DNV·GL

Certificate No:
TAE00002H3

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Instrument for Switchboard

with type designation(s)
Active/Reactive Power Meter KLY-W/Var;Power Factor Meter KLY-PF;Frequency Meter KLY-F

Issued to
Shanghai Complee Instrument Co. Ltd
SHANGHAI, China

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

Application :

Location classes:

Temperature: A
Humidity: B
Vibration: A

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2017-12-06**
This Certificate is valid until **2022-12-05**.
DNV GL local station: **Shanghai**

Approval Engineer: **Harald Amberger**

for **DNV GL**

Arne Schaarmann
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.

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Job Id: **262.1-027439-1**
Certificate No: **TAE00002H3**

Product description

Direct acting indicating analogue electrical measuring instruments:

Active/Reactive Power Meter

Type designation	Front dimensions (mm)	IP	Power range (kW/KVAr)	Voltage levels (V)
KLY-W48/Var48	48 x 48	IP 54	10-3000	100 / 380
KLY-W48G/Var48G	48 x 48	IP 54	10-3000	100 / 380
KLY-W72/Var72	72 x 72	IP 54	10-3000	100 / 380
KLY-W72G/Var72G	72 x 72	IP 54	10-3000	100 / 380
KLY-W80/Var80	80 x 80	IP 54	10-3000	100 / 380
KLY-W801/Var801	80 x 80	IP 54	10-3000	100 / 380
KLY-W96/Var96	96 x 96	IP 54	10-3000	100 / 380
KLY-W96G/Var96G	96 x 96	IP 54	10-3000	100 / 380
KLY-W1101/Var1101	110 x 110	IP 54	10-3000	100 / 380
KLY-W144/Var144	144 x 144	IP 54	10-3000	100 / 380
KLY-W144G/Var144G	144 x 144	IP 54	10-3000	100 / 380

Power Factor Meter, 1 phase and 3 phase

Type designation	Front dimensions (mm)	IP	Voltage levels (V)
KLY-PF48	48 x 48	IP 54	100 / 220 / 380 / 440
KLY-PF48G	48 x 48	IP 54	100 / 220 / 380 / 440
KLY-PF72	72 x 72	IP 54	100 / 220 / 380 / 440
KLY-PF72G	72 x 72	IP 54	100 / 220 / 380 / 440
KLY-PF80	80 x 80	IP 54	100 / 220 / 380 / 440
KLY-PF801	80 x 80	IP 54	100 / 220 / 380 / 440
KLY-PF96	96 x 96	IP 54	100 / 220 / 380 / 440
KLY-PF96G	96 x 96	IP 54	100 / 220 / 380 / 440
KLY-PF1101	110 x 110	IP 54	100 / 220 / 380 / 440
KLY-PF144	144 x 144	IP 54	100 / 220 / 380 / 440
KLY-PF144G	144 x 144	IP 54	100 / 220 / 380 / 440

Frequency Meter

Type designation	Front dimensions (mm)	IP	Frequency range (Hz)	Voltage levels (V)
KLY-F48	48 x 48	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F48G	48 x 48	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F72	72 x 72	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F72G	72 x 72	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F80	80 x 80	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F801	80 x 80	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F96	96 x 96	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F96G	96 x 96	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F1101	110 x 110	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F144	144 x 144	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380
KLY-F144G	144 x 144	IP 54	45-55 / 55-65 / 350/450	100 / 220 / 380

Type Approval documentation

Tests carried out

Type tests in accordance with IEC 60051 and Vibration & Damp heat.

Marking of product

Product marking: Shanghai Complee Instrument, type designation

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE