



Certificate No:
TAE00004RF

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Instrument for Switchboard

with type designation(s)
XY...

Issued to

Wuhan Xiangyi Zhongxin Technology Development Co., Ltd.
Wuhan, Hubei, China

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Issued at **Hamburg** on **2023-04-25**

This Certificate is valid until **2028-04-24**.

DNV local unit: **Nanjing NB & CMC**

for **DNV**

Approval Engineer: **Harald Amberger**

Marta Alonso Pontes
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2022-12

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Product description

Analog Instruments

Type designation: -XY + Size + Function + Measurement + Pointer Angle

Size: 48 (48x48mm); 72 (72x72mm)
96 (96x96mm); 144 (144x144mm)

Function: B – with alarm relay output
D – Multiple pointer indication
M – with transformer output (0-20mA, 4-20mA, 0-10V, 1-5V)

Measurement: AC – Alternating current/voltage; DC – Direct current/voltage
A – Current; V – Voltage; Hz – Frequency; cosΦ - Power factor
MΩ/kΩ - Ohm; W – Active Power; Var – Reactive Power; WH – Electric energy
S – Synchro; HI – High frequency, SM – Synchro with relay; SZT – Auto Synchro
WNJ – Inverse power with relay output.

Pointer Angle: B – is 90 degrees; 240 degrees without B

Voltmeter types				Range
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Frequency meter types XY144-Hz XY96-Hz XY72-Hz XY48-Hz XY144-HzB XY96-HzB XY72-HzB XY48-HzB	Range 45-55Hz 55-65Hz 45-65Hz 40-70Hz	Accuracy 0,5
Dual Frequency meter types XY144D-HzB XY96D-HzB XY72D-HzB		
Frequency meter types with transform output XY144M-Hz XY96M-Hz XY72M-Hz XY144M-HzB XY96M-HzB XY72M-HzB		
Frequency meter types with alarm relay output XY144B-Hz XY96B-Hz XY72B-Hz XY144B-HzB XY96B-HzB XY72B-HzB		
Power meter types XY144-W XY96-W XY72-W XY48-W XY144-WH XY96-WH XY72-WH XY48-WH XY144-WB XY96-WB XY72-WB XY48-WB XY144-Var XY96-Var XY72-Var XY48-Var XY144-VarB XY96-VarB XY72-VarB XY48-VarB	0-2000W 0-1500Var 1-6000MW* 1-5000MVar*	1,5
Power meter types with transform output XY144M-W XY96M-W XY72M-W XY144M-WB XY96M-WB XY72M-WB XY144M-Var XY96M-Var XY72M-Var XY144M-VarB XY96M-VarB XY72M-VarB		
Power meter types with alarm relay output XY144B-W XY96B-W XY72B-W XY144B-WB XY96B-WB XY72B-WB XY144-WNJ XY96-WNJ XY72-WNJ XY144-WNJB XY96-WNJB XY72-WNJB XY144B-WNJ XY96B-WNJ XY72B-WNJ XY144B-WNJB XY96B-WNJB XY72B-WNJB		
Power Factor meter types XY144-COS Φ XY96-COS Φ XY72-COS Φ XY144-COS Φ B XY96-COS Φ B XY72-COS Φ B	0,5C~1~0,5L*	1,5
Power Factor meter types with transform output XY144M-COS Φ XY96M-COS Φ XY72M-COS Φ XY144M-COS Φ B XY96M-COS Φ B XY72M-COS Φ B		
Synchrometer types XY144-S XY96-S XY72-S XY144-SM XY96-SM XY72-SM XY144-PS XY96-PS XY72-PS XY144-PSK XY96-PSK XY72-PSK XY144-SZT XY96-SZT	0-360°	1,5
Ohmmeter types XY144-M Ω XY96-M Ω XY72-M Ω XY48-M Ω XY144-BM Ω XY96-BM Ω XY72-BM Ω XY48-BM Ω XY144-BM Ω (HI) XY96-BM Ω (HI) XY72-BM Ω (HI) XY48-BM Ω (HI) XY144-ZBM Ω XY96-ZBM Ω XY72-ZBM Ω XY48-ZBM Ω XY144-ZBK Ω XY96-ZBK Ω XY72-ZBK Ω XY48-ZBK Ω	0-10M Ω 0-5000k Ω	1,5

Dual Ohmmeter types	Range	Accuracy
XY144D-BMΩ XY96D-BMΩ XY72D-BMΩ XY144D-BMΩ(HI) XY96D-BMΩ(HI) XY72D-BMΩ(HI)		
Ohmmeter types with transform output	0-10MΩ 0-5000kΩ	1,5
XY144M-BMΩ XY96M-BMΩ XY72M-BMΩ XY144M-ZBMΩ XY96M-ZBMΩ XY72M-ZBMΩ XY144M-BMΩ(HI) XY96M-BMΩ(HI) XY72M-BMΩ(HI)		

Multi-functions instruments

Types	Measurement	Function/Output
XY-DB-A	AC – Alternating current/voltage	3-way relay alarm Overcurrent or overvoltage
XY-GDJ -II	3-channel current signal	2-channel relay alarm Overcurrent
XY-GDUJ	AC – Alternating voltage	Relay alarm Undervoltage or overvoltage
XY-BDUJ	DC – Direct voltage	Relay alarm Undervoltage or overvoltage
XY-BHz	Frequency	Relay alarm Under frequency or over frequency
XY-BW	Active power	Relay alarm Active power overload
XY-JDB-2	Insulation resistance	Relay alarm Low insulation resistance
XY-MDC	DC – Direct current/voltage	Analog signal (0-20mA, 4-20mA, 0-10V, 1-5V)
XY-MAC	AC – Alternating current/voltage	Analog signal (0-20mA, 4-20mA, 0-10V, 1-5V)
XY-MHz	Frequency	Analog signal (0-20mA, 4-20mA, 0-10V, 1-5V)
XY-MWC	Active power	Analog signal (0-20mA, 4-20mA, 0-10V, 1-5V)
XY-NGJ-1/S	Reverse power	Relay alarm Reverse power overload
XY-PSK	Phase sequence	Relay alarm Phase sequence error
XY-P	Phase sequence	
XY-TDS888	3-phase 4-wire electric energy	
XY-TDS866	3-phase 3-wire electric energy	
XY-WH	3-phase system power parameters	RS485 or TCP/IP communication interface
XY-ZFP	Detection power	
XY-ZFP-I	Detection power, average distribution of power when multiple sets are used	
XY-ZFP-II	Detection power, average distribution of power when multiple sets are used	Relay alarm Reverse power overload
XY-ZFP-III	Detection power, average distribution of power when multiple sets are used	Relay alarm Overload/light load

Details and further ratings acc. manufacturer documentation.

Application/Limitation

Location Classes:

Temperature: B, Humidity: B, Vibration: A, EMC: A

Alarm relay and transform -as well as interface output for monitoring purpose only.

* With belonging voltage and current transformer

Type Approval documentation

Tests carried out

IEC 60051-1:2016, cold, dry heat, damp heat, vibration, flame retardant and EMC

Marking of product

Acc. IEC 60051-1 subclause 6.2

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