574611111311	In=5A , o/c: 0.2-40In; Ien=5A, e/f: 0.01-2Ien; Vx=24-60Vac/60Vdc;

Note: If your preferred variant is not available in the table above, for more information please contact Schneider Electric Sales Team in your country.

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