

2018 Catalog



 Green  
Premium  
Product

# Easergy P3

Network Protection Relays

[easergy.schneider-electric.com](http://easergy.schneider-electric.com)

Life Is On

 Schneider  
Electric



# General Contents



---

[Range description](#) [6](#)

---

[Easergy P3 Standard](#) [28](#)

---

[Easergy P3 Advanced](#) [48](#)

---

[Easergy digital experience](#) [78](#)

---

[Additional modules and accessories](#) [88](#)

---

[Schneider Electric service](#) [98](#)

---

[Ordering](#) [102](#)

---

# Take the Easergy P3 further with EcoStruxure™

## 450,000

EcoStruxure™ systems deployed since 2007 with the support of our 9,000 system integrators.

### EcoStruxure™ ready



#### Efficient asset management

Boost your efficiency and reduce downtime using **predictive** maintenance tools.



#### 24/7 connectivity

Make better informed decisions with real-time data that's available **everywhere, anytime**.



#### Increased safety

Enhance your people and equipment's safety with **embedded arc flash** protection that's based on proven designs and experience.

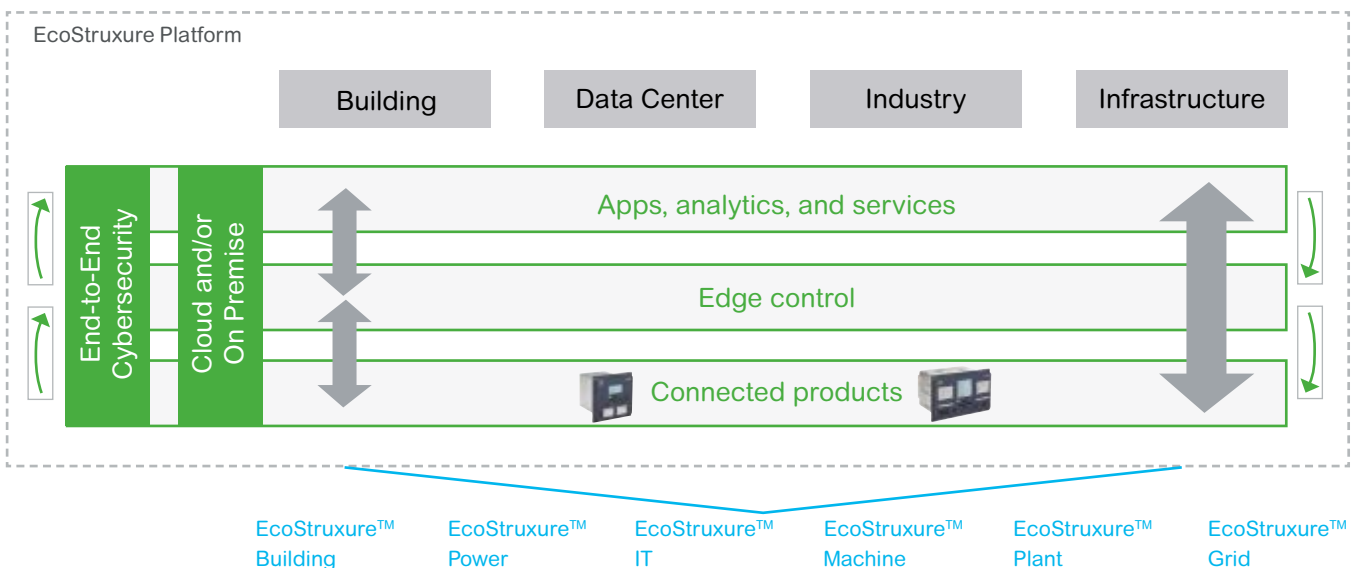
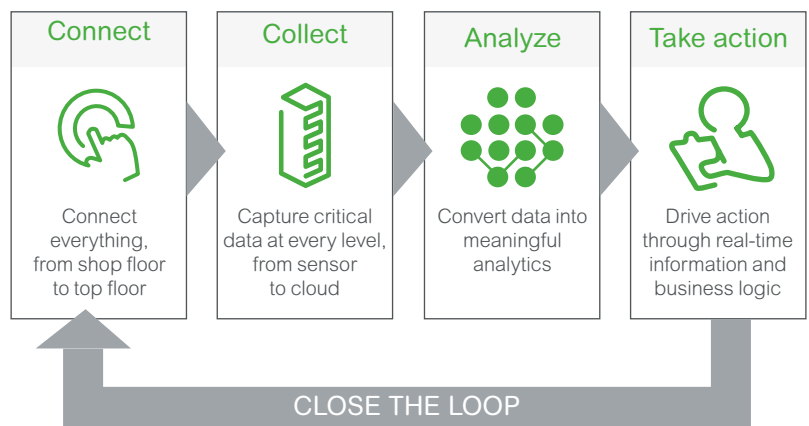
EcoStruxure™ architecture and interoperable technology platform bring together energy, automation, and software. This provides you with enhanced value through greater safety, reliability, efficiency, sustainability, and connectivity.

## Turn data into action

EcoStruxure™ architecture lets you maximize the value of your data.

It helps you::

- Translate data into actionable intelligence and better business decisions
- Make informed decisions to secure uptime and operational efficiency thanks to real-time control platforms
- Get visibility into your electrical distribution by measuring, collecting, aggregating, and communicating data



# Easergy P3 at a glance

PM106574



## What is Easergy P3?

Easergy P3 is a complete range of protection relays for medium voltage applications, including feeder, motor, transformer, and generator protection. It embeds all the latest communication protocols on serial or Ethernet links.

Based on more than 100 years of experience in network protection relays, Easergy P3 benefits from the reliability of Sepam, MiCOM and Vamp.



Unparalleled Efficiency



Better Connectivity



Enhanced Safety

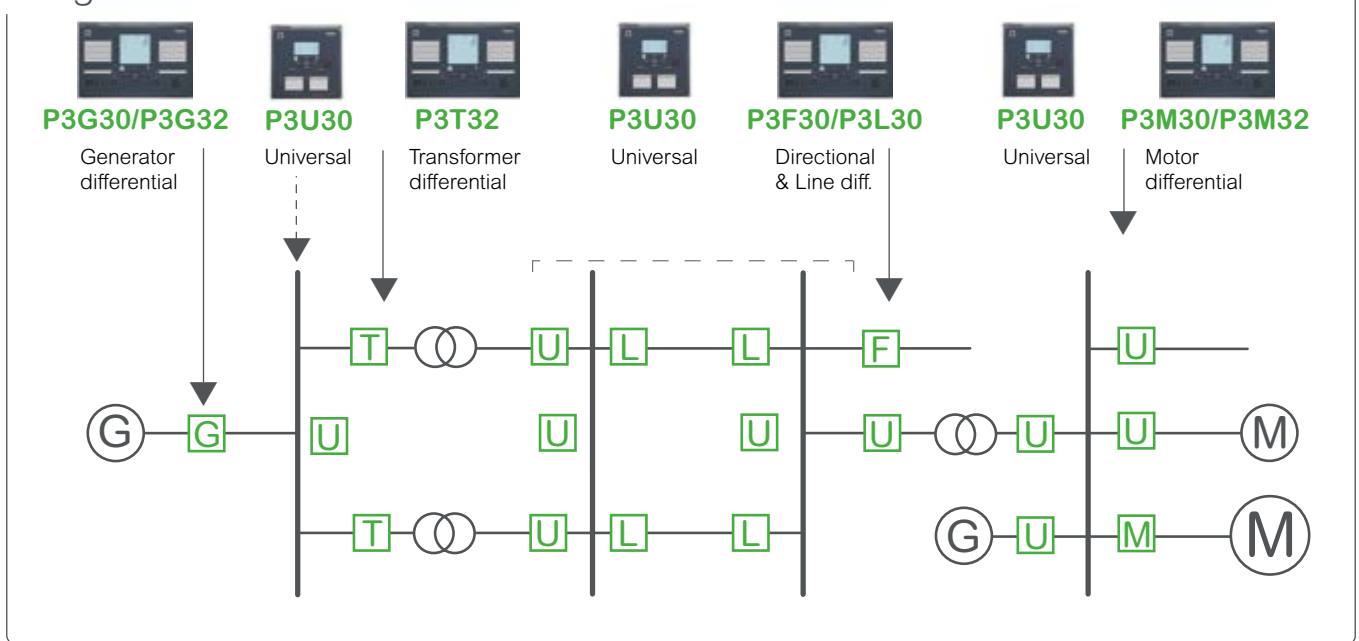
- Simple selection and ordering with EcoReal MV
- Simplified configuration with the new eSetup Easergy Pro setting tool
- Faster delivery with on-the-shelf availability of standard configurations

- Simpler operation and maintenance with the Easergy SmartApp
- 9 communication protocols in one box, including IEC 61850
- Increased number of inputs and outputs for more possibilities

- Embedded arc protection
- Built-in virtual injection testing
- Compliant with international standards (i.e. IEC 60255-1)

## Range overview

DM105528



# Easergy P3

## Range description

# Easergy P3

## Range description

---

<a href="#">Overview</a>	<a href="#">8</a>
<a href="#">Selection guide</a>	<a href="#">9</a>
<a href="#">Selection guide by application</a>	<a href="#">12</a>
<a href="#">Arc flash application</a>	<a href="#">12</a>
<a href="#">Feeder/incomer application</a>	<a href="#">13</a>
<a href="#">Motor application</a>	<a href="#">15</a>
<a href="#">Transformer application</a>	<a href="#">16</a>
<a href="#">Generator application</a>	<a href="#">18</a>
<a href="#">Capacitor application</a>	<a href="#">19</a>
<a href="#">Communication</a>	<a href="#">21</a>
<a href="#">Examples of network architectures</a>	<a href="#">21</a>

---

PM106572



Easergy P3 Standard

PM106574



Easergy P3 Advanced

Easergy P3 is a family of digital protection relays for distribution networks dedicated to:

- **Buildings and Industry:**
  - Retail
  - Hotels
  - Healthcare
  - Education and research
  - Transportation
  - Industrial buildings
  - Data Center
- **Utilities - Energy distribution**
- **Large sites:**
  - Oil and Gas
  - Mining
  - Mineral and Metals
  - Water

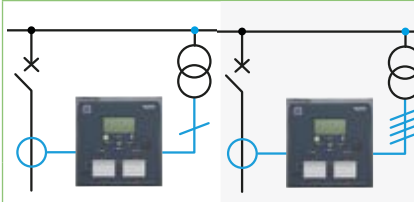
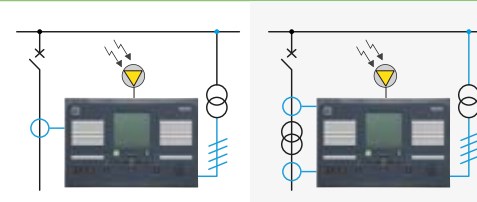
Easergy P3 protection relay is based on proven technology concepts and developed in close cooperation with customers, so it's built to meet your toughest demands. It's available in two sizes to best fit your needs:

- The Easergy P3 Standard combines protection functions such as directional earth fault for feeder and motor protection in a one-box solution.
- The Easergy P3 Advanced features a modular design that allows user-defined conventional protection and arc flash protection solutions in both new and existing power distribution systems.

Easergy products are designed to be user friendly, a feature that is proven in our customer reports day after day. You'll benefit from features that include:

- A complete set of protection functions, related to the application
- Arc detection (Easergy P3 Advanced)
- Dedicated circuit breaker control with single-line diagram, push buttons, programmable function key and LEDs, and a customizable alarm
- Multilingual HMI for customized messaging
- Settings tool relay management software for setting parameters, configuring, and network fault simulation
- Both serial and Ethernet communication, including redundancy
- IEC 61850 standard Ed.1 & Ed.2



Easergy P3 contains		Easergy P3 Standard			Easergy P3 Advanced			
Two main devices, each with specific functions to address your needs in a one-box design, regardless of application.								
<b>Feeder</b>					<b>P3F30</b> with directional  <b>P3L30</b> line diff. & distance			
<b>Transformer</b>					<b>P3T32</b> with differential  <b>P3M32</b> with differential  <b>P3G32</b> with differential			
<b>Motor</b>								
<b>Generator</b>								
<b>Characteristics</b>								
	Phase current	1/5A CT (x3)						
Measuring inputs	Residual current	1/5A CT or 0.2/1A CT						
	Voltage	VT (x1)			VT (x4)			
Arc-flash sensor input		-						
Digital	Input	2	10	16				
	Output	5 + SF	5 + SF	8 + SF				
Analogue	Input	-						
	Output	0 or 4 <sup>(1)</sup>						
Temperature sensor input		-						
Front port		USB type B						
Nominal power supply		24V dc or 48-230V ac/dc						
Ambient temperature, in service		-40 to 60°C (-40 to 140°F)						
<b>Communication</b>								
Rear ports		-	●	●				
RS232, IRIG/B, RS485, Ethernet		-	●	●				
	IEC61850 ed1 & ed2	-	●	●				
	IEC 60870-5-101 & 103	-	●	●				
Protocols	DNP3 over Ethernet	-	●	●				
	DNP3 serial	-	●	●				
	Modbus serial	-	●	●				
	Modbus over Ethernet	-	●	●				
	Ethernet IP	-	●	●				
	DeviceNet	-	●	●				
	Profibus DP	-	●	●				
	SPAbus	-	●	●				
	Redundancy protocols (RSTP/PRP)		-	●	●			
	<b>Others</b>							
Control		1 object mimic	6 controlled + 2 monitored objects mimic					
Logic (Matrix + Logic equation)		●						
Withdrawable CT connector with shorting		●						
Remote HMI		-						
Hardware dimensions (W/H/D)		171 x 176 x 214 <sup>(3)</sup> mm / 6.73 x 6.93 x 8.43 in			264 x 177 x 208 mm / 10.39 x 6.97 x 8.19 in			

(1) Depends on optional module  
 (2) Arc flash protection option not available on Easergy P3L30  
 (3) 226 mm (8.90 in) with ring-lug connectors

# Selection guide

Protection functions	ANSI code	Standard (P3U)		Advanced (P3x)						
		P3U10 P3U20	P3U30	P3F30	P3L30	P3M30	P3M32	P3G30	P3G32	P3T32
Distance	21	-	-	-	1	-	-	-	-	-
Under-impedance	21G	-	-	-	-	-	-	2	2	-
Fault locator	21FL	-	1	1	1	-	-	-	-	-
Overfluxing	24	-	-	-	-	-	-	1	1	1
Synchro-check	25	-	2	2	2	2	2	2	2	2
Undervoltage	27	-	3	3	3	3	3	3	3	3
Positive sequence undervoltage	27P	-	-	-	-	-	-	2	2	-
Stator earth-fault detection	27TN/64G	-	-	-	-	-	-	1	1	-
Directional active underpower	32	-	2	2	2	2	2	2	2	2
Phase undercurrent	37	1	1	-	-	1	1	-	-	-
Temperature monitoring	38/49T	12 <sup>(0)(1)</sup>	12 <sup>(1)</sup>	12 <sup>(1)</sup>	12 <sup>(1)</sup>	12 <sup>(1)</sup>	12 <sup>(1)</sup>	12 <sup>(1)</sup>	12 <sup>(1)</sup>	12 <sup>(1)</sup>
Field-failure (impedance/Q)	40 / 32Q	-	-	-	-	-	-	2/1	2/1	-
Negative sequence overcurrent (motor, generator)	46	2	2	-	-	2	2	2	2	2
Cur. unbalance, broken conductor	46BC	1	1	1	1	-	-	-	-	-
Incorrect phase sequence	47	-	-	-	-	1	1	-	-	-
Excessive start time, locked rotor	48/51LR	1	1	-	-	1	1	-	-	-
Thermal overload	49	1	1	1	1	1	1	1	1	1
Phase overcurrent	50/51	3	3	3	3	3	3	3	3	3
Earth fault overcurrent	50N/51N	5	5	5	5	5	5	5	5	5
Breaker failure	50BF	1	1	1	1	1	1	1	1	1
Switch On To Fault (SOTF)	50HS	1	1	1	1	1	1	1	1	1
Capacitor bank unbalance	51C	1	1	2	2	2	2	-	-	-
Voltage dependant overcurrent	51V	-	1	1	1	-	-	1	1	-
Overvoltage	59	-	3	3	3	3	3	3	3	3
Capacitor overvoltage	59C	1	1	1	1	-	-	-	-	-
Neutral voltage displacement	59N	3	3	2	2	2	2	2	2	2
CT supervision	60	1	1	1	1	1	1	1	2	2
VT supervision	60FL	-	1	1	1	1	1	1	1	1
Frequent start inhibition	66	1	1	-	-	1	1	-	-	-
Directional phase overcurrent	67	-	4	4	4	4	4	4	4	4
Directional earth-fault o/c	67N	3	3	3	3	3	3	3	3	3
Transient intermittent	67NI	1	1	1	1	-	-	-	-	-
Magnetizing inrush detection	68F2	1	1	1	1	1	1	1	1	1
Fifth harmonic detection	68H5	1	1	1	1	1	1	1	1	1
Pole slip	78PS	-	-	-	-	-	-	1	1	-
Auto-recloser	79	5	5	5	5	-	-	-	-	-
Over or under frequency	81	-	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Rate of change of frequency	81R	-	1	1	1	1	1	1	1	1
Under frequency	81U	-	2	2	2	2	2	2	2	2
Lockout	86	1	1	1	1	1	1	1	1	1
Line differential	87L	-	-	-	2	-	-	-	-	-
Machine differential	87M	-	-	-	-	-	2	-	2	-
Transformer differential	87T	-	-	-	-	-	-	-	-	2
Programmable stages	99	8	8	8	8	8	8	8	8	8
Arc-flash detection stages		-	-	8	-	8	8	8	8	8
Cold load pick-up		1	1	1	1	1	1	1	1	1
Programmable curves		3	3	3	3	3	3	3	3	3
Setting groups <sup>(3)</sup>		4	4	4	4	4	4	4	4	4

(0) No temperature sensors for P3U10 and 12 optional for P3U20

(2) P3U10 and P3U20 offer one voltage input. Function availability depends on the connection of the voltage input

(1) Using external RTD module

(3) Not all protection functions have 4 setting groups. See details in the manual.

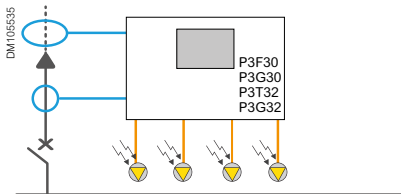
Control functions	Standard (P3U)		Advanced (P3x)						
	P3U10 P3U20	P3U30	P3F30	P3L30	P3M30	P3M32	P3G30	P3G32	P3T32
Switchgear control and monitoring	1/6	6	6	6	6	6	6	6	6
Switchgear monitoring only	2	2	2	2	2	2	2	2	2
Programmable switchgear interlocking	•	•	•	•	•	•	•	•	•
Local control on single-line diagram	•	•	•	•	•	•	•	•	•
Local control with O/I keys	•	•	•	•	•	•	•	•	•
Local/remote function	•	•	•	•	•	•	•	•	•
Function keys	2	2	2	2	2	2	2	2	2
Custom logic (logic equations)	•	•	•	•	•	•	•	•	•
Control with Smart App	•	•	•	•	•	•	•	•	•
<b>Measurement</b>									
RMS current values	•	•	•	•	•	• <sup>(1)</sup>	•	• <sup>(1)</sup>	• <sup>(1)</sup>
RMS voltage values	•	•	•	•	•	•	•	•	•
RMS active, reactive and apparent power	-	•	•	•	•	•	•	•	•
Frequency	•	•	•	•	•	•	•	•	•
Fundamental frequency current values	•	•	•	•	•	• <sup>(1)</sup>	•	• <sup>(1)</sup>	• <sup>(1)</sup>
Fundamental frequency voltage values	-	•	•	•	•	•	•	•	•
Fundamental frequency active, reactive and apparent power values	-	•	•	•	•	•	•	•	•
Power factor	-	•	•	•	•	•	•	•	•
Energy values active and reactive	-	•	•	•	•	•	•	•	•
Energy transmitted with pulse outputs	-	•	•	•	•	•	•	•	•
Demand values: phase currents	•	•	•	•	•	•	•	•	•
Demand values: active, reactive, apparent power and power factor	-	•	•	•	•	•	•	•	•
Min and max demand values: phase currents	•	•	•	•	•	•	•	•	•
Min and max demand values: RMS phase currents	•	•	•	•	•	•	•	•	•
Min and max demand values: active, reactive, apparent power and power factor	-	•	•	•	•	•	•	•	•
Maximum demand values over the last 31 days and 12 months: active, reactive, apparent power	-	•	•	•	•	•	•	•	•
Minimum demand values over the last 31 days and 12 months: active, reactive power	-	•	•	•	•	•	•	•	•
Max and min values: currents	•	•	•	•	•	•	•	•	•
Max and min values: voltages	•	•	•	•	•	•	•	•	•
Max and min values: frequency	•	•	•	•	•	•	•	•	•
Max and min values: active, reactive, apparent power and power factor	-	•	•	•	•	•	•	•	•
Harmonic values of phase current and THD	•	•	•	•	•	• <sup>(1)</sup>	•	• <sup>(1)</sup>	• <sup>(1)</sup>
Harmonic values of voltage and THD	-	•	•	•	•	•	•	•	•
Voltage sags and swells	-	•	•	•	•	•	•	•	•
<b>Logs and Records</b>									
Sequence of event record	•	•	•	•	•	•	•	•	•
Disturbance record	•	•	•	•	•	•	•	•	•
Tripping context record	•	•	•	•	•	•	•	•	•
<b>Monitoring functions</b>									
Trip circuit supervision (ANSI 74)	1	1	1	1	1	1	1	1	1
Circuit breaker monitoring	1	1	1	1	1	1	1	1	1
Relay monitoring	•	•	•	•	•	•	•	•	•

(1) Function available on both sets of CT inputs

### Busbar arc protection

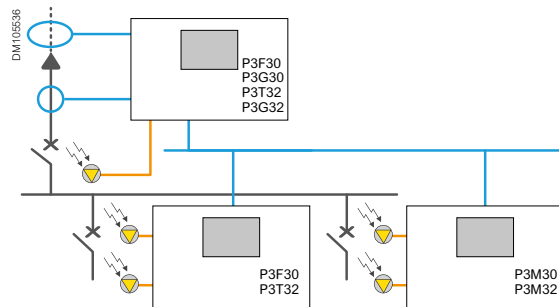
- Arc protection, activated by overcurrent and light signals, or light signals alone

#### Centralized busbar arc protection



- Up to 4 light point sensors to monitor the busbar

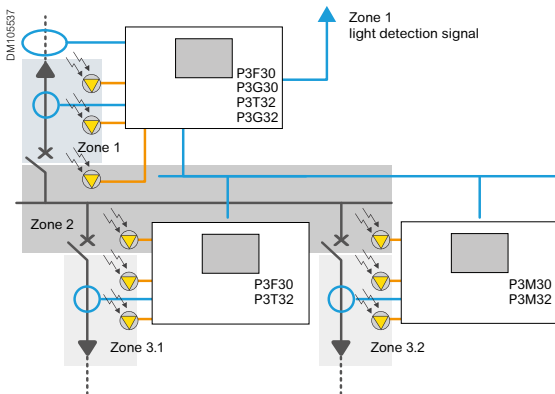
#### De-centralized busbar arc protection



- Up to 4 light point sensors in each relay
- Transmission of light detection signals via digital I/O or IEC 61850 GOOSE messages

### Zone arc protection

- Up to 8 arc protection stages in each relay

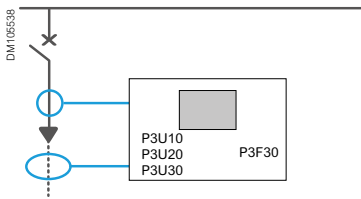


- Light detection in zone 1: signal sent to upstream relay for tripping
- Light detection in zone 2: incomer Easergy P3 trips, if fault confirmed by overcurrent
- Light detection in zone 3: corresponding outgoing Easergy P3 trips, if fault confirmed by overcurrent

### Outgoing protection

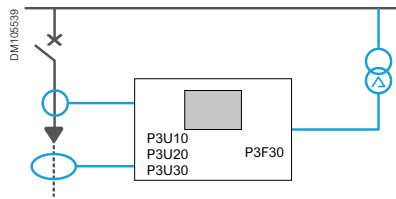
- Feeder overcurrent protection
- Feeder overload protection

#### Protection of low-capacitance feeders in impedance-earthed or solidly-earthed neutral systems



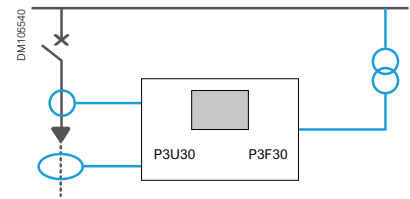
- Feeder earth-fault overcurrent

#### Protection of high-capacitance feeders in impedance-earthed or compensated or isolated neutral systems



- Directional earth-fault overcurrent
- Transient intermittent earth-fault

#### Protection of feeders with metering

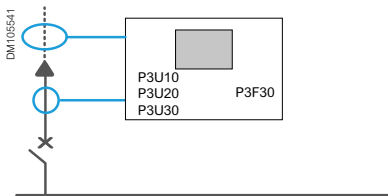


- Power and energy measurement
- Min and max demand values over the last 31 days and 12 months

### Incomer protection

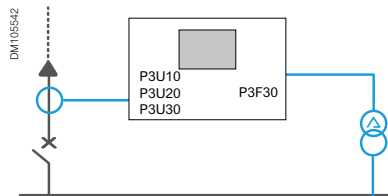
- Busbar overcurrent protection

#### Incomer protection without voltage monitoring



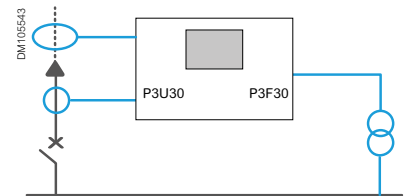
- Earth-fault overcurrent

#### Incomer protection with voltage and frequency monitoring



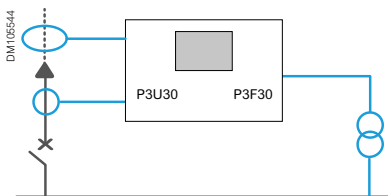
- Neutral voltage displacement protection for isolated system

#### Incomer protection with voltage and frequency monitoring



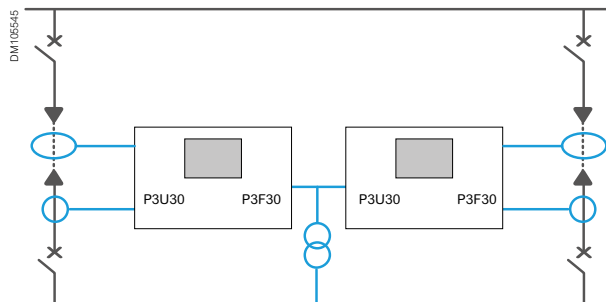
- Under/over voltage
- Frequency, rate of change of frequency

#### Incomer protection with power quality monitoring



- Voltage and frequency min and max values
- Voltage harmonic values and THD
- Voltage sags and swells

#### Parallel incomer protection

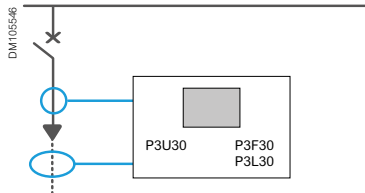


- Directional phase overcurrent
- Directional earth-fault overcurrent

### Line protection

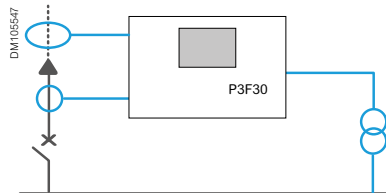
- Overcurrent and earth-fault protection (directional and non-directional)
- Feeder overload protection

#### Overhead line protection



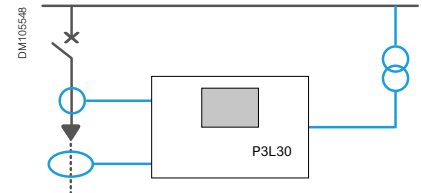
- Recloser
- Feeder fault locator

#### Incomer protection with fault locator



- Incomer fault locator

#### Line protection with line differential and distance functions

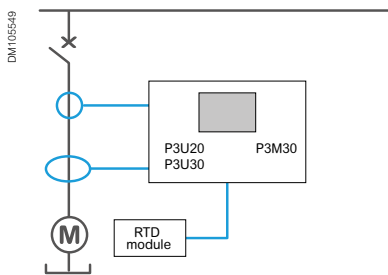


- Line differential protection
- Distance protection

### Motor protection

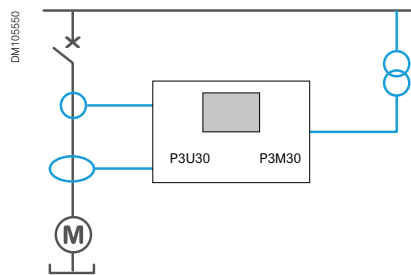
- Motor overcurrent and earth-fault overcurrent
- Thermal overload
- Motor start-up supervision
- Motor restart inhibition

#### Motor protection without voltage monitoring



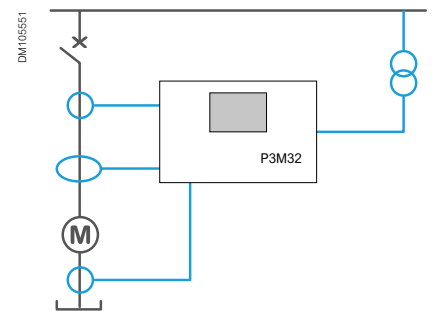
- Temperature measurement (stator, bearings)

#### Motor protection with voltage monitoring



- Undervoltage protection

#### Motor protection with differential function

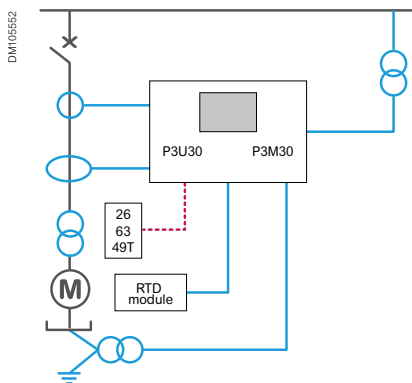


- Differential protection

### Motor-transformer unit protection

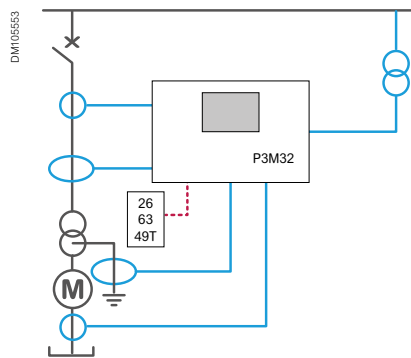
- Motor-transformer overcurrent
- Transformer earth-fault overcurrent
- Thermal overload
- Motor start-up supervision
- Motor restart inhibition
- External trip from thermostat/Buchholz

#### Motor-transformer unit protection



- Temperature measurement (stator, bearings)
- Motor neutral point displacement

#### Motor-transformer unit protection with differential function

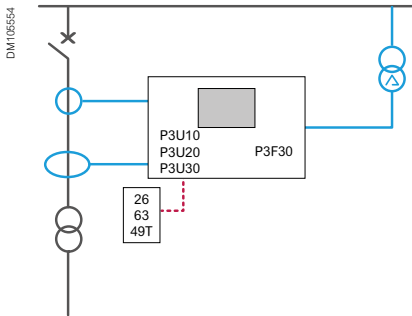


- Differential protection
- Motor earth-fault overcurrent

### Transformer feeder protection

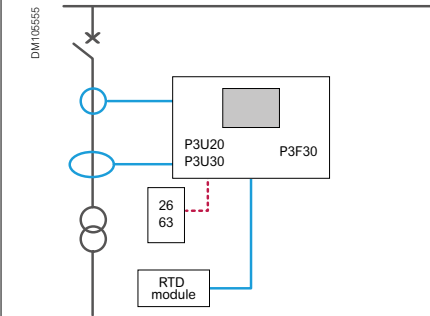
- Transformer overcurrent and earth-fault overcurrent protection
- Thermal overload protection
- External trip from thermostat/Buchholz

#### Transformer feeder protection



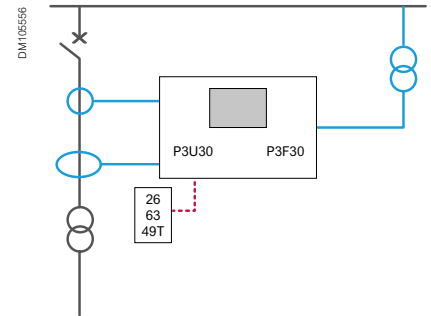
- Directional earth-fault overcurrent for impedance earthed or compensated neutral systems

#### Transformer feeder protection without voltage monitoring



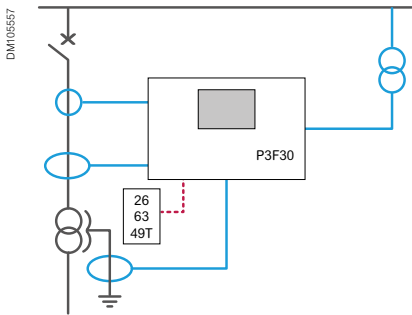
- Temperature measurement (ambient, oil)

#### Transformer feeder protection with voltage monitoring



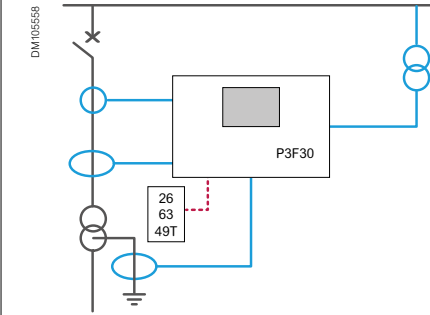
- Over and undervoltage protection

#### Transformer feeder protection with additional current measurement



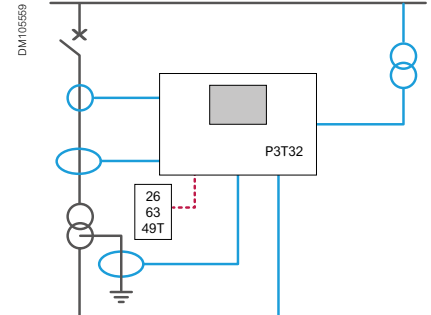
- Tank earth-leakage protection

#### Transformer feeder protection with differential function



- Earth-fault overcurrent on the secondary side

#### Transformer feeder protection with differential function



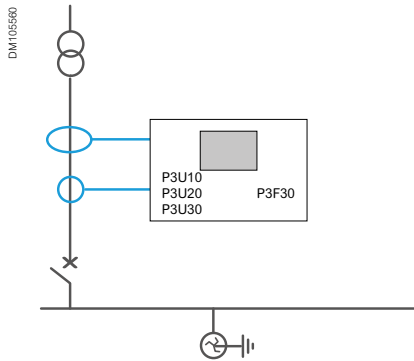
- Differential protection
- Restricted earth-fault protection (high impedance)



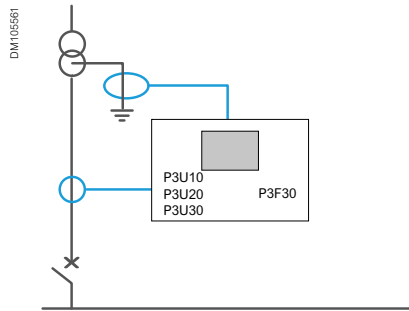
### Transformer incomer protection

- Busbar overcurrent protection
- Inter-trip from primary CB protection

#### Transformer incomer protection without voltage monitoring

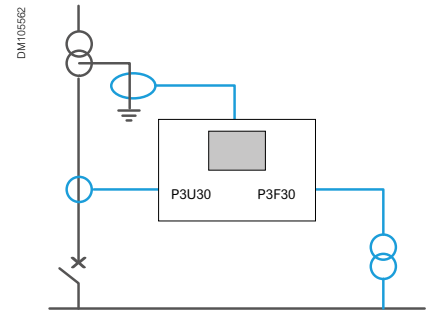


- Transformer earth-fault overcurrent



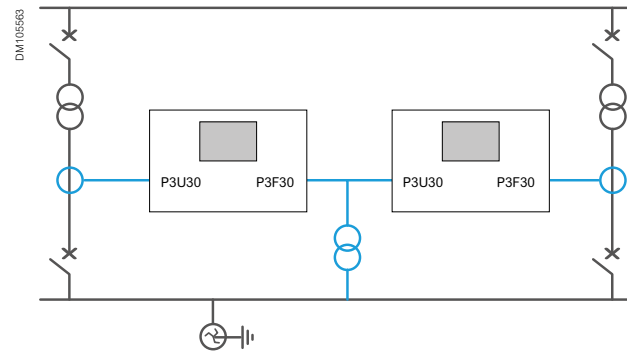
- Earth-fault overcurrent for transformer and back-up protection

#### Transformer feeder protection with voltage monitoring



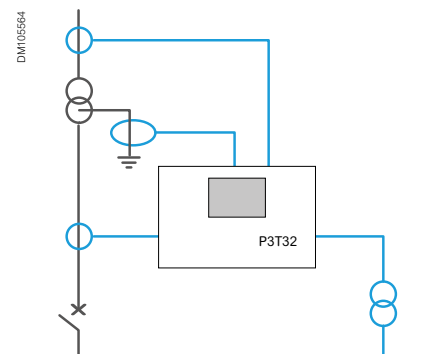
- Over and undervoltage protection
- Power and energy measurement
- Min and max demand values over the last 31 days and 12 months

#### Parallel transformer incomer protection



- Directional phase overcurrent

#### Transformer incomer protection with differential function overcurrent

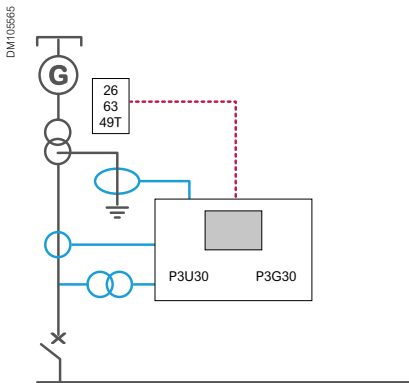


- Transformer differential overcurrent
- Restricted earth-fault overcurrent (high impedance)

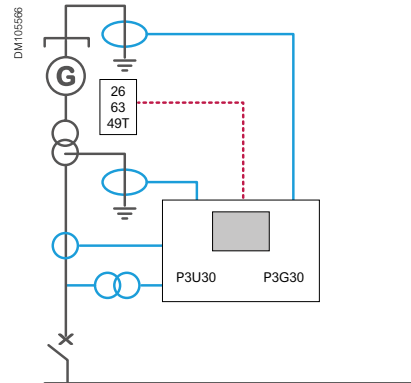
### Small generator transformer unit protection

- Overcurrent protection of the supplied network
- Voltage and frequency monitoring
- External trip from thermostat/Buchholz

#### Protection of a stand-alone generator-transformer unit

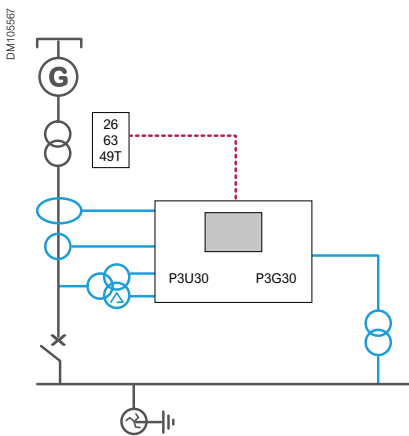


- Earth-fault overcurrent protection of the supplied network
- Note: monitoring of generator insulation must be ensured by another device

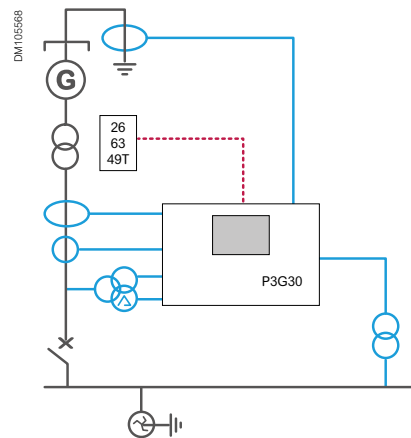


- Earth-fault overcurrent protection of the generator
- Earth-fault overcurrent protection of the supplied network

#### Protection of a generator-transformer unit coupled to another source



- Earth-fault overcurrent protection of the transformer
  - Neutral voltage displacement to detect transformer earth-fault when CB is open
  - Synchro-check
- Note: monitoring of generator insulation must be ensured by another device

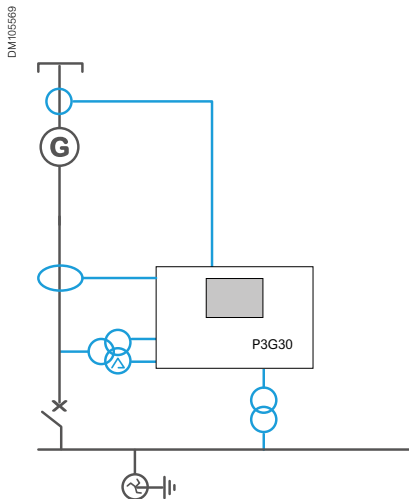


- Earth-fault overcurrent protection of the generator and the transformer
- Neutral voltage displacement to detect transformer earth-fault when CB is open
- Synchro-check

### Mid-size generator protection

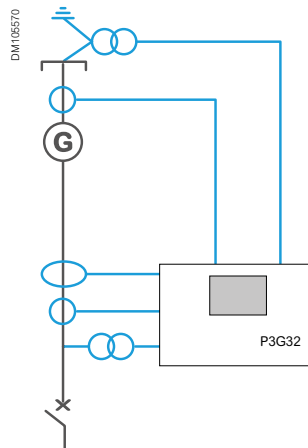
- Under-impedance
- Loss of field
- Voltage and frequency monitoring

#### Protection of a generator coupled to another source



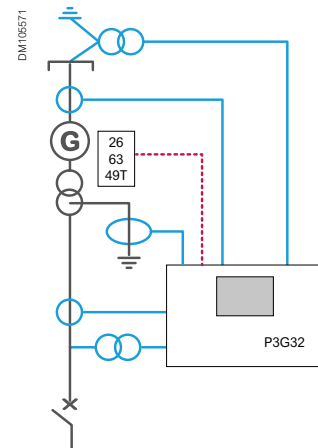
- Earth-fault overcurrent protection of the generator when coupled
- Neutral voltage displacement to detect generator earth-fault when CB is open
- Synchro-check

#### Generator protection with differential function



- Stator earth-fault detection
- Differential protection

#### Generator-transformer unit protection with differential function

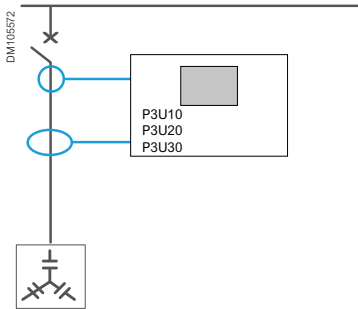


- Stator earth-fault detection
- Differential protection
- Restricted earth-fault protection (high impedance)

### Capacitor bank protection

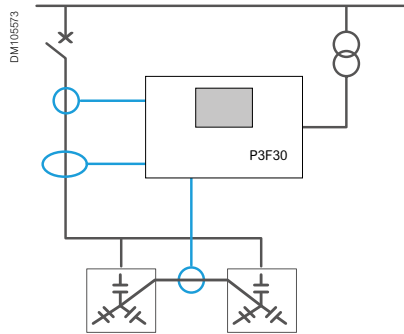
- Capacitor bank overcurrent and earth-fault protection
- Capacitor bank overload protection

#### Capacitor bank protection without voltage monitoring



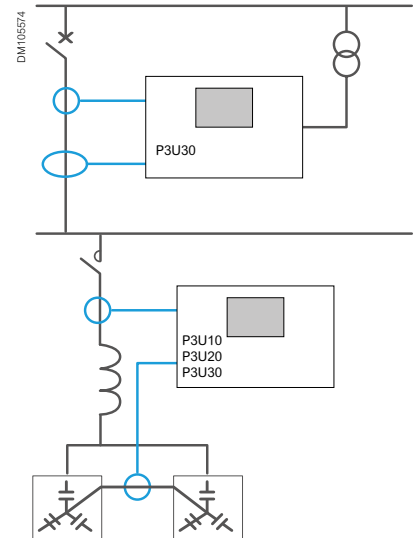
- Capacitor overvoltage protection, based on current measurement and harmonics
- Current harmonic values and THD

#### Capacitor bank protection with voltage monitoring

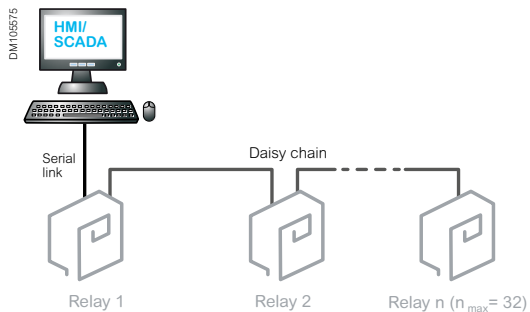


- Capacitor bank unbalance
- Overvoltage
- Current and voltage harmonic values and THD

#### Protection of harmonic filters



- Overvoltage
- Capacitor bank unbalance
- Capacitor overvoltage protection, based on current measurement and harmonics
- Current harmonic values and THD



### Connection to SCADA using serial line

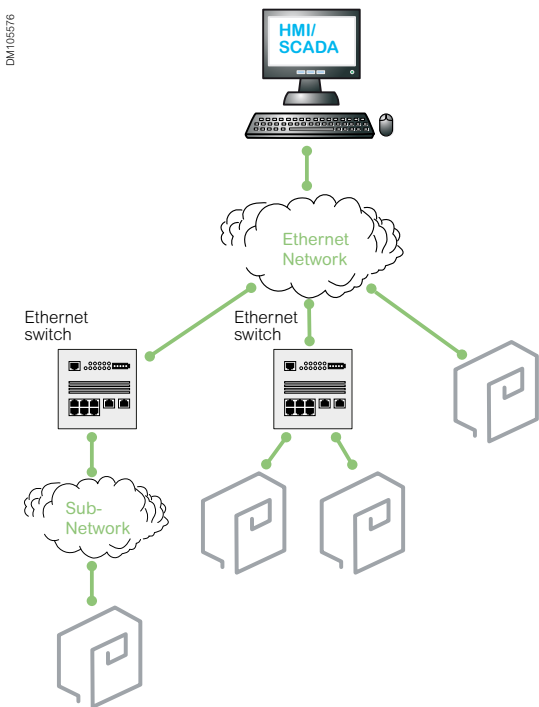
This architecture allows you to connect HMI/SCADA to a set of Easergy protection relays using a multi-drop serial communication link with master-slave communication.

**Available protocols:**

- Modbus RTU
- IEC 60870-5-101
- IEC 60870-5-103
- DNP3
- DeviceNet
- Profibus
- SPAbus

**Time synchronisation protocol:**

- IRIG-B
- Minute pulse



### Connection to SCADA using Ethernet

This architecture allows you to connect a set of Easergy protection relays directly to an Ethernet network.

**Available protocols:**

- IEC 61850
- IEC 60870-5-101
- DNP3
- Modbus
- EtherNet/IP

Note: It is possible to mix on the same Ethernet network the IEC 61850 protocol with any of the 4 other protocols.

This allows you to use the GOOSE messages between relays together with another protocol for communication to SCADA.

It is also possible to connect an Easergy relay to 2 different control systems, using the same Ethernet communication port and IEC 61850 protocol for one of them and any available protocol for the other one.

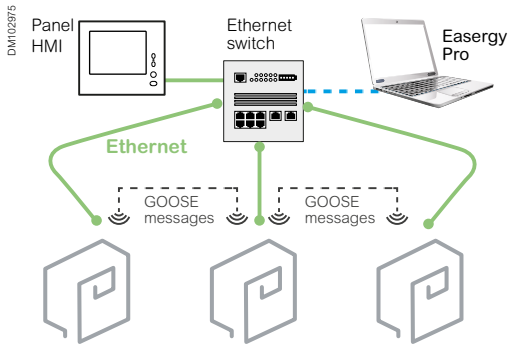
The Easergy P3 relay handles the IEC 61850 station bus, in compliance with standards IEC 61850-6, 7-1, 7-2, 7-3, 7-4 and 8-1 Ed.1 or Ed.2, according to configuration.

**Other available Ethernet protocols:**

- FTP for file transfer
- SNTP for time synchronization
- HTTP for web server

# Communication

## Example of communication



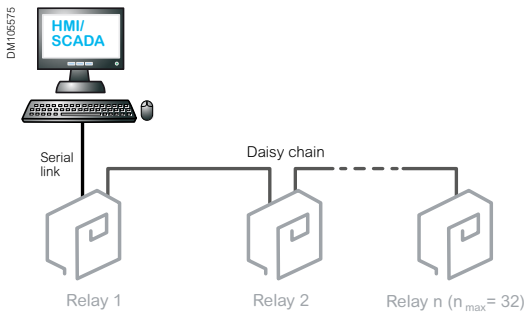
### Architecture example 1

#### Switchboard internal network

This architecture allows fast GOOSE communication between Easergy protection relays of the switchboard, thus avoiding costly wiring. Typical uses are logic discrimination, load shedding, etc.

In addition, a panel HMI featuring a web browser can be used to monitor and control the entire switchboard.

A spare connection on the panel Ethernet switch can also be provided for connecting the Easergy Pro.

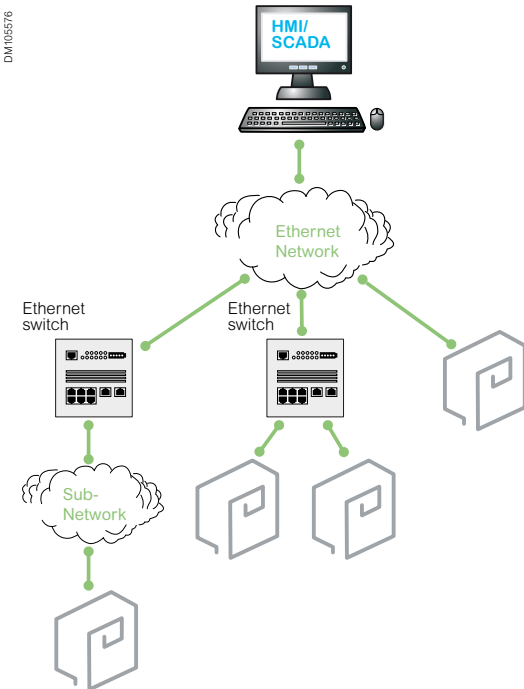


### Architecture example 2

#### Connection to SCADA using serial lines and legacy protocols

This architecture allows you to connect HMI/SCADA to a set of Easergy protection relays using a multi-drop serial communication link with master-slave communication protocols such as Modbus-RTU, DNP3, or IEC 61870-5-103.

The RS485 serial communication port of the Easergy protection relay enables simple daisy chaining wiring thanks to its 2 RJ45 connectors, suited for 2-wire or 4-wire cabling. A termination module is plugged into the last connection. As an alternative, the fiber optic serial communication port can be used.



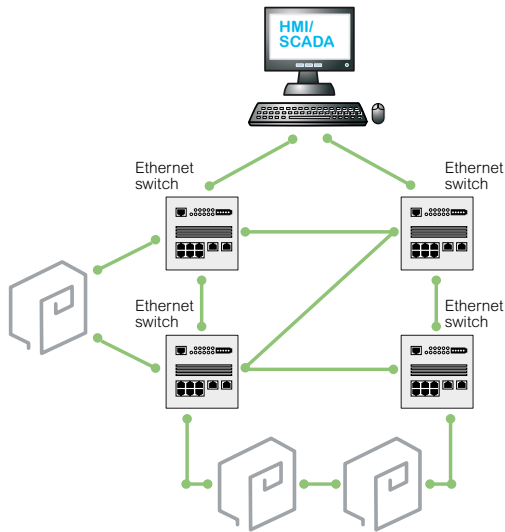
### Architecture example 3

#### Connection to HMI/SCADA using Ethernet with redundant paths

When using an Ethernet infrastructure for the system network, redundant paths are often created. This is usually a deliberate action to improve communication availability, but can also result from non-mastered and overly complicated network architectures.

Redundant paths, however, can result in loops that are not compatible with normal Ethernet operation because they permit frames to propagate endlessly, inducing a phenomenon known as "frame storm." Using such network topologies therefore requires the use of special management techniques.

DM105577

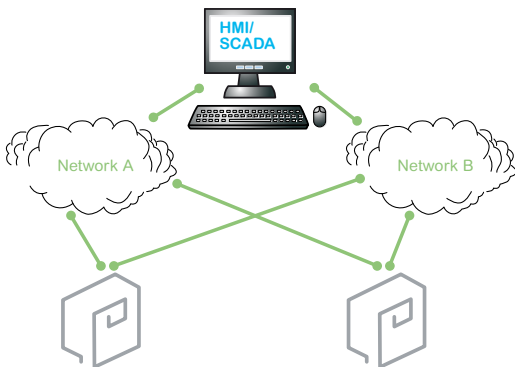


### RSTP (Rapid Spanning Tree Protocol)

The principle of RSTP is to virtually cut all links that are not necessary at a given time, changing the meshed topology into a tree topology.

The main advantage of RSTP is that it is widespread and works on any network topology. On the other hand, RSTP takes milliseconds or seconds to reconfigure the network in case of network interruption.

DM105578



### PRP (Parallel Redundancy Protocol)

The principle of PRP is to transmit frames in parallel on two independent network infrastructures: A and B.

The receiving device is in charge of eliminating the redundant frame if it is received.

PRP features a 0 ms recovery time in case of failure.

PRP is supported by Easergy P3 relays.

# Communication

Data exchanged between Easergy P3 and SCADA

## Ethernet ports

Protocol	IEC 61850	Ethernet/IP	FTP
<b>Real-time data</b>			
Measurement	•	•	-
Alarms and status	•	•	-
Controls	•	•	-
Time-stamped events	•	•	-
<b>Historical data</b>			
Disturbance records	•	-	•
<b>Setting management</b>			
Setting group change	•	•	-

## Serial Ports

Protocol	IEC 60870-5-103	DeviceNet	Profibus	SPAbus
<b>Real time data</b>				
Measurement	•	•	•	•
Alarms and status	•	•	•	•
Controls	•	•	•	•
Time-stamped events	•	•	•	•
<b>Historical data</b>				
Disturbance records	•	-	-	-
Sequence of event record files	•	-	-	-
<b>Setting management</b>				
Setting group change	•	•	•	•
Settings	-	-	-	•



# Communication

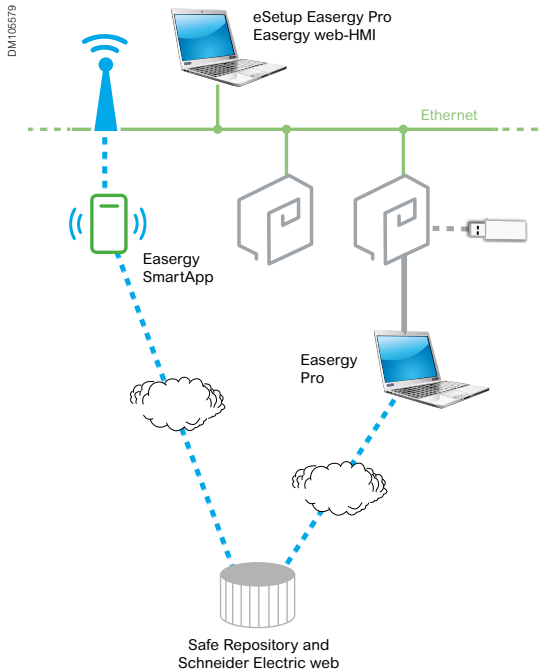
Data exchanged between  
Easergy P3 and SCADA

## Ethernet or Serial ports

Protocol	DNP3	IEC 60870-5-101	Modbus
<b>Real-time data</b>			
Measurement	•	•	•
Alarms and status	•	•	•
Controls	•	•	•
Time-stamped events	•	•	•
<b>Setting management</b>			
Setting group change	•	•	•

# Communication

## Engineering system and System configuration



### Engineering system

#### eSetup Easergy Pro

eSetup Easergy Pro can be connected to a single Easergy protection relay on the front USB port or to a group of Easergy protection relays via Ethernet.

eSetup Easergy Set allows you to prepare the configuration of the relay without having any physical relay. For this purpose, eSetup Easergy Pro provides the latest version of the configuration description file directly from the web.

#### Easergy SmartApp

Easergy SmartApp can be connected to the Easergy protection relays using a Wi-Fi router.

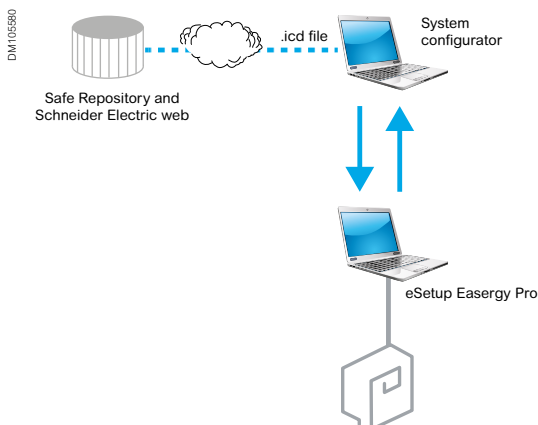
Easergy SmartApp is also connected to the safe repository, allowing you to access documents and store files downloaded from the relay.

#### Easergy web-HMI

In addition to eSetup Easergy Pro, most of the resources of the relay can be accessed with a standard web browser, using the web pages embedded into the relay.

### System configuration according to IEC 61850

The methodology described in IEC 61850-6 standard can be applied with Easergy protection relays to build a protection and control system based on this standard.



#### .icd file

When the configuration of an Easergy protection relay is done, setting tool can generate IED capability file. This file can be used by the system configurator.

# Communication

## Arc flash protection system by network communication

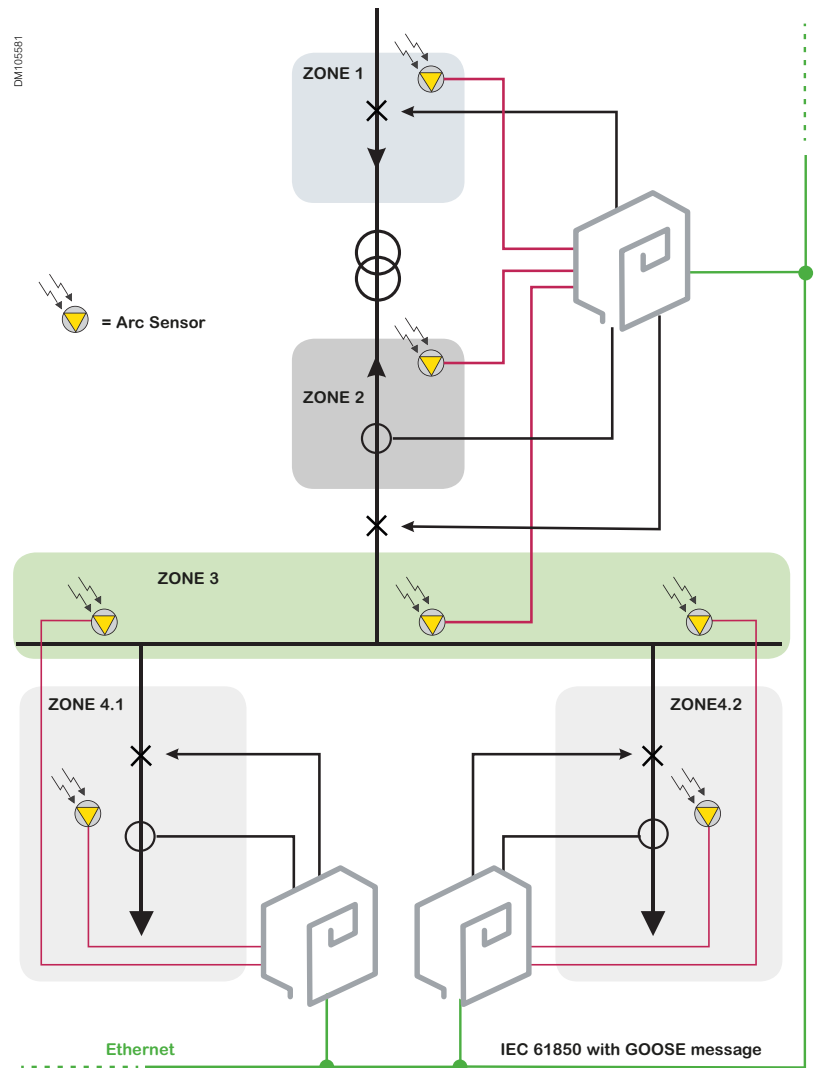
### Arc flash protection system: Application example

In this application example, the arc flash sensor for zone 4.1 is connected to Device 1. If the arc flash sensor awakens and simultaneously Device 3 sends a current signal, the zone 4.1 is isolated by the outgoing feeder breaker.

The arc flash sensor for zone 4.2 is connected to Device 2 and operates the same way.

The arc flash sensors for zone 3 are connected to Device 1, 2, or 3. If a sensor awakens in zone 3, the light-only signal is transferred to Device 3, which then trips the main circuit breaker.

An eventual arc flash fault in zone 1 or 2 does not necessarily activate the current element in Device 2. However, arc detection can be achieved by using the light-only principle. If an arc flash occurs in cable termination, zone 1, or zone 2, the fault is cleared by the upstream circuit breaker.



# Easergy P3 Standard

# Easergy P3 Standard

---

<a href="#">Presentation</a>	<a href="#">30</a>
<a href="#">Functional view</a>	<a href="#">32</a>
<a href="#">Base unit presentation</a>	<a href="#">35</a>
<a href="#">Local HMI</a>	<a href="#">35</a>
<a href="#">Rear panel connections</a>	<a href="#">36</a>
<a href="#">Base unit dimensions</a>	<a href="#">37</a>
<a href="#">Dimensions</a>	<a href="#">37</a>
<a href="#">Cut-out and mounting</a>	<a href="#">37</a>
<a href="#">Base unit characteristics</a>	<a href="#">38</a>
<a href="#">Technical characteristics</a>	<a href="#">38</a>
<a href="#">Environmental characteristics</a>	<a href="#">39</a>
<a href="#">Communication protocols</a>	<a href="#">41</a>
<a href="#">Programmable stages</a>	<a href="#">42</a>
<a href="#">Circuit breaker control</a>	<a href="#">43</a>
<a href="#">Connection diagram</a>	<a href="#">44</a>
<a href="#">Model selection</a>	<a href="#">47</a>

---

The Easergy P3 Standard protection relay has been developed to meet your standard protection needs for building, distribution utilities, and industrial applications. Thanks to its optimized and flexible design, the Easergy P3 Standard provides an excellent solution for various protection applications.

The user-friendly Easergy P3 Standard brings greater efficiency to your operations by enabling rapid ordering, configuration, and operations for an unparalleled digital experience

## Easergy P3 Standard at a glance

### Universal

- All-in-one box with feeder, transformer, and motor protections
- All communication protocols embedded on serial and Ethernet links including IEC 61850 ed.1 and ed. 2

### Robust

- Best-in class reliability based on 100+ years of experience in Sepam, MiCOM and Vamp relays
- Strong tests performed in international laboratories
- Compliant to IEC electro-mechanical standards

### Efficient and connected

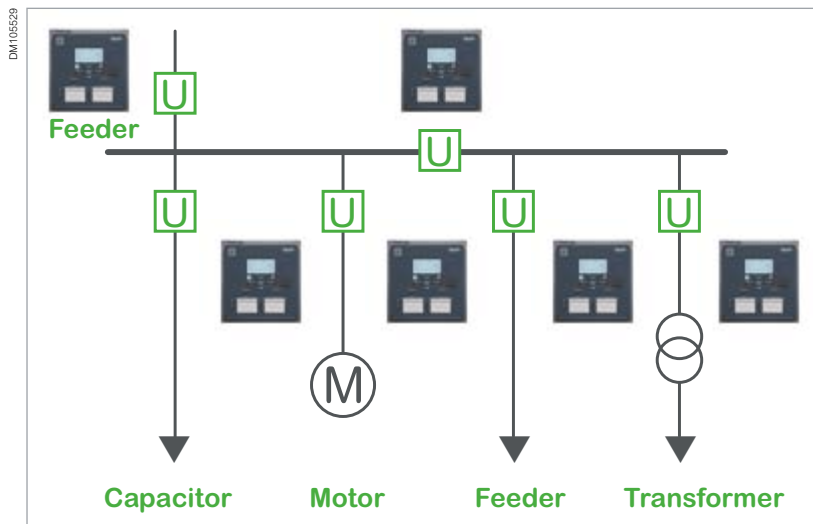
- Easy to order with 10 standard configurations delivered off the shelf in less than 7 days (location dependent)
- Easy to configure with the unique eSetup Easergy Pro setting software
- Easy to test with the virtual simulation test for direct injection of current and voltage from eSetup Easergy Pro
- Easy to install with withdrawable rear connectors with CT shortening
- Easy to use and maintain with the embedded web-HMI and Easergy SmartApp for direct access on site via your laptop, smartphone, or tablet.

PM106572



*Easergy P3 Standard  
with panel seal cover  
REL52833*

Easergy P3 is designed to cover all the standard applications with only one device: the Universal Protection.



Easergy P3 Standard is available in **3 models**:

Model	Communication	Main advantages
<b>Easergy P3U10</b> <ul style="list-style-type: none"> <li>• 4 CT / 1VT</li> <li>• 2 DI / 5 DO</li> </ul>	Stand-alone device, without communication ports	<b>Simplicity</b> , while allowing the latest features, like single-line diagrams (mimics), programmable protection stages, logics and function keys
<b>Easergy P3U20</b> <ul style="list-style-type: none"> <li>• 4 CT / 1VT</li> <li>• 10 DI / 5 DO</li> </ul>	Open communication protocols on serial or Ethernet links, with IEC 61850	<b>Openness to IEC 61850</b> , while keeping the core functionalities of Easergy P3 Standard relay
<b>Easergy P3U30</b> <ul style="list-style-type: none"> <li>• 4 CT / 4VT</li> <li>• 16 DI / 8 DO</li> </ul>	Open communication protocols on serial or Ethernet links, with IEC 61850	<b>Wide scope of possibilities</b> , with the directional protection, synchro-check, fault location, and increased number of input and outputs

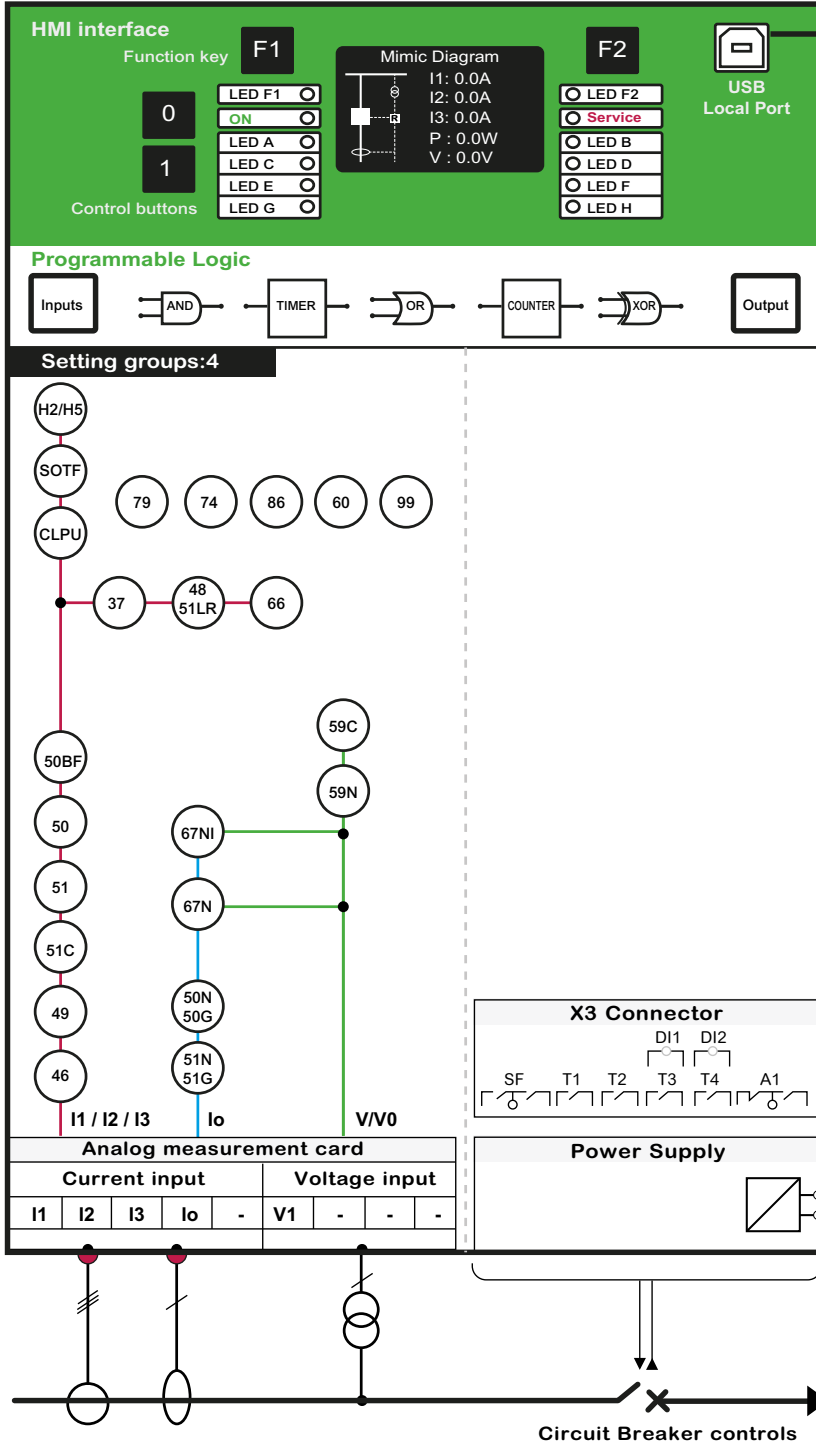
**A common set of functions** extends the possibilities of protection and control:

- Single-line diagrams (mimic) in the display
- Programmable protection stages
- Programmable logics
- 2 programmable function keys
- Synchro-check function
- Direct-access USB port
- Up to 6 objects controlled

DM105853

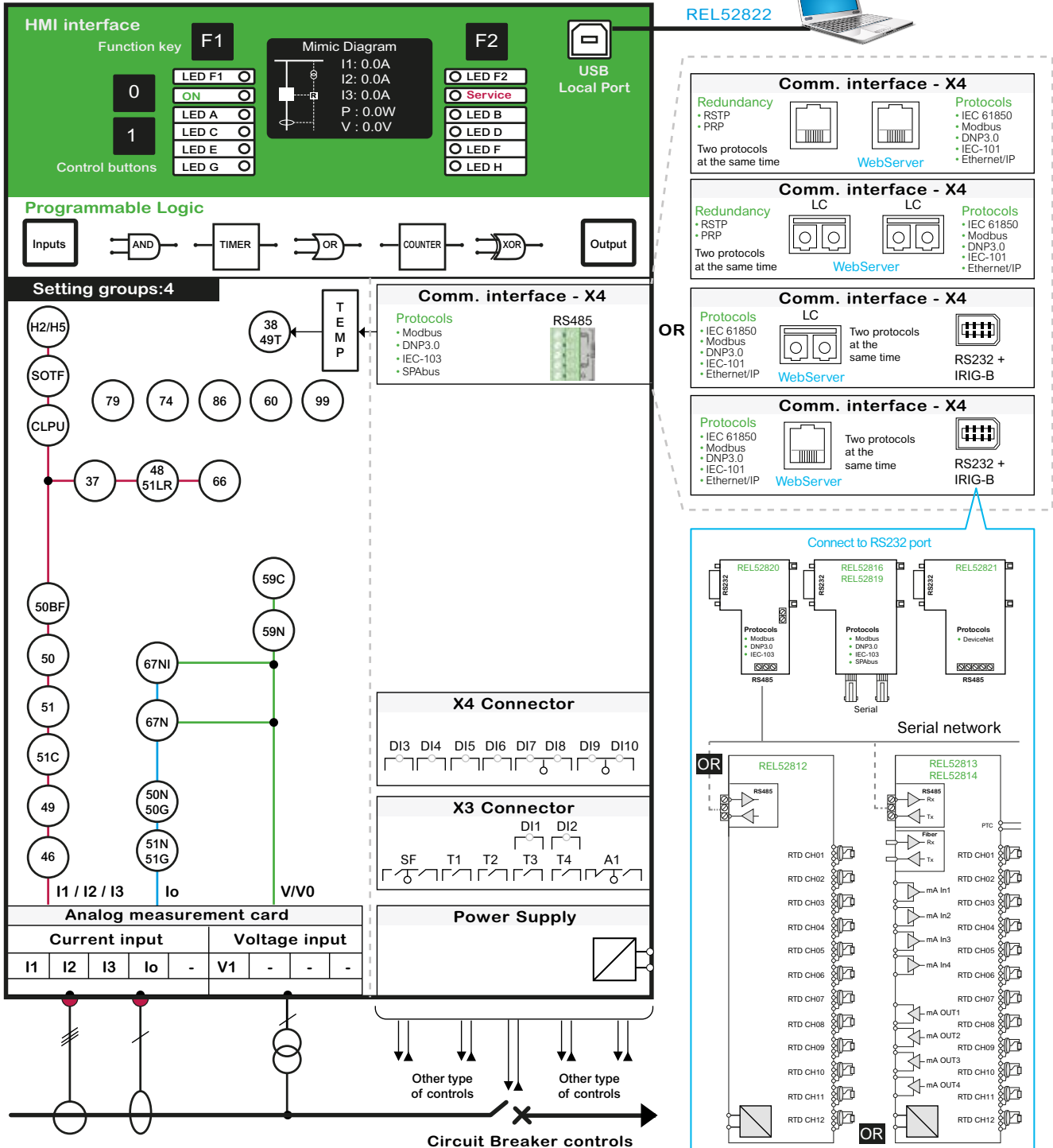


REL52822

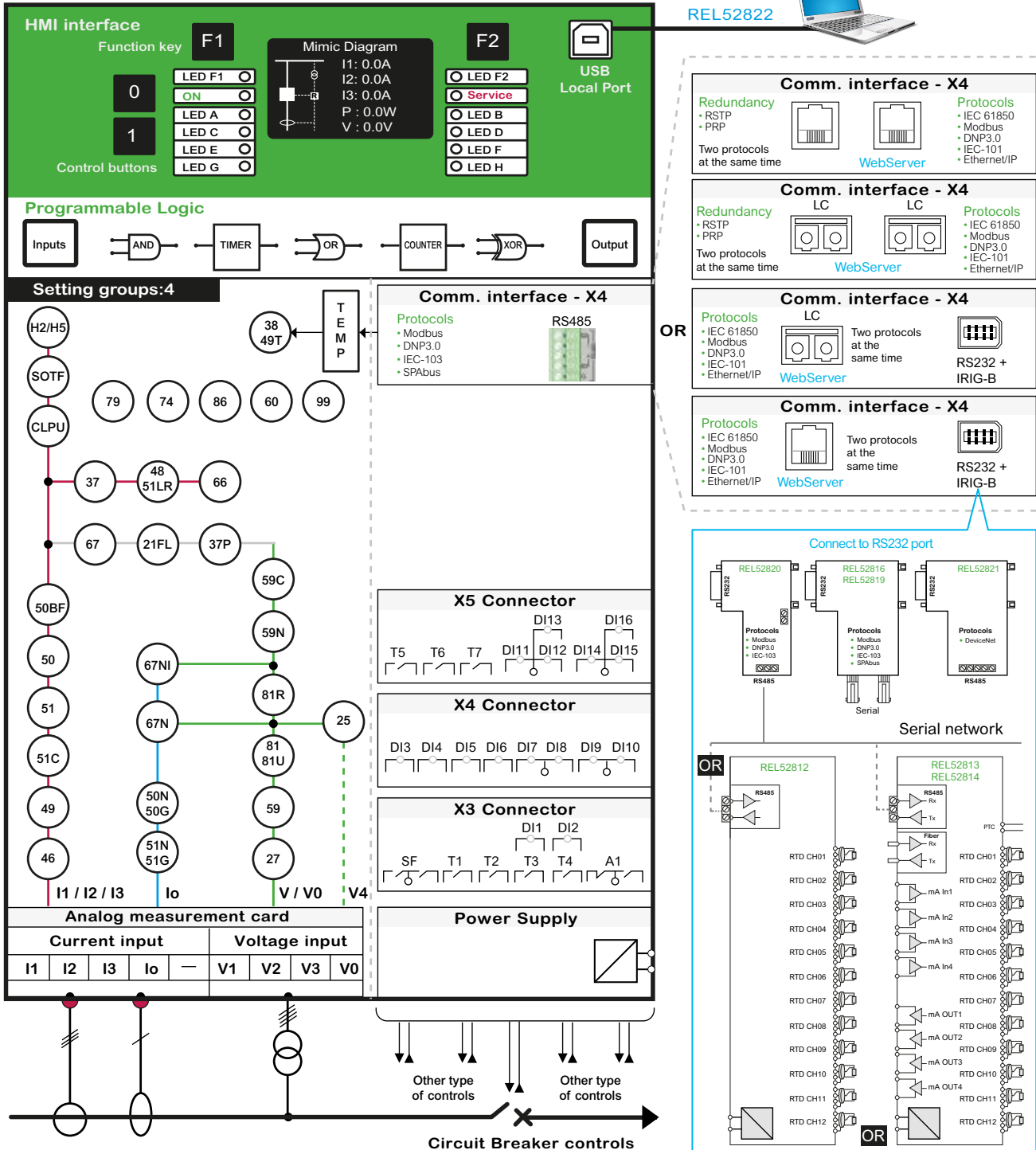




DM105584

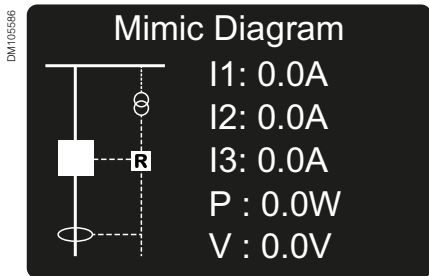


DM105585



# Base unit presentation

## Local HMI



Single-line diagram of the power system

## Comprehensive data for fast and easier operation

All the data required for a local equipment operation may be displayed on demand:

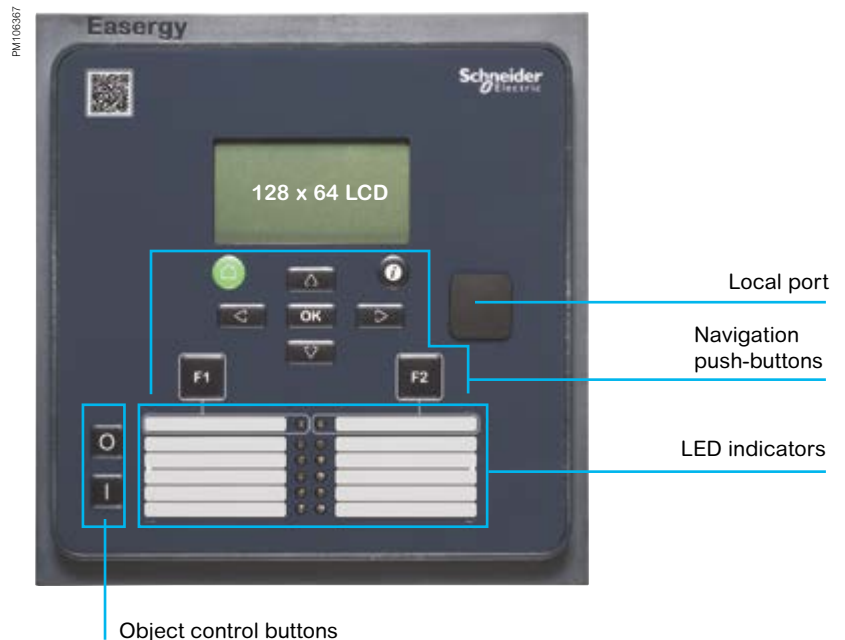
- Display the single-line diagram and freely assignable analog values
- Display of all measurements
- Display of operation and alarm messages
- Display and setting of all parameters
- Entry of password to protect parameter and protection settings

## Ergonomic data presentation

- Keypad keys identified by pictograms for intuitive navigation
- Graphical 128x64 LCD screen to display any character or symbol
- Excellent display quality under all lighting conditions
- Control buttons (0/1) to operate the circuit breaker and/or other controlled object
- 8 freely programmable LEDs to identify easily the message showed
- Labels are printed on a transparent film allowing customization of the relay
- Programmable function key (F1 / F2)

### Front panel: Control and push-buttons

- INFO push-button for viewing additional information, entering the password view, and adjusting the LCD contrast
- F1 Programmable function push-button
- F2 Programmable function push-button
- ENTER push-button for activating or confirming a function
- UP navigation push-button for moving up in the menu or increasing a numerical value
- DOWN navigation push-button for moving down in the menu or decreasing a numerical value
- LEFT navigation push-button for moving backwards in a parallel menu or selecting a digit in a numerical value
- RIGHT navigation push-button for moving forwards in a parallel menu or selecting a digit in a numerical value
- Circuit breaker OFF push-button
- Circuit breaker ON push-button
- HOME/CANCEL push-button for returning to the previous menu. To return to the first menu item in the main menu, press the button for at least three seconds



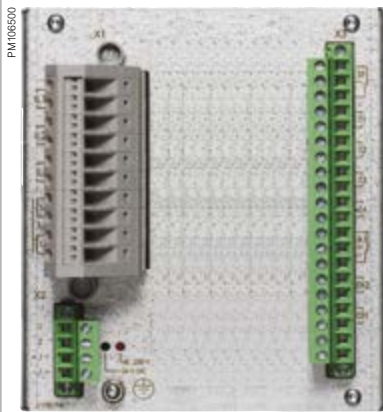
## Working language

All the texts and messages displayed on the Easergy P3U are available in two languages at the same time. Consult us for availability.

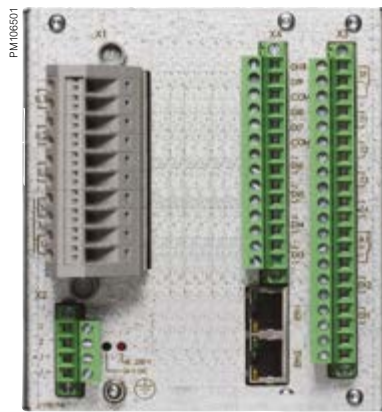
# Base unit presentation

## Rear panel connections

### Rear panels views



Easergy P3U10

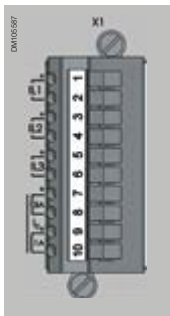


Easergy P3U20

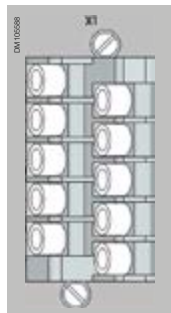


Easergy P3U30

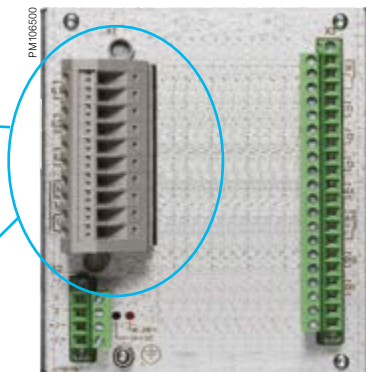
### Withdrawable connectors



Optional terminal X1:  
Pluggable screw  
clamp connector



Optional terminal X1:  
Pluggable ring-lug connector



## Cut-out and mounting

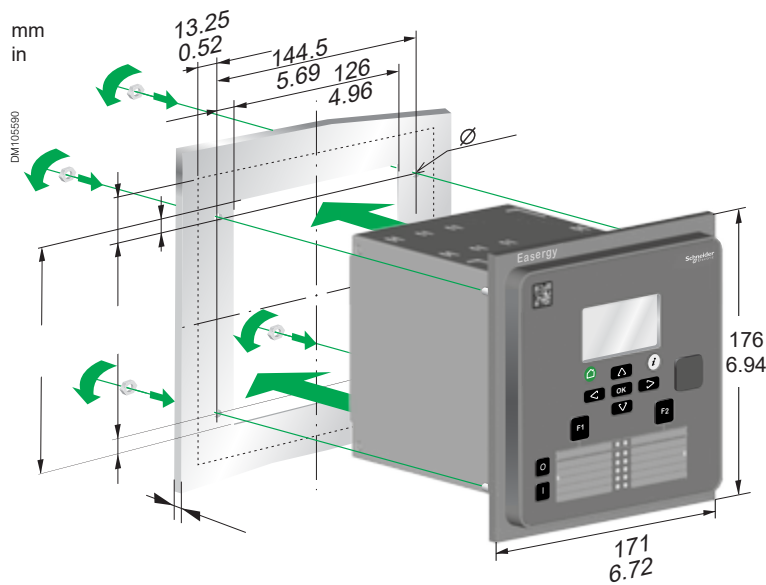
Cut-out accuracy must be complied with to ensure good withstand.

**Weight (maximum)**

Easergy P3U10 / P3U20 / P3U30 2.5 Kg (5.519 lb)

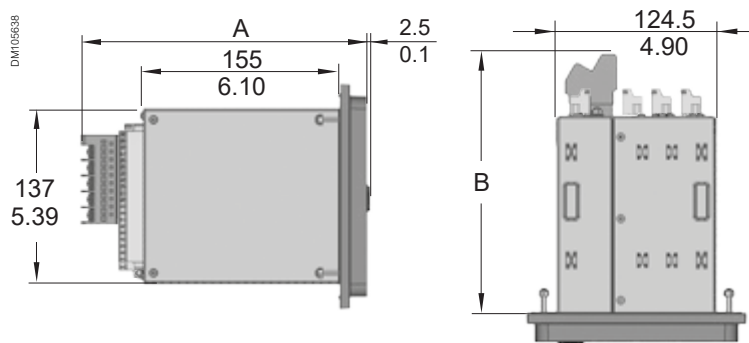
**Degree of protection (IEC 60529)**

IP54 Front panel / IP20 Rear side



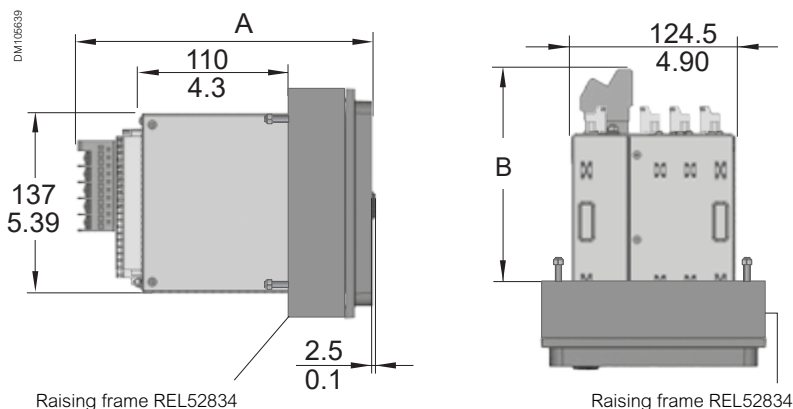
### Panel mounting

	A	B
With screw connector	214 mm / 8.43"	192 mm / 7.6"
With ring-lug connector	226 mm / 8.90"	204 mm / 8.0"



### Projection mounting with the raising frame REL52834

	A	B
With screw connector	214 mm / 8.43"	147 mm / 8.8"
With ring-lug connector	226 mm / 8.90"	159 mm / 6.2"



## Analog inputs

	Measuring range	Input Impedance	Consumption	Rated thermal withstand	1-second overload	10-second overload
Phase Current Input 5A CT Configurable for CT secondaries 1 to 10A	0.05 – 250 A	0.003 Ohm	0.075 VA	20 A (Continuously)	500 A	100 A
Residual Current Input (IO) 5A CT Configurable for CT secondaries 0.1 to 10A	0.015 – 50 A	0.003 Ohm	0.075 VA	20 A (Continuously)	500 A	100 A
Residual Current Input (IO) 1A CT Configurable for CT secondaries 0.1 to 10.0A	0.003 – 10 A	0.02 Ohm	0.02 VA	4 A (Continuously)	100 A	20 A
Residual Current Input (IO) 0.2A CSH sensor Configurable for CT secondaries 0.1 to 10.0A	0.0006 – 2 A	0.02 Ohm	0.02 VA	0.8 A (Continuously)	20 A	4 A
Voltage Input Configurable for VT secondaries 50 to 120V	0.5 – 190 V (100 V / 110 V)	n.a.	< 0.5 VA	250V (Continuously)	n.a.	600 V

## Analog temperature input and Analog output

Type of temperature sensor	Pt100	Ni100	Ni120	Cu10
Maximum distance between sensor and module	up to 2,000 m <sup>(1)</sup>	up to 2,000 m <sup>(1)</sup>	up to 2,000 m <sup>(1)</sup>	up to 2,000 m <sup>(1)</sup>
Analog Output	Minimum current	0 mA		
	Maximum current	20 mA		
Operating temperature:	0°C (32°F) to +55°C (131°F)			
Power supply	REL52811 / REL52812	24 to 230 Vac/dc, 50/60 Hz		
	REL52813	24 Vdc		
	REL52814	48 to 230 ac/dc, 50/60 Hz		

## Digital Input

Nominal operation voltage	DI1 to DI16	24 to 230 V ac/dc	110 to 230 V ac/dc	220 to 230 V ac/dc
Typical switching threshold		12 V dc	75 V dc	155 V dc
Input limit voltage	At state 1	≥ 19.2 V dc	≥ 88 V dc	≥ 176 V dc
	At state 0	< 10.0 V dc	< 60 V dc	< 140 V dc
Frequency		45 to 65 Hz	45 to 65 Hz	45 to 65 Hz
Typical consumption		<4 mA (typical approx. 3 mA)		
Voltage withstand		255 V ac/dc		

## Digital Output

Type of contact	Control and Trip contact, Tx	Signal contact, A1	Signal Contact, SF	
Rated Voltage	250 V ac/dc	250 V ac/dc	250 V ac/dc	
Continuous current	5 A	5 A	5 A	
Breaking capacity	AC	2,000 VA	2,000 VA	
	DC (L/R=40ms)	at 48 V dc	1 A	1 A
		at 110 V dc	0.5 A	0.3 A
		at 220 V dc	0.25 A	0.15 A
Making capacity	< 0.5 s	30 A	-	
	< 3.0 s	15 A	-	
Minimum making capacity	100 mA @ 24 Vac/dc	100 mA @ 24 Vac/dc	100 mA @ 24 Vac/dc	
Typical operation time	<8 ms	-	-	
Contact material	AgNi 90/10	AgNi 0.15 gold plated	AgNi 0.15 gold plated	

## Power supply

Nominal Voltage	48 to 230 Vac/dc	24 Vdc
Range	-20% / +10% (40 to 253 Vac/dc)	-20% / +20% (19.2 to 28.8 Vdc)
Inrush current (DC)	25 A with time constant of 1000 µs	
	25 A with time constant of 750 µs	
	15 A with time constant of 500 µs	
Power consumption	Normal conditions	<15 W (<30 VA)
	Output relays activated	<25 W (<50 VA)
Acceptable momentary outages	<50 ms (110 V dc)	

(1) 78,750 in

## Electromagnetic compatibility

	Standard and test class/level	Test value
<b>Emission tests</b>		
IEC/EN 60255-26 (ed3)		
Conducted	EN 55022, Class A / CISPR 22	0.15 – 30 MHz
Emitted	EN 55011, Class A / CISPR 11	30 – 1000 MHz
<b>Immunity</b>		
IEC/EN 60255-26 (ed3)		
1 Mhz damped oscillatory wave	IEC/EN 61000-4-18	±2.5kVp CM ±2.5kVp DM
Static discharge (ESD)	IEC/EN 61000-4-2 Level 4	±8 kV contact ±15 kV air
Emitted HF field	IEC/EN 61000-4-3 Level 3	80 - 2700 MHz, 10 V/m
Fast transients (EFT)	IEC/EN 61000-4-4 Level 4	±4 kV, 5/50 ns, 5 kHz
Surge	IEC/EN 61000-4-5 Level 3	±2 kV, 1.2/50 µs, CM ±1 kV, 1.2/50 µs, DM
Conducted HF field	IEC/EN 61000-4-6 Level 3	0.15 – 80 MHz, 10 Vrms
Power-frequency magnetic field	IEC/EN 61000-4-8	300 A/m (continuous) 1000 A/m 1 – 3s
Pulse magnetic field	IEC/EN 61000-4-9 Level 5	1000A/m, 1.2/50 µs
ac and dc voltage dips	IEC/EN 61000-4-29, IEC/EN 61000-4-11	0% of rated voltage <ul style="list-style-type: none"> <li>ac: ≥ 0.5 cycle</li> <li>dc: ≥ 10 ms 40% of rated voltage</li> <li>ac: 10 cycles</li> <li>dc: 200 ms 70% of rated voltage</li> <li>ac: 25 cycles</li> <li>dc: 500 ms</li> </ul>
ac and dc voltage interruptions	IEC/EN 61000-4-29, IEC/EN 61000-4-11	100% interruption <ul style="list-style-type: none"> <li>ac: 250 cycles</li> <li>dc: 5 s</li> </ul>
Voltage alternative component	IEC/EN 61000-4-17	15% of operating voltage (dc) / 10 min

## Mechanical robustness

	Standard and test class/level	Test value
<b>In operation</b>		
Vibrations	IEC 60255-21-1, Class II / IEC 60068-2-6, Fc	1 Gn, 10 Hz – 150 Hz
Shocks	IEC 60255-21-2, Class II / IEC 60068-2-27, Ea	10 Gn / 11 ms
Seismic	IEC 60255-21-3 Method A, Class II	2G horizontal / 1G vertical , 1–35 Hz
<b>De-energized</b>		
Vibrations	IEC 60255-21-1, Class II / IEC 60068-2-6, Fc	2 Gn, 10 Hz – 150 Hz
Shocks	IEC 60255-21-2, Class II / IEC 60068-2-27, Ea	30 Gn / 11 ms
Bump	IEC 60255-21-2, Class II / IEC 60068-2-27, Ea	20 Gn / 16 ms

## Environment tests

	Standard and test class/level	Test value
<b>In operation</b>		
Dry heat	EN / IEC 60068-2-2, Bd	70°C (158°F)
Cold	EN / IEC 60068-2-1, Ad	-40°C (-40°F)
Damp heat, cyclic	EN / IEC 60068-2-30, Db	From 25°C (77°F) to 55°C (131°F) From 93% RH to 98% RH Testing duration: 6 days
Damp heat, static	EN / IEC 60068-2-78, Cab	40°C (104°F) 93% RH Testing duration: 10 days
Change of temperature	IEC / EN 60068-2-14, Nb	Lower temp -40°C (-40°F) Upper temp 70°C (158°F) 5 cycles
<b>In storage</b>		
Dry heat	EN / IEC 60068-2-2, Bb	70°C (158°F)
Cold	EN / IEC 60068-2-1, Ab	-40°C (-40°F)

## Environmental conditions

Ambient temperature, in-service	-40 – 60°C (-40 – 140°F)
Ambient temperature, storage	-40 – 70°C (-40 – 158°F)
Relative air humidity	< 95%, no condensation allowed
Maximum operating altitude	2000 m (6561.68 ft)

## Safety

	Standard and test class/level	Test value
<b>Electrical safety tests</b>		
Impulse voltage withstand	IEC/EN 60255-27	5 kV, 1.2/50 µs, 0.5 J 1 kV, 1.2/50 µs, 0.5 J Communication
Dielectric test	IEC/EN 60255-27	2 kV, 50 Hz 0.5 kV, 50 Hz Communication
Insulation resistance	IEC/EN 60255-27	
Protective bonding resistance	IEC/EN 60255-27	
Clearance and creepage distance	Design criteria for distances as per IEC 60255-27 Annex C (pollution degree 2, overvoltage category 3)	
Power supply burden	IEC 60255-1	



Easergy P3 Standard can be connected to networks, thus providing access to the following type of data:

- Events
- Status information
- Measurements
- Control commands
- Clock synchronizing
- Settings (SPA-bus and embedded SPA-bus only)

PM103932



Easergy SmartApp.

## Main protocols

Easergy P3 Standard can be connected directly to serial and/or Ethernet protocols with two different protocols at the same time, selected by eSetup Easergy Pro software.

### Communication protocols:

#### Serial protocols - RS232 / RS485 / serial Fiber Optic (\*) port

- Modbus RTU
- DNP3.0
- IEC 60870-5-101
- IEC 60870-5-103
- DeviceNet (\*)
- ProfibusDP (\*)
- SPA-Bus (\*)

#### Ethernet protocols - RJ45 / LC port

- IEC61850 ed1 & ed2
- Modbus TCP
- DNP3.0
- IEC60870-5-101
- Ethernet IP

### Communication ports:

<b>Redundancy</b> • RSTP • PRP Two protocols at the same time	<b>Comm. interface - X4</b> LC LC  WebServer	<b>Protocols</b> • IEC 61850 • Modbus • DNP3.0 • IEC-101 • Ethernet/IP
<b>Protocols</b> • IEC 61850 • Modbus • DNP3.0 • IEC-101 • Ethernet/IP	<b>Comm. interface - X4</b> LC Two protocols at the same time  WebServer	<b>RS232 + IRIG-B</b> 
<b>Redundancy</b> • RSTP • PRP Two protocols at the same time	<b>Comm. interface - X4</b>  WebServer	<b>Protocols</b> • IEC 61850 • Modbus • DNP3.0 • IEC-101 • Ethernet/IP
<b>Protocols</b> • IEC 61850 • Modbus • DNP3.0 • IEC-101 • Ethernet/IP	<b>Comm. interface - X4</b>  WebServer	<b>RS232 + IRIG-B</b> 
<b>Protocols</b> • Modbus • DNP3.0 • IEC-103 • SPAbus	<b>Comm. interface - X4</b>  RS485	

\*Need external accessories to connect.

PM103576



Easergy web-HMI

## Redundancy protocols (RSTP or PRP)

When the devices are connecting in Ethernet link and demand for higher availability, Easergy P3 Standard can use Rapid Spanning Tree Protocol (RSTP) or Parallel Redundancy Protocol (PRP) to recover from a network failure.

## Easergy P3 web-HMI

A webserver is available in Easergy P3 Standard to get information from the device to monitor all data, send commands, and change protection settings.

# Programmable stages

## Programmable protection function

### Personalize your protection function

Easergy P3 Standard allows you to create or personalize the protection function when you need to achieve specific levels of protection.

There are now eight stages available to use with various applications. Each stage can monitor any analog (measured or calculated) signal and issue start and trip signals. Programmable stages extend the protection functionality of the manager series to a new level. The Programmable stage has the possibility of comparing two freely selectable signals between each other. Using this feature you can create a comparison function using the relay's own measured or calculated signals. One or both of the signals can be connected to the comparison function over GOOSE.

For example, if four stages of frequency are not enough, it is possible to reach a maximum of 12 using programmable stages. Other examples include using the stages to issue an alarm when there are too many harmonics (THD) or indicating reverse power condition by GOOSE.



EM100170

With Easergy P3 Standard, you get intuitive functionality to protect your electrical network system.

Main CB functions are:

- Trip circuit supervision (ANSI 74)
- CT/VT supervision (ANSI 60/60FL)
- Latching (ANSI 86)
- CB close/open order
- Number of operations
- Cumulative breaking current
- Personalized functions

## Maximize circuit breaker control

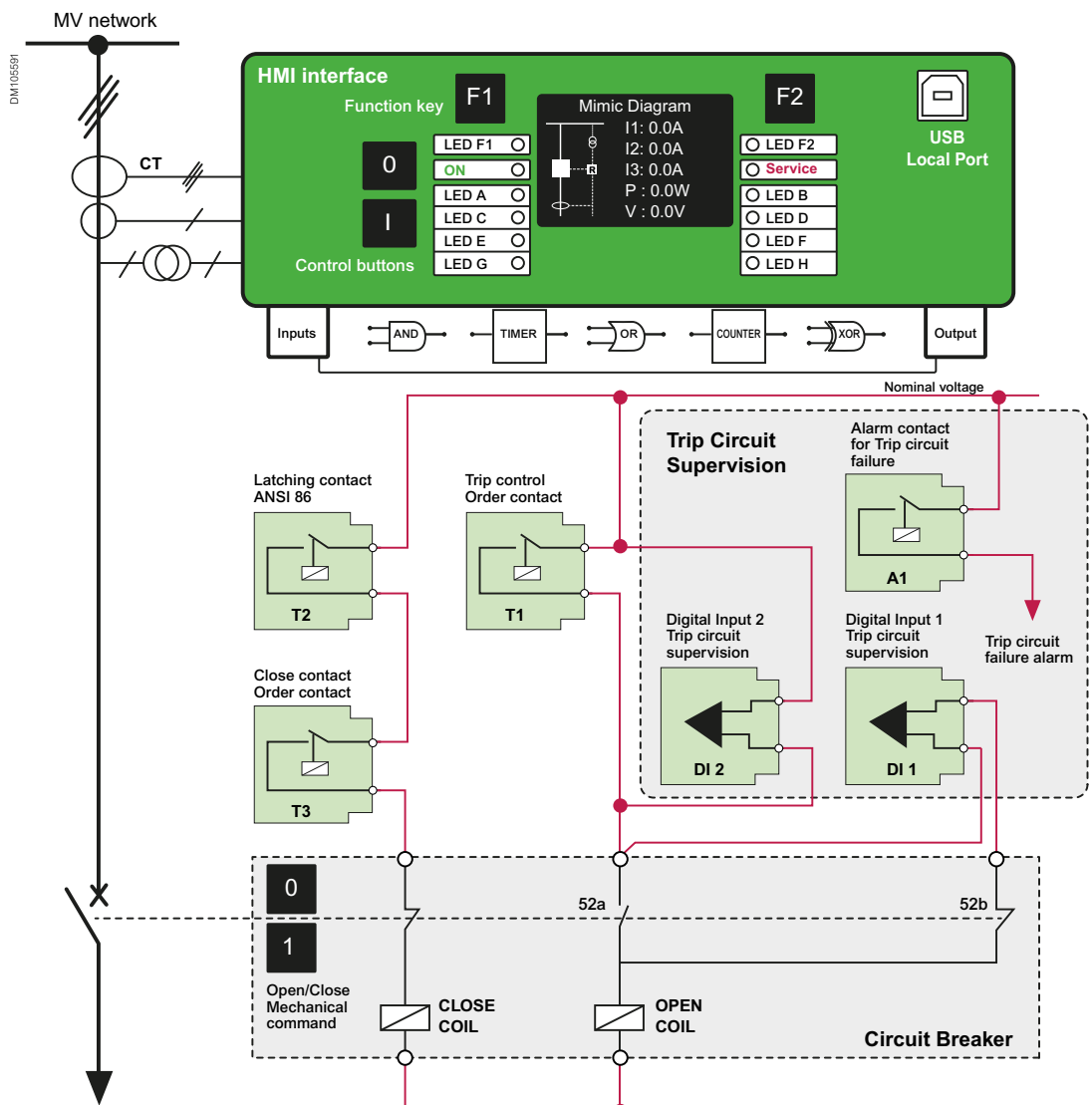
Easergy P3 Standard is a simple protection relay with a single-line diagram with control buttons (open and close), two personalized function keys, and eight configurable tricolor LEDs.

You can manage the control without external or additional component.

### Example of implementation

The schematic is structured for typical use in MV switchgears, 100% adapted for your use case. You are free to change the internal logic to adapt the Easergy P3 Standard to follow your needs.

If a problem occurs, clear and complete information puts you able to make the right decisions immediately.



This electrical schematic can facilitate the IEC 61850 implementation because all the logics are determined by the protection unit that will make the decisions and if necessary can send GOOSE messages to other units.

# Connection diagrams

## Easergy P3U30 example

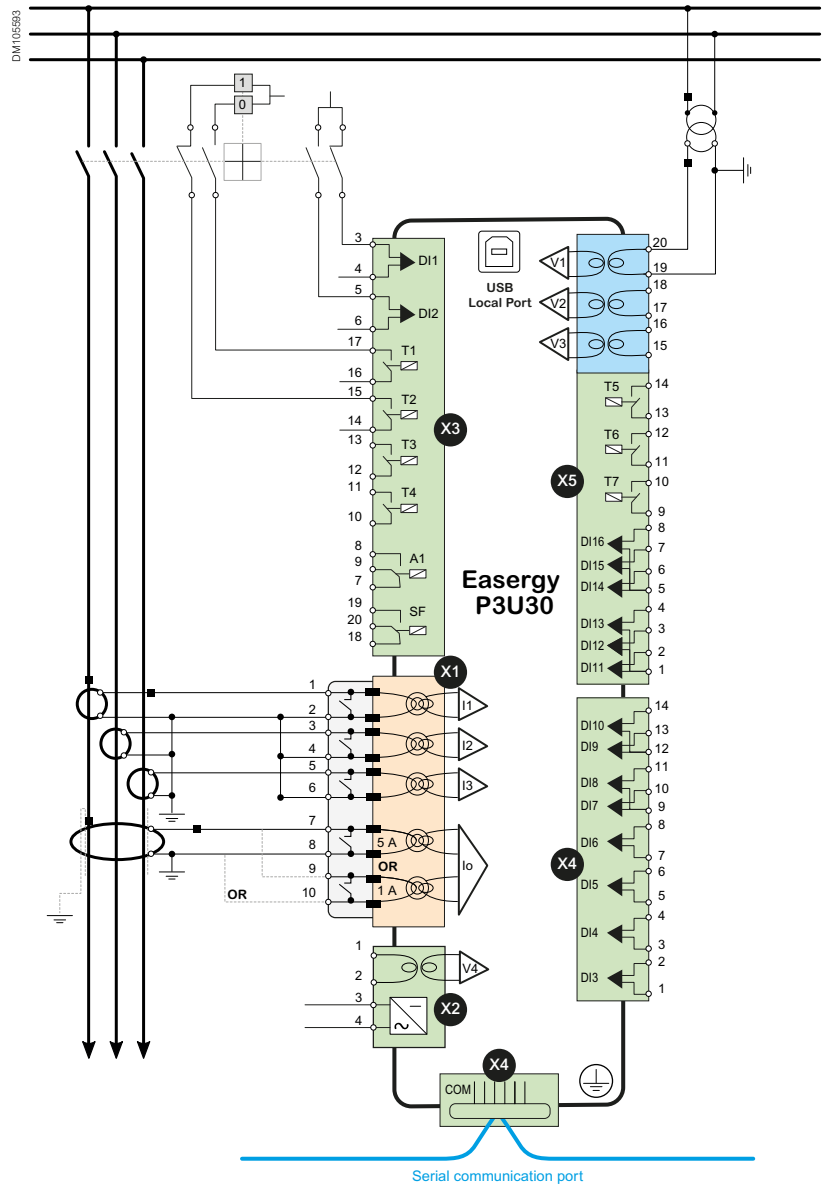
**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, ELECTRIC ARC OR BURNS**

- only qualified personnel should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- turn off all power supplying this equipment before working on or inside it. Consider all sources of power, including the possibility of backfeeding.
- always use a properly rated voltage sensing device to confirm that all power is off.
- start by connecting the device to the protective earth and to the functional earth.
- screw tight all terminals, even those not in use.

**Failure to follow these instructions will result in death or serious injury.**

Application with 3 phase CTs, 1 earth CT, 1 VT and CB control



# Connection diagrams

## Easergy P3U30 example

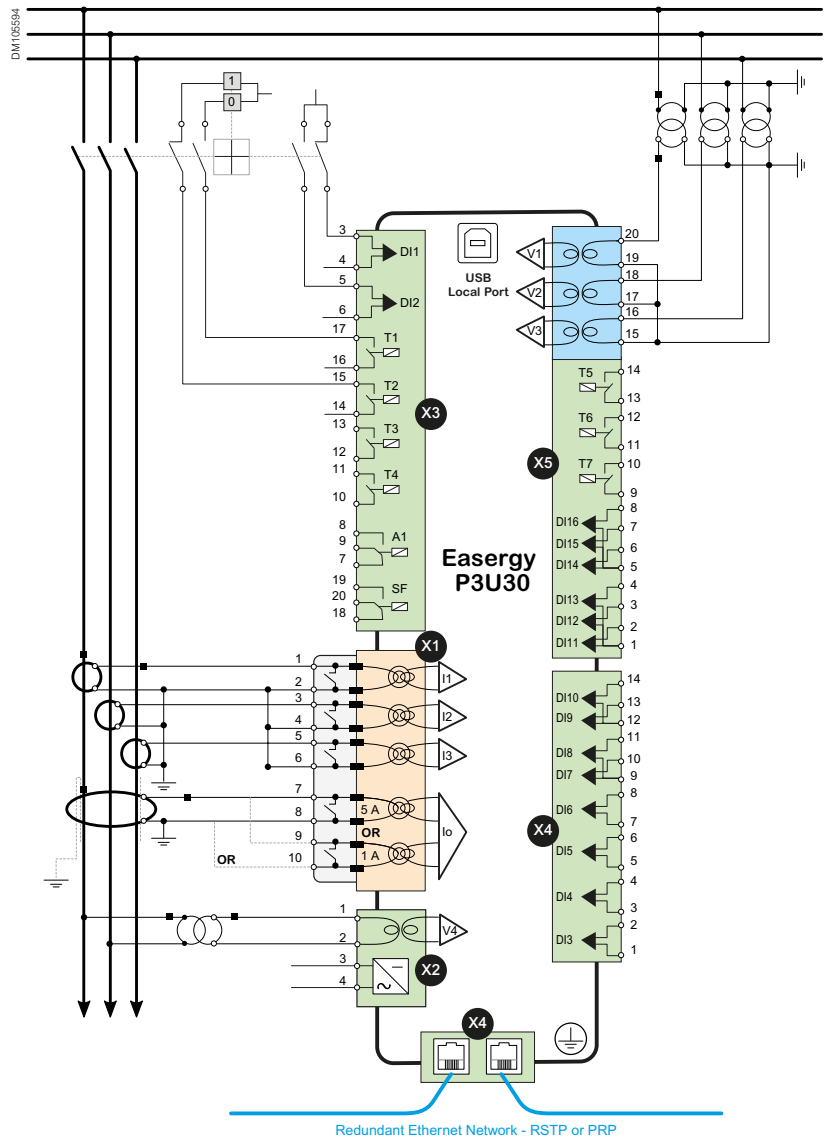
**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, ELECTRIC ARC OR BURNS**

- only qualified personnel should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- turn off all power supplying this equipment before working on or inside it. Consider all sources of power, including the possibility of backfeeding.
- always use a properly rated voltage sensing device to confirm that all power is off.
- start by connecting the device to the protective earth and to the functional earth.
- screw tight all terminals, even those not in use.

**Failure to follow these instructions will result in death or serious injury.**

Application with 3 phase CTs, 1 earth CT, 3 VTs, synchro-check and CB control



# Connection diagrams

## Easergy P3U30 example

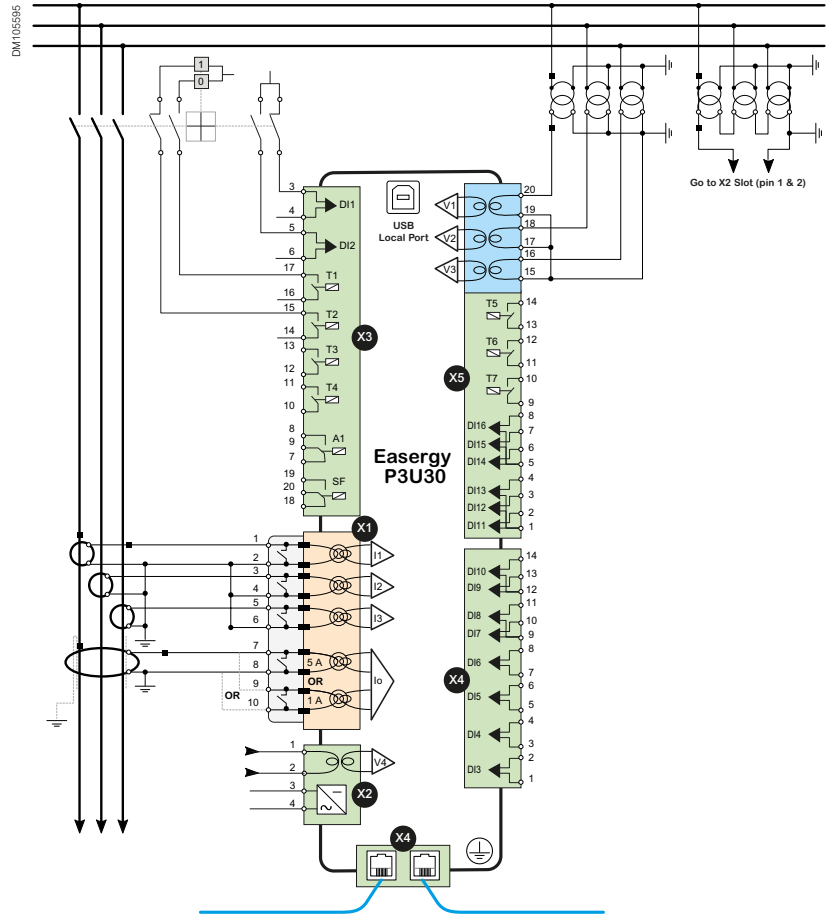
**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, ELECTRIC ARC OR BURNS**

- only qualified personnel should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- turn off all power supplying this equipment before working on or inside it. Consider all sources of power, including the possibility of backfeeding.
- always use a properly rated voltage sensing device to confirm that all power is off.
- start by connecting the device to the protective earth and to the functional earth.
- screw tight all terminals, even those not in use.

**Failure to follow these instructions will result in death or serious injury.**

### Application with 3 phase CTs, 1 earth CT, 4 VTs and CB control



# Model selection

## Selecting product

Please, consult the "Ordering" section to choose specific characteristics in the relays for your system:



PM106387

P3U10  
Standard application

[Page 106](#)



PM106387

P3U20  
Standard application

[Page 107](#)



PM106387

P3U30  
Standard application

[Page 108](#)

Or use our web configuration tool:

[Go to web configurator](#)

# Easergy P3 Advanced



# Easergy P3 Advanced

<a href="#">Presentation</a>	<a href="#">50</a>
<a href="#">Functional view</a>	<a href="#">52</a>
<a href="#">Base unit presentation</a>	<a href="#">59</a>
<a href="#">Integrated arc flash protection</a>	<a href="#">59</a>
<a href="#">Local HMI</a>	<a href="#">60</a>
<a href="#">Rear panel</a>	<a href="#">61</a>
<a href="#">Remote HMI</a>	<a href="#">63</a>
<a href="#">Base unit dimensions</a>	<a href="#">64</a>
<a href="#">Dimensions</a>	<a href="#">64</a>
<a href="#">Cut-out and mounting</a>	<a href="#">65</a>
<a href="#">Base unit characteristics</a>	<a href="#">66</a>
<a href="#">Technical characteristics</a>	<a href="#">66</a>
<a href="#">Environmental characteristics</a>	<a href="#">67</a>
<a href="#">Communication</a>	<a href="#">69</a>
<a href="#">Communication protocols</a>	<a href="#">69</a>
<a href="#">Programmable stages</a>	<a href="#">70</a>
<a href="#">Circuit breaker control</a>	<a href="#">71</a>
<a href="#">Power quality measurements</a>	<a href="#">72</a>
<a href="#">Connection diagrams</a>	<a href="#">73</a>
<a href="#">Model selection</a>	<a href="#">76</a>

The Easergy P3 Advanced protection relay has been developed to cover demanding protection needs for building, distribution utilities, and industrial applications. Thanks to its wide scope of functionalities, the Easergy P3 Advanced range provides an excellent solution for your high-end protection applications.

Protect your staff and equipment and ensure safer operations with Easergy P3 Advanced's built-in arc flash detection and protection functions.

You will experience greater operational efficiency with rapid ordering, configuration, and operations for an unparalleled digital experience provided with Easergy P3.

### Easergy P3 Advanced at a glance

#### Extended capabilities

- Extended protection functions, including differential of line, transformer, motor, and generator
- Arc flash detection
- All communication protocols embedded on serial and Ethernet links, including IEC 61850 ed.1 and ed. 2
- Increased number of inputs and outputs

#### Robust

- Best-in class reliability based on 100+ years of experience in Sepam, MiCOM and Vamp relays
- Strong tests performed in international laboratories
- Compliant with IEC electro-mechanical standards

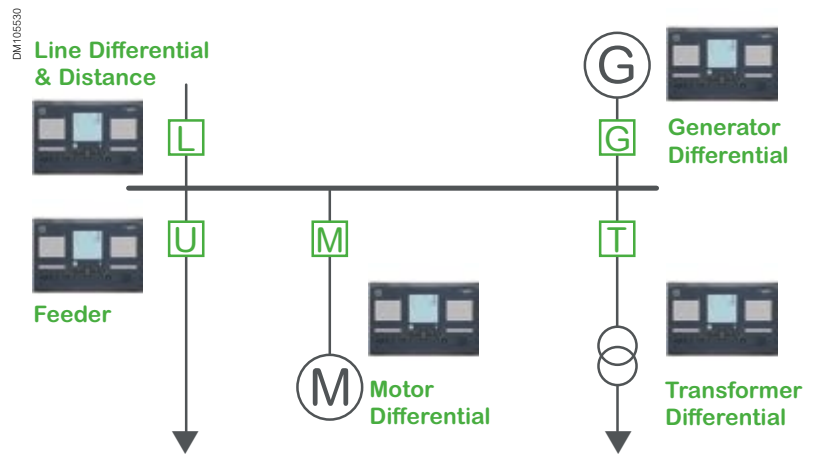
#### Efficient and connected

- Easy to configure with the unique eSetup Easergy Pro setting software
- Easy to test with the virtual simulation test for direct injection of current and voltage from eSetup Easergy Pro
- Easy to use and maintain with the embedded web-HMI and Easergy SmartApp for direct access on site via your laptop, smartphone, or tablet
- Easy to install with withdrawable rear connectors with CT shortening
- Easy to use and maintain with the embedded web-HMI and the Easergy SmartApp for direct access on site via your laptop, smartphone or tablet

PM106370



Easergy P3 is designed to cover a large scope of applications



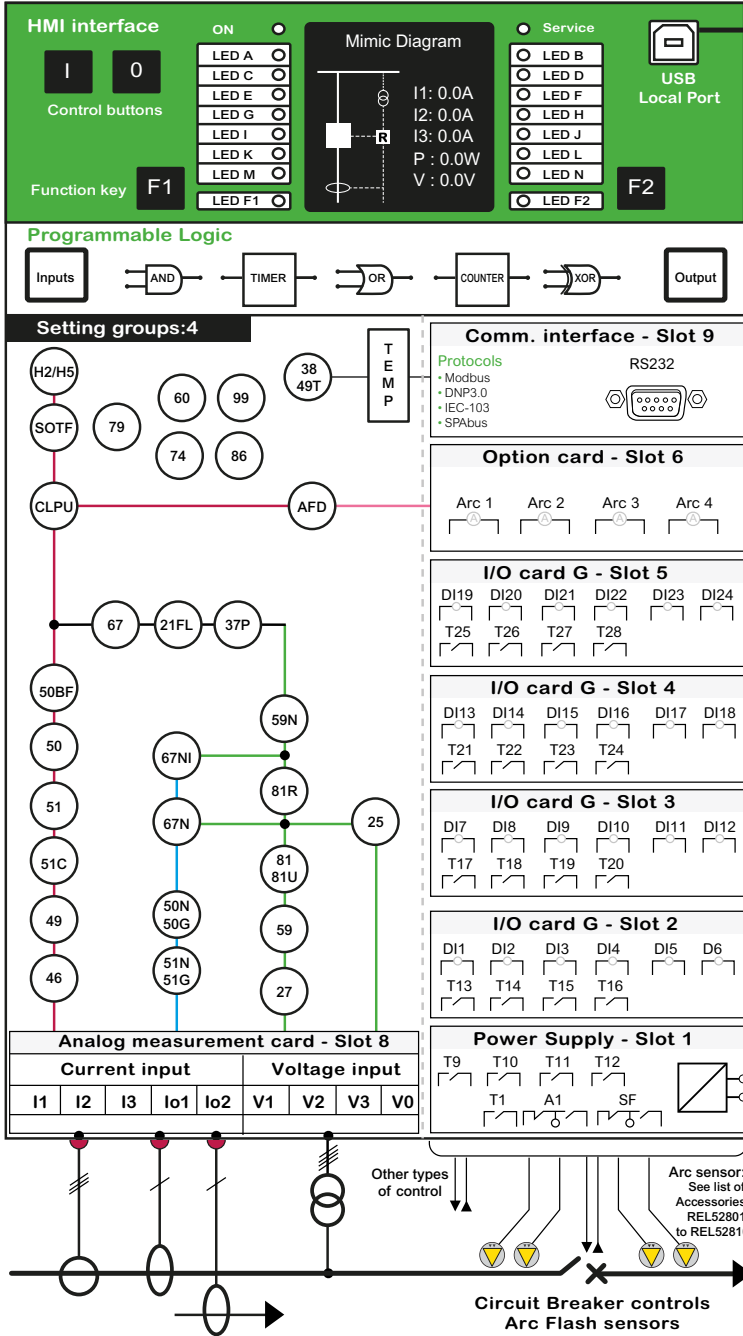
Easergy P3 Advanced is designed in **7 models, per application:**

Model		Function	
<b>Easergy P3F</b>	30	<b>Feeder</b>	Protection
<b>Easergy P3L</b>	30	<b>Line</b>	Differential and Distance
<b>Easergy P3M</b>	30	<b>Motor</b>	Protection
	32		Differential
<b>Easergy P3G</b>	30	<b>Generator</b>	Protection
	32		Differential
<b>Easergy P3T</b>	32	<b>Transformer</b>	Differential

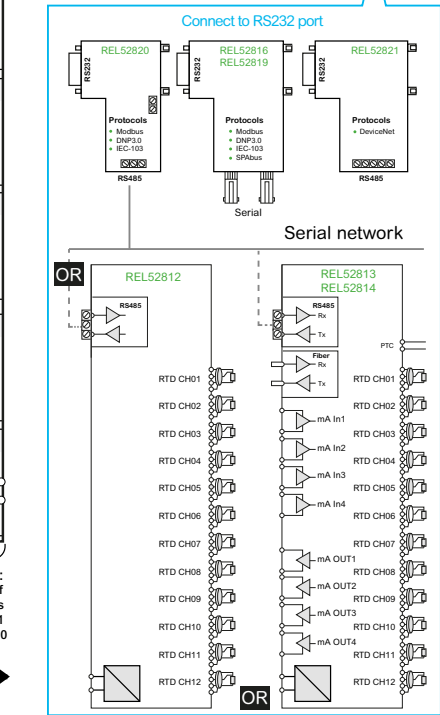
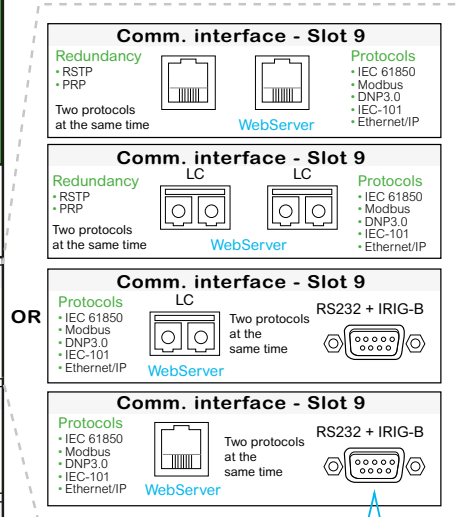
**A common set of functions** extends the possibilities of protection and control:

- Single-line diagrams (mimic) in the display
- Programmable protection stages
- Programmable logics
- 2 programmable function keys
- Synchro-check function
- Direct-access USB port
- Up to 6 objects controlled
- Arc flash protection

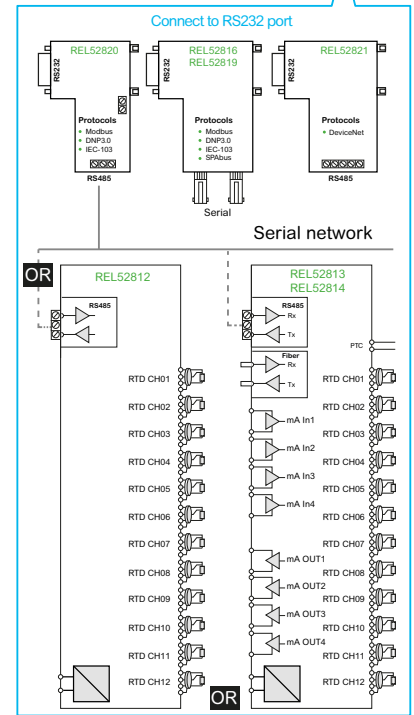
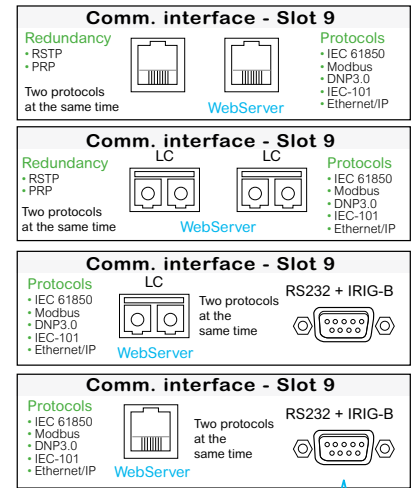
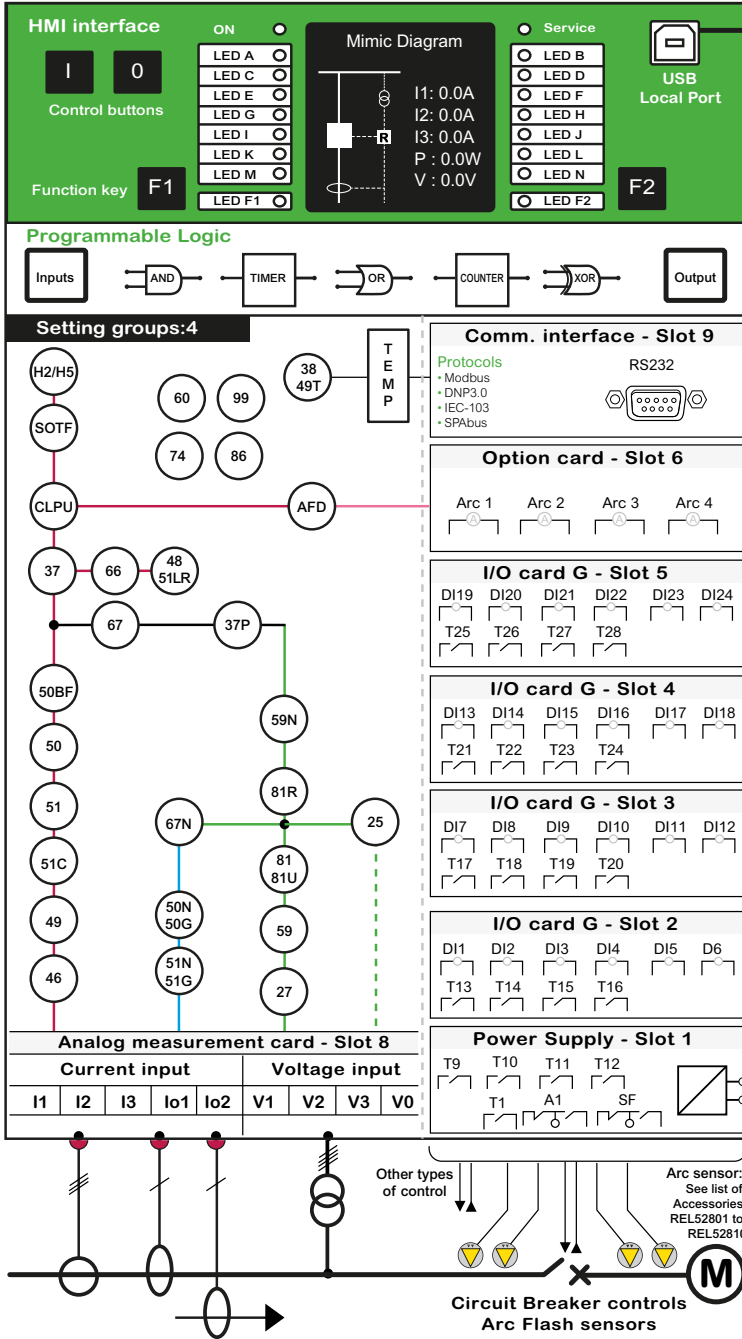
DM105590b



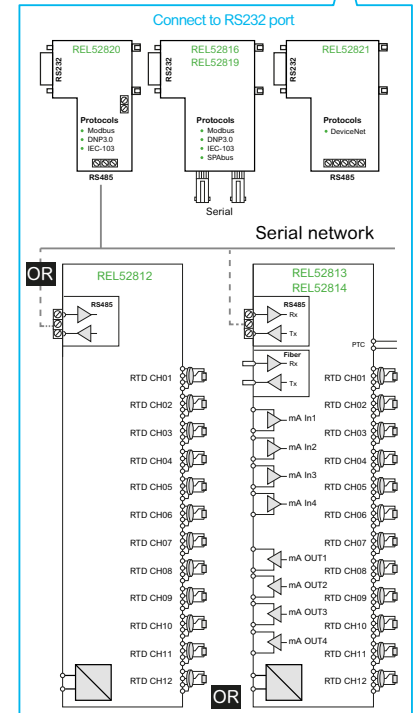
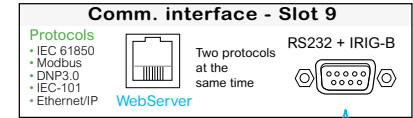
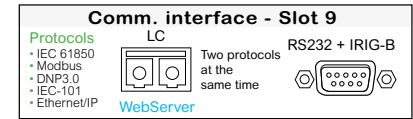
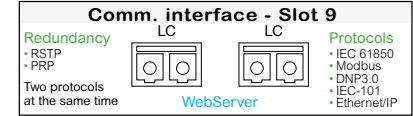
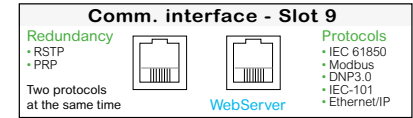
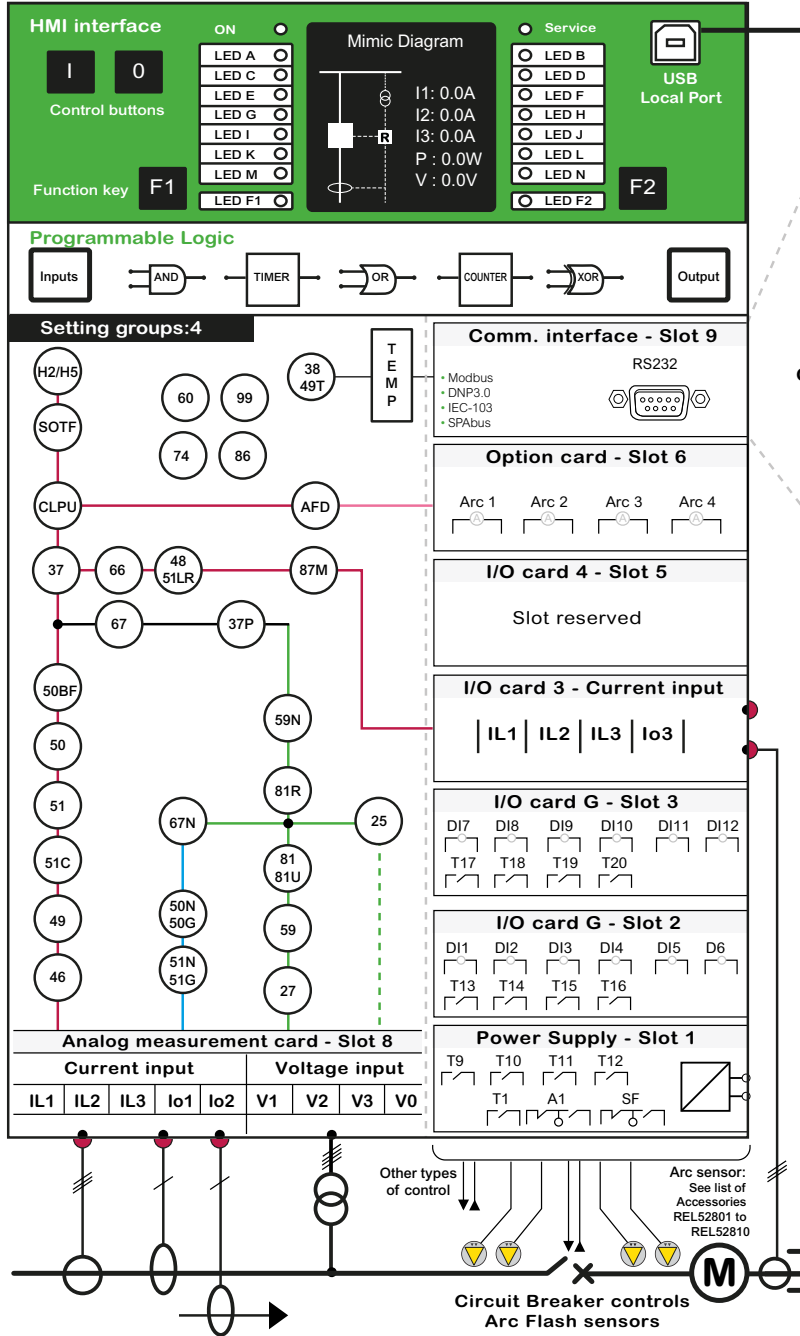
REL52822



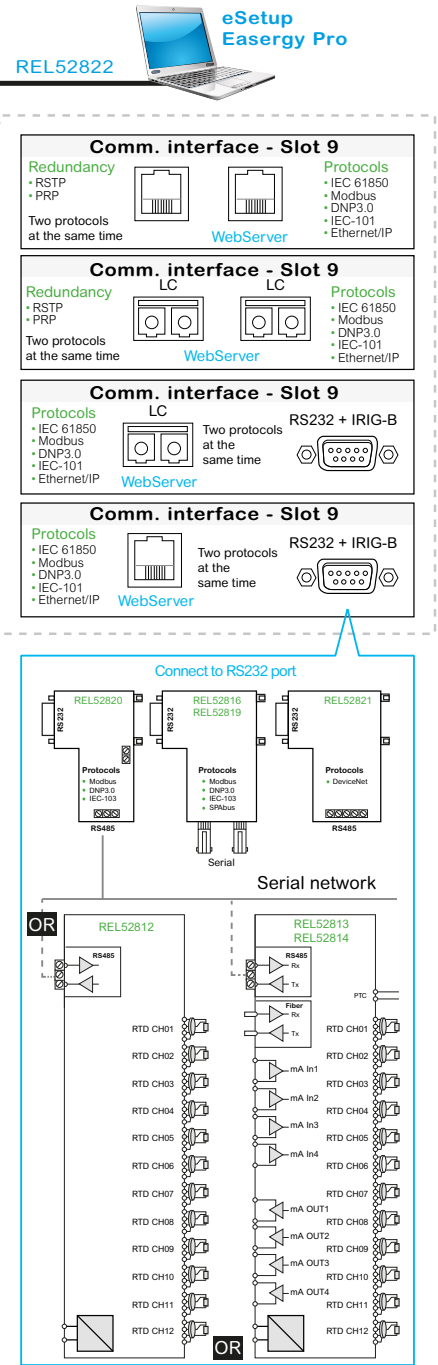
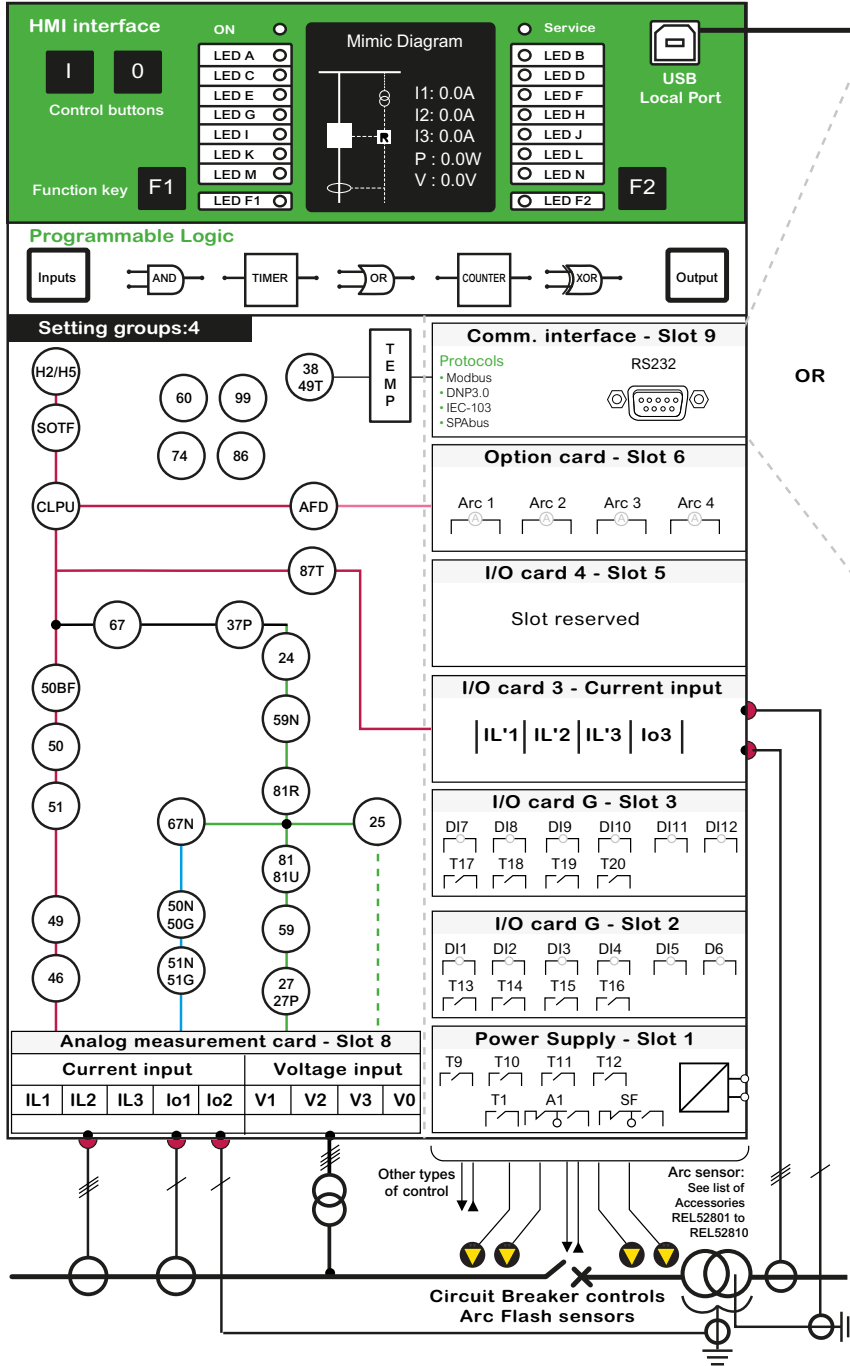
DM1055970



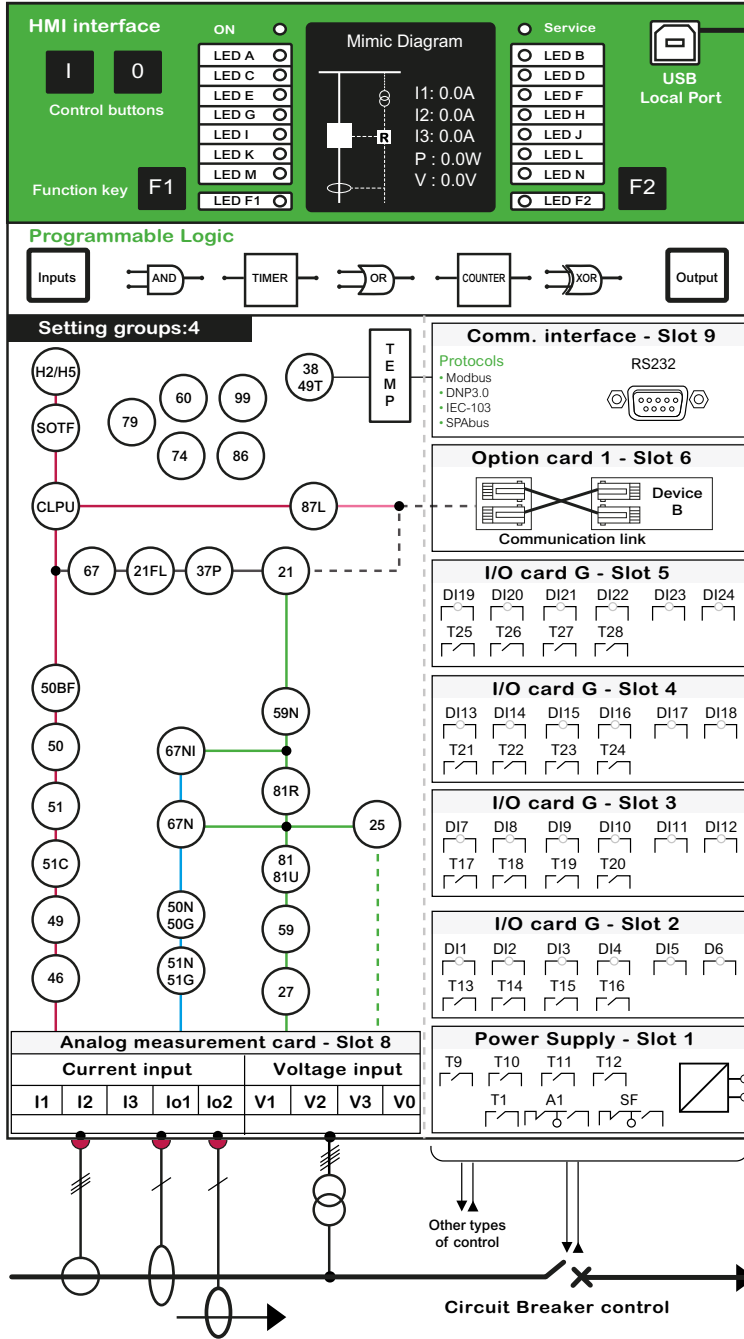
DM105590b



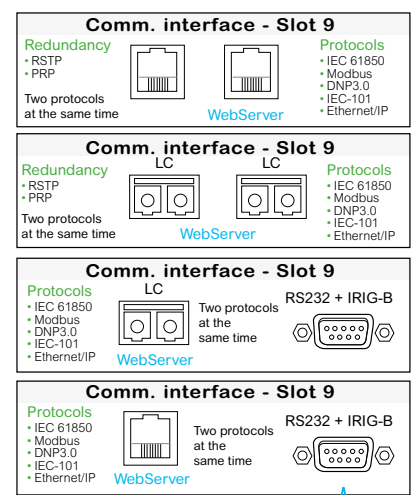
DM105599b



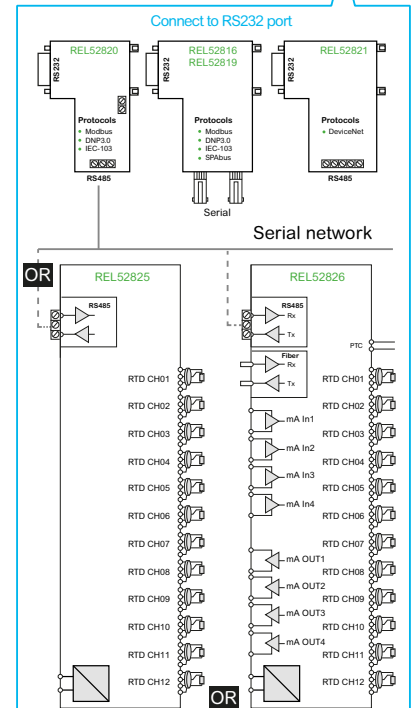
DM105600b



REL52822

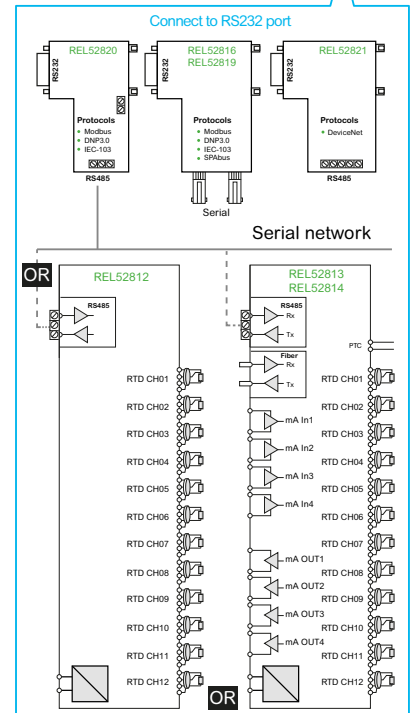
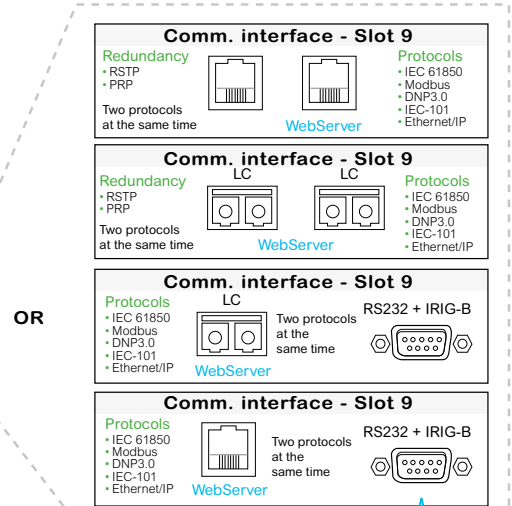
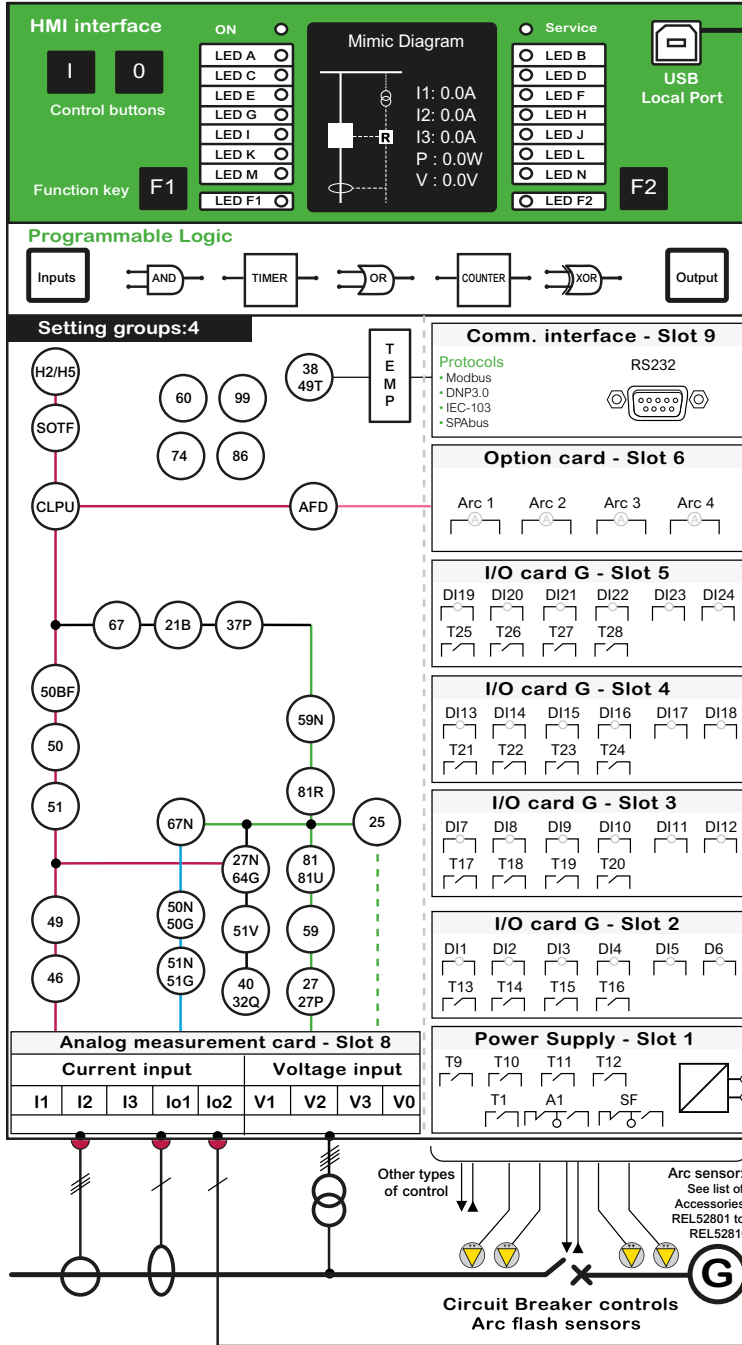


OR

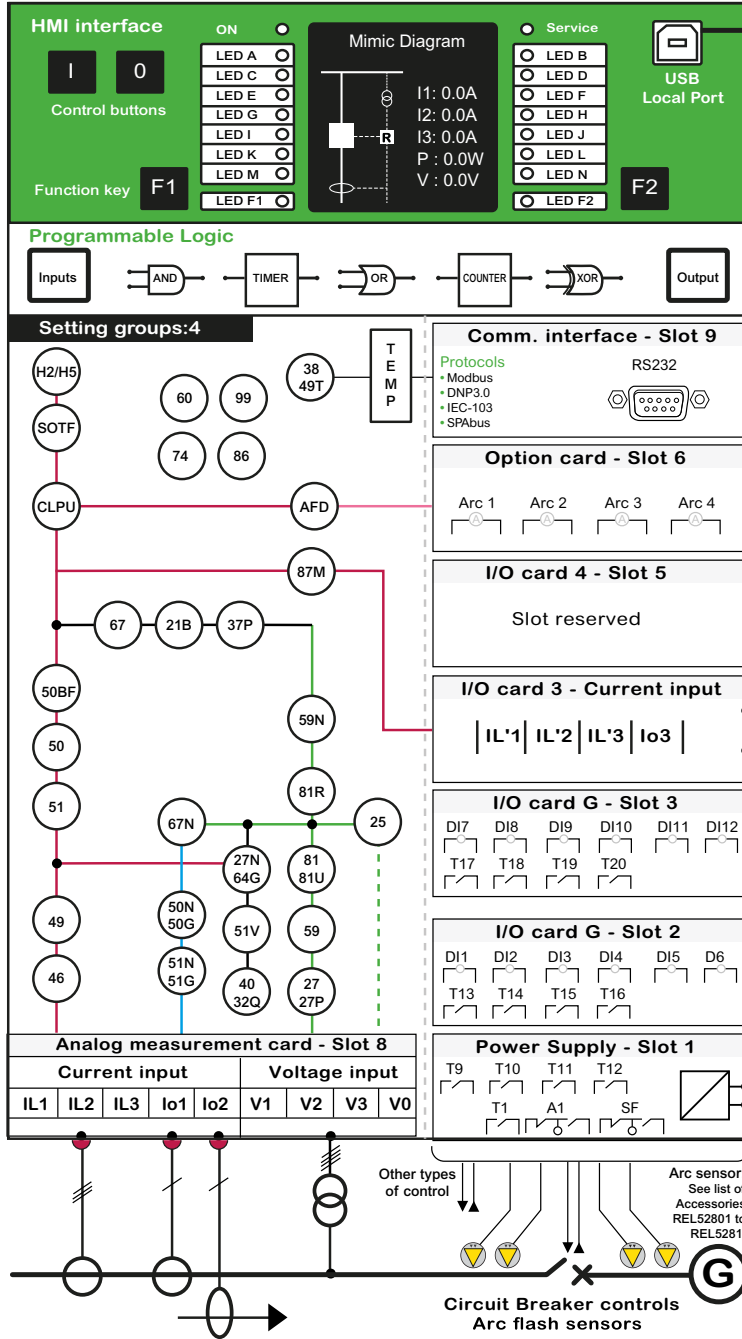




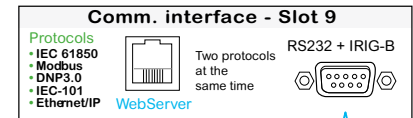
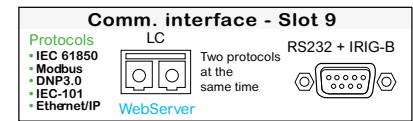
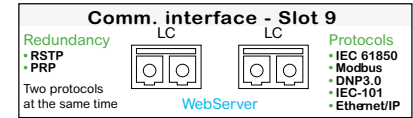
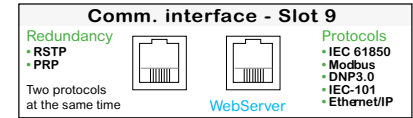
DM105601b



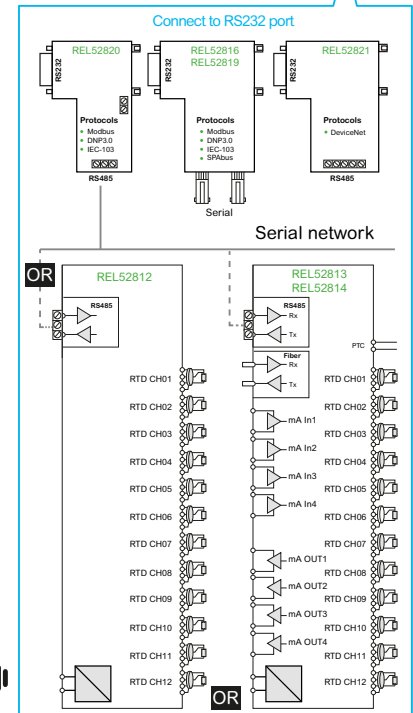
DM105602b



REL52822



OR



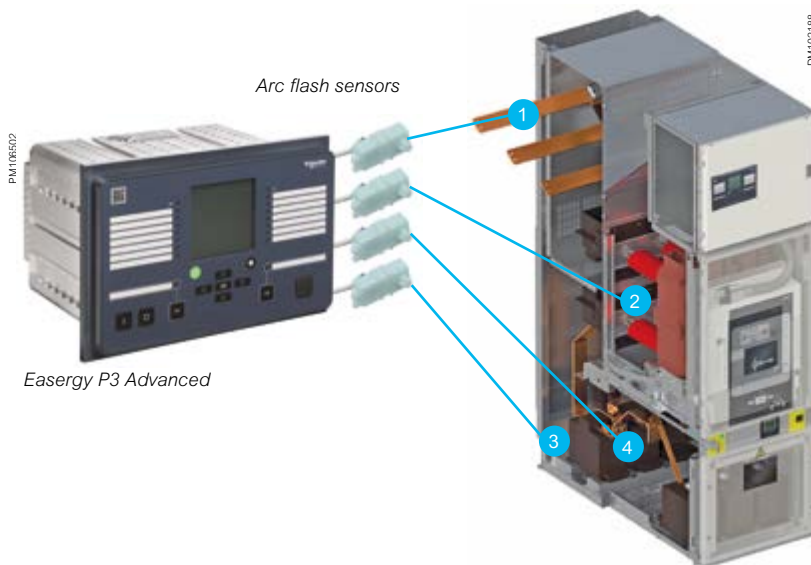
# Base unit presentation

## Integrated arc flash protection

Easergy P3 Advanced measures fault current, and with arc protection, also light via arc sensor channels that provide monitoring for the whole switchgear.

An arc flash is a mass of heat and pressure caused by a switchgear fault. It not only causes power outages but can also result in loss of business and extensive material damage. If an arc fault occurs in the switchgear, the arc protection system prevents the fault from spreading by tripping the circuit breaker within less than 10 ms.

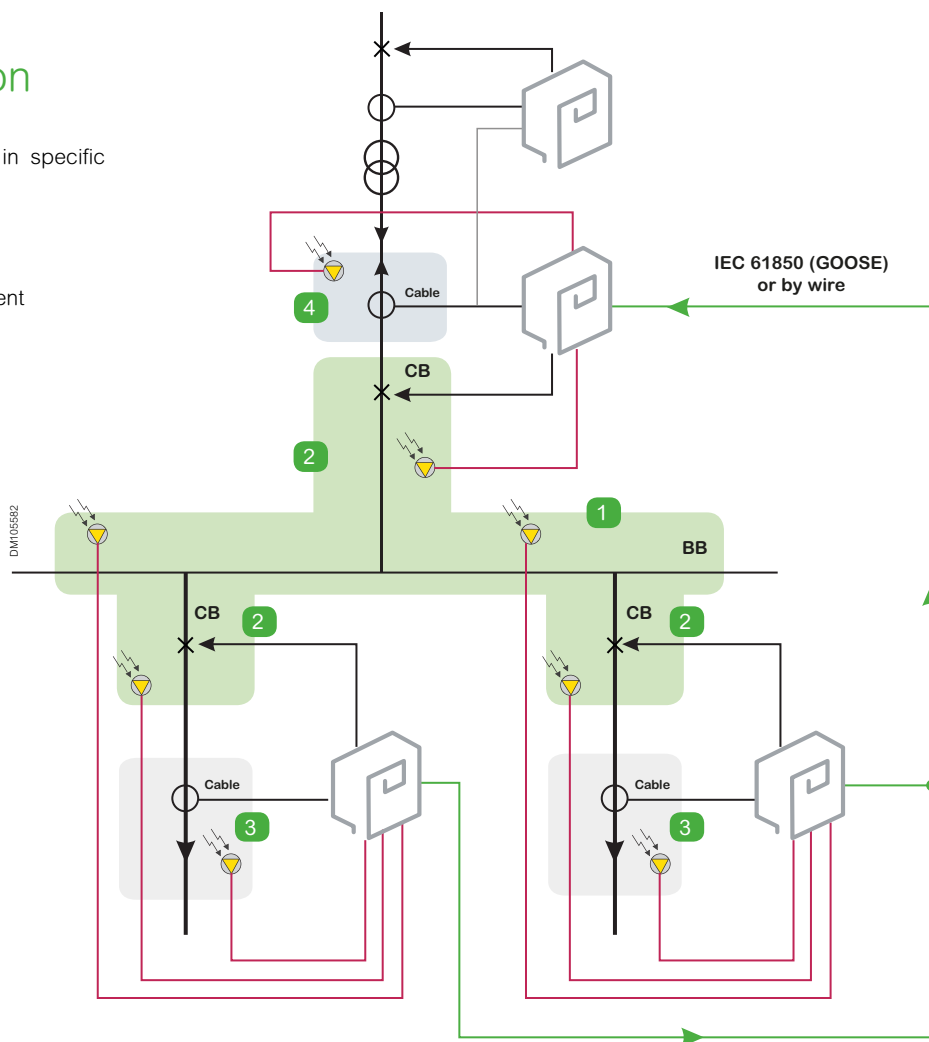
Easergy P3 Advanced relays can connect up to four arc flash sensors that have continuous self-supervision to check the sensor status.



## Example of application

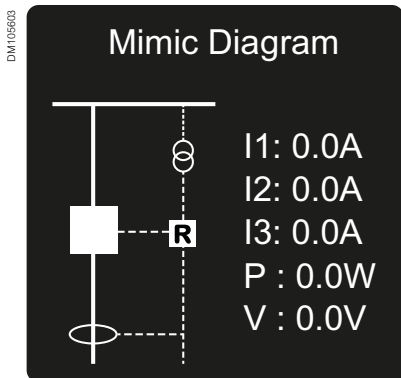
The four arc flash sensors can be installed in specific parts of the switchgear:

1. Busbars compartment
2. Circuit breaker compartment
3. Current/voltage transformers compartment
4. Cables connections compartment



# Base unit presentation

## Local HMI



Single line diagram of the power system

## Comprehensive data for easier and faster operation

All the data you require for a local equipment operation can be displayed on demand:

- Display the single line diagram and freely assignable analog values
- Display of all measurements
- Display of operation and alarm messages
- Display and setting of all parameters
- Password entry to protect parameter and protection settings

## Ergonomic data presentation

- Keypad keys identified by pictograms for intuitive navigation
- Graphical 128x128 LCD screen displays any character or symbol
- Excellent display quality under all lighting conditions
- Control buttons (0/1) to operate the circuit breaker and/or others controlled object
- 14 freely programmable LEDs with 3 different colors (red, yellow, and green) to identify easily the message shown
- Labels are printed on a transparent film allowing customisation of the relay
- 2 programmable function keys (F1 / F2)

### Control Panel Legend

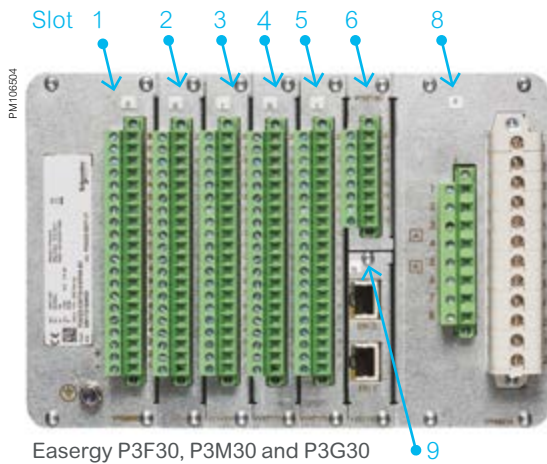
- INFO push-button for viewing additional information, entering the password view, and adjusting the LCD contrast
- F1 Programmable function push-button
- F2 Programmable function push-button
- ENTER push-button for activating or confirming a function
- UP navigation push-button for moving up in the menu or increasing a numerical value
- DOWN navigation push-button for moving down in the menu or decreasing a numerical value
- LEFT navigation push-button for moving backwards in a parallel menu or selecting a digit in a numerical value
- RIGHT navigation push-button for moving forwards in a parallel menu or selecting a digit in a numerical value
- Circuit Breaker OFF push-button
- Circuit Breaker ON push-button
- HOME/CANCEL push-button for returning to the previous menu. To return to the first menu item in the main menu, press the button for at least three seconds



## Working language

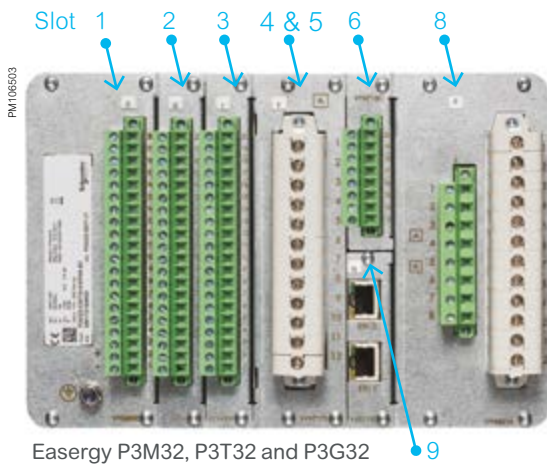
All the texts and messages displayed on the Easergy P3 Advanced are available in two languages at the same time.

### Rear panel example



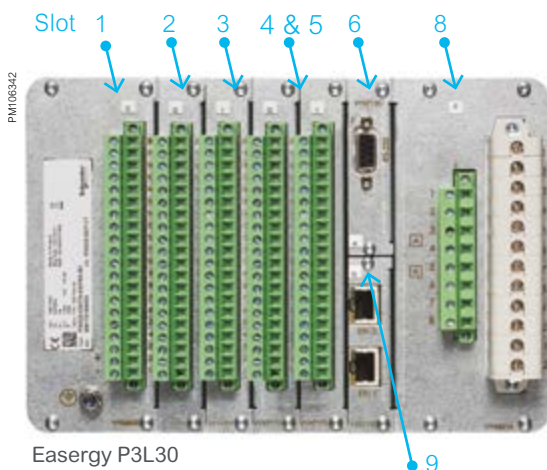
#### Slots description for P3x30 models

- Slot 1 - Power supply and output contacts
- Slot 2 - I/O card 1
- Slot 3 - I/O card 2
- Slot 4 - I/O card 3
- Slot 5 - I/O card 4
- Slot 6 - Option card 1
- Slot 8 - Analog measurement card 1
- Slot 9 - Communication interface



#### Slots description for P3x32 models

- Slot 1 - Power supply and output contacts
- Slot 2 - I/O card 1
- Slot 3 - I/O card 2
- Slot 4/5 - Analog measurement card 2
- Slot 6 - Option card 1
- Slot 8 - Analog measurement card 1
- Slot 9 - Communication interface



#### Slots description for P3L30 models

- Slot 1 - Power supply and output contacts
- Slot 2 - I/O card 1
- Slot 3 - I/O card 2
- Slot 4 - I/O card 3
- Slot 5 - I/O card 4
- Slot 6 - Option card 1- Line differential com.
- Slot 8 - Analog measurement card 1
- Slot 9 - Communication interface

# Base unit presentation

## Rear panel

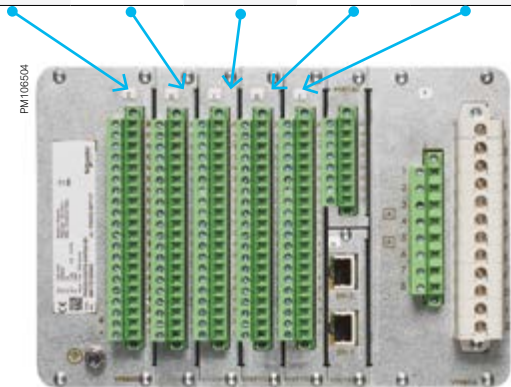
### Digital input and output capability

The Easergy P3 Advanced has a modular concept in term of digital inputs and outputs.

#### Description of the optional boards

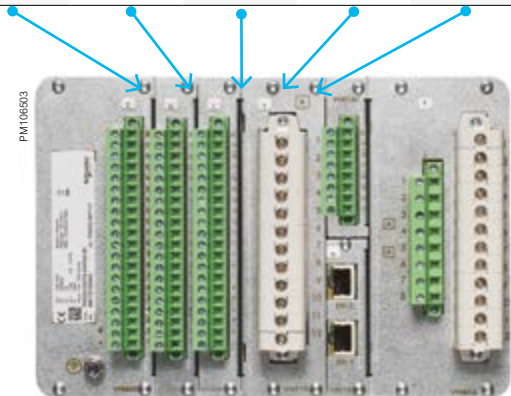
- C = 5 x DO heavy duty, A1, SF
- D = 5 x DO heavy duty, A1, SF
- A = None
- G = 6DI+4DO (6 x DI, 4 x DO)
- H = 6DI+4DO (6 x DI, 4 x DO(NC))
- I = 10DI (10 x DI)

Number of		Type of I/O card – P3X30				
Input	Output	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5
6	11	C/D	G	None	None	None
12	15	C/D	G	G or H	None	None
18	19	C/D	G	G or H	G or H	None
24	23	C/D	G	G or H	G or H	G or H
22	16	C/D	G	G or H	I	None
32	16	C/D	G	G or H	I	I
28	19	C/D	G	G or H	G or H	I
16	11	C/D	G	I	None	None
26	11	C/D	G	I	I	None
36	11	C/D	G	I	I	I



P3x30 units

Number of		Type of I/O card – P3X32				
Input	Output	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5
6	11	C/D	G	None	None	None
12	15	C/D	G	G or H	None	None
16	11	C/D	G	I	None	None



P3x32 units

The slots 4 and 5 are used to receive the analog current input when Easergy P3 is used with differential overcurrent (ANSI 87).

# Base unit presentation

## Remote HMI

This mounting technique allows for a lighter door because the relay's frame is installed in the back of the secondary compartment. Communication, DI, and DO cabling is easier, too, as the door movement does not need to be considered.

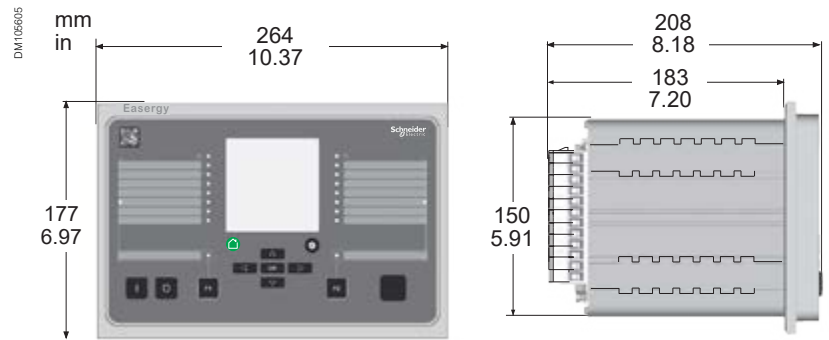
In this case, only the communication between IED base and display has to be wired.



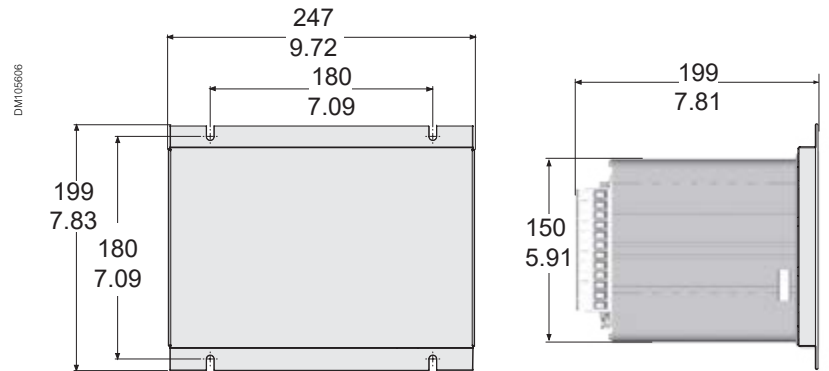
# Base unit dimensions

## Dimensions

### Conventional HMI



### Remote HMI



**Weight (maximum)**

Easergy P3 Advanced      4.2 Kg (9.272 lb) or higher (depends of options)

**Degree of protection (IEC 60529)**

IP54 Front panel / IP20 Rear side



# Base unit dimensions

## Cut-out and mounting

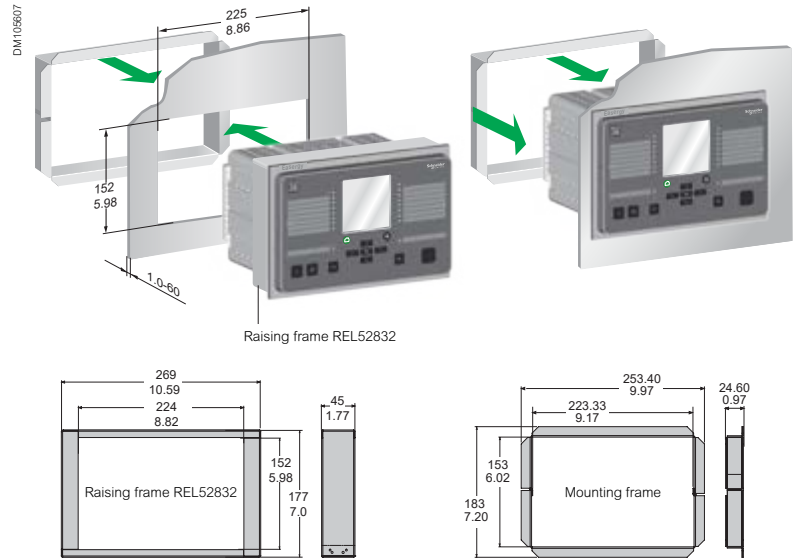
Cut-out accuracy must be complied with to ensure good withstand.

### Mounting

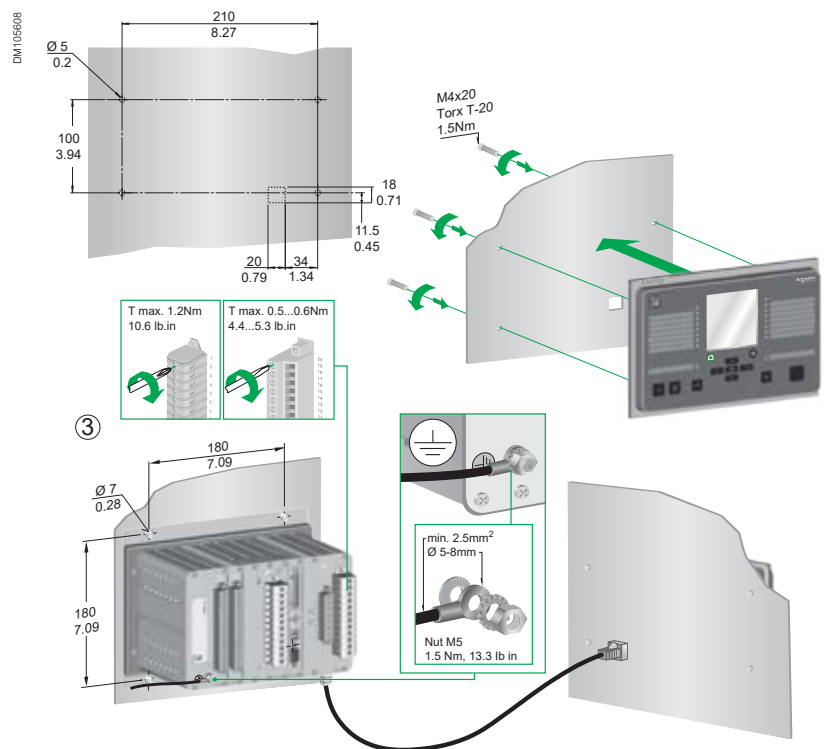
In case the depth dimension behind the compartment door is limited, the IED can be equipped with a frame (REL52832) around the collar. This arrangement reduces the depth inside the compartment by 45 mm (1.77 in).

Projection mounting with the raising frame REL52832

Panel mounting



### Wall mounting with remote HMI



## Technical characteristics

## Analog inputs

	Rated phase current	Measuring range	Input Impedance	Consumption	Rated thermal withstand	1-second overload	10-second overload
<b>Phase Current Input (I)</b>	1 A CT	0.02 – 50 A	0.02 Ohm	0.02 VA	4 A	100 A	20 A
<b>Slot 8</b>	5 A CT	0.05 – 250 A	0.003 Ohm	0.075 VA	20 A	500 A	100 A
<b>Residual Current Input (IO)</b>							
<b>Slot 8 - 5 A CT</b>		0.015 – 50 A	0.003 Ohm	0.075 VA	20 A	500 A	100 A
Configurable for CT secondaries 0.1 to 10A							
<b>Residual Current Input (IO')</b>							
<b>Slot 8 - 1 A CT</b>		0.003 – 10 A	0.02 Ohm	0.02 VA	4 A	100 A	20 A
Configurable for CT secondaries 0.1 to 10.0A							
<b>Residual Current Input (IO'')</b>							
<b>Slot 8 - 0.2 A CSH sensor</b>		0.0006 – 2 A	0.02 Ohm	0.02 VA	0.8 A	20 A	4 A
Configurable for CT secondaries 0.1 to 10.0A							
<b>Phase Current Input - (I')</b>	1A CT	0.02 – 50 A	0.02 Ohm	0.02 VA	4 A	100 A	20 A
<b>Slot 4</b> (Only for device with differential overcurrent)	5A CT	0.05 – 250 A	0.003 Ohm	0.075 VA	20 A	500 A	100 A
<b>Residual Current Input (IO''')</b>	1A CT	0.02 – 50 A	0.02 Ohm	0.02 VA	4 A	100 A	20 A
<b>Slot 4</b> (Only for device with differential overcurrent)	5A CT	0.05 – 250 A	0.003 Ohm	0.075 VA	20 A	500 A	100 A
<b>Voltage Input</b>		0.5 – 190 V	n.a.	< 0.5 VA	250 V (Continuously)	n.a.	600 V
Configurable for VT secondaries 50 to 120 V							

## Analog temperature input / Analog output

Type of temperature sensor	Pt100	Ni100	Ni120	Cu10
Maximum distance between sensor and module	up to 2,000 m <sup>(1)</sup>	up to 2,000 m <sup>(1)</sup>	up to 2,000 m <sup>(1)</sup>	up to 2,000 m <sup>(1)</sup>
Analog Output	0 mA			
Minimum current	0 mA			
Maximum current	20 mA			
Operating temperature:	0°C (32°F) to +55°C (131°F)			
Power supply	REL52811 / REL52812	24 to 230 Vac/dc, 50/60 Hz		
	REL52813	24 Vdc		
	REL52814	48 to 230 Vac/dc, 50/60 Hz		

## Digital Input

Nominal operation voltage	DI1 to DI16	24 to 230 Vac/dc	110 to 230 Vac/dc	220 to 230 Vac/dc
Typical switching threshold		12 Vdc	75 Vdc	155 Vdc
Input limit voltage	At state 1	≥ 19.2 Vdc	≥ 88 Vdc	≥ 176 Vdc
	At state 0	< 10.0 Vdc	< 60 Vdc	< 140 Vdc
Frequency		45 to 65 Hz	45 to 65 Hz	45 to 65 Hz
Typical consumption		<4 mA (typical approx. 3 mA)		
Voltage withstand		255 V ac/dc		

## Digital Output

Type of contact	Control and Trip contact, Tx	Signal contact, A1	Signal Contact, SF
Rated Voltage	250 Vac/dc	250 Vac/dc	250 Vac/dc
Continuous current	5 A	5 A	5 A
Breaking capacity	2,000 VA	2,000 VA	2,000 VA
DC capacity (L/R=40ms)	at 48 V dc	1 A	1 A
	at 110 V dc	0.5 A	0.3 A
	at 220 V dc	0.25 A	0.15 A
Making capacity	< 0.5 s	30 A	-
	< 3.0 s	15 A	-
Minimum making capacity	100 mA @ 24 Vac/dc	100 mA @ 24 Vac/dc	100 mA @ 24 Vac/dc
Typical operation time	<8 ms	-	-
Contact material	AgNi 90/10	AgNi 0.15 gold plated	AgNi 0.15 gold plated

## Power supply

Nominal Voltage	110-240 V ac/dc	24-48 Vdc
Range	-20% / +10% (88 to 264 Vac/dc)	-20% / +20% (19.2 to 57.6 Vdc)
Inrush current (DC)	25 A with time constant of 1000 µs	
	25 A with time constant of 750 µs	
	15 A with time constant of 500 µs	
Power consumption	Power consumption increases when more I/O or optional I/O or communication cards are used	
	Max. 50 W	
Acceptable momentary outages	<50 ms (110 Vdc)	

(1) 78,740 in

## Disturbance tests

	Standard and test class/level	Test value
<b>Emission</b>		
IEC/EN 60255-26 (ed3)		
Conducted	EN 55022, Class A / CISPR 22	0.15 – 30 MHz
Emitted	EN 55011, Class A / CISPR 11	30 – 1000 MHz
<b>Immunity</b>		
IEC/EN 60255-26 (ed3)		
1 Mhz damped oscillatory wave	IEC/EN 61000-4-18	±2.5kVp CM ±2.5kVp DM
Static discharge (ESD)	IEC/EN 61000-4-2 Level 4	±8 kV contact ±15 kV air
Emitted HF field	IEC/EN 61000-4-3 Level 3	80 - 2700 MHz, 10 V/m
Fast transients (EFT)	IEC/EN 61000-4-4 Level 4	±4 kV, 5/50 ns, 5 kHz
Surge	IEC/EN 61000-4-5 Level 4	±4 kV, 1.2/50 µs, CM ±2 kV, 1.2/50 µs, DM
Conducted HF field	IEC/EN 61000-4-6 Level 3	0.15 - 80 MHz, 10 Vrms
Power-frequency magnetic field	IEC/EN 61000-4-8	300A/m (continuous) 1000 A/m 1 – 3 s
Pulse magnetic field	IEC/EN 61000-4-9 Level 5	1000A/m, 1.2/50 µs
ac and dc voltage dips	IEC/EN 61000-4-29, IEC/EN 61000-4-11	0% of rated voltage <ul style="list-style-type: none"> <li>ac: ≥ 0.5 cycle</li> <li>dc: ≥ 10 ms 40% of rated voltage</li> <li>ac: 10 cycles</li> <li>dc: 200 ms 70% of rated voltage</li> <li>ac: 25 cycles</li> <li>dc: 500 ms</li> </ul>
ac and dc voltage interruptions	IEC/EN 61000-4-29, IEC/EN 61000-4-11	100% interruption <ul style="list-style-type: none"> <li>ac: 250 cycles</li> <li>dc: 5 s</li> </ul>
Voltage alternative component	IEC/EN 61000-4-17	15% of operating voltage (dc) / 10 min

## Mechanical robustness

	Standard and test class/level	Test value
<b>In operation</b>		
Vibrations	IEC 60255-21-1, Class II / IEC 60068-2-6, Fc	1 Gn, 10 Hz – 150 Hz
Shocks	IEC 60255-21-2, Class II / IEC 60068-2-27, Ea	10 Gn / 11 ms
Seismic	IEC 60255-21-3 Method A, Class II	2G horizontal / 1G vertical , 1–35 Hz
<b>De-energized</b>		
Vibrations	IEC 60255-21-1, Class II / IEC 60068-2-6, Fc	2 Gn, 10 Hz – 150 Hz
Shocks	IEC 60255-21-2, Class II / IEC 60068-2-27, Ea	30 Gn / 11 ms
Bump	IEC 60255-21-2, Class II / IEC 60068-2-27, Ea	20 Gn / 16 ms

## Electrical safety

	Standard and test class/level	Test value
<b>In operation</b>		
Impulse voltage withstand	IEC/EN 60255-27	5 kV, 1.2/50 $\mu$ s, 0.5 J 1 kV, 1.2/50 $\mu$ s, 0.5 J Communication
Dielectric test	IEC/EN 60255-27	2 kV, 50 Hz 0.5 kV, 50 Hz Communication
Insulation resistance	IEC/EN 60255-27	
Protective bonding resistance	IEC/EN 60255-27	
Clearance and creepage distance	Design criteria for distances as per IEC 60255-27 Annex C (pollution degree 2, overvoltage category 3)	
Power supply burden	IEC 60255-1	

## Environmental tests

	Standard and test class/level	Test value
<b>In operation</b>		
Dry heat	EN / IEC 60068-2-2, Bd	70°C (158°F)
Cold	EN / IEC 60068-2-1, Ad	-40°C (-40°F)
Damp heat, cyclic	EN / IEC 60068-2-30, Db	From 25°C (77°F) to 55°C (131°F) From 93% RH to 98% RH Testing duration: 6 days
Damp heat, static	EN / IEC 60068-2-78, Cab	40°C (104°F) 93% RH Testing duration: 10 days
Change of temperature	IEC / EN 60068-2-14, Nb	Lower temp -40°C (-40°F) Upper temp 70°C (158°F) 5 cycles
<b>In storage</b>		
Dry heat	EN / IEC 60068-2-2, Bb	70°C (158°F)
Cold	EN / IEC 60068-2-1, Ab	-40°C (-40°F)

## Environmental conditions

Ambient temperature, in-service	-40°C – 60°C (-40°F – 140°F) <sup>(1)</sup>
Ambient temperature, storage	-40°C – 70°C (-40°F – 158°F)
Relative air humidity	< 95%, no condensation allowed
Maximum operating altitude	2000 m (6561.68 ft)

(1) with 1 x raising frame -> maximum ambient temperature 55°C (+131°F)  
with 2 x raising frame -> maximum ambient temperature 50°C (+122°F)

Easergy P3 Advanced can be connected to networks, providing access to the following type of data:

- Events
- Status information
- Measurements
- Control commands
- Clock synchronizing
- Settings (SPA-bus and embedded SPA-bus only)

PM103932



Easergy SmartApp.

## Main Protocols

Easergy P3 Advanced can be connected directly to serial and/or Ethernet protocols with two different protocols at the same time, selected by eSetup Easergy Pro software.

Communication protocols:

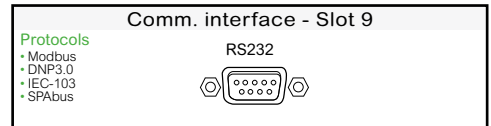
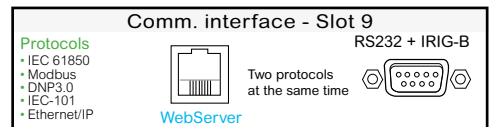
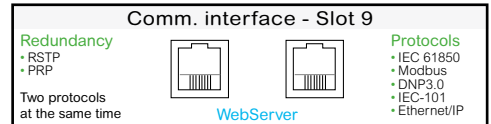
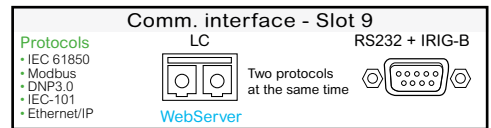
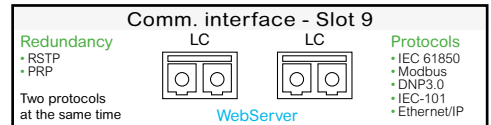
### Serial protocols - RS232 / RS485 / serial Fiber Optic (\*) port

- Modbus RTU
- DNP3.0
- IEC 60870-5-101
- IEC 60870-5-103
- DeviceNet (\*)
- ProfibusDP (\*)
- SPA-Bus (\*)

### Ethernet protocols - RJ45 / LC port

- IEC61850 ed1 & ed2
- Modbus TCP
- IEC60870-5-101
- DNP3.0
- Ethernet IP

Communication ports:



\*Need external accessories to connect.

PM103576



Easergy P3 web-HMI

## Redundancy protocols (RSTP or PRP)

When the devices are connecting in Ethernet link and demand for higher availability, Easergy P3 Advanced can use Rapid Spanning Tree Protocol (RSTP) or Parallel Redundancy Protocol (PRP) to recover from a network failure.

## Easergy P3 web-HMI

A webserver is available in all Easergy P3 Advanced to get information from the device to monitoring all data, send command and change protection setting.

# Programmable stages

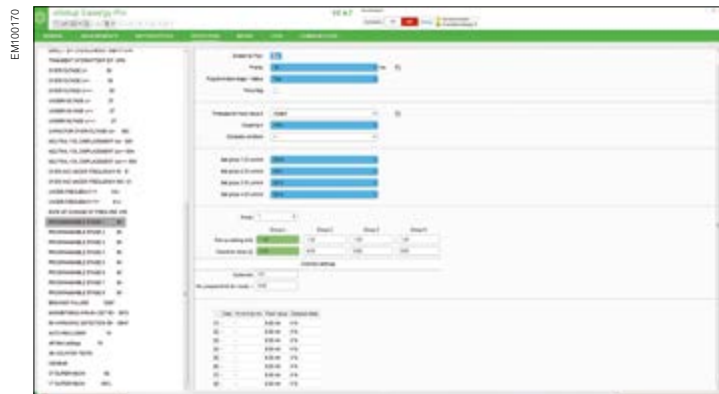
## Programmable protection function

### Personalize your protection function

Easergy P3 Standard enables you to create or personalize the protection function when you need to achieve specific levels of protection.

There are now eight stages available to use with various applications. Each stage can monitor any analog (measured or calculated) signal and issue start and trip signals. Programmable stages extend the protection functionality of the manager series to a new level. The Programmable stage has the possibility of comparing two freely selectable signals between each other. Using this feature you can create a comparison function using the relay's own measured or calculated signals. One or both of the signals can be connected to the comparison function over GOOSE.

For example, if four stages of frequency are not enough, it is possible to reach a maximum of 12 using programmable stages. Other examples include using the stages to issue an alarm when there are too many harmonics (THD) or indicating reverse power condition by GOOSE.



EM100170

With Easergy P3 Advanced, you get intuitive functionality to protect your electrical network system.

Main CB functions are:

- Trip circuit supervision (ANSI 74)
- CT/VT supervision (ANSI 60/60FL)
- Latching (ANSI 86)
- CB close/open order
- Number of operations
- Circuit breaker operating time
- Charging time
- Cumulative breaking current
- Personalized functions

## Maximize circuit breaker control

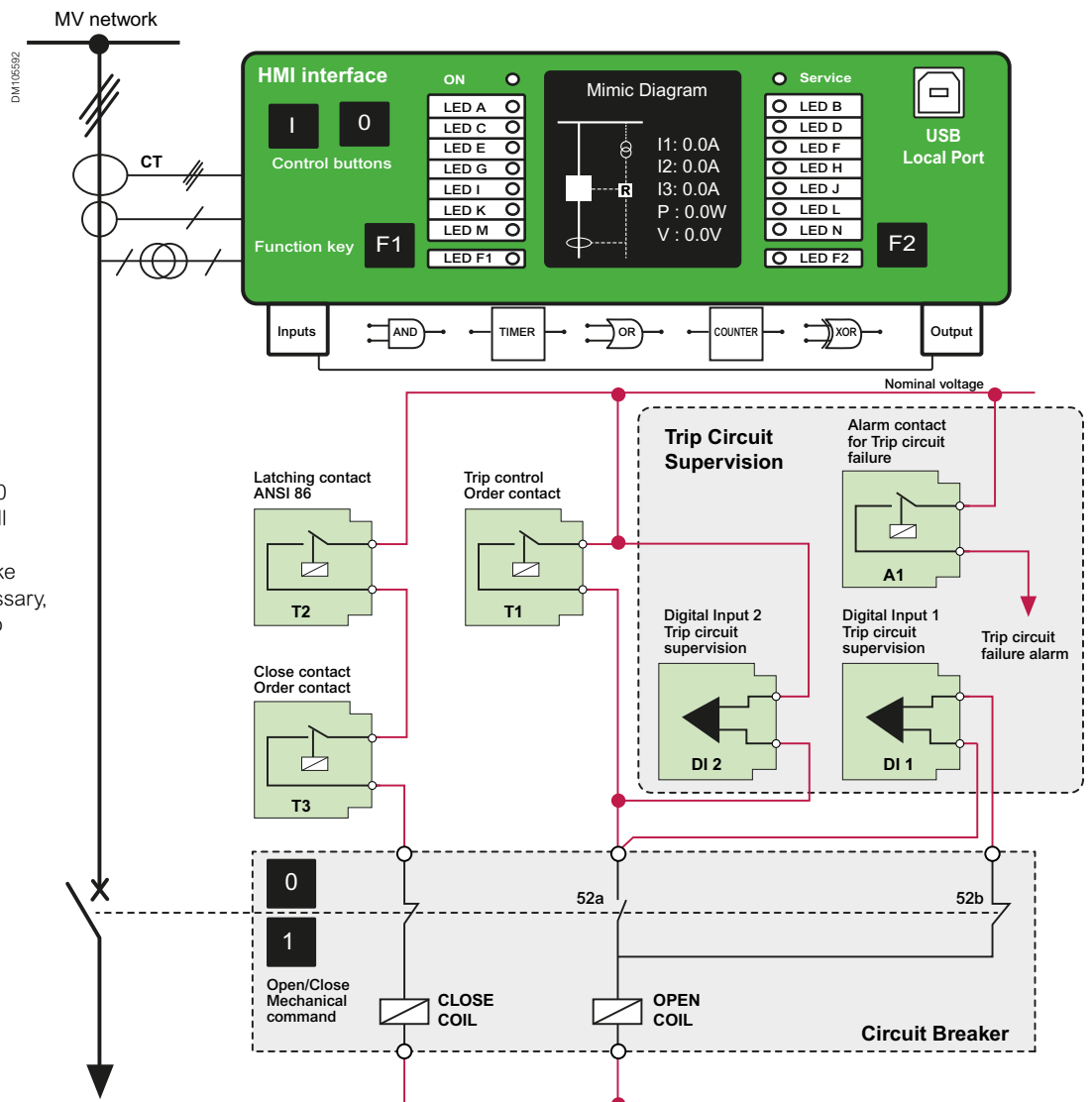
Easergy P3 Advanced is the simplest protection relay with mimic diagram with control buttons (open and close), two personalized function keys and 14 configurable tricolor LEDs. You can manage the control without external or additional components.

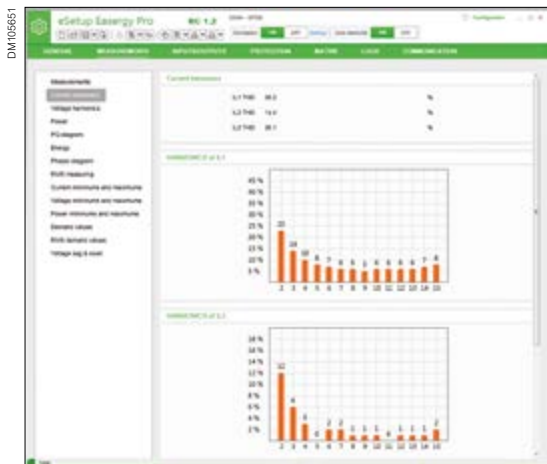
### Example of implementation

The schematic is structured for typical use in MV switchgear, 100% adapted for your use case. You can change the internal logic to adapt the Easergy P3 to meet your needs.

If a problem occurs, clear and complete information allows you to make the right decisions immediately.

This electrical schematic can facilitate the IEC 61850 implementation because all the logics are done by the protection unit that will make the decisions and, if necessary, send GOOSE messages to other units.





## Power quality

The power quality of electrical networks has become increasingly important in modern society. Sophisticated loads, such as computers and automation systems, require an uninterrupted supply of “clean” electricity. Easergy P3 Advanced provides integrated power quality measuring and analysis functions, which help to reduce variations in the quality of the distributed power. The terminal supervises the harmonics of phase currents and voltages from the 2nd to the 15th order and the THD (total harmonic distortion)..

One of the most important power quality functions is the monitoring of voltage sags and swells. Easergy P3 Advanced provides separate monitoring logs for sags and swells. The fault log comprises four registers for voltage sags and another four for voltage swells.

The disturbance recorder functionality can be used for recording measured currents and voltages and for recording status information of digital inputs and outputs, also including the signals of the arc protection system. The time stamped recordings provide indispensable information for the subsequent analysis of a fault situation.

### Example of harmonics content and voltage sag/swell registration (obtained from an Easergy P3 Advanced protection relay)

Many functions in modern society rely heavily on electrical energy, so the quality of the energy supply is gaining increased importance..

#### Power Quality data in Easergy P3 Advanced

THD of IL1, IL2 and IL3	Total harmonic distortion of phase currents
H of IL1, IL2 and IL3	Harmonics phase current up to 15th
THD of U	Total harmonic distortion of phase to phase or phase to ground voltages
H of U	Harmonic of phase to phase or phase to ground voltage up to 15th
Sag and swell	
Voltage interruptions	

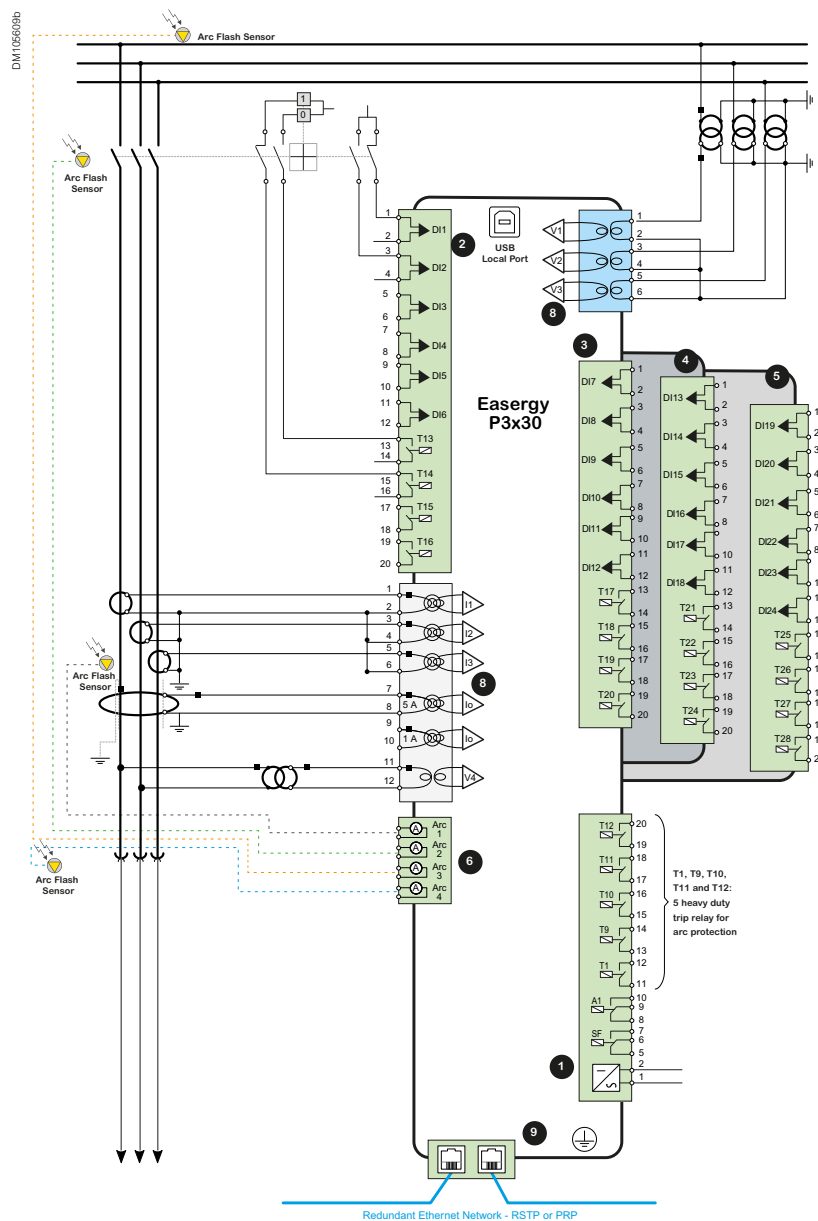


**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, ELECTRIC ARC OR BURNS**

- only qualified personnel should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- turn off all power supplying this equipment before working on or inside it. Consider all sources of power, including the possibility of backfeeding.
- always use a properly rated voltage sensing device to confirm that all power is off.
- start by connecting the device to the protective earth and to the functional earth.
- screw tight all terminals, even those not in use.

**Failure to follow these instructions will result in death or serious injury.**



# Connection diagrams

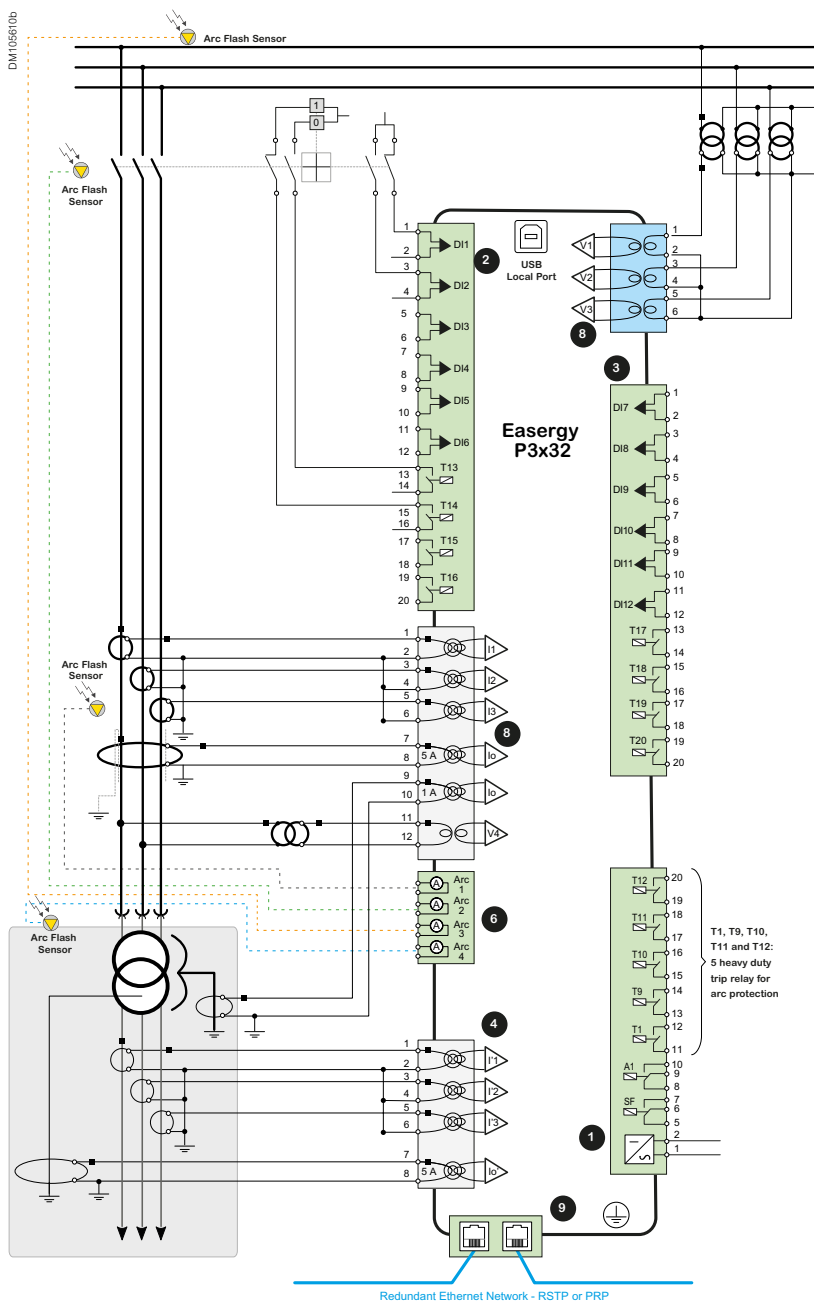
## Easergy P3x32

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, ELECTRIC ARC OR BURNS**

- only qualified personnel should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- turn off all power supplying this equipment before working on or inside it. Consider all sources of power, including the possibility of backfeeding.
- always use a properly rated voltage sensing device to confirm that all power is off.
- start by connecting the device to the protective earth and to the functional earth.
- screw tight all terminals, even those not in use.

**Failure to follow these instructions will result in death or serious injury.**



# Connection diagrams

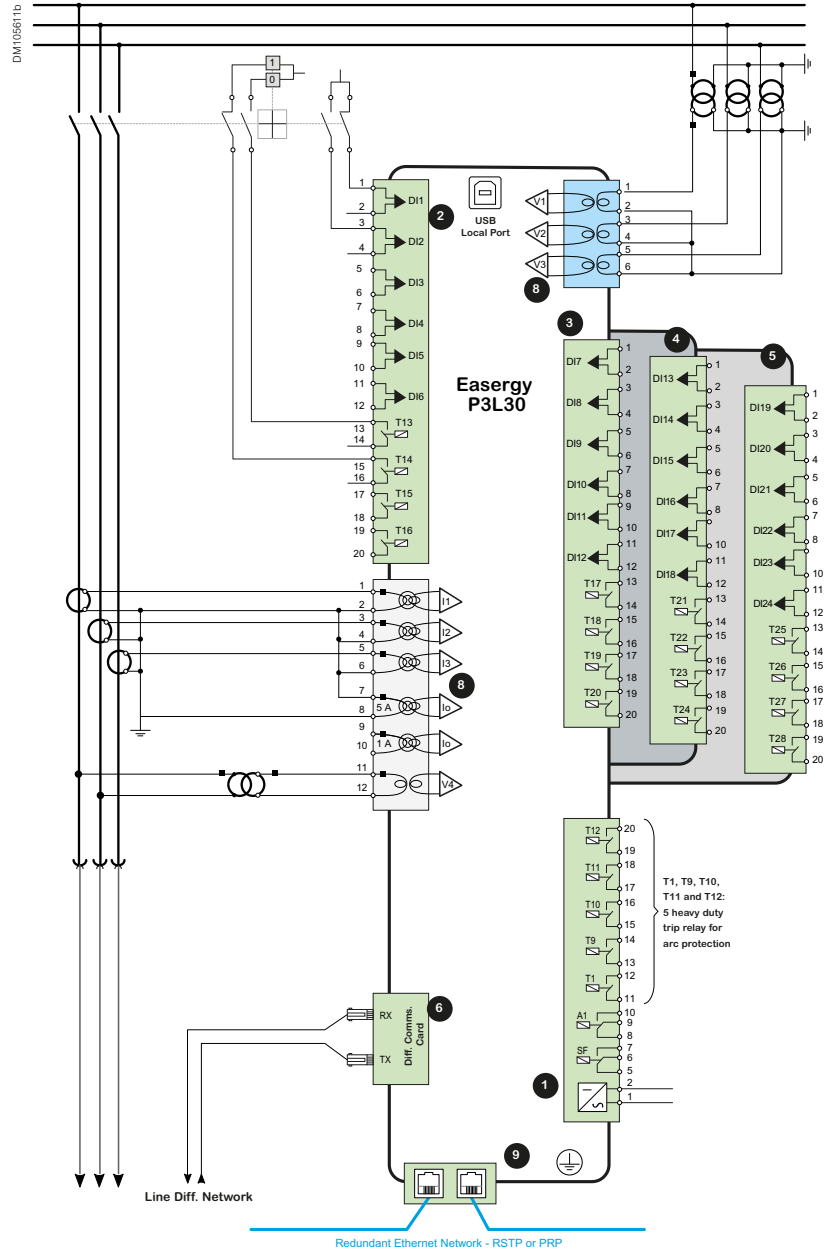
## Easergy P3L30

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, ELECTRIC ARC OR BURNS**

- only qualified personnel should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- turn off all power supplying this equipment before working on or inside it. Consider all sources of power, including the possibility of backfeeding.
- always use a properly rated voltage sensing device to confirm that all power is off.
- start by connecting the device to the protective earth and to the functional earth.
- screw tight all terminals, even those not in use.



**Failure to follow these instructions will result in death or serious injury.**



# Model selection

## Selecting product

Please, consult the "Ordering" section to choose specific characteristics in the relays for your system:

	<p>P3F30 Feeder application</p>	<a href="#">Page 109</a>
	<p>P3L30 Line application</p>	<a href="#">Page 110</a>
	<p>P3M30 Motor application</p>	<a href="#">Page 111</a>
	<p>P3G30 Generator application</p>	<a href="#">Page 112</a>
	<p>P3T32 Transformer with differential application</p>	<a href="#">Page 113</a>
	<p>P3M32 Motor with differential application</p>	<a href="#">Page 114</a>
	<p>P3G32 Generator with differential application</p>	<a href="#">Page 115</a>

Or use our web configuration tool:

[Go to web configurator](#)

Notes

---

# Easergy digital experience

# Easergy digital experience

---

<a href="#">Easergy P3 software</a>	<a href="#">80</a>
<a href="#">Presentation</a>	<a href="#">80</a>

---

<a href="#">eSetup Easergy Pro</a>	<a href="#">82</a>
<a href="#">eSetup Easergy Pro during engineering</a>	<a href="#">82</a>
<a href="#">eSetup Easergy Pro during commissioning</a>	<a href="#">83</a>
<a href="#">eSetup Easergy Pro during operation</a>	<a href="#">84</a>

---

<a href="#">Easergy web-HMI</a>	<a href="#">85</a>
---------------------------------	--------------------

---

<a href="#">Easergy SmartApp</a>	<a href="#">86</a>
----------------------------------	--------------------

---

**Minimum requirements for running eSetup Easergy Pro:**

- Windows 7 or higher
- 512 MB RAM
- 50 MB Disk space

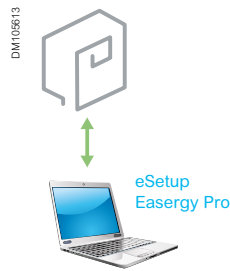
### eSetup Easergy Pro

eSetup Easergy Pro offers full facilities to set up Easergy relays. Intuitive and simple, eSetup Easergy Pro is a user-oriented interface to assist you during the engineering, commissioning and operation of Easergy protection relays. Its streamlined workflow and graphical representations has been designed to smooth your configuration process.

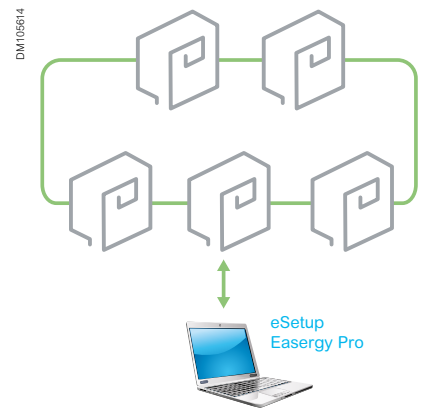
The software is available for download on the Schneider Electric website.



Use eSetup Easergy Pro in standalone mode during engineering to prepare the configuration.



Connect the PC running eSetup Easergy Pro to the USB port of the Easergy protection relay during commissioning to adjust the settings and test the relay.



Connect the PC running eSetup Easergy Pro to the Ethernet network during operation to retrieve data from the relays and update the system.

*For connection to Easergy P3, use the REL52822 connection cord*



eSetup Easergy Pro at each step of the digital life

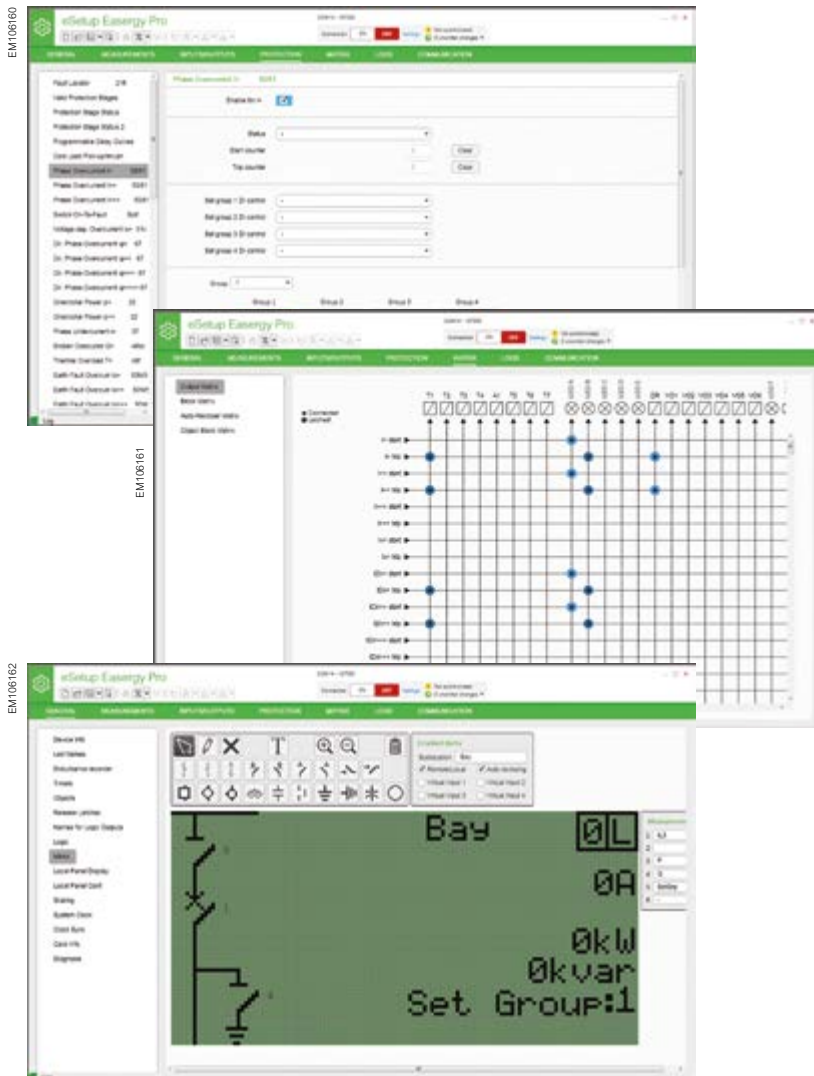
DM105615



# eSetup Easergy Pro

## During engineering

- Create the configuration of the Easergy P3 relay: select the appropriate options and receive the order code
- Set the characteristics of the CTs, VTs, or sensors connected to the relay, and select the protection functions that will be activated and their settings
- Build a specific logic, if required, using a graphic editor
- Map the digital inputs of the relay and different internal signals to the relevant functions, LEDs, and digital outputs, using a straightforward matrix format.
- Draw the single-line diagram that will appear on the front display of the relay for switchgear control and select the measurements that will be displayed. If any, build the interlocking logic using a matrix format
- For IEC 61850 protocol, configure the data set and the report control blocks that will be published and select the GOOSE data to which you want to subscribe
- Complete the setting of additional functions (disturbance recorder, event logging system, clock synchronization, etc.).



# eSetup Easergy Pro

## During commissioning

- Connect to the front panel of one single relay or access several relays by connecting to Ethernet
- Open the Digital Inputs menu to check the status of inputs. Reverse the polarity or add a filtering delay if necessary
- Open the Relays menu and force the status change of the output relays in order to check the wiring.
- Open the Phasor Diagram menu to see in real time the phasor of injected currents and voltages and the value
- Use virtual injection for testing protection settings and circuit breaker tripping and for checking LEDs and connected outputs
- Open the Logic or the Matrix menu if the logic needs to be tested. The active signals appear in a different color and are updated in real time. Changes in the logic or in the matrix can be made and applied to the relay smoothly.

EM106163



EM106164



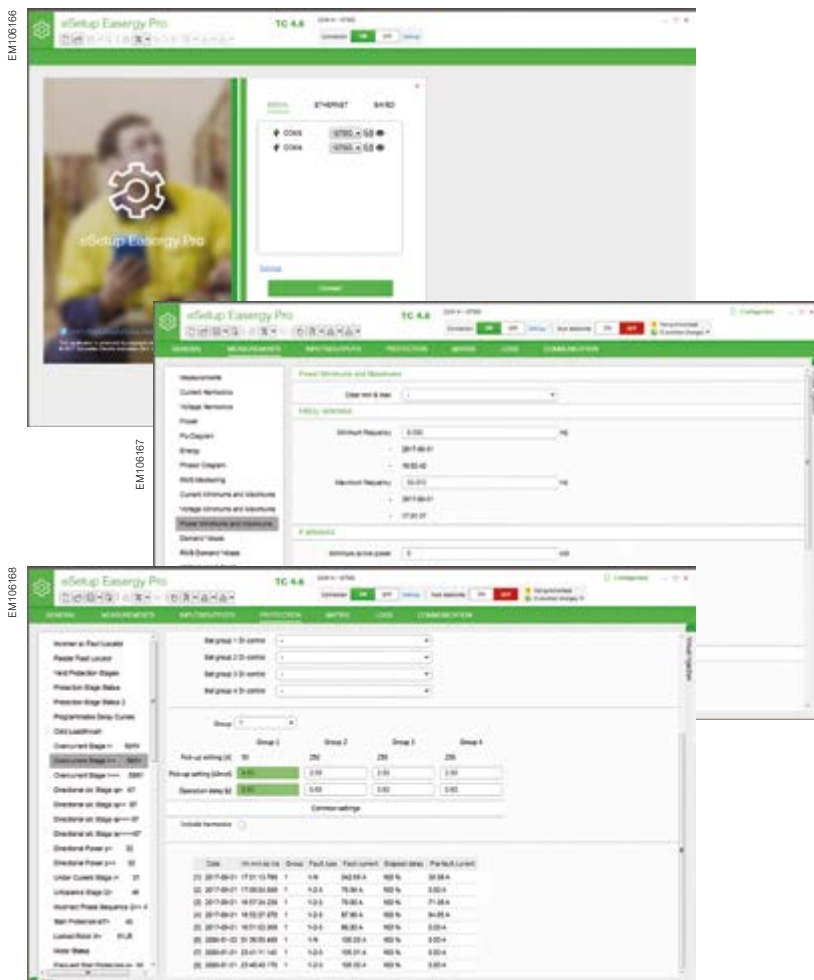
EM106165



# eSetup Easergy Pro

## During operation

- Connect to the front panel of a single relay or gain access to several relays by connecting to Ethernet
- During normal operation, get the most of the metering capabilities of the Easergy protection relay:
  - Open the different Measurements menus to access the power monitoring and power quality data.
  - Open the disturbance recorder menu to get a waveform capture or program the recording of a power trend.
- After a trip, use eSetup Easergy Pro to understand the fault:
  - Check the fault log of the protection that has tripped the circuit breaker
  - Download the disturbance record from the Easergy P3 and display it with a disturbance recorder evaluation tool, eg. Wavwin.

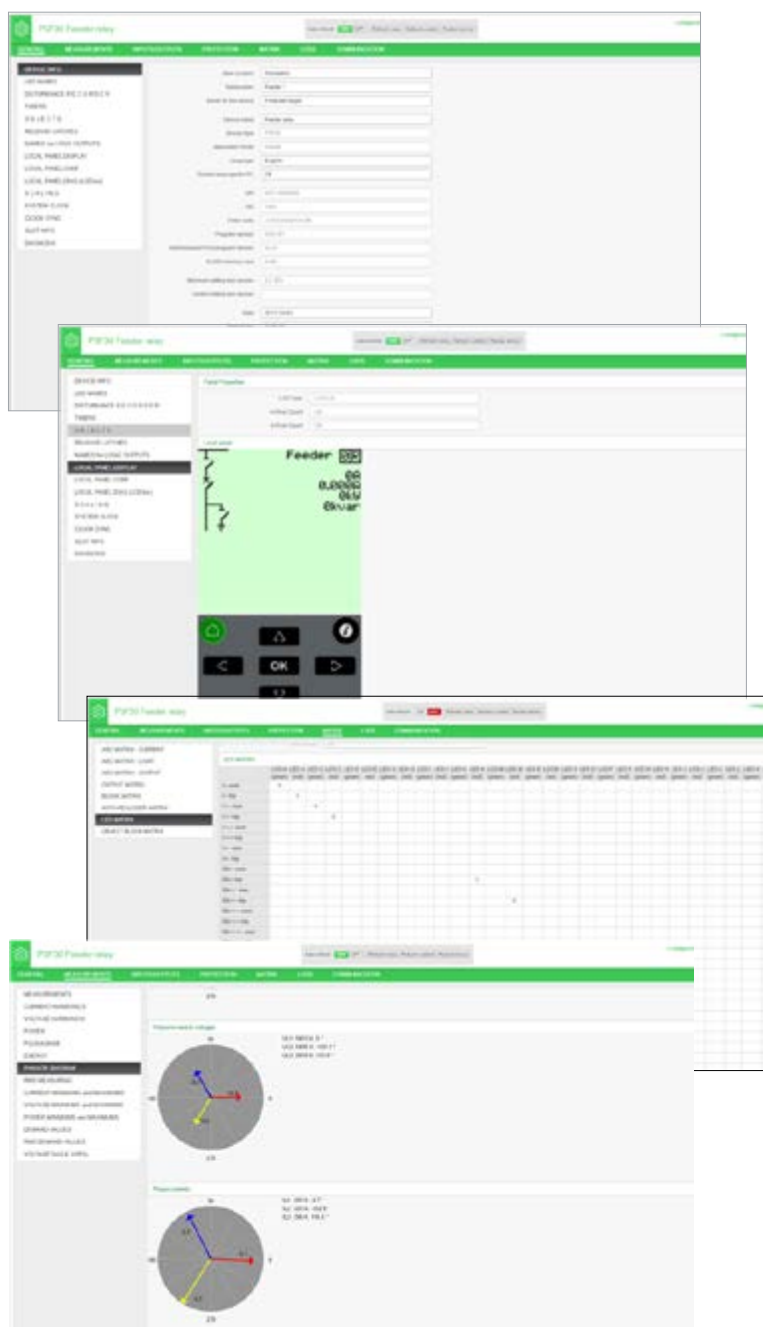


### Enhance operational efficiency

- Direct access to protection and communication settings
- Control and monitoring of circuit breakers and switches
- Mirror HMI function
- Direct access to measurements including the graphic phasors
- Device diagnosis
- MATRIX status
- Access to logs and other information

### Boost operational efficiency with the embedded web-HMI

Quickly and conveniently configure, monitor, and operate your Easergy P3 protection relay with our web-HMI. The web-HMI, accessible online via IP address of the relay, doesn't require you to install specific computer software - simply use your web browser to connect to the device. You only need to enable the web server service during the initial configuration of Easergy P3 with eSetup Easergy Pro. The web-HMI is based on the same page design as eSetup Easergy Pro, making it easy to use!



# Easergy SmartApp

## Description



## Discover how the Easergy SmartApp can simplify your daily operations

Use the Easergy SmartApp to control Easergy P3 to improve safety, simplify operations and maintenance, and save valuable operational time<sup>(1)</sup>.

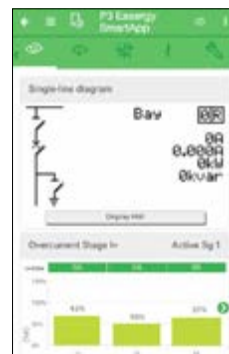
### Safety

The Easergy SmartApp improves safety by allowing the operator to stay away from the circuit-breaker during operations.

### Simplicity

The Easergy SmartApp provides easy access to device status, control, and monitoring of the circuit breaker, measurements, settings, events and other functions, through the mirror HMI or a simplified view.

- Mirror HMI: Duplicate the device display in the Easergy SmartApp to perform actions more easily and safely.
- Simplified view: The Easergy SmartApp gives you an organized view of all the device's functionalities for simpler access to the data. You benefit from a clearer overview of the switchgear's health, faster issue resolution, and safer operations.



Easergy SmartApp screens example

Free download on:



(1) Wi-Fi is not embedded in Easergy P3, a separate Wi-Fi router connected to an Ethernet port of the device is required.

Notes

---

# Additional modules and accessories



# Additional modules and accessories

---

<a href="#">Connection cables</a>	<a href="#">90</a>
<a href="#">Communication modules</a>	<a href="#">92</a>
<a href="#">Temperature and analogue input and output modules</a>	<a href="#">94</a>
<a href="#">Arc flash sensors</a>	<a href="#">96</a>

---

# Connection cables

## Description

### Cables for Easergy P3 Standard

The cables can be used for connecting external option modules to the Easergy P3 Standard. The device is equipped with I/O communication model E or F, where RS232 interface is available.



PM106989

#### REL52825

A remote port is available when a REL52825 cable is used. The cable contains a connector for the RS-232 interface of the Easergy P3 Standard and a D9-connector for the external option module.

Length	<b>2.5 m</b> (78.74 in)
--------	-------------------------



PM106980

#### REL52827

The cable contains a connector for the RS-232 interface of the Easergy P3 Standard and a D9-connector for the REL52815 Profibus interface module. An extension port is available for the REL52827 in Easergy P3 Standard.

Length	<b>3.0 m</b> (118.11 in)
--------	--------------------------



PM106970

#### REL52826

Remote and extension ports are available, in addition to IRIG-B clock synchronization, when the REL52826 cable is used. The REL52826 cable contains a connector for the RS-232 interface of the Easergy P3 Standard and a 3-piece D9-connector for the external option module and IRIG-B.

Length	<b>2.5 m</b> (78.74 in)
--------	-------------------------

# Connection cables

## Description

### Cables for Easergy P3 Advanced

The cables can be used for connecting external option modules to the Easergy P3 Advanced. The device is equipped with I/O communication model B, C or D, where RS232 interface is available.



#### REL52823

Remote and extension ports are available in addition to IRIG-B clock synchronization when the REL52823 cable is used. The REL52823 cable contains a connector for the RS232 interface of Easergy P3 Advanced and 3-piece D9-connector for the external option module and IRIG-B.

Length	<b>3.0 m</b> (118.11 in)
--------	--------------------------



#### REL52824

The cable contains a connector for the RS232 interface of Easergy P3 Advanced and D9-connector for the REL52815 Profibus interface module. An extension port is available for the REL52824 in Easergy P3 Advanced.

Length	<b>3.0 m</b> (118.11 in)
--------	--------------------------

### Cables for all Easergy P3 models

#### Front face USB Cable - REL52822

The Easergy P3 protection relays have a USB-connector in the front panel. Use eSetup Easergy Pro setting software with USB cable to set the device.



Length	<b>3.0 m</b> (118.11 in)
--------	--------------------------

# Communication modules

## Network interface modules

PM106581



### RS232 to RS485 network – REL52820

The external RS485 interface REL52820 is used to connect Easergy P3 devices to the RS485 network. With the RS485 serial interface module it is possible to have following serial protocols in use.

#### Characteristics

Distance (maximum)	200 m (7,874.02 in)
Devices (maximum)	32
Type of fiber optic connector	PIN (3)
Type of RS232 connector	9-pin DSUB connector
RS485 type	2-wire
Serial protocols	Modbus, DNP3.0, IEC870-5-103 and SpaBus
Power supply	From RS232 port or external – 12Vdc

To connect the interface with:

Easergy P3 Standard devices, use REL52825 cable

Easergy P3 Advanced devices, use REL52823 cable if needed

PM106586



### RS232 to fiber optic network – REL52816 to REL52819

An external fiber optic interface is used to connect Easergy P3 devices to a fiber optic loop or a fiber optic star network. The options include two different types of serial fiber optic modules.

Characteristics	REL52819	REL52816
Distance (maximum)	30 m (1,181 in)	1,000 m (39,370 in)
Type of fiber optic	Plastic-Plastic	Glass-Glass
FO diameter	1 mm	62.5/125 μM
Devices (maximum)	32	32
Type of fiber optic connector	HP Versalink Snap-in connector	ST
Interface	9-pin DSUB connector	
Serial protocols	Modbus, DNP3.0, IEC870-5-103 and SpaBus	
Power supply	From RS232 port or external – 12 Vdc	

To connect the interface with:

Easergy P3 Standard devices, use REL52825 cable

Easergy P3 Advanced devices, use REL52823 cable if needed

# Communication modules

## Network interface modules

PM10690



### DeviceNet network interface – REL52821

External RS485 DeviceNet interface REL52821 is used to connect Easergy P3 devices to RS485 network using DeviceNet protocol.

#### Characteristics

Distance (maximum)	200 m (7,874.02 in)
Devices (maximum)	32
Type of output connector	PIN
Type of RS232 connector	9-pin DSUB connector
Serial protocols	DeviceNet
Power supply	Need power feed from both RS232 port and external 24 Vdc

To connect the interface with:  
Easergy P3 Standard devices, use REL52825 cable  
Easergy P3 Advanced devices, no additional cable required

PM10695



### Profibus network interface – REL52815

External Profibus interface REL52815 is used to connect Easergy P3 devices to the Profibus network.

#### Characteristics

Interface	9-pin DSUB connector (Female)
Transfer method	RS485, Half-duplex
Transfer cable	Twisted pair (1 pair and shield)
Electrical isolation	500 Vdc
Serial protocols	Profibus DP
Baud rate	9.6 kBaud to 12 Mbaud
Power supply	
Easergy P3 Standard:	External – 12Vdc
Easergy P3 Advanced:	From RS232 port or external – 12Vdc

To connect the interface with:  
Easergy P3 Standard devices, use REL52827 cable  
Easergy P3 Advanced devices, use REL52824 cable

# Temperature and analog input/output modules

For Easergy P3

The temperature module is supplied ready for operation with:

- Easergy P3U20, P3U30 with RS485 communication port direct
- Easergy P3U20, P3U30, and P3X3x with RS232 communication port by REL52820 external RS485 interface
- Easergy P3U20, P3U30, and P3X3x with RS232 communication port by REL52816 to REL52819 external fiber optic interface

## Function

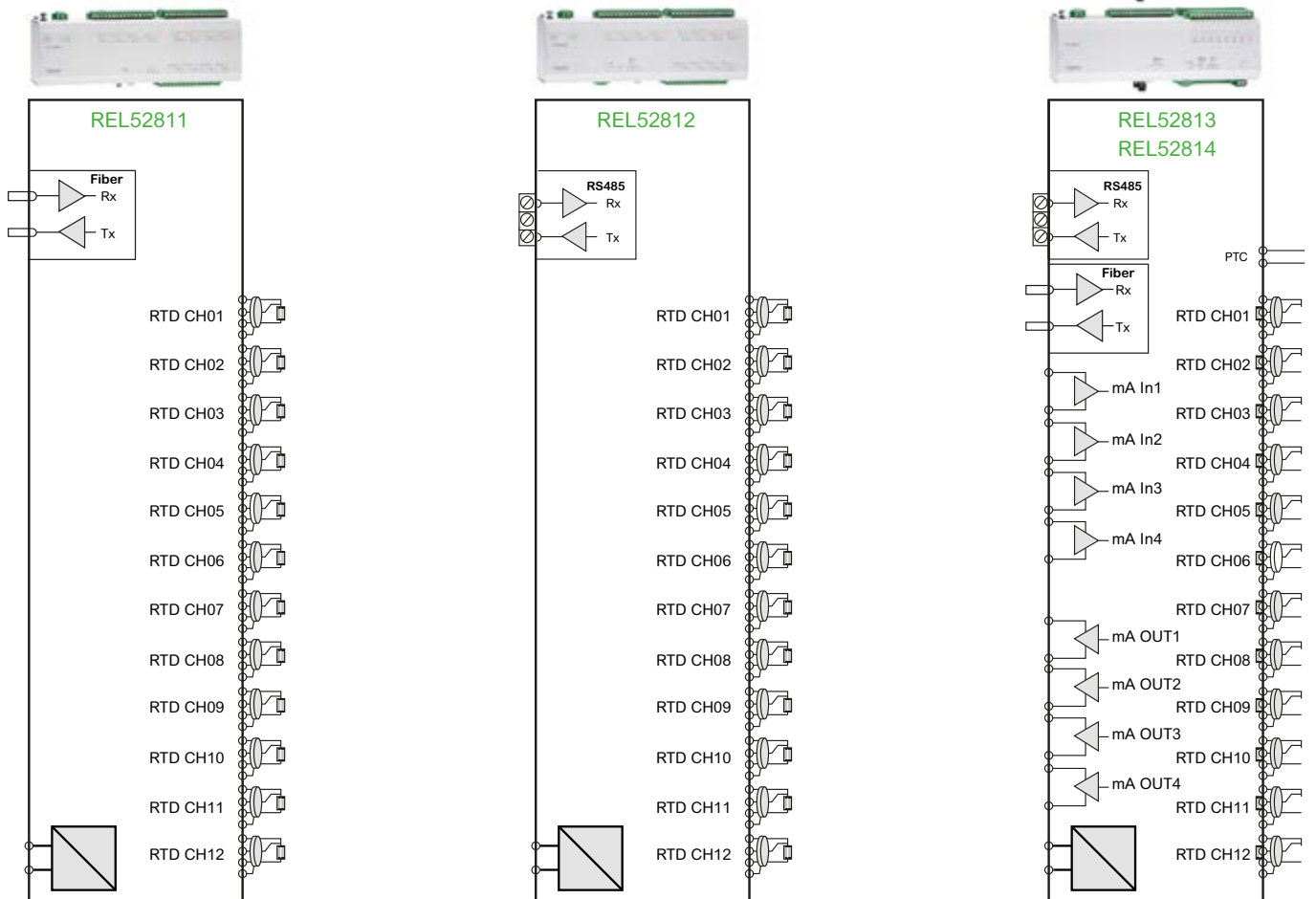
The temperature modules can be used to connect temperature sensors from the field to the Easergy P3 devices using a communication port RS485 by twist-pair or fiber optic.

The temperature measurement is utilized by the following protection functions in transformer and motor application:

- Thermal overload
- Temperature monitoring
- Customized logic or custom protection function

The modules REL52813 and REL52814 have analog input and output to use in the special controls functions.

DM105628



# Temperature and analog input/output modules

Temperature input modules – REL52811 / REL52812 / REL52813 / REL52814				
Characteristics	REL52811	REL52812	REL52813	REL52814
Interface	Glass fiber (ST)	RS485 Twisted Pair	Glass fiber (ST) OR RS485,TP	
Distance (maximum)	2,000 m (78,740 in)	1,200 m* (47,244 in)	2 000 m / 1 200 m*	
Quantity of Temperature sensors	12 channels, 3-wire		12 channels, 3-wire and 1 PTC channel 2-wire	
Supported RTD types	Pt100, Ni00, Ni120 and Cu10			
Measuring range	1 - 400 Ω			
Measuring resolution	0.10 Ω			
Measuring accuracy	±0.3 Ω			
Sensor distance	50 Ω (corresponds to 2 000 m at 0.75 mm <sup>2</sup> )			
Power Supply	24 - 230 Vac/dc 50/60 Hz		24 Vdc	48 - 230 Vac/dc 50/60 Hz
Operating Temperature	0°C (32°F) to 55°C (131°F)			
Mounting Type	DIN Rail			
Degree of protection	IP20			

\* The value may decrease according to the conditions of use

Analog Input / Output modules – REL52811 / REL52812 / REL52813 / REL52814				
Characteristics	REL52811	REL52812	REL52813	REL52814
Analog Input (mA)	0	0	4	4
Input Range	-	-	0-25 mA	0-25 mA
Input accuracy	-	-	±1%	±1%
Input resolution	-	-	6uA (12-bits)	6uA (12-bits)
Input impedance	-	-	100 Ω	100 Ω
Analog Output (mA)	0	0	4	4
Output range	-	-	0-25 mA	0-25 mA
Output accuracy	-	-	±1%	±1%
Output resolution	-	-	6uA (12-bits)	6uA (12-bits)
Galvanic isolation	-	-	1000 V	1000 V
Max. Load/output	-	-	750 Ω	750 Ω
PTC Input	-	-	1	1
Measuring accuracy	-	-	±10% (<10 kΩ)	±10% (<10 kΩ)

\* The value may decrease according to the conditions of use

# Arc flash sensors

For Easergy P3 Advanced only

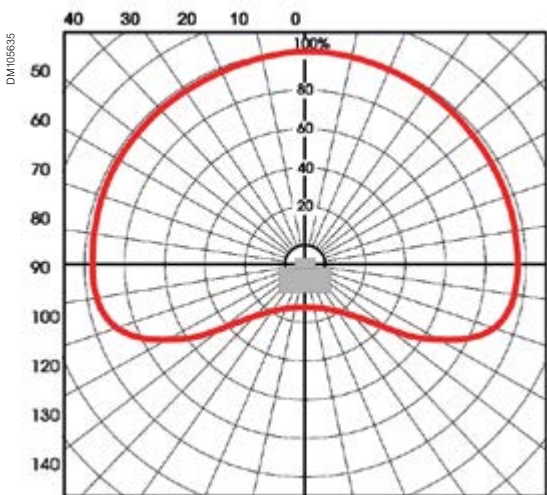
## Sensors description

The sensor is used by an arc flash protection device (Easergy P3 Advanced) or system to detect the light coming from the arc flash incident.

The Easergy P3 Advanced arc sensor is activated by strong light. The sensor transforms the light information into the current signal, which is used by the protection device to indicate arc flash.

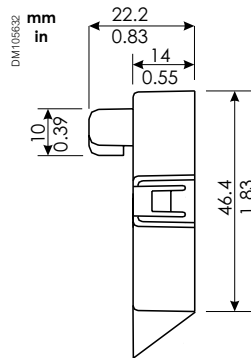
Arc flash sensors										
Characteristics	REL52801	REL52802	REL52803	REL52804	REL52805	REL52806	REL52807	REL52808	REL52809	REL52810
Material	Plastic									
Type	Standard					Pipe				
Weight	1,000 g 2.20 lb	1,300 g 2.87 lb	1,300 g 2.87 lb	300 g 0.66 lb	400 g 0.88 lb	400 g 0.88 lb	1,000 g 2.20 lb	1,300 g 2.87 lb	300 g 0.66 lb	400 g 0.88 lb
Cable length (m)	6	20	20	6	6	6	20	20	6	6
Shielded cable	-	-	•	-	-	•	-	•	-	•
Halogen free	-	•	-	•	-	-	-	-	-	-
Environment	Pollution Degree 2									
Operation temperature	-25°C (-13°F) to +70°C (+158°F)									
Light spectrum sensitive area	400 – 1100 nm									
Detection time	1 ms									
Light sensitivity	8 000 – 10 000 lux									
Loop supervision	Yes									

To connect the interface in the Easergy P3 Standard devices, use REL52883 cable.

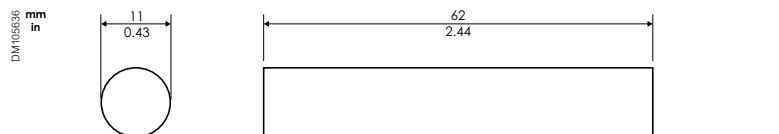


Sensitivity area

### REL52801 - 52806 dimensions



### REL52807 - 52810 dimensions



Arc Flash sensor: Pipe type

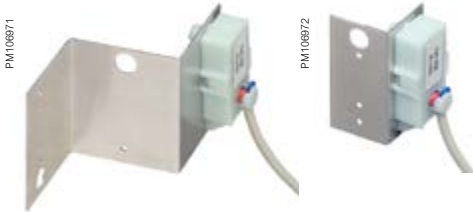


# Arc flash sensors

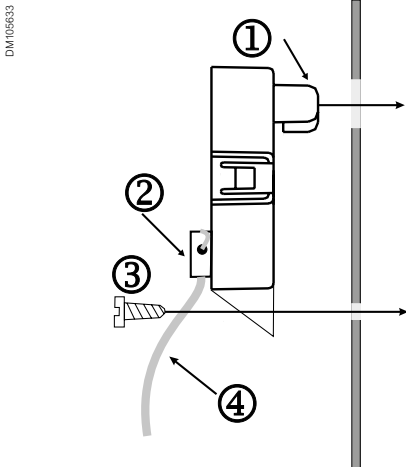
For Easergy P3 Advanced only

## Direct mounting on switchgear

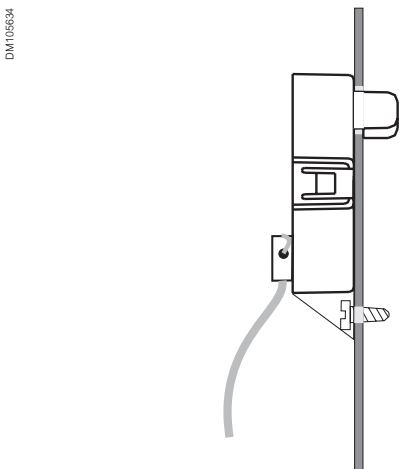
Setting the light sensor in the switchgear requires either special supports type REL52828 (mounting plate for sensor Z-shape) or REL52829 (mounting plate for sensor L-shape), or it can be mounted in customer drilled holes.



Before

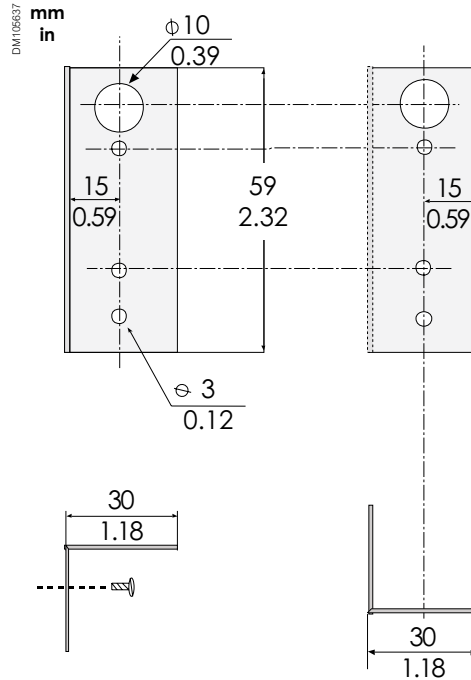


After



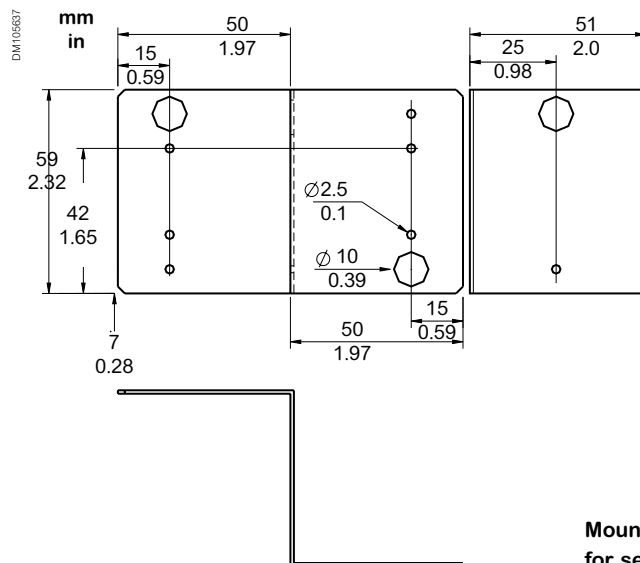
## Mounting options

### REL52829 dimensions



Mounting plate  
for sensor L-shape

### REL52828 dimensions



Mounting plate  
for sensor Z-shape

# Schneider Electric Service

# Schneider Electric Service

---

[Providing peace of mind throughout your installation life cycle](#) [100](#)

---

[Endorsing the most eco-friendly products in the industry: Green Premium™](#) [101](#)

---

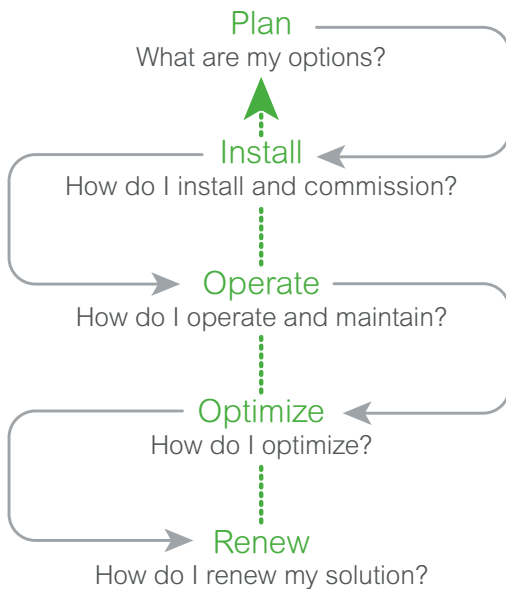
# Providing peace of mind throughout your installation life cycle

How can you cut costs and improve performance at the same time?

When it comes to your electrical distribution infrastructure, the answer is straight-forward - get professional expertise.

## Life cycle services

DM1409543



When it comes to your electrical distribution installation, we can help you:

- Increase productivity, reliability, and safety
- Mitigate risk and limit downtime
- Keep equipment up to date and extend its lifespan
- Cut costs and increase savings
- Improve your return on investment

### CONTACT US!

[www.schneider-electric.com/electricaldistributionervices](http://www.schneider-electric.com/electricaldistributionervices)

## Plan

We help you plan the full design and execution of your solution, looking at securing your process and optimizing your time:

- **Technical feasibility studies:**  
Accompany you to design a solution in your given environment
- **Preliminary design:**  
Accelerate turnaround time to come to a final solution design

## Install

We help you install efficient, reliable, and safe solutions based on your plans:

- **Project management:**  
Designed to help you complete your projects on time and within budget
- **Commissioning:**  
Ensure your actual performance versus design, through on-site testing and commissioning, tools, and procedures

## Operate

We help you maximize your installation uptime and control your capital expenditures through our service offering:

- **Asset operation solutions**
- **Advantage service plans**
- **On-site maintenance services**
- **Spare parts management**
- **Technical training**

## Optimize

We provide recommendations to improve your safety, availability, reliability, and quality:

- **MP4 electrical assessment:**  
Define your improvement and risk management program

## Renew

We extend the life of your system while providing upgrades and offers to take full responsibility for the end-of-life processing of old electrical equipment:

- **Retrofit:**  
Keep up to date and improve the performance of your electrical installations (LV, MV, Protection Relays, etc.)
- **MV product end of life:**  
Recycle and recover your outdated equipment with end-of-life services

# Endorsing the most eco-friendly products in the industry



Green Premium is the only label that allows you to effectively develop and promote an environmental policy whilst preserving your business efficiency. This ecolabel guarantees compliance with the most up-to-date environmental regulations, but it does more than this.

Our Green Premium ecolabel is committed to offering transparency by disclosing extensive and reliable information related to the environmental impact of its products:

#### **RoHS**

Our products are subject to RoHS requirements at a worldwide level, even for the many products that are not required to comply with the terms of the regulation. Compliance certificates are available for products that fulfill the criteria of this European initiative, which aims to eliminate hazardous substances.

#### **REACH**

We apply the strict REACH regulation to our products at a worldwide level and disclose extensive information concerning the presence of SVHC (Substances of Very High Concern) in all of these products.

#### **PEP: Product Environmental Profile**

Assumption data, for each of the lifecycle phases on all of our products, in compliance with the ISO 14025 PEP ecopassport program. PEP is especially useful for monitoring, controlling, saving energy, and/or reducing carbon emissions.

#### **EoLI: End of Life Instructions**

Available at the click of a button, these instructions provide:

- Recyclability rates for our products.
- Guidance for mitigating personnel hazards during the dismantling of your products and before recycling operations.
- Parts identification for recycling or for selective treatment, to mitigate environmental hazards/incompatibility with standard recycling processes.



Discover what we mean by green ....

**Check your products!**

Over **75%** of our manufactured products have been awarded the Green Premium ecolabel

# Ordering

# Ordering

---

<a href="#">Fast Ordering Code</a>	<a href="#">104</a>
<hr/>	
<a href="#">Easergy P3 Standard</a>	<a href="#">107</a>
<a href="#">Easergy P3U10 configuration</a>	<a href="#">108</a>
<a href="#">Easergy P3U20 configuration</a>	<a href="#">108</a>
<a href="#">Easergy P3U30 configuration</a>	<a href="#">109</a>
<hr/>	
<a href="#">Easergy P3 Advanced</a>	<a href="#">110</a>
<a href="#">Easergy P3F30 configuration</a>	<a href="#">110</a>
<a href="#">Easergy P3L30 configuration</a>	<a href="#">111</a>
<a href="#">Easergy P3M30 configuration</a>	<a href="#">112</a>
<a href="#">Easergy P3M32 configuration</a>	<a href="#">113</a>
<a href="#">Easergy P3T32 configuration</a>	<a href="#">114</a>
<a href="#">Easergy P3G30 configuration</a>	<a href="#">115</a>
<a href="#">Easergy P3G32 configuration</a>	<a href="#">116</a>
<hr/>	
<a href="#">Accessories</a>	<a href="#">117</a>
<hr/>	

## Fast ordering code

## Easergy P3 Standard



## Easergy P3 Standard

Commercial Ref.	Product Reference	Nominal Power Supply	Nominal Digital Input Voltage	Voltage Input	Nbr. Digital Input/Output	Option	Com. Port
REL52001	P3U30-5AAA3BCA	Power A 48-230 V	220-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x RJ45
REL52002	P3U30-5AAA3BBA	Power A 48-230 V	220-230 Vac/dc	4	16 DI / 8 DO	Screw connector	RS485
REL52003	P3U30-5AAA1BCA	Power A 48-230 V	24-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x RJ45
REL52004	P3U30-5AAA2BCA	Power A 48-230 V	110-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x RJ45
REL52005	P3U30-5AAA1BBA	Power A 48-230 V	24-230 Vac/dc	4	16 DI / 8 DO	Screw connector	RS485
REL52006	P3U30-5ABA1BBA	Power B 24 V	24-230 Vac/dc	4	16 DI / 8 DO	Screw connector	RS485
REL52007	P3U30-5AAA1BDA	Power A 48-230 V	24-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x LC
REL52008	P3U30-6AAA2BCA	Power A 48-230 V	110-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	2 x RJ45
REL52009	P3U30-5ABA1BCA	Power B 24 V	24-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x RJ45
REL52010	P3U30-5AAA2BDA	Power A 48-230 V	110-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x LC
REL52011	P3U20-5ABA1ACA	Power B 24 V	24-230 Vac/dc	1	10 DI / 5 DO	Screw connector	2 x RJ45
REL52012	P3U30-5AAA2BBA	Power A 48-230 V	110-230 Vac/dc	4	16 DI / 8 DO	Screw connector	RS485
REL52013	P3U20-5AAA1ACA	Power A 48-230 V	24-230 Vac/dc	1	10 DI / 5 DO	Screw connector	2 x RJ45
REL52014	P3U30-5ABA1BDA	Power B 24 V	24-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x LC
REL52015	P3U20-6AAA2ACA	Power A 48-230 V	110-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	2 x RJ45
REL52016	P3U30-6AAA2BBA	Power A 48-230 V	110-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	RS485
REL52017	P3U30-6AAA3BCA	Power A 48-230 V	220-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	2 x RJ45
REL52018	P3U20-5AAA2ACA	Power A 48-230 V	110-230 Vac/dc	1	10 DI / 5 DO	Screw connector	2 x RJ45
REL52019	P3U30-5AAA1BFA	Power A 48-230 V	24-230 Vac/dc	4	16 DI / 8 DO	Screw connector	LC + RS232
REL52020	P3U30-6ABA1BBA	Power B 24 V	24-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	RS485
REL52021	P3U30-6AAA2BDA	Power A 48-230 V	110-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	2 x LC
REL52022	P3U30-6AAA1BCA	Power A 48-230 V	24-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	2 x RJ45
REL52023	P3U20-6ABA1ADA	Power B 24 V	24-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	2 x LC
REL52024	P3U20-5ABA1ADA	Power B 24 V	24-230 Vac/dc	1	10 DI / 5 DO	Screw connector	2 x LC
REL52025	P3U30-5BAA2BCA	Power A 48-230 V	110-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x RJ45
REL52026	P3U10-5AAA1AAA	Power A 48-230 V	24-230 Vac/dc	1	2 DI / 5 DO	Screw connector	none
REL52027	P3U10-6AAA1AAA	Power A 48-230 V	24-230 Vac/dc	1	2 DI / 5 DO	Ring-lug connector	none
REL52028	P3U10-5AAA2AAA	Power A 48-230 V	110-230 Vac/dc	1	2 DI / 5 DO	Screw connector	none
REL52029	P3U10-6AAA2AAA	Power A 48-230 V	110-230 Vac/dc	1	2 DI / 5 DO	Ring-lug connector	none
REL52030	P3U10-5AAA3AAA	Power A 48-230 V	220-230 Vac/dc	1	2 DI / 5 DO	Screw connector	none
REL52031	P3U10-6AAA3AAA	Power A 48-230 V	220-230 Vac/dc	1	2 DI / 5 DO	Ring-lug connector	none
REL52032	P3U20-5AAA1ABA	Power A 48-230 V	24-230 Vac/dc	1	10 DI / 5 DO	Screw connector	RS485
REL52033	P3U20-5AAA1ADA	Power A 48-230 V	24-230 Vac/dc	1	10 DI / 5 DO	Screw connector	2 x LC



# Fast ordering code

## Easergy P3 Standard



### Easergy P3 Standard

Commercial Ref.	Product Reference	Nominal Power Supply	Nominal Digital Input Voltage	Voltage Input	Nbr. Digital Input/Output	Option	Com. Port
REL52034	P3U20-6AAA1ABA	Power A 48-230 V	24-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	RS485
REL52035	P3U20-6AAA1ACA	Power A 48-230 V	24-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	2 x RJ45
REL52036	P3U20-6AAA1ADA	Power A 48-230 V	24-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	2 x LC
REL52037	P3U20-5AAA2ABA	Power A 48-230 V	110-230 Vac/dc	1	10 DI / 5 DO	Screw connector	RS485
REL52038	P3U20-5AAA2ADA	Power A 48-230 V	110-230 Vac/dc	1	10 DI / 5 DO	Screw connector	2 x LC
REL52039	P3U20-6AAA2ABA	Power A 48-230 V	110-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	RS485
REL52040	P3U20-6AAA2ADA	Power A 48-230 V	110-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	2 x LC
REL52041	P3U20-5AAA3ABA	Power A 48-230 V	220-230 Vac/dc	1	10 DI / 5 DO	Screw connector	RS485
REL52042	P3U20-5AAA3ACA	Power A 48-230 V	220-230 Vac/dc	1	10 DI / 5 DO	Screw connector	2 x RJ45
REL52043	P3U20-5AAA3ADA	Power A 48-230 V	220-230 Vac/dc	1	10 DI / 5 DO	Screw connector	2 x LC
REL52044	P3U20-6AAA3ABA	Power A 48-230 V	220-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	RS485
REL52045	P3U20-6AAA3ACA	Power A 48-230 V	220-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	2 x RJ45
REL52046	P3U20-6AAA3ADA	Power A 48-230 V	220-230 Vac/dc	1	10 DI / 5 DO	Ring-lug connector	2 x LC
REL52047	P3U30-6AAA1BBA	Power A 48-230 V	24-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	RS485
REL52048	P3U30-6AAA1BDA	Power A 48-230 V	24-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	2 x LC
REL52049	P3U30-5AAA3BDA	Power A 48-230 V	220-230 Vac/dc	4	16 DI / 8 DO	Screw connector	2 x LC
REL52050	P3U30-6AAA3BBA	Power A 48-230 V	220-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	RS485
REL52051	P3U30-6AAA3BDA	Power A 48-230 V	220-230 Vac/dc	4	16 DI / 8 DO	Ring-lug connector	2 x LC

For more configuration or options,  
please use our web configurator or see:

[page 107 for Easergy P3U10](#)

[page 108 for Easergy P3U20](#)

[page 109 for Easergy P3U30](#)

Go to web configurator





## Easergy P3 Advanced

Commercial Ref.	Product Reference	Nominal Power Supply	Nominal Digital Input Voltage	Voltage Input	Nbr. Digital Input/Output	Option	Com. Port
REL52101	P3F30-CGGGG-AAENA-BA	Power C 110-230 V	24-230 Vac/dc	4	24 DI / 21 DO	-	2 x RJ45
REL52102	P3F30-CGGGI-AAENA-BB	Power C 110-230 V	110-230 Vac/dc	4	28 DI / 17 DO	-	2 x RJ45
REL52103	P3F30-CGGGI-DAECA-BB	Power C 110-230 V	110-230 Vac/dc	4	28 DI / 17 DO	4 Arc sensors	RS232 + RJ45
REL52104	P3F30-CGGIA-AAEBA-BC	Power C 110-230 V	220-230 Vac/dc	4	22 DI / 13 DO	-	RS232
REL52105	P3F30-CGGIA-AAECA-BA	Power C 110-230 V	24-230 Vac/dc	4	22 DI / 13 DO	-	RS232 + RJ45
REL52106	P3F30-CGGIA-AAENA-BA	Power C 110-230 V	24-230 Vac/dc	4	22 DI / 13 DO	-	2 x RJ45
REL52107	P3F30-CGGIA-AAEOA-BB	Power C 110-230 V	110-230 Vac/dc	4	22 DI / 13 DO	-	2 x LC
REL52108	P3F30-CGGIA-DAENA-BA	Power C 110-230 V	24-230 Vac/dc	4	22 DI / 13 DO	4 Arc sensors	2 x RJ45
REL52109	P3F30-CGIAA-AAECA-BA	Power C 110-230 V	24-230 Vac/dc	4	16 DI / 9 DO	4 Arc sensors	RS232 + RJ45
REL52110	P3F30-CGIAA-AAEDA-BB	Power C 110-230 V	110-230 Vac/dc	4	16 DI / 9 DO	4 Arc sensors	RS232 + LC
REL52111	P3F30-CGIAA-DAENA-BA	Power C 110-230 V	24-230 Vac/dc	4	16 DI / 9 DO	4 Arc sensors	2 x RJ45
REL52112	P3F30-CGIIA-AAENA-BA	Power C 110-230 V	24-230 Vac/dc	4	26 DI / 9 DO	-	2 x RJ45
REL52113	P3F30-DGGGG-AAENA-BA	Power D 24-48 V	24-230 Vac/dc	4	24 DI / 21 DO	-	2 x RJ45
REL52114	P3F30-DGGGI-AAENA-BA	Power D 24-48 V	24-230 Vac/dc	4	28 DI / 17 DO	-	2 x RJ45
REL52115	P3F30-DGGIA-AAECA-BA	Power D 24-48 V	24-230 Vac/dc	4	22 DI / 13 DO	-	RS232 + RJ45
REL52116	P3F30-DGGIA-AAENA-BA	Power D 24-48 V	24-230 Vac/dc	4	22 DI / 13 DO	-	2 x RJ45
REL52117	P3F30-DGGIA-DAENA-BA	Power D 24-48 V	24-230 Vac/dc	4	22 DI / 13 DO	4 Arc sensors	2 x RJ45
REL52118	P3F30-DGIAA-AAENA-BA	Power D 24-48 V	24-230 Vac/dc	4	16 DI / 9 DO	-	2 x RJ45
REL52119	P3F30-DGIAA-DAENA-BA	Power D 24-48 V	24-230 Vac/dc	4	16 DI / 9 DO	4 Arc sensors	2 x RJ45
REL52120	P3F30-DGIIA-AAENA-BA	Power D 24-48 V	24-230 Vac/dc	4	26 DI / 9 DO	-	2 x RJ45

For more configuration or options,  
please use our web configurator or see:

[page 110 for Easergy P3F30](#)

[page 111 for Easergy P3L20](#)

[page 112 for Easergy P3M30](#)

[page 113 for Easergy P3M32](#)

[page 114 for Easergy P3T32](#)

[page 115 for Easergy P3G30](#)

[page 116 for Easergy P3G32](#)

Go to web configurator



# Easergy P3 Standard

## Easergy P3U10 configuration

	<b>U10</b>	<b>Application</b>
		<b>U10</b> Feeder & Motor, 4xI, 1xU, 2DI, 5DO
X1		<b>Phase currents &amp; voltage input, X1</b>
	<b>5</b>	1 A / 5 A & 1U (100/110 V), pluggable clamp connector
	<b>6</b>	1 A / 5 A & 1U (100/110 V), pluggable ring lug connector
X1		<b>Earth-fault current input</b>
	<b>A</b>	1 A / 5 A
	<b>B</b>	0,2 A / 1 A
X2		<b>Nominal power supply voltage [V]</b>
	<b>A</b>	Power A 48 - 230 V (range: 40 ... 265 Vac/dc)
	<b>B</b>	Power B 24 V (range: 18 ... 36 Vdc)
	<b>A</b>	<b>Future option</b>
	<b>A</b>	None
		<b>Digital input treshhold voltage (V)</b>
	<b>1</b>	24 Vac/dc
	<b>2</b>	110 Vac/dc
	<b>3</b>	220 Vac/dc
X5	<b>A</b>	<b>Voltage measurements + I/O, X5</b>
	<b>A</b>	None
X4	<b>A</b>	<b>I/O with comms, X4</b>
	<b>A</b>	None
	<b>A</b>	<b>Product version</b>
	<b>A</b>	Version 2.1

1. Choose your option

2. Mark your choice in the box below

3. Check your **order code:**

Easergy P3 **U10**    **A**  **A** **A** **A**

Slot numbers                      X1      X1      X2                                      X5      X4

# Easergy P3 Standard

## Easergy P3U20 configuration

	<input checked="" type="checkbox"/>	<b>U20</b>	<b>Application</b>
			<b>U20</b> Feeder & Motor, 4xI, 1xU, 2DI, 5DO
X1	<input checked="" type="checkbox"/>		<b>Phase currents &amp; voltage input, X1</b>
		<b>5</b>	1 A / 5 A & 1U (100/110 V), pluggable clamp connector
		<b>6</b>	1 A / 5 A & 1U (100/110 V), pluggable ring lug connector
X1	<input checked="" type="checkbox"/>		<b>Earth-fault current input, X1</b>
		<b>A</b>	1 A / 5 A
		<b>B</b>	0,2 A / 1 A
X2	<input checked="" type="checkbox"/>		<b>Nominal Supply Voltage [V], X2</b>
		<b>A</b>	Power A 48 - 230 V (range: 40 ... 265 Vac/dc)
		<b>B</b>	Power B 24 V (range: 18 ... 36 Vdc)
	<input checked="" type="checkbox"/>	<b>A</b>	<b>Future option</b>
		<b>A</b>	None
	<input checked="" type="checkbox"/>		<b>Digital input treshhold voltage (V)</b>
		<b>1</b>	24 Vac/dc
		<b>2</b>	110 Vac/dc
		<b>3</b>	220 Vac/dc
X5	<input checked="" type="checkbox"/>	<b>A</b>	<b>Voltage measurements + I/O, X5</b>
		<b>A</b>	None
X4	<input checked="" type="checkbox"/>		<b>I/O with comms, X4</b>
		<b>B</b>	RS-485 + 8DI
		<b>C</b>	2 x RJ-45 + 8DI
		<b>D</b>	2 x LC + 8DI
		<b>E</b>	RJ + 232 + 8DI with IRIG-B
		<b>F</b>	LC + 232 + 8DI with IRIG-B
	<input checked="" type="checkbox"/>	<b>A</b>	<b>Product version</b>
		<b>A</b>	Version 2.1

1. Choose your option

2. Mark your choice in the box below

3. Check your **order code**::

Easergy P3  **U20**     **A**   **A**   **A**

Slot numbers                      X1    X1    X2    X5    X4



# Easergy P3 Advanced

## Easergy P3F30 configuration

	<b>F30</b>	<b>Application</b>
		<b>F30</b> Feeder protection relay
1		<b>Nominal Supply Voltage [V]</b>
		<b>C</b> Power C 110 - 230 V (80 .. 265 Vac/dc, 5 x DO heavy duty, A1, SF)
		<b>D</b> Power D 24 - 48 V (18 .. 60 Vdc, 5 x DO heavy duty, A1, SF)
2	<b>G</b>	<b>I/O Card I</b>
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
3		<b>I/O Card II</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
4		<b>I/O Card III</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
5		<b>I/O Card IV</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
6		<b>Option card I</b>
		<b>A</b> None
		<b>D</b> 4Arc (4 x Arc sensor)
		<b>K</b> RS232 (RS232)
7	<b>A</b>	<b>Future option</b>
		<b>A</b> None
8		<b>Analog measurement card (See application)</b>
		<b>E</b> 3L(5 A)+4U+2Io (5/1 A+1/0,2 A)
		<b>F</b> 3L(1A)+4U+2Io (5/1 A+1/0,2 A)
9		<b>Communication interface I</b>
		<b>A</b> None
		<b>B</b> RS232 (RS232, IRIG-B)
		<b>C</b> RS232+RJ (RS232, IRIG-B + Ethernet RJ-45 100 Mbs)
		<b>D</b> RS232+LC (RS232, IRIG-B + Ethernet LC 100 Mbs)
		<b>N</b> 2xRJ (Ethernet RJ 100 Mbs, RSTP, PRP)
		<b>O</b> 2xLC (Ethernet LC 100 Mbs, RSTP, PRP)
		<b>P</b> PP (Plastic / Plastic serial fibre)
		<b>R</b> GG (Glass / Glass serial fibre)
10	<b>A</b>	<b>Product version</b>
		<b>A</b> Version 2.1
		<b>Display type</b>
		<b>B</b> 128x128 (128 x 128 LCD matrix)
		<b>C</b> 128x128Ext (128 x 128 LCD matrix, detachable) <sup>(1)</sup>
		<b>Digital input treshhold voltage (V)</b>
		<b>A</b> 24 Vdc/ac, with conformal coating
		<b>B</b> 110 Vdc/ac, with conformal coating
		<b>C</b> 220 Vdc/ac, with conformal coating

<sup>(1)</sup> By default cable length is 2 m. In case other length is needed order separately VX001-1, Vx001-3 or VX001-5 for 1 m, 3 m and 5 m respectively.

1. Choose your option

2. Mark your choice in the box below

3. Check your **order code**:

Easergy P3 **F30**  **G**     -  **A**   **A** -

Slot numbers                      1        2        3        4        5        -        6        7        8        9        10

# Easergy P3 Advanced

## Easergy P3L30 configuration

	<b>L30</b>	<b>Application</b>
		<b>L30</b> Feeder protection relay with Line differential and distance protection
1		<b>Nominal Supply Voltage [V]</b>
		<b>C</b> Power C 110 - 230 V (80 .. 265 Vac/dc, 5 x DO heavy duty, A1, SF)
		<b>D</b> Power D 24 - 48 V (18 .. 60 Vdc, 5 x DO heavy duty, A1, SF)
2	<b>G</b>	<b>I/O Card I</b>
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
3		<b>I/O Card II</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
4		<b>I/O Card III</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
5		<b>I/O Card IV</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
6		<b>Option card I</b>
		<b>A</b> None, Distance protection included
		<b>S</b> Line diff and distance FW with integrated optical diff comms. card
		<b>T</b> Line diff and distance FW with RS232 for external diff comms. converter
7	<b>A</b>	<b>Future option</b>
		<b>A</b> None
8		<b>Analog measurement card (See application)</b>
		<b>E</b> 3L(5 A)+4U+2Io (5/1 A+1/0,2 A)
		<b>F</b> 3L(1A)+4U+2Io (5/1 A+1/0,2 A)
9		<b>Communication interface I</b>
		<b>A</b> None
		<b>B</b> RS232 (RS232, IRIG-B)
		<b>C</b> RS232+RJ (RS232, IRIG-B + Ethernet RJ-45 100 Mbs)
		<b>D</b> RS232+LC (RS232, IRIG-B + Ethernet LC 100 Mbs)
		<b>N</b> 2xRJ (Ethernet RJ 100 Mbs, RSTP)
		<b>O</b> 2xLC (Ethernet LC 100 Mbs, RSTP)
		<b>P</b> PP (Plastic / Plastic serial fibre)
		<b>R</b> GG (Glass / Glass serial fibre)
10	<b>A</b>	<b>Product version</b>
		<b>A</b> Version 2.1
		<b>Display type</b>
		<b>B</b> 128x128 (128 x 128 LCD matrix)
		<b>C</b> 128x128Ext (128 x 128 LCD matrix, detachable) <sup>(1)</sup>
		<b>Digital input treshhold voltage (V)</b>
		<b>A</b> 24 Vdc/ac, with conformal coating
		<b>B</b> 110 Vdc/ac, with conformal coating
		<b>C</b> 220 Vdc/ac, with conformal coating

<sup>(1)</sup> By default cable length is 2 m. In case other length is needed order separately VX001-1, VX001-3 or VX001-5 for 1 m, 3 m and 5 m respectively.

1. Choose your option
2. Mark your choice in the box below
3. Check your **order code**:

Easergy P3 **L30**  **G**     -  **A**   **A** -

Slot numbers            1        2        3        4        5        -        6        7        8        9        10

# Easergy P3 Advanced

## Easergy P3M30 configuration

	<b>M30</b>	<b>Application</b>
		<b>M30</b> Motor protection relay
1		<b>Nominal Supply Voltage [V]</b>
		<b>C</b> Power C 110 - 230 V (80 .. 265 Vac/dc, 5 x DO heavy duty, A1, SF)
		<b>D</b> Power D 24 - 48 V (18 .. 60 Vdc, 5 x DO heavy duty, A1, SF)
2	<b>G</b>	<b>I/O Card I</b>
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
3		<b>I/O Card II</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
4		<b>I/O Card III</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
5		<b>I/O Card IV</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
6		<b>Option card I</b>
		<b>A</b> None
		<b>D</b> 4Arc (4 x Arc sensor)
		<b>K</b> RS232 (RS232)
7	<b>A</b>	<b>Future option</b>
		<b>A</b> None
8		<b>Analog measurement card (See application)</b>
		<b>E</b> 3L(5 A)+4U+2Io (5/1 A+1/0,2 A)
		<b>F</b> 3L(1A)+4U+2Io (5/1 A+1/0,2 A)
9		<b>Communication interface I</b>
		<b>A</b> None
		<b>B</b> RS232 (RS232, IRIG-B)
		<b>C</b> RS232+RJ (RS232, IRIG-B + Ethernet RJ-45 100 Mbs)
		<b>D</b> RS232+LC (RS232, IRIG-B + Ethernet LC 100 Mbs)
		<b>N</b> 2xRJ (Ethernet RJ 100 Mbs, RSTP)
		<b>O</b> 2xLC (Ethernet LC 100 Mbs, RSTP)
		<b>P</b> PP (Plastic / Plastic serial fibre)
		<b>R</b> GG (Glass / Glass serial fibre)
10	<b>A</b>	<b>Product version</b>
		<b>A</b> Version 2.1
		<b>Display type</b>
		<b>B</b> 128x128 (128 x 128 LCD matrix)
		<b>C</b> 128x128Ext (128 x 128 LCD matrix, detachable) <sup>(1)</sup>
		<b>Digital input treshhold voltage (V)</b>
		<b>A</b> 24 Vdc/ac, with conformal coating
		<b>B</b> 110 Vdc/ac, with conformal coating
		<b>C</b> 220 Vdc/ac, with conformal coating

<sup>(1)</sup> By default cable length is 2 m. In case other length is needed order separately VX001-1, VX001-3 or VX001-5 for 1 m, 3 m and 5 m respectively.

1. Choose your option

2. Mark your choice in the box below

3. Check your **order code**:

Easergy P3 **M30**   **G**     -      -

Slot numbers                    1        2        3        4        5        -        6        7        8        9        10



# Easergy P3 Advanced

## Easergy P3M32 configuration

	<b>M32</b>	<b>Application</b>
		<b>M32</b> Motor protection relay with differential protection
1		<b>Nominal Supply Voltage [V]</b>
		<b>C</b> Power C 110 - 230 V (80 .. 265 Vac/dc, 5 x DO heavy duty, A1, SF)
		<b>D</b> Power D 24 - 48 V (18 .. 60 Vdc, 5 x DO heavy duty, A1, SF)
2	<b>G</b>	<b>I/O Card I</b>
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
3		<b>I/O Card II</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
4	<b>T</b>	<b>I/O Card III</b>
		<b>T</b> 3xI (5/1A) + Io (5/1A) for motor differential protection
5	<b>A</b>	<b>I/O Card IV</b>
		<b>A</b> None
6		<b>Option card I</b>
		<b>A</b> None
		<b>D</b> 4Arc (4 x Arc sensor)
		<b>K</b> RS232 (RS232)
7	<b>A</b>	<b>Future option</b>
		<b>A</b> None
8		<b>Analog measurement card (See application)</b>
		<b>E</b> 3L(5 A)+4U+2Io (5/1 A+1/0,2 A)
		<b>F</b> 3L(1A)+4U+2Io (5/1 A+1/0,2 A)
9		<b>Communication interface I</b>
		<b>A</b> None
		<b>B</b> RS232 (RS232, IRIG-B)
		<b>C</b> RS232+RJ (RS232, IRIG-B + Ethernet RJ-45 100 Mbs)
		<b>D</b> RS232+LC (RS232, IRIG-B + Ethernet LC 100 Mbs)
		<b>N</b> 2xRJ (Ethernet RJ 100 Mbs, RSTP)
		<b>O</b> 2xLC (Ethernet LC 100 Mbs, RSTP)
		<b>P</b> PP (Plastic / Plastic serial fibre)
		<b>R</b> GG (Glass / Glass serial fibre)
10	<b>A</b>	<b>Product version</b>
		<b>A</b> Version 2.1
		<b>Display type</b>
		<b>B</b> 128x128 (128 x 128 LCD matrix)
		<b>C</b> 128x128Ext (128 x 128 LCD matrix, detachable) <sup>(1)</sup>
		<b>Digital input treshhold voltage (V)</b>
		<b>A</b> 24 Vdc/ac, with conformal coating
		<b>B</b> 110 Vdc/ac, with conformal coating
		<b>C</b> 220 Vdc/ac, with conformal coating

<sup>(1)</sup> By default cable length is 2 m. In case other length is needed order separately VX001-1, VX001-3 or VX001-5 for 1 m, 3 m and 5 m respectively.

1. Choose your option

2. Mark your choice in the box below

3. Check your **order code**:

Easergy P3 **M32**  **G**  **T**  **A** -  **A**   **A** -

Slot numbers                    1        2        3        4        5        -        6        7        8        9        10

# Easergy P3 Advanced

## Easergy P3T32 configuration

	<b>T32</b>	<b>Application</b>
		<b>T32</b> Transformer protection relay with differential protection
1		<b>Nominal Supply Voltage [V]</b>
		<b>C</b> Power C 110 - 230 V (80 .. 265 Vac/dc, 5 x DO heavy duty, A1, SF)
		<b>D</b> Power D 24 - 48 V (18 .. 60 Vdc, 5 x DO heavy duty, A1, SF)
2	<b>G</b>	<b>I/O Card I</b>
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
3		<b>I/O Card II</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
4	<b>T</b>	<b>I/O Card III</b>
		<b>T</b> 3xI (5/1A) + Io (5/1A) for transformer differential protection
5	<b>A</b>	<b>I/O Card IV</b>
		<b>A</b> None
6		<b>Option card I</b>
		<b>A</b> None
		<b>D</b> 4Arc (4 x Arc sensor)
		<b>K</b> RS232 (RS232)
7	<b>A</b>	<b>Future option</b>
		<b>A</b> None
8		<b>Analog measurement card (See application)</b>
		<b>E</b> 3L(5 A)+4U+2Io (5/1 A+1/0,2 A)
		<b>F</b> 3L(1A)+4U+2Io (5/1 A+1/0,2 A)
9		<b>Communication interface I</b>
		<b>A</b> None
		<b>B</b> RS232 (RS232, IRIG-B)
		<b>C</b> RS232+RJ (RS232, IRIG-B + Ethernet RJ-45 100 Mbs)
		<b>D</b> RS232+LC (RS232, IRIG-B + Ethernet LC 100 Mbs)
		<b>N</b> 2xRJ (Ethernet RJ 100 Mbs, RSTP)
		<b>O</b> 2xLC (Ethernet LC 100 Mbs, RSTP)
		<b>P</b> PP (Plastic / Plastic serial fibre)
		<b>R</b> GG (Glass / Glass serial fibre)
10	<b>A</b>	<b>Product version</b>
		<b>A</b> Version 2.1
		<b>Display type</b>
		<b>B</b> 128x128 (128 x 128 LCD matrix)
		<b>C</b> 128x128Ext (128 x 128 LCD matrix, detachable) <sup>(1)</sup>
		<b>Digital input treshhold voltage (V)</b>
		<b>A</b> 24 Vdc/ac, with conformal coating
		<b>B</b> 110 Vdc/ac, with conformal coating
		<b>C</b> 220 Vdc/ac, with conformal coating

<sup>(1)</sup> By default cable length is 2 m. In case other length is needed order separately VX001-1, VX001-3 or VX001-5 for 1 m, 3 m and 5 m respectively.

1. Choose your option

2. Mark your choice in the box below

3. Check your **order code**:

Easergy P3 **T32**  **G**  **T**  **A** -  **A**   **A** -

Slot numbers                    1        2        3        4        5        -        6        7        8        9        10

# Easergy P3 Advanced

## Easergy P3G30 configuration

	<b>G30</b>	<b>Application</b>
		<b>G30</b> Generator protection
1		<b>Nominal Supply Voltage [V]</b>
		<b>C</b> Power C 110 - 230 V (80 .. 265 Vac/dc, 5 x DO heavy duty, A1, SF)
		<b>D</b> Power D 24 - 48 V (18 .. 60 Vdc, 5 x DO heavy duty, A1, SF)
2	<b>G</b>	<b>I/O Card I</b>
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
3		<b>I/O Card II</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
4		<b>I/O Card III</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
5		<b>I/O Card IV</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
6		<b>Option card I</b>
		<b>A</b> None
		<b>D</b> 4Arc (4 x Arc sensor)
		<b>K</b> RS232 (RS232)
7	<b>A</b>	<b>Future option</b>
		<b>A</b> None
8		<b>Analog measurement card (See application)</b>
		<b>E</b> 3L(5 A)+4U+2Io (5/1 A+1/0,2 A)
		<b>F</b> 3L(1A)+4U+2Io (5/1 A+1/0,2 A)
9		<b>Communication interface I</b>
		<b>A</b> None
		<b>B</b> RS232 (RS232, IRIG-B)
		<b>C</b> RS232+RJ (RS232, IRIG-B + Ethernet RJ-45 100 Mbs)
		<b>D</b> RS232+LC (RS232, IRIG-B + Ethernet LC 100 Mbs)
		<b>N</b> 2xRJ (Ethernet RJ 100 Mbs, RSTP)
		<b>O</b> 2xLC (Ethernet LC 100 Mbs, RSTP)
		<b>P</b> PP (Plastic / Plastic serial fibre)
		<b>R</b> GG (Glass / Glass serial fibre)
10	<b>A</b>	<b>Product version</b>
		<b>A</b> Version 2.1
		<b>Display type</b>
		<b>B</b> 128x128 (128 x 128 LCD matrix)
		<b>C</b> 128x128Ext (128 x 128 LCD matrix, detachable) <sup>(1)</sup>
		<b>Digital input threshold voltage (V)</b>
		<b>A</b> 24 Vdc/ac, with conformal coating
		<b>B</b> 110 Vdc/ac, with conformal coating
		<b>C</b> 220 Vdc/ac, with conformal coating

<sup>(1)</sup> By default cable length is 2 m. In case other length is needed order separately VX001-1, VX001-3 or VX001-5 for 1 m, 3 m and 5 m respectively.

1. Choose your option

2. Mark your choice in the box below

3. Check your **order code**:

Easergy P3 **G30**  **G**     -  **A**   **A** -

Slot numbers                    1            2            3            4            5            -            6            7            8            9            10

# Easergy P3 Advanced

## Easergy P3G32 configuration

	<b>G32</b>	<b>Application</b>
		<b>G32</b> Generator protection with differential protection
1		<b>Nominal Supply Voltage [V]</b>
		<b>C</b> Power C 110 - 230 V (80 .. 265 Vac/dc, 5 x DO heavy duty, A1, SF)
		<b>D</b> Power D 24 - 48 V (18 .. 60 Vdc, 5 x DO heavy duty, A1, SF)
2	<b>G</b>	<b>I/O Card I</b>
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
3		<b>I/O Card II</b>
		<b>A</b> None
		<b>G</b> 6DI+4DO (6 x DI, 4 x DO)
		<b>H</b> 6DI+4DO (6 x DI, 4 x DO(NC))
		<b>I</b> 10DI (10 x DI)
4	<b>T</b>	<b>I/O Card III</b>
		<b>T</b> 3xI (5/1A) + Io (5/1A) for generator differential protection
5	<b>A</b>	<b>I/O Card IV</b>
		<b>A</b> None
6		<b>Option card I</b>
		<b>A</b> None
		<b>D</b> 4Arc (4 x Arc sensor)
		<b>K</b> RS232 (RS232)
7	<b>A</b>	<b>Future option</b>
		<b>A</b> None
8		<b>Analog measurement card (See application)</b>
		<b>E</b> 3L(5 A)+4U+2Io (5/1 A+1/0,2 A)
		<b>F</b> 3L(1A)+4U+2Io (5/1 A+1/0,2 A)
9		<b>Communication interface I</b>
		<b>A</b> None
		<b>B</b> RS232 (RS232, IRIG-B)
		<b>C</b> RS232+RJ (RS232, IRIG-B + Ethernet RJ-45 100 Mbs)
		<b>D</b> RS232+LC (RS232, IRIG-B + Ethernet LC 100 Mbs)
		<b>N</b> 2xRJ (Ethernet RJ 100 Mbs, RSTP)
		<b>O</b> 2xLC (Ethernet LC 100 Mbs, RSTP)
		<b>P</b> PP (Plastic / Plastic serial fibre)
		<b>R</b> GG (Glass / Glass serial fibre)
10	<b>A</b>	<b>Product version</b>
		<b>A</b> Version 2.1
		<b>Display type</b>
		<b>B</b> 128x128 (128 x 128 LCD matrix)
		<b>C</b> 128x128Ext (128 x 128 LCD matrix, detachable) <sup>(1)</sup>
		<b>Digital input threshold voltage (V)</b>
		<b>A</b> 24 Vdc/ac, with conformal coating
		<b>B</b> 110 Vdc/ac, with conformal coating
		<b>C</b> 220 Vdc/ac, with conformal coating

<sup>(1)</sup> By default cable length is 2 m. In case other length is needed order separately VX001-1, VX001-3 or VX001-5 for 1 m, 3 m and 5 m respectively.

1. Choose your option
2. Mark your choice in the box below
3. Check your **order code**:

Easergy P3 **G32**  **G**  **T**  **A** -  **A**   **A** -

Slot numbers      1      2      3      4      5      -      6      7      8      9      10

## Arc point sensors

Comm. Ref	Description	Used on	
REL52801	VA1DA-20	Arc sensor, 20m	
REL52802	VA1DA-20S-HF	Arc sensor, 20m, shielded, halogen free	
REL52803	VA1DA-20S	Arc sensor, 20m, shielded	
REL52804	VA1DA-6	Arc sensor, 6m connect cable	
REL52805	VA1DA-6S-HF	Arc sensor, 6m, halogen free	P3F3x / P3M3x P3T3x / P3G3x
REL52806	VA1DA-6S	Arc sensor, 6m, shielded	
REL52807	VA1EH-20	Arc sensor, 20m pipe sensor	
REL52808	VA1EH-20S	Arc sensor, 20m pipe sensor, shielded	
REL52809	VA1EH-6	Arc sensor, 6m pipe sensor	
REL52810	VA1EH-6S	Arc sensor, 6m pipe sensor, shielded	

## RTD Modules

Comm. Ref	Description	Used on	
REL52811	VIO12AASE	RTD module, 12pcs RTD inputs, Optical Tx	
REL52812	VIO12ABSE	RTD module, 12pcs RTD inputs, RS485	P3U0x / P3F3x P3L3x / P3M3x P3T3x / P3G3x
REL52813	VIO12ACSE	RTD module, 12pcs RTD inputs, mA in/out	
REL52814	VIO12ADSE	RTD module, 12pcs RTD inputs, mA in/out	

## Communication Port

Comm. Ref	Description	Used on	
REL52815	VPA3CGSE	Profibus interface module PM106585	P3U0x / P3F3x P3L3x / P3M3x P3T3x / P3G3x
REL52820	VSE002	RS485 module PM106581	
REL52821	VSE009	DeviceNet module PM106580	

## Fiber optic modules

Reference	Description	Used on	
REL52816	VSE001-GGSE	Fiber optic module (Glass - Glass) PM106586	P3U0x / P3F3x P3L3x / P3M3x P3T3x / P3G3x
REL52817	VSE001-GPSE	Fiber optic module (Glass - Plastic) PM106586	
REL52818	VSE001-PGSE	Fiber optic module (Plastic - Glass) PM106586	
REL52819	VSE001-PPSE	Fiber optic module (Plastic - Plastic) PM106586	

## Others accessories

Reference	Description	Used on	
REL52822	USB cable	USB programming cable (Easergy Pro)	
REL52828	VYX001	Mounting plate for arc sensor Z-shape	P3U0x / P3F3x P3L3x / P3M3x P3T3x / P3G3x
REL52829	VYX002	Mounting plate for arc sensor L-shape	
REL52831	VYX301	VSE00x wall fastening module	
REL52832	VYX695	Raising frame, P3x, 45 mm	P3F3x
REL52823	VX067	Split cable for COM 1-2 & COM 3-4 ports	P3L3x / P3M3x P3T3x / P3G3x
REL52824	VX072	Profibus cable	
REL52834	VYX860	Raising frame, P3U, 45 mm	P3U0x
REL52833	P3UPSC	P3U panel seal cover	
REL52825	VX082	RS232 - VSE (1xD9) cable	
REL52826	VX083	RS232 - Remote/Ext. (3xD9) cable	
REL52827	VX084	RS232 - VPA 3CG cable (Profibus)	
REL52835	VX085	P3U (RS232) - VSE009 cable	

Notes

---

Notes

---

Schneider Electric Industries SAS

35 rue Joseph Monier  
92500 Rueil-Malmaison, France  
Tel : +33 (0)1 41 29 70 00

[www.schneider-electric.com](http://www.schneider-electric.com)

NRJCAT17764EN\_v13

©2018 Schneider Electric SE. All Rights Reserved.

All Schneider Electric trademarks and service marks are the property of Schneider Electric SE, its subsidiaries and affiliated companies.