

TYPE APPROVAL CERTIFICATE

DNV·GL

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the DNV GL Type Approval System.

Certificate No.	42 325 - 16 HH
Company	MTS Sensor Technologie GmbH & Co. KG Auf dem Schüffel 9 58513 Lüdenscheid, GERMANY
Product Description	Position Sensor
Type	Temposonics GB-Series Temposonics GT-Series
Environmental Category	F, EMC1
Technical Data / Range of Application	Temposonics: Magnetostrictive Linear Position Sensors Each Temposonic position sensor consists of a ferromagnetic waveguide, a position magnet, s strain pulse converter and supporting electronics. Temposonic GBF is a rod-style sensor for installation into hydraulic cylinders, e.g. in steel hydraulic construction. Temposonic GT is a sensor with double or triple redundancy. Two or three independent measuring systems are integrated in one sensor housing.
Test Standard	GL Guidelines for the Performance of Type Approvals, Chapter 2- Test Requirements for Electrical / Electronic Equipment and Systems (VI-7-2), Edition 2012
Documents	Test reports: Phoenix Testlab no. U140153E1 (26.05.14) + E140153E1 (10.06.14), Brunel no. P15-1190 (21.12.15), MTS Sensors G-Serie GT-CA1 (IPX8-Test/05.03.14), G-Serie GB-CA1 (IPX8-Test / 05.03.14), Pneumatik+Hydraulik GmbH Pressure Test (02.09.04); Untersuchungsbericht Dipl.-Ing. Eberhard Schröder (26.03.15)
Remarks	Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL. If the sensors of GB-series are installed on open deck they have to be encapsulated. The encapsulation has to be realized in such way that protection class IPx7 ist guaranteed. This has to be verified project-related.

Valid until **2021-04-25**

Page **1 of 3**

File No. **I.D.04**

Hamburg, 2016-04-26

Type Approval Symbol




Marco Rinkel


Klaus-Peter Schröder

DNV GL

TYPE APPROVAL CERTIFICATE

DNV·GL

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the DNV GL Type Approval System.

Certificate No. **42 325 - 16 HH**

Further Documents

Data sheets

G-Series GBF Analog with approval Germanischer Lloyd 551637 Revision A (EN) 02/2016,
G-Series Analog Redundant with approval Germanischer Lloyd 551636 Revision A (EU.EN, 09/2014)
BOM: GB-F Voltage application board no. 253998 (Rev. F)
GB-F Current application board no. 253997 (Rev. F)
GB-F Baseboard no. 253967 (Rev. G)
SE4 Electronic no. 252244 (Rev. H)
GT Electronic board no. 253288 (Rev. J)
SE7 Electronic no. 252244 (Rev. H)
Mechanic 280758 (Rev. B), 252162 (Rev. E), 280470-1 (Rev. B), 253938 (Rev. C), 253939 (Rev. C),
253932 (Rev. C)

Circuit Diagrams: GB-F Voltage application board no. 651549 (Rev. D)
GB-F Current application board no. 651550 (Rev. D)
GB-F Baseboard no. 651551 (Rev. E)
SE4 Electronic no. 650811 (Rev. C)
GT Electronic board no. 650902 (Rev. F)
SE7 Electronic no. 650811 (Rev. C)

Layout Drawings: GB-F Voltage application board no. 600555 (Rev. P02)
GB-F Current application board no. 600556 (Rev. P02)
GB-F Baseboard no. 600557 (Rev. P04)
SE4 Electronic no. 600265 (Rev. E)
GT Electronic board no. 600347 (Rev. D)
SE7 Electronic no. 600265 (Rev. E)

Data Sheet Ölflex Robot 900DB (21.07.2008)

Firmware GB: MK3ww-xyyy-zz-5 (Rev.. 3.00)
Firmware GT: 253190 (Rev. 2-06)

Valid until **2021-04-25**

Page **3 of 3**

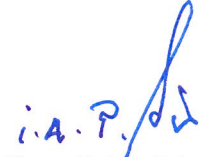
File No. **I.D.04**

Hamburg, 2016-04-26

Type Approval Symbol




Marco Rinkel


Klaus-Peter Schröder

DNV GL

TYPE APPROVAL CERTIFICATE

DNV·GL

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the DNV GL Type Approval System.

Certificate No. **42 325 - 16 HH**

Further Technical Data / Range of Application

G-Series GBF Analog with approval Germanischer Lloyd

Order Code. **GB F xxxxM xxx 1 xx CA1**

(a) (b) (c) (d) (e) (f) (g)

(a) Sensor model: **GB = Rod**

(b) Design = **Rod with pressure fit flange Ø18 f7**

(c) Stroke length: **xxxxM = 50 ... 2025mm**

(d) Connector type **D60 = 6 pin connector M16**

Sxx = PUR-cable without connector, S01 ... S06 (1 ... 6m)

(e) Operating voltage: **1 = 24V DC**

(f) Output: **V0 = 0 ... +10VDC and +10 ... 0VDC**

A0 = 4 ... 20mA

A1 = 20 ... 4mA

(g) Approval: **CA1 = Germanischer Lloyd**

Operating pressure hydraulic pipe: **350bar**

Ingress protection: **IP67 with proper mating connector**

IP68 for cable outlet (2m/16h)

G-Series Analog Redundant with approval Germanischer Lloyd

Order Code. **GT M xxxxM xxx 1 xx CA1**

(a) (b) (c) (d) (e) (f) (g)

(a) Sensor model: **GT2 = Dual redundant**

GT3 = triple redundant

(b) Type of flange: **M = Flange M18x1.5**

(c) Stroke length: **xxxxM = 50 ... 2900mm**

(d) Connector type **D60 = 6 pin connector M16**

S02 = PUR-cable without connector, S01 ... S06 (1 ... 6m)

(e) Operating voltage: **1 = 24V DC**

(f) Output: **V0 = 0 ... +10VDC**

V1 = +10 ... 0VDC

V2 = -10 ... +10VDC

V3 = +10 ... -10VDC

A0 = 4 ... 20mA

A1 = 20 ... 4mA

A2 = 0 ... 20mA

A3 = 20 ... 0 mA

(g) Approval: **CA1 = Germanischer Lloyd**

Operating pressure hydraulic pipe: **350bar**

Ingress protection: **IP67 with proper mating connector**

IP68 for cable outlet GT (2m/6h)

Valid until **2021-04-25**

Page **2 of 3**

File No. **I.D.04**


Hamburg, 2016-04-26

Type Approval Symbol



DNV GL


Marco Rinkel


Klaus-Peter Schröder