Lloyd's Register

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	**STS Sensor Technik Sirnach AG**
Address	Rütihofstraße 8, Sirnach, 8370, Switzerland
Place of Production	STS Sensor Technik Sirnach AG
	Rütihofstraße 8, Sirnach, 8370, Switzerland
Type	Transmitters/Transducers
Description	High Precision Submersible Level Transmitter ATM.1ST/N
	High Precision Submersible Level Transmitter ATM.1ST/N/Ex (Intrinsically Safe)
	Analog Submersible Level Transmitter ATM.ECO/N
	Analog Submersible Level Transmitter ATM.ECO/N/Ex (Intrinsically Safe)
	For detailed description, pls. refer to appendix.
Trade Name	ATM.1ST/N, ATM.1ST/N/Ex, ATM.ECO/N, ATM.ECO/N/Ex
Application	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2 and ENV4 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 - 2018.
Specified Standard	Manufacturer's specification
	IACS requirements E10(1991/ Rev.8: Feb 2021)

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TA01 1.0.0

Type Approval Certificate

Ratings	Pressure types: gauge, absolute Pressure measuring range: 0 … 0.5 mH2O up to 0 … 250 mH2O Operating temperature: -5 … 80 °C Power supply: 24 VDC Output signals: 0 …5 VDC, 0 … 10 VDC, 4 … 20 mA Degree of protection: IP68 Materials: Stainless steel, Titanium For detailed rating, pls. refer to appendix.
Additional Tests	Dry heat test (+70 °C / 2 h) Low temperature test (-25 °C / 2 h)
Other Conditions	Specific Conditions of Use as stated in applicable Ex-certificates shall be observed when installed in hazardous areas. The Ex-certification does not form part of this certificate. Equipment must comply with IACS E10 Rev. 7 / 2018 when intended to be installed on ships contracted for construction on or after 1 January 2022.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version:	This certificate supersedes certificate number LR2040190TA issued on 13.11.2020 which is herebycancelled.

The Design Appraisal Document HTS/ETS42312-22/HN/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

TA01 1.0.0

Appendix

DESCRIPTION

High Precision Submersible Level Transmitter ATM.1ST/N
High Precision Submersible Level Transmitter ATM.1ST/N/Ex (Intrinsically Safe)
Analog Submersible Level Transmitter ATM.ECO/N
Analog Submersible Level Transmitter ATM.ECO/N/Ex (Intrinsically Safe)

ATM.1ST/N ①②③④⑤⑥⑦⑧⑨⑩

①	Pressure type	1	Gauge
		2	Absolute (vacuum)
②	Pressure measuring range	XX	0 … 0.5 mH2O up to 0 … 250 mH2O
③	Process connection	55	Closed, nose cone POM
		59	Closed, nose cone 1.4435
		56	Open, nose cone POM
		17	G 1/2 M, bore 14 mm
		13	G 1/2 M
		14	G 1/2 M, frontal diaphragm
		37	G 1/2 M, frontal diaphragm Hastelloy C-276
		15	G 1/2 M, with flush diaphragm membrane
		11	G 1/4 M
		10	1/4 NPT M
		19	1/2 NPT M
		99	Customized
④	Electrical connection	13	PE cable, IP 68, black
		15	PUR cable, IP 68, black
		21	FEP cable, IP 68, black
		12	FEP cable, (high temperature), black, IP 68
		14	PVC cable, blue, IP 68
		19	PUR cable, black, IP 68, with G 1/2 M conduit fitting
		25	PUR cable, black, IP 68, with strain relief
		07	Connectable version, IP 68
		99	Customized
⑤	Output signal	46	0 … 5 VDC
		47	0 … 10 VDC
		05	4 … 20 mA
		08	4 … 20 mA surge protection
⑥	Accuracy	1	≤ ± 0.25 % FS (0.5 mH2O … 0.99 mH2O)
		4	≤ ± 0.2 % FS (1 mH2O … 250 mH2O)
		2	≤ ± 0.1 % FS (1 mH2O … 250 mH2O)
		6	≤ ± 0.05 % FS (10 mH2O … 250 mH2O)
⑦	Temperature range	4	-5 … 50 °C compensated
		5	-5 … 80 °C compensated
⑧	Option 1	G	Special oil filling: Anderol Food (for food applications)
⑨	Option 2	C	Electronics packed in gel: Gauge pressure
		D	Electronics packed in gel: Absolute pressure
⑩	Option 3	B	Ballast weight 1.4435
		K	Version titanium (without ballast weight)
		U	Seals: Viton (standard)
		S	Seals: EPDM
		T	Seals: Kalrez (Level)
		H	Seals: NBR
		Z	Humidity filter element for gauge versions (only PUR and PE cable)

DESCRIPTION (continued)   ATM.1ST/N/Ex ①②③④⑤⑥⑦⑧⑨⑩

①	Pressure type	1	Gauge
		2	Absolute (vacuum)
②	Pressure measuring range	XX	0 … 0.5 mH2O up to 0 … 250 mH2O
③	Process connection	55	Closed, nose cone POM
		56	Open, nose cone POM
		17	G 1/2 M, bore 14 mm
		13	G 1/2 M
		14	G 1/2 M, frontal diaphragm
		37	G 1/2 M, frontal diaphragm Hastelloy C-276
		15	G 1/2 M, with flush diaphragm membrane
		11	G 1/4 M
		10	1/4 NPT M
		19	1/2 NPT M
		99	Customized
④	Electrical connection	17	PUR cable, blue, IP 68
		22	FEP cable, blue, IP 68
		20	PUR cable, blue, IP 68, with G 1/2 M conduit fitting
		28	PUR cable, blue, IP 68, with strain relief
		07	Connectable version, IP 68
		99	Customized
⑤	Output signal	46	4 … 20 mA
⑥	Accuracy	1	≤ ± 0.25 % FS (0.5 mH2O … 0.99 mH2O)
		4	≤ ± 0.2 % FS (1 mH2O … 250 mH2O)
		2	≤ ± 0.1 % FS (1 mH2O … 250 mH2O)
		6	≤ ± 0.05 % FS (10 mH2O … 250 mH2O)
⑦	Temperature range	3	T6 (Ta: -5 … 50 °C) -5 … 50 °C compensated
		5	T4 (Ta: -5 … 80 °C) -5 … 80 °C compensated
⑧	Option 1	G	Special oil filling: Anderol Food (for food applications)
⑨	Option 2	B	Ballast weight 1.4435
		K	Version titanium (without ballast weight)
		U	Seals: FKM (standard)
		S	Seals: EPDM
		T	Seals: Kalrez
		Z	Humidity filter element for gauge versions (for PUR cable only)
⑩	Option 3		nil

DESCRIPTION (continued)   ATM.ECO/N ①②③④⑤⑥⑦⑧⑨⑩

①	Pressure type	1	Gauge
		2	Absolute (vacuum)
②	Pressure measuring range	XX	0 … 1 mH2O up to 0 … 250 mH2O
③	Process connection	55	Closed, nose cone POM
		59	Closed, nose cone 1.4435
		56	Open, nose cone POM
		17	G 1/2 M, bore 14 mm
		13	G 1/2 M
		14	G 1/2 M, frontal diaphragm
		37	G 1/2 M, frontal diaphragm Hastelloy C-276
		15	G 1/2 M, with flush diaphragm membrane
		11	G 1/4 M
		10	1/4 NPT M
		19	1/2 NPT M
		99	Customized
④	Electrical connection	13	PE cable, black, IP 68
		15	PUR cable, black, IP 68
		21	FEP cable, black, IP 68
		14	PVC cable, blue, IP 68
		19	PUR cable, black, IP 68, with G 1/2 M conduit fitting
		25	PUR cable, black, IP 68, with strain relief
		07	Connectable version, IP 68
		99	Customized
⑤	Output signal	46	0 … 5 VDC
		47	0 … 10 VDC
		05	4 … 20 mA
		08	4 … 20 mA surge protection
⑥	Accuracy	4	≤ ± 0.2 % FS
⑦	Temperature range	4	-5 … 50°C compensated
		5	-5 … 80°C compensated
⑧	Option 1	C	Electronics packed in gel: Gauge sensors
		D	Electronics packed in gel: Absolute sensors
⑨	Option 2	B	Ballast weight 1.4435
		U	Seals: FKM (standard)
		S	Seals: EPDM
		T	Seals: Kalrez
		H	Seals: NBR
		Z	Humidity filter element for gauge versions (for PUR and PE cable only)
⑩	Option 3		nil

DESCRIPTION (continued)   ATM.ECO/N/Ex ①②③④⑤⑥⑦⑧⑨⑩

①	Pressure type	1	Gauge
		2	Absolute (vacuum)
②	Pressure measuring range	XX	0 … 1 mH2O up to 0 … 250 mH2O
③	Process connection	55	Closed, nose cone POM
		56	Open, nose cone POM
		17	G 1/2 M, bore 14 mm
		13	G 1/2 M
		14	G 1/2 M, frontal diaphragm
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		15	G 1/2 M, with flush diaphragm
		11	G 1/4 M
		10	1/4 NPT M
		19	1/2 NPT M
		99	Customized
④	Electrical connection	17	PUR cable, blue, IP 68
		22	FEP cable, blue, IP 68
		20	PUR cable, blue, IP 68, with G 1/2 M conduit fitting
		28	PUR cable, blue, IP 68, with strain relief
		07	Connectable version, IP 68
		99	Customized
⑤	Output signal	05	4 … 20 mA
⑥	Accuracy	4	≤ ± 0.2 % FS
⑦	Temperature range	3	T6 (Ta: -5 … 50 °C) -5 … 50 °C compensated
		5	T4 (Ta: -5 … 80 °C) -5 … 80 °C compensated
⑧	Option 1	B	Ballast weight 1.4435
		U	Seals: Viton (standard)
		S	Seals: EPDM
		T	Seals: Kalrez (Level)
		Z	Humidity filter element for gauge versions (only for PUR cable)
⑨	Option 2		nil
⑩	Option 3		nil