



 Green
Premium™
Product

Easergy P3

Protection Relays

easergy.schneider-electric.com

Life Is On

 **SQUARE D**™
by Schneider Electric

Easergy P3 at a glance



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



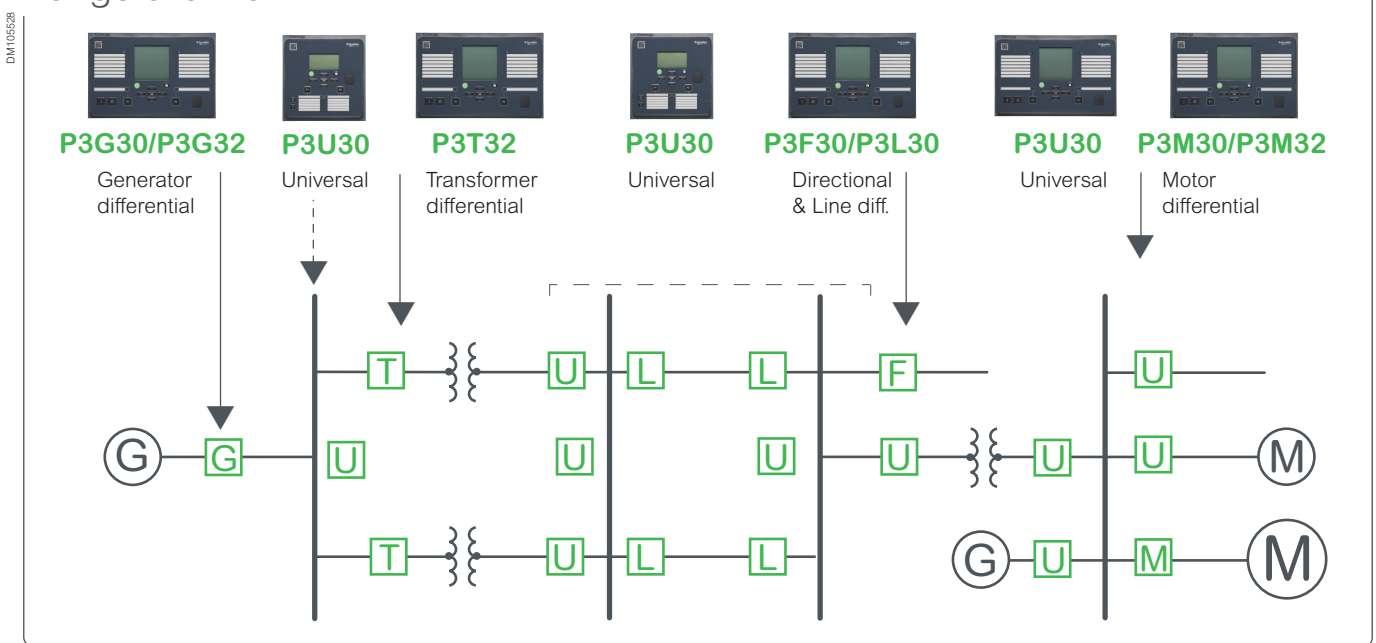
Enhanced Safety

- Simple selection and ordering with My SE
- 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



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 ground-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 ⁽⁰⁾⁽¹⁾	12 ⁽¹⁾	12 ⁽¹⁾	12 ⁽¹⁾	12 ⁽¹⁾	12 ⁽¹⁾	12 ⁽¹⁾	12 ⁽¹⁾	12 ⁽¹⁾
Loss of field	40	-	-	-	-	-	-	1	1	-
Under-reactance	21/40	-	-	-	-	-	-	2	2	-
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
Ground 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	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
Stator ground fault	64S	-	-	-	-	-	-	1	1	-
Frequent start inhibition	66	1	1	-	-	1	1	-	-	-
Directional phase overcurrent	67	-	4	4	4	4	4	4	4	4
Directional ground-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 ⁽³⁾		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	•	•	•	•	•	•	•	•	•
Measurement									
RMS current values	•	•	•	•	•	• ⁽¹⁾	•	• ⁽¹⁾	• ⁽¹⁾
RMS voltage values	•	•	•	•	•	•	•	•	•
RMS active, reactive and apparent power	-	•	•	•	•	•	•	•	•
Frequency	•	•	•	•	•	•	•	•	•
Fundamental frequency current values	•	•	•	•	•	• ⁽¹⁾	•	• ⁽¹⁾	• ⁽¹⁾
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	•	•	•	•	•	• ⁽¹⁾	•	• ⁽¹⁾	• ⁽¹⁾
Harmonic values of voltage and THD	-	•	•	•	•	•	•	•	•
Voltage sags and swells	-	•	•	•	•	•	•	•	•
Logs and Records									
Sequence of event record	•	•	•	•	•	•	•	•	•
Disturbance record	•	•	•	•	•	•	•	•	•
Tripping context record	•	•	•	•	•	•	•	•	•
Monitoring functions									
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

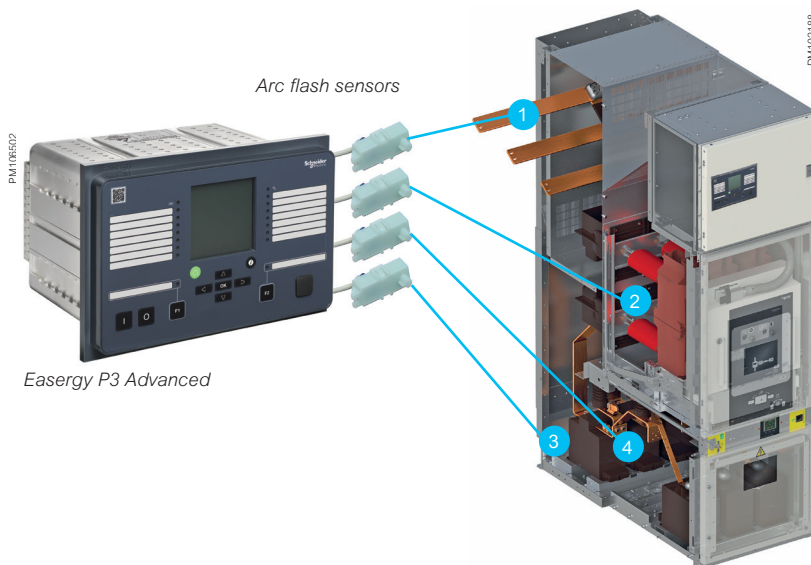
Base unit presentation

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.

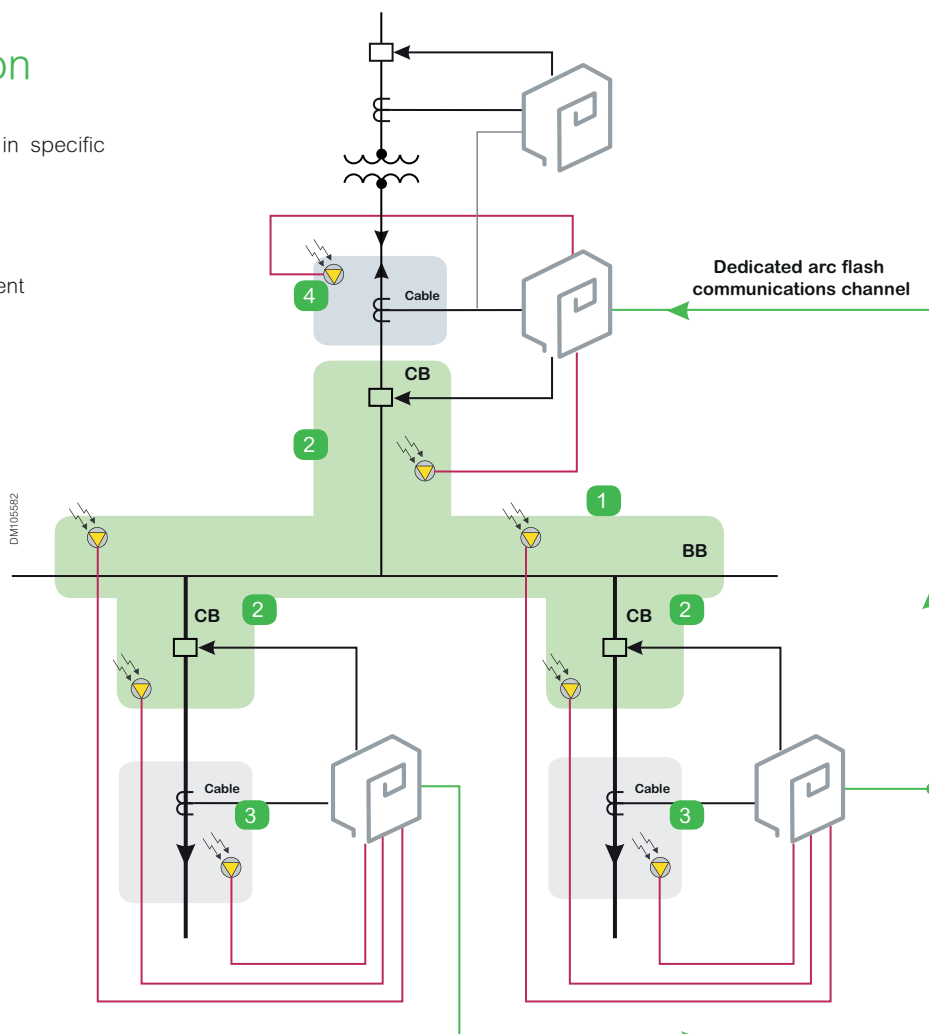
Easergy P3 Advanced relays can connect up to four arc flash sensors that have continuous self-supervision to check the sensor status.



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



eSetup Easergy Pro at each step of the digital life

DM105615

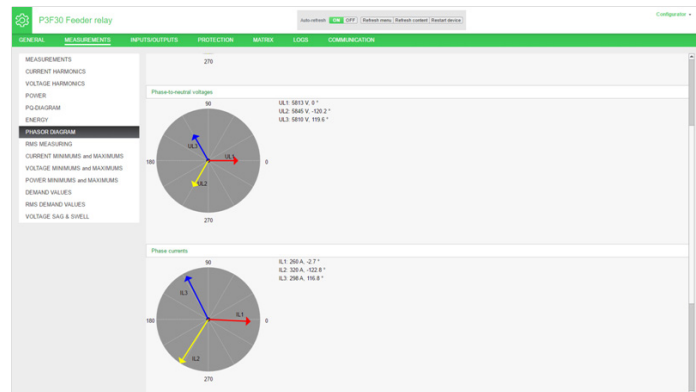
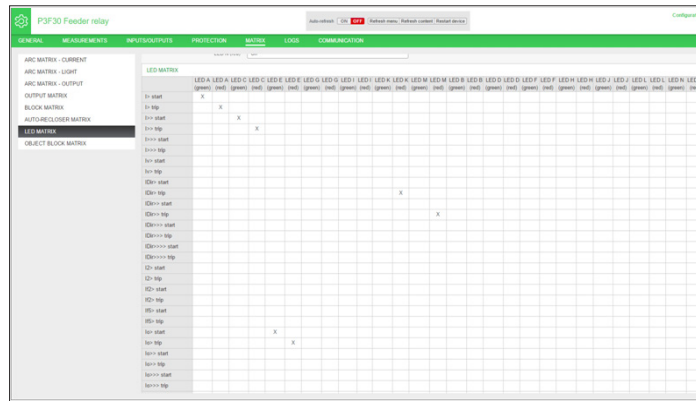
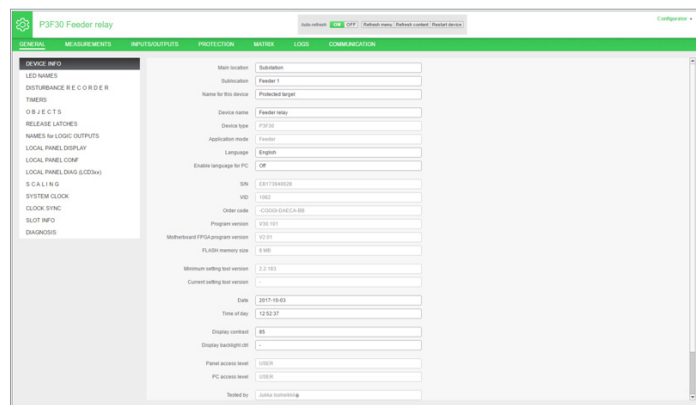


Enhance operational efficiency

- 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⁽¹⁾.

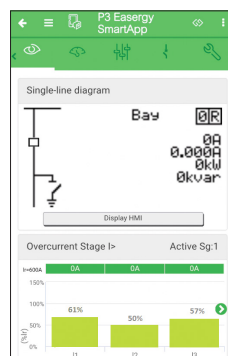
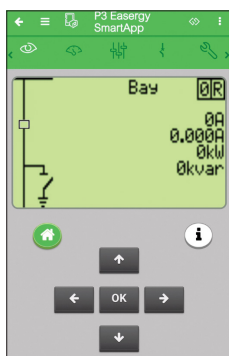
Safety

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.