



# Plug and protect



P1F1S Digital Single Phase  
Self-Powered Relays

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**Schneider**  
Electric

# New information now available from your existing installations!

## P1F1S gives you so much information:

1 The overcurrent fault recorder captures twenty (20) overcurrent faults time-tagged to the millisecond. The data included in the fault recorder are:

- Overcurrent fault date/time
- Started/Tripped protection element
- Overcurrent fault measurements in Amp primary, RMS

Press the “Read” Key from the default metering position to navigate to the latest recorded fault.

Use the exact fault value and approximate the fault location.



2 The Event Records log stores 200 events time-tagged to the millisecond. Data triggers for the Event Records includes:

- Any enabled protection element (start & trip)
- Settings changes
- Load Level events (Passing thresholds of 0.2 and 0.4 rated current).

Use this data to see how the reclose cycle was going or do post-fault analysis.

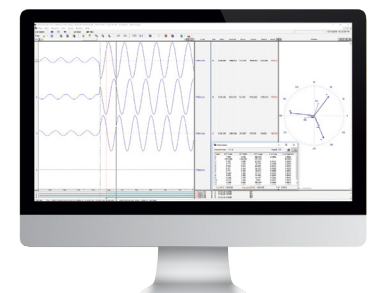


3 The Disturbance recorder captures ten (10) records, each up to 4 seconds. The recorder samples at a rate of 32 samples per cycle.

The DR is triggered by any enabled protection element. The data included in the DR are:

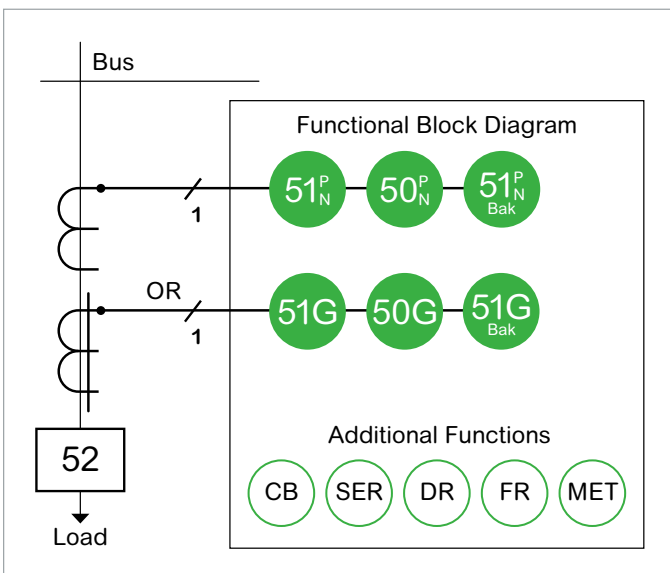
- AC current input values
- Output contacts status
- Frequency value

The oscillography can be viewed and analyzed using the WaveWin tool in the Easergy Studio software.





The Schneider Electric P1F1S single phase or ground time overcurrent relays are conceived to be a replacement for CDG curves electromechanical relays. These relays are self-powered from 50 or 60 Hz systems and are designed to be one to one replacement for existing electromechanical or digital relays. P1F1S relays are equipped with 50 built-in protection curves.



### ANSI Numbers/Functions

50	Instantaneous Overcurrent (Phase, Neutral)
50G	Instantaneous Overcurrent (Ground)
51	Time-Overcurrent (Phase, Neutral)
51 Bak	Backup Time-Overcurrent (Phase, Neutral)
51G	Time-Overcurrent (Ground)
51G Bak	Backup Time-Overcurrent (Ground)

### Additional Functionality

CB	Circuit Breaker Diagnostics ( $\Sigma$ Trips, $\Sigma$ Amps <sup>n</sup> )
SER	Sequence of Events Report (200 events)
DR	Disturbance Recording (10 x 4 sec recordings)
FR	Fault Recording (20 records)
MET	Metering in Primary or Secondary Values

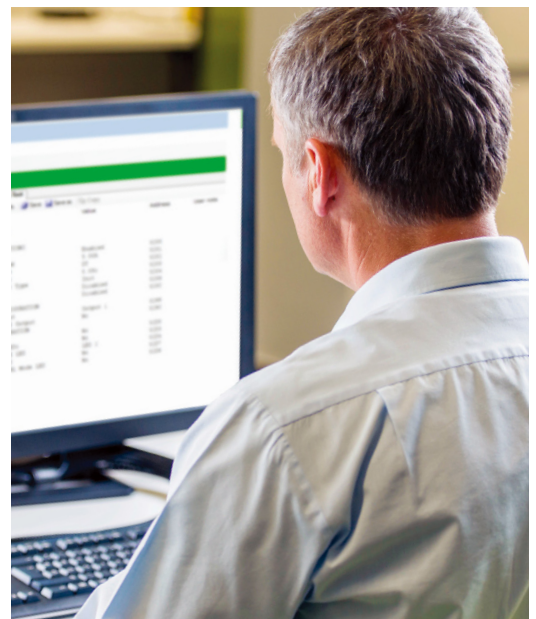
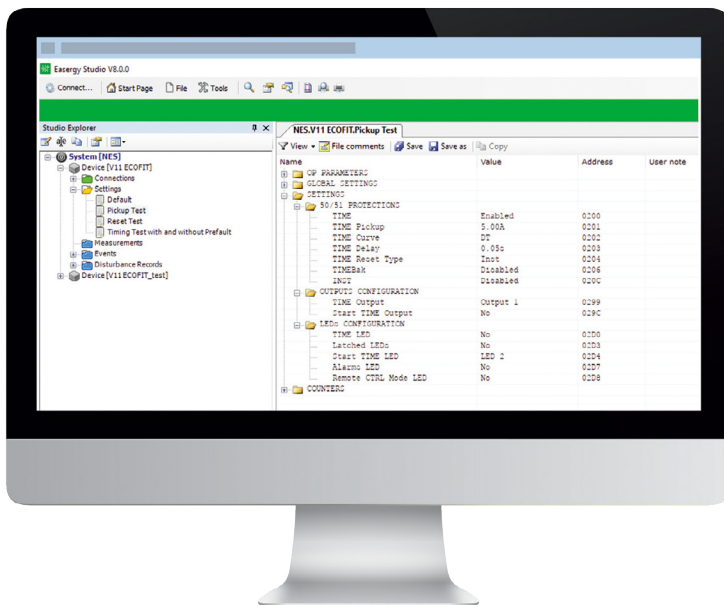
## P1F1S Front Panel Controls



Function Reference	Control or Indicator
A	Manual Trip Mode LED
B	Programmable LEDs
C	Active LED
D	Clear Button
E	USB Port
F	HMI Display
G	Trip Indicators
H	Read button
I	Manual Trips
J	Navigation Buttons

## Easergy Studio software

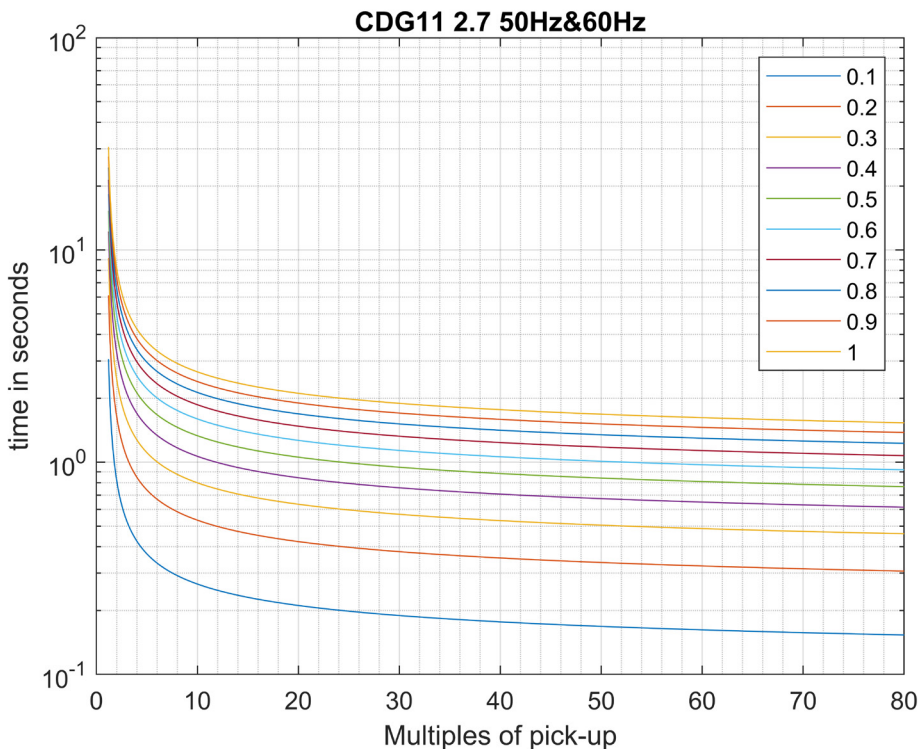
Easergy Studio software can be used to program P1F1S relays and extract data for analysis



## Multiple overcurrent curves makes retrofit easier!

The P1F1S relay provides 50 overcurrent curves as well as instantaneous overcurrent protection, to cover a variant range of applications. Along with numerical technology, P1F1S offers events and disturbance recording, and circuit breaker diagnostics. This CT powered relay is offered in two models for 1A and 5A CTs.

T, IAC51, IAC53, IAC55, IAC66, IAC77, M, I1, I2, V1, V2, S1, S2, L1, L2, E1, E2, CO-2, CO-5, CO-7, CO-8, CO-9, CO-11, U1, U2, U3, U4, U5, IEEE MI, IEEE VI, IEEE EI, Overload, IEC SI, IECVI, IEC EI, UK LTI, UK STI, UK RC, RI, CO2 Px20, RXIDG, BPN EDF, CO2 Px40, US CO6, CDG11 1.3s, CDG11 3s, CDG11 2.7s, CDG12, CDG13, CDG14)



## Benefits

- Self-powered requires no auxiliary power and no battery
- Multi-vendor curves can retrofit a variety of legacy electromechanical and digital relays, without having to perform new coordination studies, allowing easier coordination with upstream protection
- Manual Trip Mode trips on protection function and times out after 10 minutes; exiting manual mode and returning to automatic mode
- LEDs are programmable and can notify if power loss is longer than 36 hours
- Additional TIMEBak element can be used as a second stage TOC element or as a more sensitive IOC element
- CB diagnostics can be preloaded with historical data
- Electromechanical reset emulation setting allows for easy coordination with existing protection
- Magnetic trip flags are resettable from the front panel when the relay is powered or by the USB port using software
- Magnetic trip flags are not dependent on output relay load for operation
- Settings ranges allow for phase and ground fault use

# Technical specifications

Type tests	
Marking and mechanical structure	EN60255-1: 2010
Insulation	EN60255-27: 2014
Creepage distances and clearances	EN60255-27: 2014
High Voltage (dielectric) withstand	EN60255-27: 2014
	ANSI/IEEE C37.90
Impulse voltage withstand	EN60255-27: 2014
1 MHz burst high frequency disturbance	EN61000-4-18: 2010
Electrostatic discharge	EN61000-4-2: 2009
Electrical fast transient or burst requirements	EN61000-4-4:2012
Surge Immunity test	EN61000-4-5:2014
Surge withstand capability	ANSI/IEEE C37.90.1
Radiated electromagnetic energy	EN61000-4-3: 2010
	ANSI/IEEE C37.90.2
Radiated immunity from digital radio telephones	EN61000-4-3: 2010
Immunity to Conducted Disturbances Induced by Radio Frequency Fields	EN61000-4-6: 2014
Power Frequency Magnetic Field Immunity	EN61000-4-8: 2010
Pulse magnetic field immunity	EN61000-4-9: 2001
Radiated Emissions	EN55022: 2011
	(CISPR 11)
Phase current input thermal withstand	EN60255-27: 2014
Output contact continuous carry (not switched), make, carry, and break ratings	EN60255-1: 2010
Output contact make and carry	ANSI/IEEE C37.90
Durability	EN60255-1: 2010
	EN60255-1: 2010
Ambient temperature range	EN60068-2-1: 2007
	EN60068-2-2: 2007
Ambient humidity range	EN60068-2-78: 2013
	EN60068-2-30: 2005
Vibration	EN60255-21-1: 1995
Shock and bump	EN60255-21-2: 1995
Seismic	EN60255-21-3: 1995
Enclosure protection	EN60529: 2013

### AC Current Inputs

Rated current	1 or 5 A (ordering option)
Fundamental frequency	50 or 60 Hz
RMS measurement range	40 Hz - 1 kHz
Fundamental harmonic measurement range	40 Hz - 70 Hz
Measurement range	0.5 - 200 A (0.1 - 40 A)
Nominal Burden at 100% rated current	< 4.3 VA
Thermal withstand	15 A (3 A) in the temperature range from -40°C to +60°C)
	10 A (2 A) in the temperature range from +60°C to +70°C)

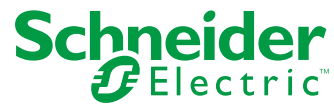
### Physical Characteristics

Weight	S1(IAC)	4.95 LBS (2.25 KG)
	C1(IFC)	3.4 LBS (1.54 KG)
Case size	IAC	S1
	IFC	C1

## Benefits

Commercial reference	Input current options
REL15037	1 Amp
REL15038	5 Amp

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To learn more, please visit  
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