DNV·GL

Certificate No:
TAE00002YV

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Multifunction Relay

with type designation(s)
Easergy P3

Issued to
Vamp Oy
Vaasa, Finland

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2023-07-10**.

Issued at **Høvik** on **2018-07-11**

DNV GL local station: **Turku**

Approval Engineer: **Nicolay Horn**

for **DNV GL**
Digitally Signed By: Trond Sjåvåg
Location: DNV GL Høvik, Norway
on behalf of

Andreas Kristoffersen
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id: **262.1-028324-1**
Certificate No: **TAE00002YV**

Product description

Easergy P3: A Complete range of protection relays for medium voltage application including feeder, motor, transformer and generator protection. It embeds communication protocols on serial or Ethernet links.

Range overview :

Model		Function	
Easergy P3F	30	Feeder	Protection
Easergy P3L	30	Line	Differential and distance
Easergy P3M	30	Motor	Protection
	32		Differential
Easergy P3G	30	Generator	Protection
	32		Differential
Easergy P3T	32	Transformer	Differential

Protection functions available in Easergy P3:

ANSI number	**Protection function**	**P3F 30**	**P3L 30**	**P3M 30**	**P3M 32**	**P3G 30**	**P3G 32**	**P3T 32**
21	Distance	-	1	-	-	-	-	-
21G	Three-phase underimpedance protection	-	-	-	-	2	2	-
21FL	Fault locator	1	1	-	-	-	-	-
24	Overfluxing	-	-	-	-	1	1	1
25	Synchro-check	2	2	2	2	2	2	2
27	Undervoltage	3	3	3	3	3	3	3
27P	Posetive sequence undervoltage	-	-	-	-	2	2	-
27TN/ 64G	Stator earth fault detection	-	-	-	-	1	1	-
32	Directional Underpower	2	2	2	2	2	2	2
37	Phase undercurrent	-	-	1	1	-	-	-
38/49T	Temperature monitoring	12th	12th	12th	12th	12th	12th	12th
40/32Q	Field failure (impedance/Q)	-	-	-	-	2/1	2/1	-
46	Negative-sequence overcurrent protection I2>	-	-	2	2	2	2	2
46BC	Cur. Unbalance, broken conductor	1	1	-	-	-	-	-
47	Incorrect phase sequence	-	-	1	1	-	-	-
48/51RL	Excessive start time, locked rotor	-	-	1	1	-	-	-
49	Thermal overload	1	1	1	1	1	1	1
50/51	Phase overcurrent	3	3	3	3	3	3	3
50N/51N	Earth-fault overcurrent	5	5	5	5	5	5	5
50BF	Broken faulure	1	1	1	1	1	1	1
50HS	Switch on to fault	1	1	1	1	1	1	1
51C	Capacitator bank unbalance	2	2	2	2	-	-	-
51V	Voltage dependent overcurrent	1	1	-	-	-	1	1
59	Overvoltage	3	3	3	3	3	3	3
59C	Capacitor overvoltage	1	1	-	-	-	-	-
59N	Neutral voltage displacement	2	2	2	2	2	2	2
60	CT supervision	1	1	1	1	1	2	2
60FL	VT supervision 60FL	1	1	1	1	1	1	1
64REF	Restricted earth-fault	-	-	-	-	-	1	1

ANSI number	Protection function	P3F 30	P3L 30	P3M 30	P3M 32	P3G 30	P3G 32	P3T 32
66	Frequent start inhibition	-	-	1	1	-	-	-
67	Directional phase overcurrent	4	4	4	4	4	4	4
67N	Directional earth-fault o/c	3	3	3	3	3	3	3
67NI	Transient intermittent	1	1	-	-	-	-	-
68F2	Magnetizing inrush detection	1	1	1	1	1	1	1
68H5	Fifth harmonic detection	1	1	1	1	1	1	1
78PS	Pole slip	-	-	-	-	1	1	-
79	Auto-recloser	5	5	-	-	-	-	-
81	Over or under frequency	2/2	2/2	2/2	2/2	2/2	2/2	2/2
81R	Rate of change of frequency	1	1	1	1	1	1	1
81U	Under frequency	2	2	2	2	2	2	2
86	Lockout	1	1	1	1	1	1	1
87L	Line differential	-	2	-	-	-	-	-
87M	Machine differential	-	-	-	2	-	2	-
87T	Transformer differential	-	-	-	-	-	-	2
99	Programmable stages	8	8	8	8	8	8	8
	Arc-flash detection	8	-	8	8	8	8	8
	Cold load pick-up	1	1	1	1	1	1	1
	Programmable curves	3	3	3	3	3	3	3
	Setting groups	4	4	4	4	4	4	4

Rated phase current 1A CT and measuring range 0.02 – 50 A, 5A CT and measuring range 0.05 - 250 A.

Power supply: 110 to 240 V AC / DC or 24 to 48V DC
Voltage input: 0.5 – 190 V

Application/Limitation

Installation of the unit is to be according to manufacturer's specifications.

The total panel instrumentation to be in accordance with the Rules.

Product certificate:

When the unit is used for protection purposes no product certificate is required. When the unit is used for other control purposes a product certificate acc. to Pt.4 Ch.8 Sec.1 and Pt.4 Ch.9 Sec.1 [1.2.3] will be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

The Type Approval covers hardware and software for the unit.

The Type Approval does not cover application software.

The following documentation of the actual application is to be submitted for approval in each case:

- System Block Diagram

- Power supply arrangement (may be part of the system block diagram)

The Type Approval covers hardware listed under Product description.

Clause for application software control:

All changes in software are to be recorded. Major changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before installed in the computer. A certification of application functions may be required for the particular vessel.

Type Approval documentation

Technical info:
Easergy P3 Network Protection Relays 2017 Catalogue.

Test reports:
Xuchang KETOP Testing Research Institute Co. Ltd test report nos. JW171855E & JW171856E, issued 2017-11-24. VIT Test Report no. VTT-S-04577-17 & VTT-S-04578-17 issued 2017-08-23 & 24.
SGS Fimko test report nos. 288368-1-1 & 288368-1-2 issued 2017-09-4 & 9, 288277-1A & 288277-1B issued 2017-10-13 & 2017-08-20.

Tests carried out

Type tests in accordance with IEC 60255, Environmental tests according IACS E10, rev. 6 2014. (Power supply variation, dry heat, cold, damp heat, EMC and vibration.)

Marking of product

Schneider Electric – Type designation

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available.
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines.
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications.
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do no affect the type approval given.
- Ensuring traceability between manufacturer's product type marking and the type approval certificate.
- Ensuring that type approved documentation is available.

Assessment to be performed at 2 and 3.5 years and at renewal.

END OF CERTIFICATE