

EU RO MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

This Certificate is issued to

Daeyang Instrument Co., Ltd.
Busan, Republic of Korea

for
Sensors

with type designation(s)
Temperature sensors_RTS/TTR/TCA/KCA Series

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Sensors

Intended service

Applicable for a ship as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards For Ship Inspection and Survey Organizations.
Sensors intended for a wide range of process and electrical connections

This Certificate is valid until **2021-11-22**.

Issued at **Busan** on **2016-11-23**

DNV GL local station: **Busan**

Approval Engineer: **Dong Ho Park**

for **DNV GL**

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Baeg Soon Choi
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.

Product description

RTS/TTR/TCA/KCA Series temperature sensors

Mode	Sensor Type	Range(°C)	Material		Connection		Hart Module
			Housing	Well	Process	Electric	
RTS-LB	RTD (Single)	0~200	ADC12	SUS 304 or SUS 316	PF 3/4(*)	JIS 15C/20C PG9	-
		0~200	PC	SUS 304 or SUS 316	PF 3/4(*)	JIS 15C/20C PG9	-
RTS-LB-H		0~200	ADC12	SUS 304 or SUS 316	PF 3/4(*)	JIS 15C/20C PG9	Yes (**)
TTR-LN-DX		0~200	SUS 316	SUS 304	PF 3/4(*)	NPT1/2 or M20	-
RTS-2LB	RTD (Dual)	0~200	SUS 316	SUS 304 or SUS 316	PF 3/4(*)	JIS 15C/20C PG9	-
RTS-HB	RTD (Single)	0~600	ADC12	SUS 304	PF 3/4(*)	JIS 15C/20C PG9	-
RTS-HB-H		0~600	ADC12	SUS 304	PF 3/4(*)	JIS 15C/20C PG9	Yes (**)
TTR-SD-DX		0~600	SUS 316	SUS 304	PF 3/4(*)	NPT1/2 or M20	-
RTS-2HB	RTD (Dual)	0~600	SUS 316	SUS 304	PF 3/4(*)	JIS 15C/20C PG9	-
TCA-D-DX	TC (Single)	0~600	SUS 316	SUS 304	PF 3/4(*)	NPT1/2 or M20	-
RTS-MB-H	RTD (Single)	-55~300	SUS 316	SUS 316	PT 3/4(*)	JIS 15C/20C PG9	Yes (**)
TTR-LD-DX		-55~300	SUS 316	SUS 316	PT 3/4(*)	NPT1/2 or M20	-
RTS-2MB	RTD (Dual)	-55~300	SUS 316	SUS 316	PT 3/4(*)	JIS 15C/20C PG9	-
RTS-MB	RTD (Single)	-55~300	SUS 316	SUS 316	PT 3/4(*)	JIS 15C/20C PG9	-
RTS-GB-H	RTD (Single)	-200~100	SUS 316	SUS 316L	PT 3/4(*)	JIS 15C/20C PG9	Yes (**)
TTR-LD-L-DX		-200~100	SUS 316	SUS 316L	PT 3/4(*)	NPT1/2 or M20	-
RTS-2GB	RTD (Dual)	-200~100	SUS 316	SUS 316L	PT 3/4(*)	JIS 15C/20C PG9	-
RTS-GC-Ib	RTD (Single)	-200~100	-	-	NPT 1/4	-	-
RTS-2GC-Ib	RTD (Dual)	-200~100	-	-	NPT 1/4	-	-

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RTS-2GC-Ob		-200~100	-	-	NPT 1/4	-	-
RTS-2GS-Ob		-200~100	-	-	-	-	-
RTS-GS-Ob		-200~100	-	-	-	-	-
RTS-GB	RTD (Single)	-200~100	SUS 316	SUS 316L	PT 3/4(*)	JIS 15C/20C PG9	-
RTS-LC-TR	RTD (Single)	-55~155	-	-	-	-	-
KCA-S-SC	TC (Single)	0~600	ADC12	SUS 304	PF 3/4(*)	JIS 15C/20C PG9	-
KCA-2B	TC (Dual)	0~600	SUS 316	SUS 304	PF 3/4(*)	JIS 15C/20C PG9	-

* Thread could be changed by order

** Model no. 5335 manufactured by PR electronics A/S

Manufactured by

DAEYANG INSTRUMENT CO., LTD.

45-10, Noksansandan 261-ro, 14beon-gil, Gangseo-gu, Busan KOREA 618-819

Application/Limitation

The Type Approval covers hardware listed under type designation.

1. Applicable for a ship as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards for Ship Inspection and Survey Organizations
2. Not applicable for a mobile offshore drilling unit(MODU)
3. Not applicable for a fishing vessel

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to class requirements and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Type Approval documentation

Marking of product

The products to be marked with:

- Manufacturer name
- Model name
- Serial no.

Other Conditions

The sensors have been verified for compliance with EU Mutual Recognition Technical Requirements version 0.1, dated 2014-01-31.

Environmental test parameters

Temperature : -25°C ~ +70°C

Vibration : ±1.6mm/4.0g

Humidity : 95%RH @ 55°C

EMC : All locations including bridge and open deck

Enclosure : IP66 (according to IEC 60529)

DNV GL location classes

D

B

B

B

B

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.



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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 not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed annually and at renewal of this certificate.

END OF CERTIFICATE