ATEX Directive (94/9/EC) Essential Health and Safety Requirements
Instruction for Installation of X700

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The X700 Incremental or Absolut Shaft Encoder is a flameproof construction containing the electronics. Based on the very low current consumption the temperature class will not be affected by the electronics. The shaft is designed with two precision ball bearings and a separate flamepath.

X 700 Flameproof Shaft Encoder

- X700 -

PRODUCT SUMMARY

Shaft Encoder
Supply: 50 VDC, 3A
Ambient temperature range at T6: (-20°C < Tamb < +60°C)
Ambient temperature range at T4: (-20°C < Tamb < +100°C)
Marked: W+S Meßsysteme GmbH
Type: X700
Protected for use in potentially explosive atmospheres (flameproof enclosure)
EEx d IIC or EEx I

The product type has been tested in accordance with the European Standard EN50014:1992E and EN 50018:1994 E.

Description of the Apparatus

The X700 Shaft Encoder is a measurement instrument manufactured by W+S Meßsysteme GmbH. The unit is a rotating electrical device rated at 50Vdc 3A for determining rotor angular movement of an industrial electric motor as part of a feedback control system. The unit comprises a 316 stainless steel shaft which rotates in 316 stainless steel stator body with a 316 stainless steel lid which is screwed onto the stator. On the end of the shaft is an encoder disc which has an opto-electronic pick up and conditioning circuit fixed to the body above the rotating disc. The cover has cable entry points in the back, which can be machined to accept M12 to M24 suitably certified cable glands.

PRODUCT CERTIFICATION & CODING

Demko 02 ATEX 133213 X

CE 1254

T135°C IP 67

I / II 2GD EEXd IIC T4 Tamb = 100 °C **X→ heat resistance cable for T4 class**

I / II 2GD EEXd IIC T6 Tamb = 60°C

COMPLIANCE JUSTIFICATION DETAILS FOR *X700*

- The *X700* is considered as normally not ignition capable after the application of operating faults.
- There are no foreseeable adverse surrounding area conditions.
- The *X700* is manufactured from materials which are considered as not able to trigger off an explosion in normal operating modes and various fault modes in accordance with the requirements for Cat (X) equipment.
- The materials used in the construction of the *X700* are not known to react with any explosive atmospheres to which it may be subjected. It is the responsibility of the end user to ensure that the *X700* is selected correctly for the potentially explosive atmosphere in which the equipment is to be put into service.
- The *X700* contains no replacement parts or components.
- The *X700* does not produce flammable gases or dusts in normal operating modes.
- The *X700* does not cause injury or harm when used in conjunction with the installation guide.
- The *X700* does not produce ignition capable electrical sparks or arcs and has been designed not to produce potential ignition sources from electromagnetic, acoustic, optical or other such extraneous energy sources.
- The *X700* is not considered as a safety device and is not suitable for connection into a safety system and performs no critical measuring or alarm functions.

Hazardous Area Installation Standards & Requirements:

The installer should refer to the latest edition of the following standards before installing or operating in a Hazardous Area:

EN 1127-1 Explosive Atmospheres - Explosion prevention and protection, basic concepts and methodology.

EN 60079-14 Electrical apparatus for explosive gas atmospheres - Part 14:Electrical installations in hazardous areas (other than mines)

Instructions for the Installation of *X700* in a Hazardous Area:

Installation must be handled by skilled personnel (only)
Observe precaution for handling of electrostatic sensitive devices
Installation with power off (only)
Connect to earth first
Connect to GND
Insulate Channels not in use separately
Do not slam with Hammer or use any unnecessary violence
Do not untighten the cable gland. It is part of ATEX certification
Do not open the Encoder. The Certification will be repealed
No modifications allowed
Do not connect outputs to supply voltage.
If the device is mounted to electric machinery with high current or voltage on the shaft, precausions have to be taken for galvanic separation
Maintenance not necessary (Lifetime lubricated ball bearings)

Instructions for the Maintenance of *X700* in a Hazardous Area:

Maintenance not necessary

Specifications & Operational parameters

Flameproof Encoder X700

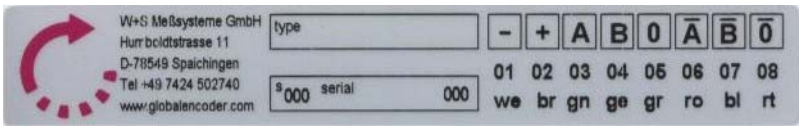
Mechanical Secifications:
Cover …….. 316 Stainless steel
Body …….. 316 Stainless steel
Shaft …….. 316 Stainless steel
Speed …….. max. 6000 rpm
Torque …… < 0.4 Nm
Shaft load …… 50 N axial and radial
Protection …… IP 67
Temperature ….. –20°…… 75°C
Weight ……. 1250 g

Electrical Specifications:
Supply voltage …… 4.75 - 30VDC
Current Consumption ……40 mA
Output circuit … Push-Pull / RS 422
Impulse frequency ……. 300 kHz
Logic level high …… Vcc-0.7VDC
Logic level low …… 0.25 VDC max.
Short circuit protection ……. 100%

X = Cable: …. Mechanically and chemically resistant, flame retardant and screened
Important: the encoder must be mounted/installed with special resistance cables in T4 version for ambient temperature of 100°

Label Details and Information

Part number



Serial number connection and wire colour

Part numbering system flameproof encoder

A BB – C D E F G H- XXXXX

A = Group Function I (incremental)
A (absolut)

B = Main Feature X (Solid shaft flameproof)
B= Basic Number 700 (70mm diameter body)
C= Shaft size 12 (12 mm diameter shaft)
D= Mechanical option O (none)
E= Connections O (2 meter cable)
F= Exit Location A (axial cable gland)
G= Output Signals 6 (A, B, O, complements)
H= Output Type 3 (Push Pull, 4.75..30VDC)
XXXXX = Pulses/Revolution (1 up to 10000 ppr)

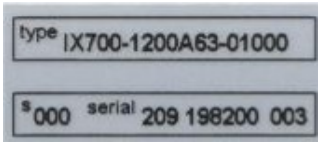
Refer to Drawing X700-LB01 T4 and T6

Sample:



Printed label placed in the label window

Part number (sample print)



Serial No.: with Production code, purchase order number behind

209	means: Year/ Month
198200	means: customer and order number
003	means: for sample the encoder number three in that order

Specials: X → heat resistance cable for T4 class!

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