



**ROCHESTER
GAUGES,INT.**

6323Sx0130x

TECHNICAL INFORMATION



Current Transmitter « 4-20mA »

ROCHESTER GAUGES INTERNATIONAL S.A.

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**MADE IN
EUROPE**

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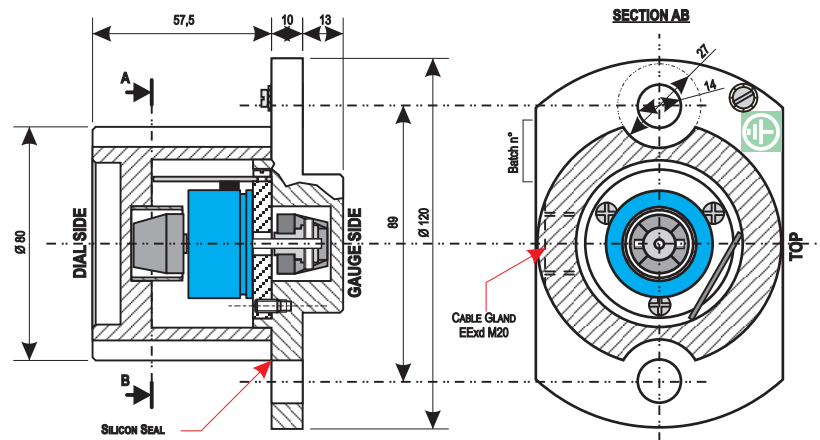
CHAPTER 1

INTRODUCTION

This transmitter consists of an explosion proof Ex db IIB T6, IP65 aluminium housing includes a non linear low torque precision potentiometer and a voltage to current converter in order to provide an output of 4-20mA proportional to the tank liquid content of an horizontal cylindrical tank.

On the potentiometer shaft, two powerful magnets are mounted in order to transmit the level indication to the dial and so to maintain a direct reading of the liquid level on the tank.

The transmitter is supplied with its cable gland and with a 2m double insulated, shielded 2x0.75mm² (LiYCY-OB) cable.



1.1 Certification

The technical box 6315-xxxxE, Group II Category 2 G is designed to be used in areas where potentially explosive atmosphere due to gas vapours could exist. It has been certified "Ex db IIB T6", safety equipment by explosion proof housing corresponding to the subdivision IIB (explosive atmosphere other than firedamp mines) and to the temperature class T6 (surface temperature less than 85°C). The conformity with the European Directive ATEX 2014/34/UE has been verified by APRAGAZ who delivered the certificate APRAGAZ 10 ATEX 0127X. The suffix X indicates that the extremity of the cable must be located in an appropriate junction box with respect of the external influences, the explosion hazard and the required IP degree. The ambient temperature where the box is mounted must be between [-20°C and +65°C]. The technical box can not be used in explosive gas atmospheres containing Acetylene.

1.2 General Data

- Power supply (*Ups*) : 24 to 40Vdc regulated (*not included*)
- Mechanical rotation : 360°
- Conformity : ± 0.5%
- Hysteresis : ± 1.8%
- Number of cycle : > 10⁷ revolutions
- Operating temperature : -20° to +65°C
- Maximum impedance of the 4-20mA loop (*in Ω*) = (Ups - 11.6)/20mA (*with Ups in Volts*)

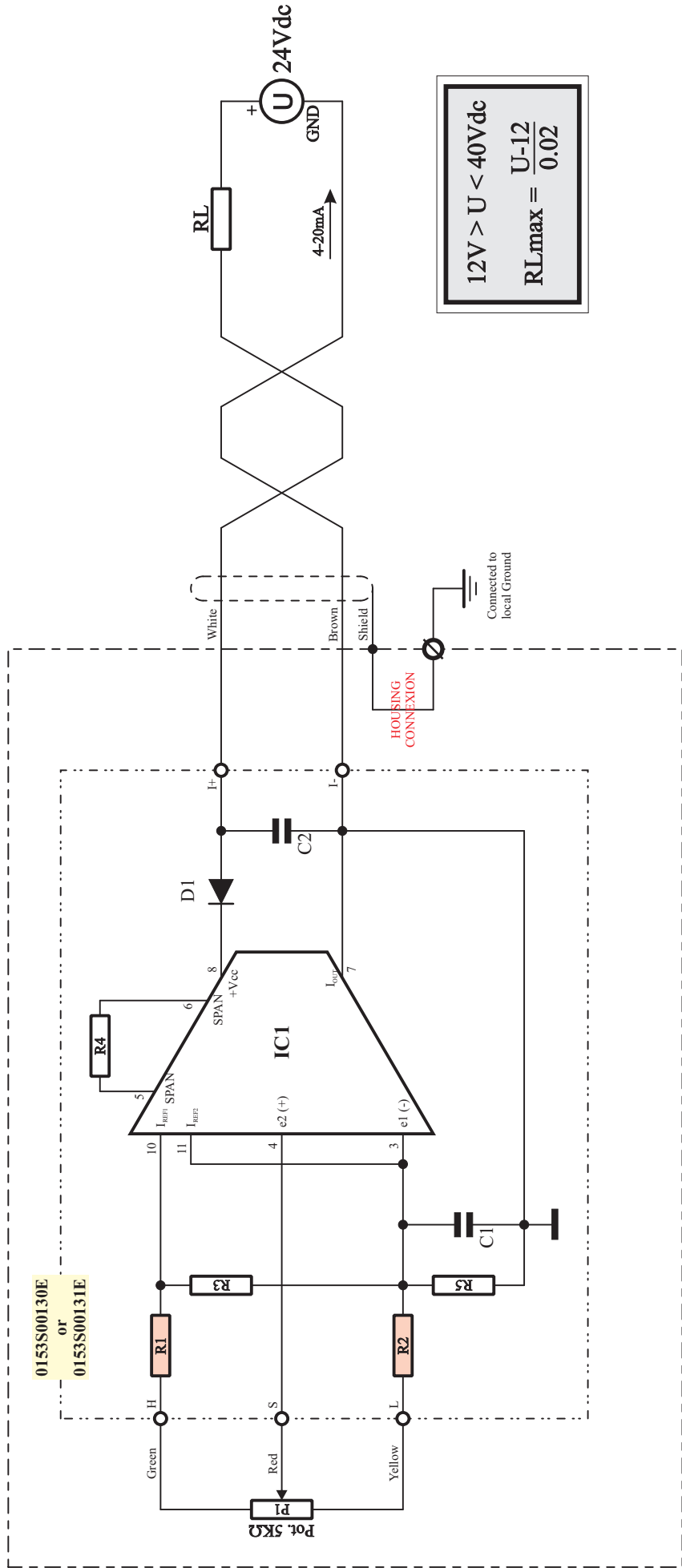
The transmitter should not be opened. Should it be the case warranty on the product will not be applicable.

1.3 Ordering Information

- Specify model number
- Specify length of cable required (*2 meter in standard*)
- Specify type of gauge on which transmitter will be used (*C, P, S or X*)
- Specify the thread for mounting the transmitter (*M12 or 1/2" UNC*)

6 3 2 3 S * 0 1 3 0 *	
	→ Type of Gauge
C	Magnetel Centerline mounted
P	Gauge 6290
S	Gauge 7290 or 7293
X	Magnetel Straddle mounted
	→ Gauge Dial Type
0	8" Magnetel Centerline (3-97%)
1	8" Magnetel Centerline (5-95%)
4	4" series 629x or 729x (5-95%)
5	4" Magnetel Centerline (5-95%)
6	« SR » Senior (5-95%)
7	« SR » Senior (SPECIFIC)

1.4 Circuit Diagram



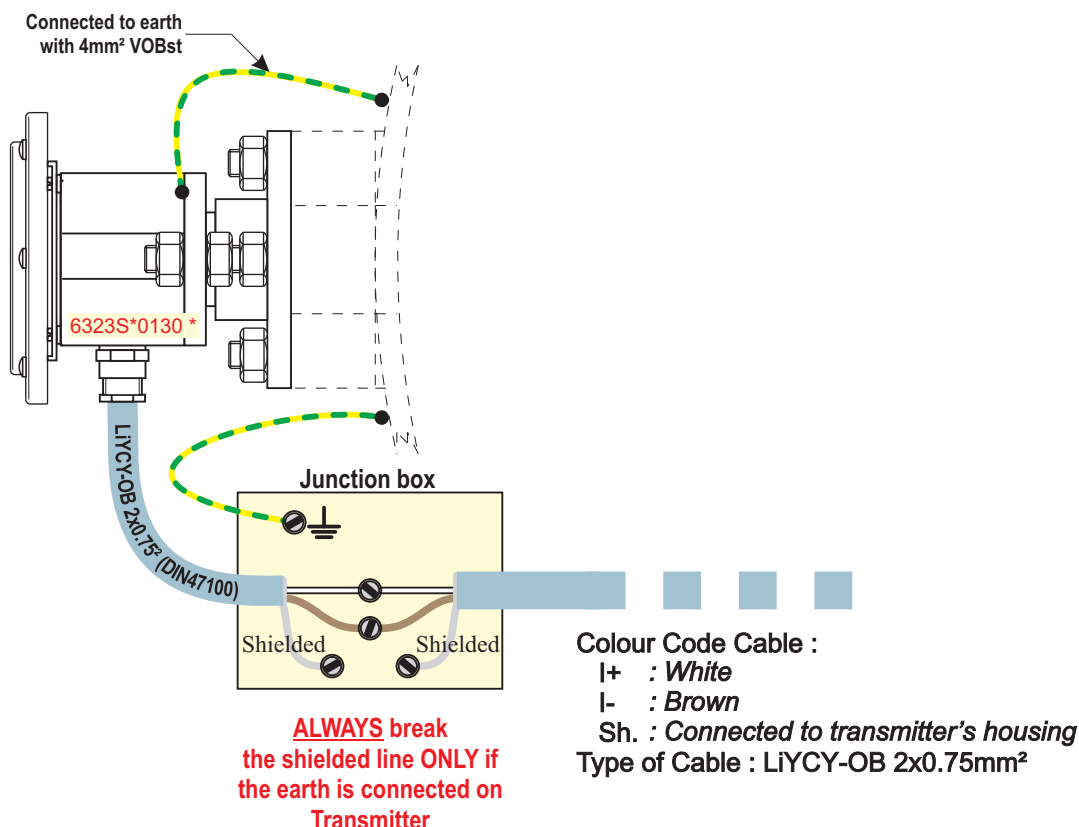
For a Magnetel with 3-97% dial : R1=0Ω and R2=0Ω

For a Magnetel with 5-95% dial : R1=100Ω and R2=100Ω (high precision resistors)

Special Notes :

The shield is connected in the transmitter housing.
This device is a "Passive Transmitter".

2.1 General Instructions for connecting a Transmitter



CAUTION : ALL ELECTRICAL WORKS MUST BE CARRIED "OUT OF POWER" !

The opening of the technical box and/or the dismount of the cable gland are forbidden. They automatically induce the loss of warranty. The cable has to be installed in conformity with the local rules. The wiring of each transmitter has to be made by authorized people following the guidelines concerning each type of transmitter and receiver. This equipment cannot be modified. It must be repaired only by the builder "ROCHESTER GAUGES International". About electrical data please refer to the specific documentation. (Vmax 40VDC, I_{max} 20mA.)

2.2 Transmitter Electrical Wiring

Please refer to the specific documentation supplied with each transmitter. As a standard our transmitter are supplied with a shielded cable of 2m long LIYCY-OB type with the required wire quantity and appropriate size (0.75mm²). The transmitter connection to the receiver has to be done with the same cable type by means of an junction box (not supplied). The cable shield is wired to the technical box. The brown wire is the I- one (different of the electrical earth) and the white wire is the I+ one (refer to the specific documentation).

2.3 Earth Wiring

In general the electrical devices have to be wired to a local electrical earth. The technical boxes for transmitter are supplied with an earth screw spotted with the traditional marker. This screw must be connected to the global electrical earth of the installation before transmitter powering.

LiYCY-OB 0.75 mm²

CABLE DATA SHEET

Multi-core cables shielded by a synthetic material with extra-flexible multi-strand conductors twisted in layers, with electromagnetic protection (CY shielding: tinned copper braid)
These cables are manufactured in accordance with DIN 47100. The cores are counted starting from the outer layer, towards the centre.

Temperature range :

Installation and service	-20°C à +80°C
Transport and storage	-30°C à +80°C

Use :

Shielded connecting cables used for the transmission of signals, measuring, controls, telephony, interphone systems and for applications in the electrical industry.

LiYCY-OB standards :

Manufactured in accordance with standards VDE 0295, 0250, 0271, 0812, 0814, 0817.
In accordance with CEI 20-35/IEC 332.1 and CEI 20-22/IEC 332.3 Cat. C, lead-free CEI 20-52
Nominal section : 0.75mm²
Conductor diameter : 2.2mm
No. strands : 24 x 0.22 mm in diameter

Cable Description :

Core	: multi-strand, red copper
Insulation	: coloured PVC in accordance with DIN 47100, 105°C PVC
Twisted	: by layer
Assembly	: by mylar sheet
Screening	: tinned copper braid (90% density)
Outer sheath	: RAL 7001 grey PVC, flame-retardant NPI CEI 20-22

Cable specifications :

Bending radius	: 10 x cable diameter
Insulation resistance	: minimum 20MΩ/Km
Operating voltage	: 500V
Test voltage	: minimum de 1.200V (1.2KV)

Electrical properties at 25°C :

Conductor resistance	: maximum 26Ω/Km
Capacitance between 2 conductors	: 130pF/m at 800Hz frequency
capacitance entre cond. & shield	: 230pF/m
Load	: maximum 13 A

Mechanical properties :

Number of conductors [mm ²]	diameter extérieur [mm]	weight [Kg/Km]
2 x 0.75	6.0	57.0
3 x 0.75	6.2	66.0
4 x 0.75	8.0	87.0
6 x 0.75	8.6	125.0

Colour standard DIN 47100 :

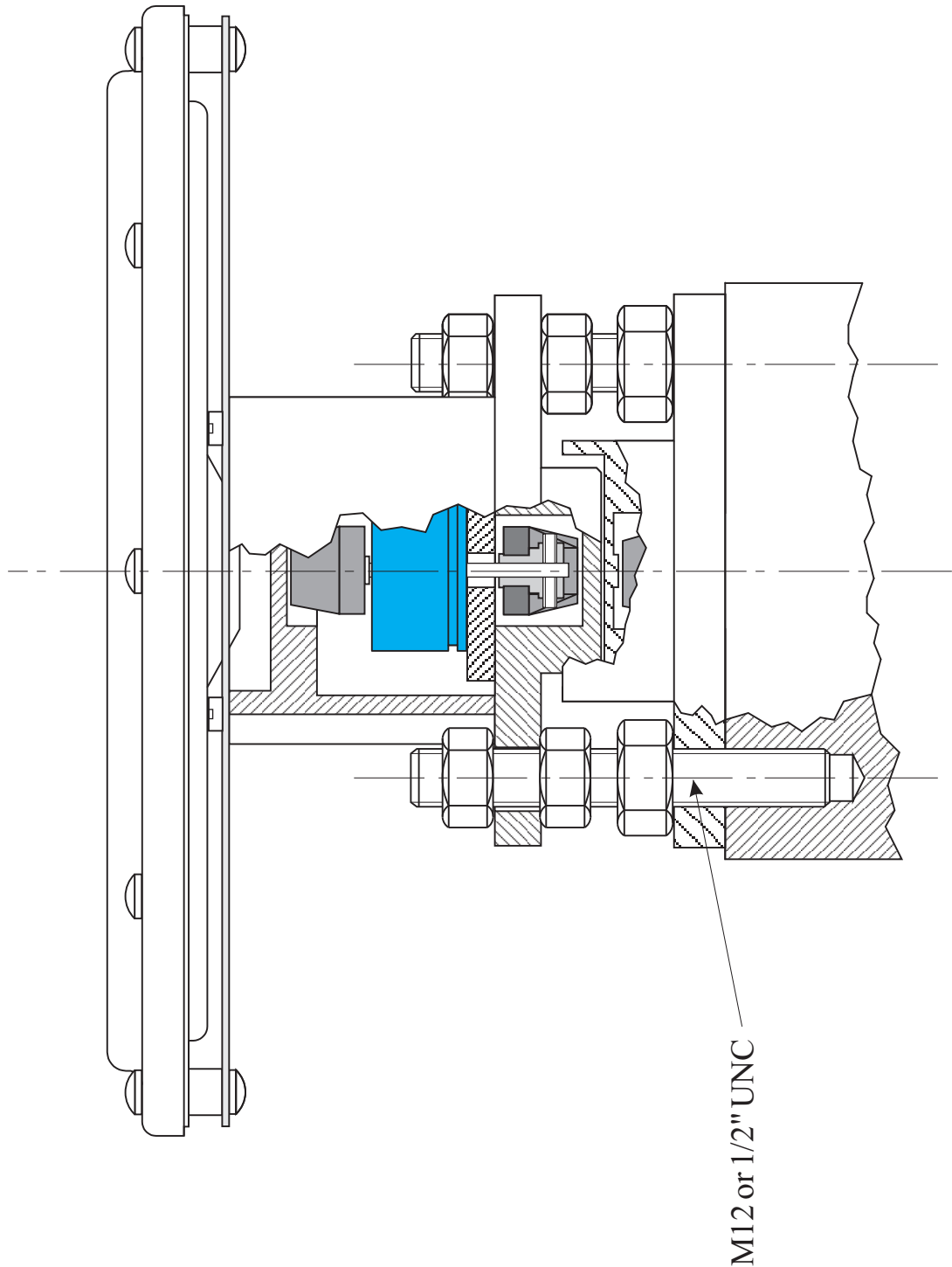
Conductor number	Colour
1	white
2	brown
3	green
4	yellow
5	grey
6	pink

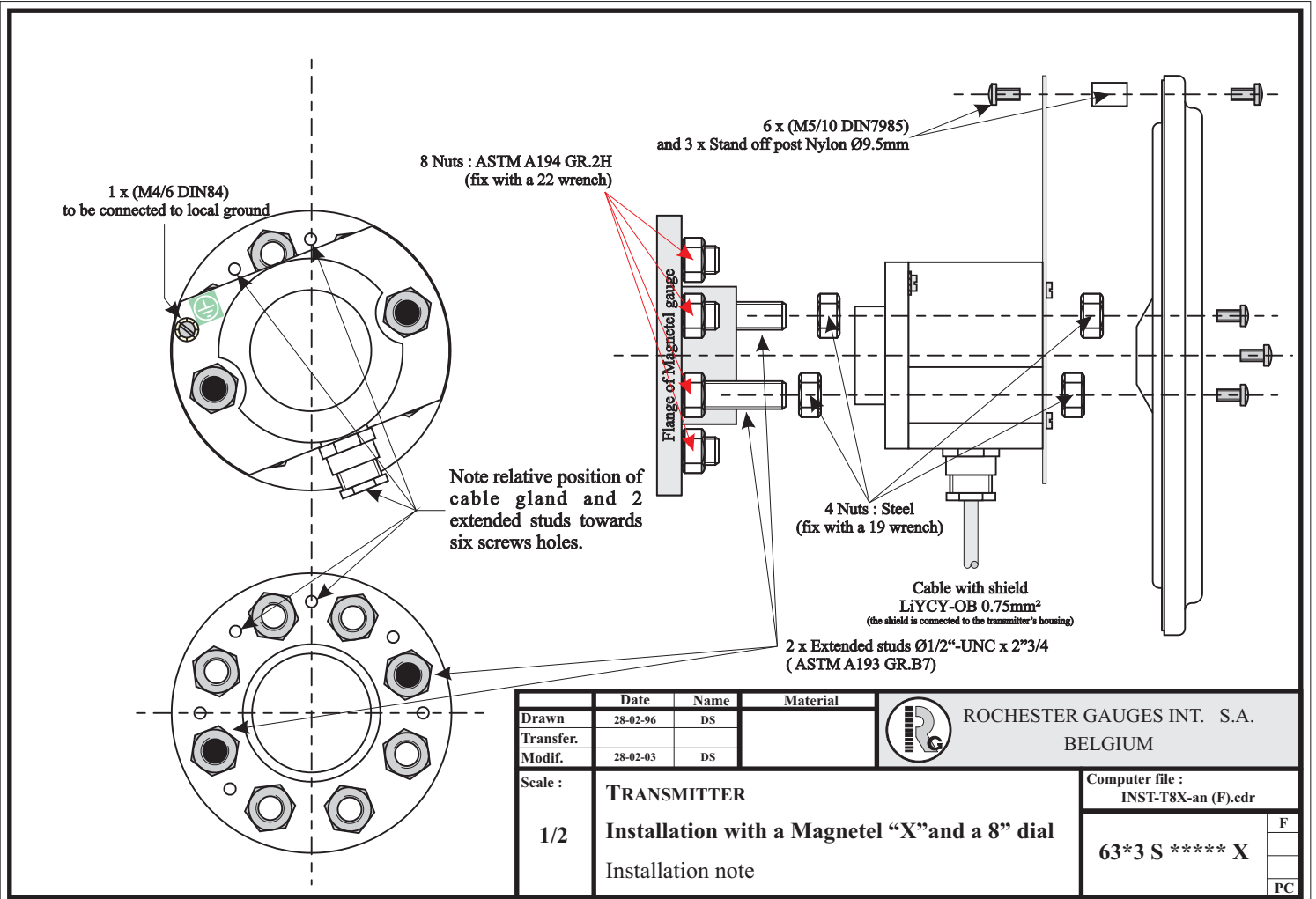
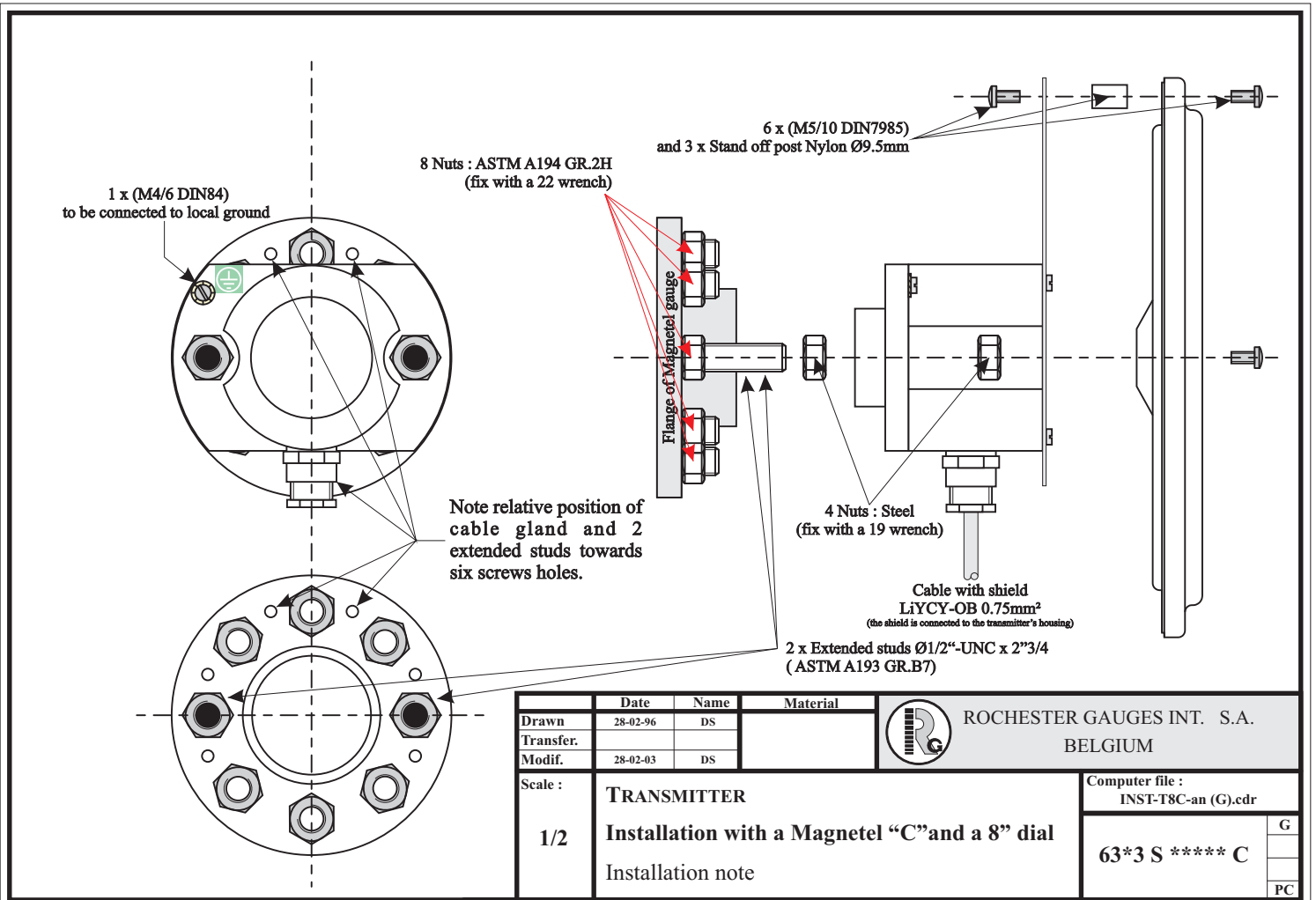
Source : Valentin catalogue (0.75mm² part specification)
Legrand electrical catalogue (part standard DIN 47100)

3.1 Mounting on a Magnetel Gauge (with 8" dial)

Refer to attached drawing « 63*3 S ***** C or X » for a transmitter with 8" dial.

Remove the dial and dismount the dial plate (0056S00005E) if necessary from the transmitter. Install on the gauge head the two extended studs and the two big nuts supplied in the mounting kit with the transmitter. Screw two normal nuts on the extended studs. Place the transmitter on the two extended studs and screw it with the last two normal nuts. Mount the dial plate and after mount the dial and fix it with the dial screws.

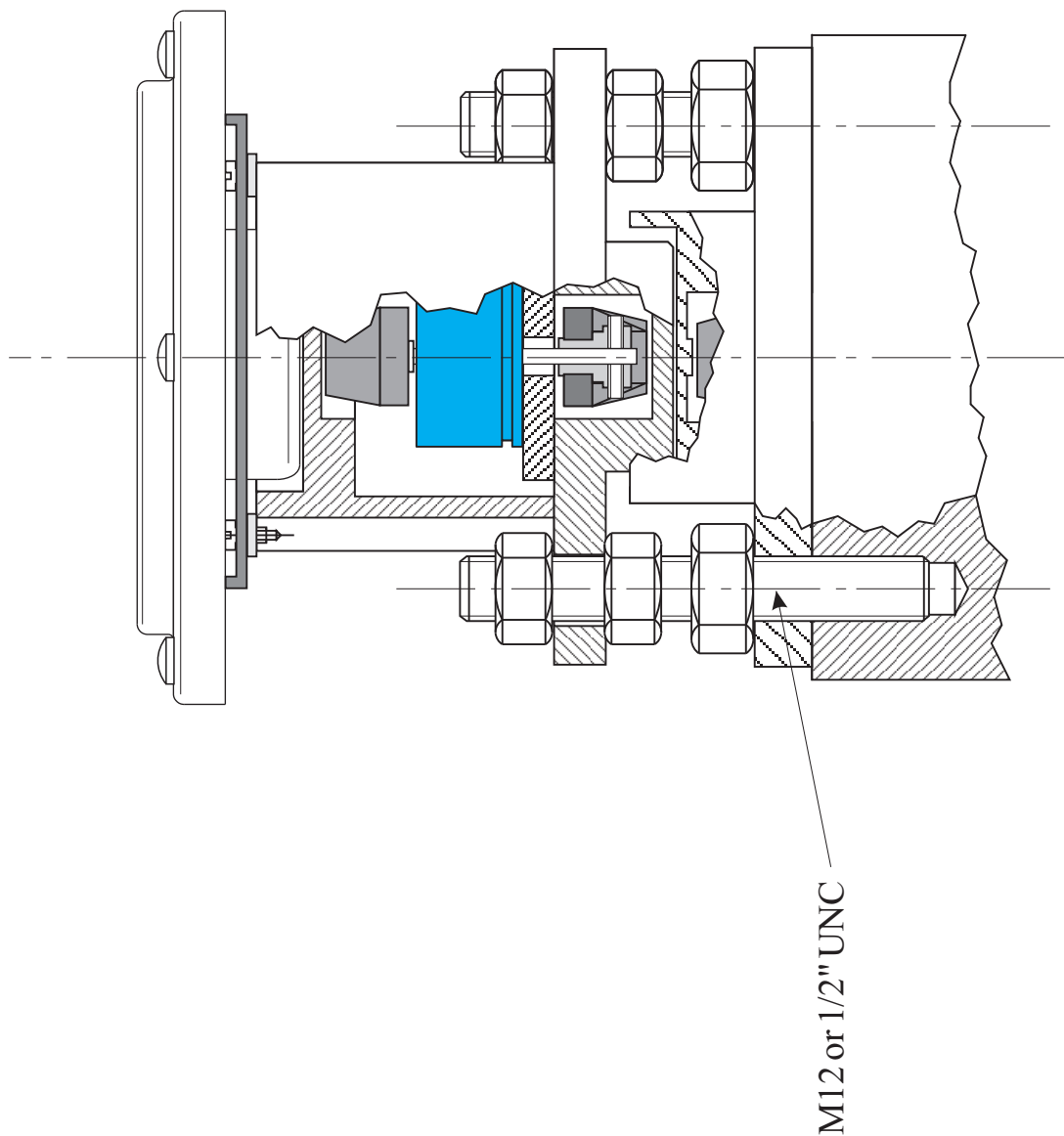




3.2 Mounting on a Magnetel Gauge (with 4" dial)

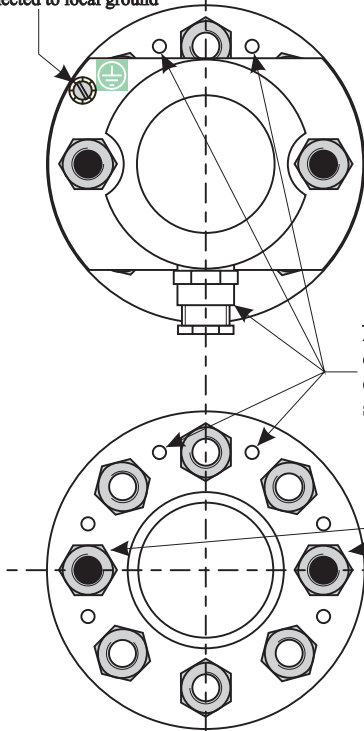
Refer to attached drawing « 63*3 S 5**** C or X » for a transmitter with 4" dial.

Remove the dial from the transmitter. Install on the gauge head the two extended studs and the two big nuts supplied in the mounting kit with the transmitter. Screw two normal nuts on the extended studs. Place the transmitter on the two extended studs and screw it with the last two normal nuts. Mount the dial on its brackets and fix it with the dial screws.



DON'T REMOVE THE TRANSMITTER DIAL FOR MOUNTING THE TRANSMITTER !

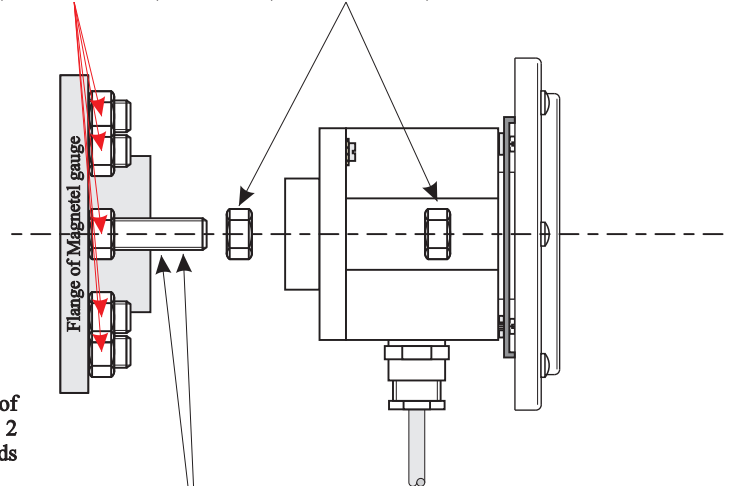
1 x (M4/6 DIN84)
to be connected to local ground



Note relative position of cable gland and 2 extended studs towards six screws holes.

8 Nuts : ASTM A194 GR.2H
(fix with a 22 wrench)

4 Nuts : Steel
(fix with a 19 wrench)



Cable with shield
LiYCY-OB 0.75mm²
(the shield is connected to the transmitter's housing)

2 x Extended studs Ø1/2"-UNC x 2 3/4
(ASTM A193 GR.B7)

	Date	Name	Material
Drawn	09-04-98	DS	
Transfer.			
Modif.	28-02-03	DS	



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Scale :

1/2

TRANSMITTER

Installation with a Magnetel "C" and a 4" dial

Installation note

Computer file :
INST-T4C-an (D).CDR

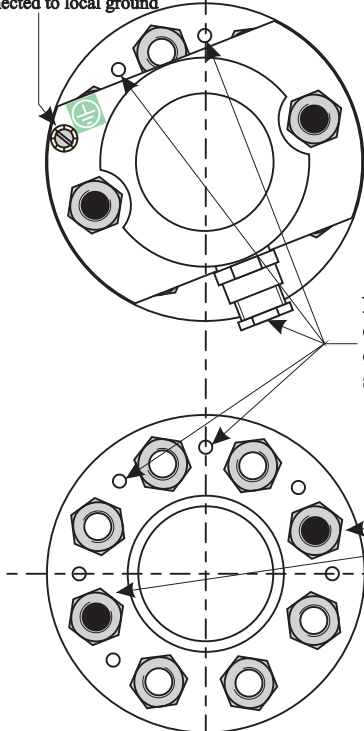
63*3 S ***** C

D

PC

DON'T REMOVE THE TRANSMITTER DIAL FOR MOUNTING THE TRANSMITTER !

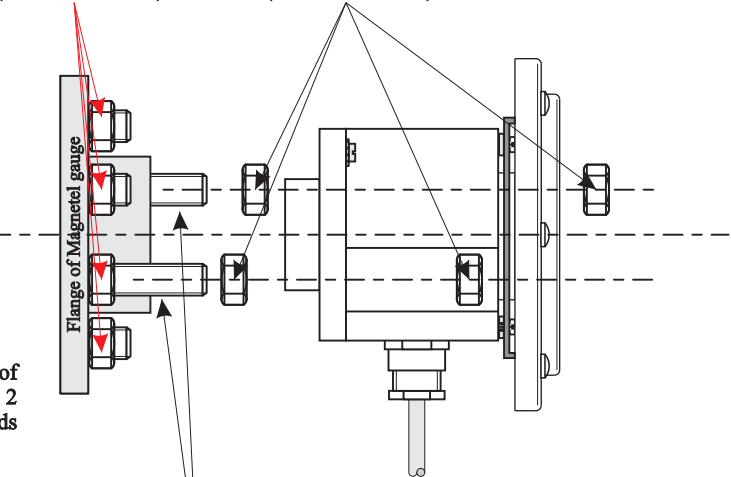
1 x (M4/6 DIN84)
to be connected to local ground



Note relative position of cable gland and 2 extended studs towards six screws holes.

8 Nuts : ASTM A194 GR.2H
(fix with a 22 wrench)

4 Nuts : Steel
(fix with a 19 wrench)



Cable with shield
LiYCY-OB 0.75mm²
(the shield is connected to transmitter's housing)

2 x Extended studs Ø1/2"-UNC x 2 3/4
(ASTM A193 GR.B7)

	Date	Name	Material
Drawn	09-04-98	DS	
Transfer.			
Modif.	28-02-03	DS	



ROCHESTER GAUGES INT. S.A.
BELGIUM

Scale :

1/2

TRANSMITTER

Installation with a Magnetel "X" and a 4" dial

Installation note

Computer file :
INST-T4X-an (D).CDR

63*3 S ***** X

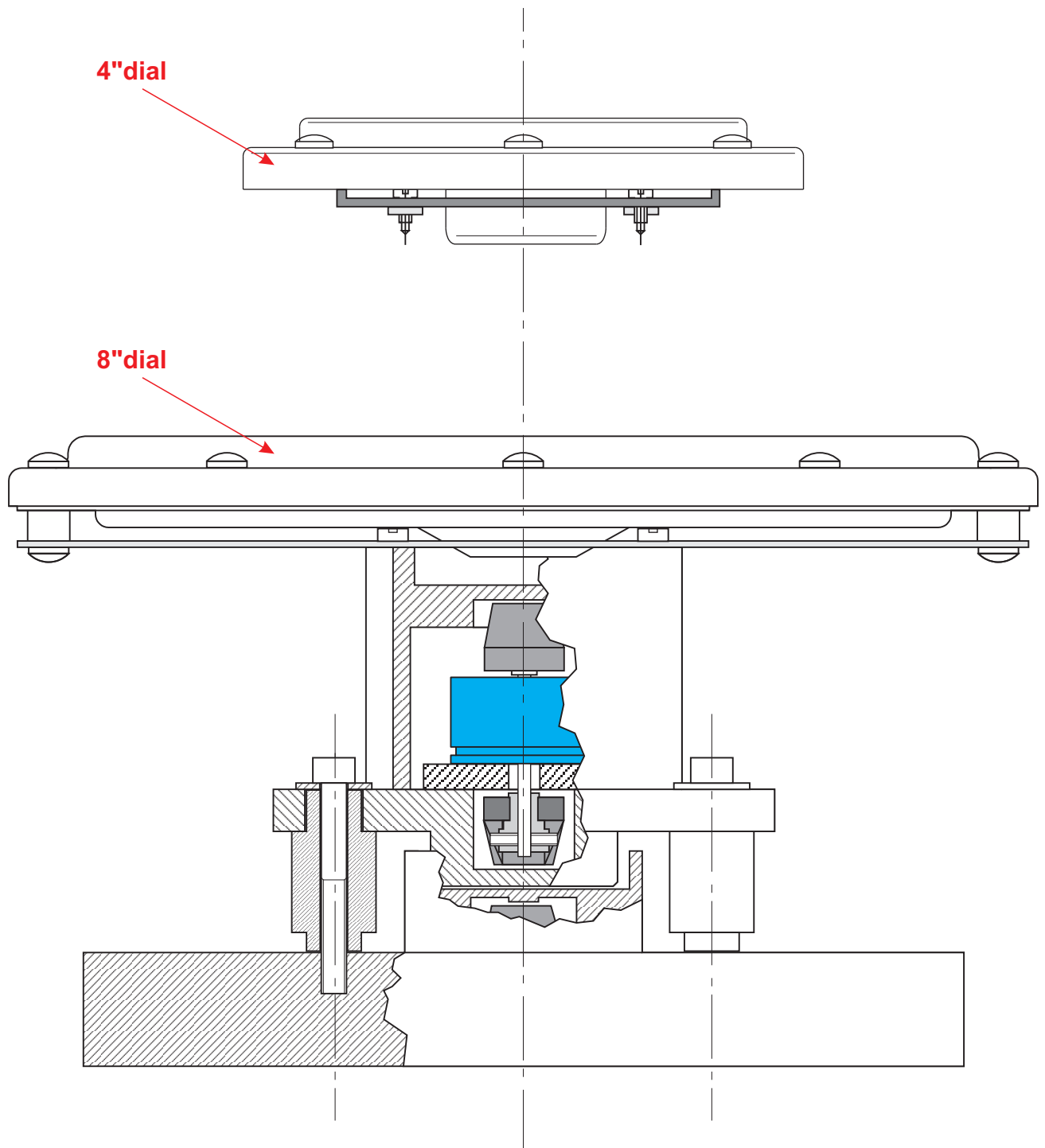
D

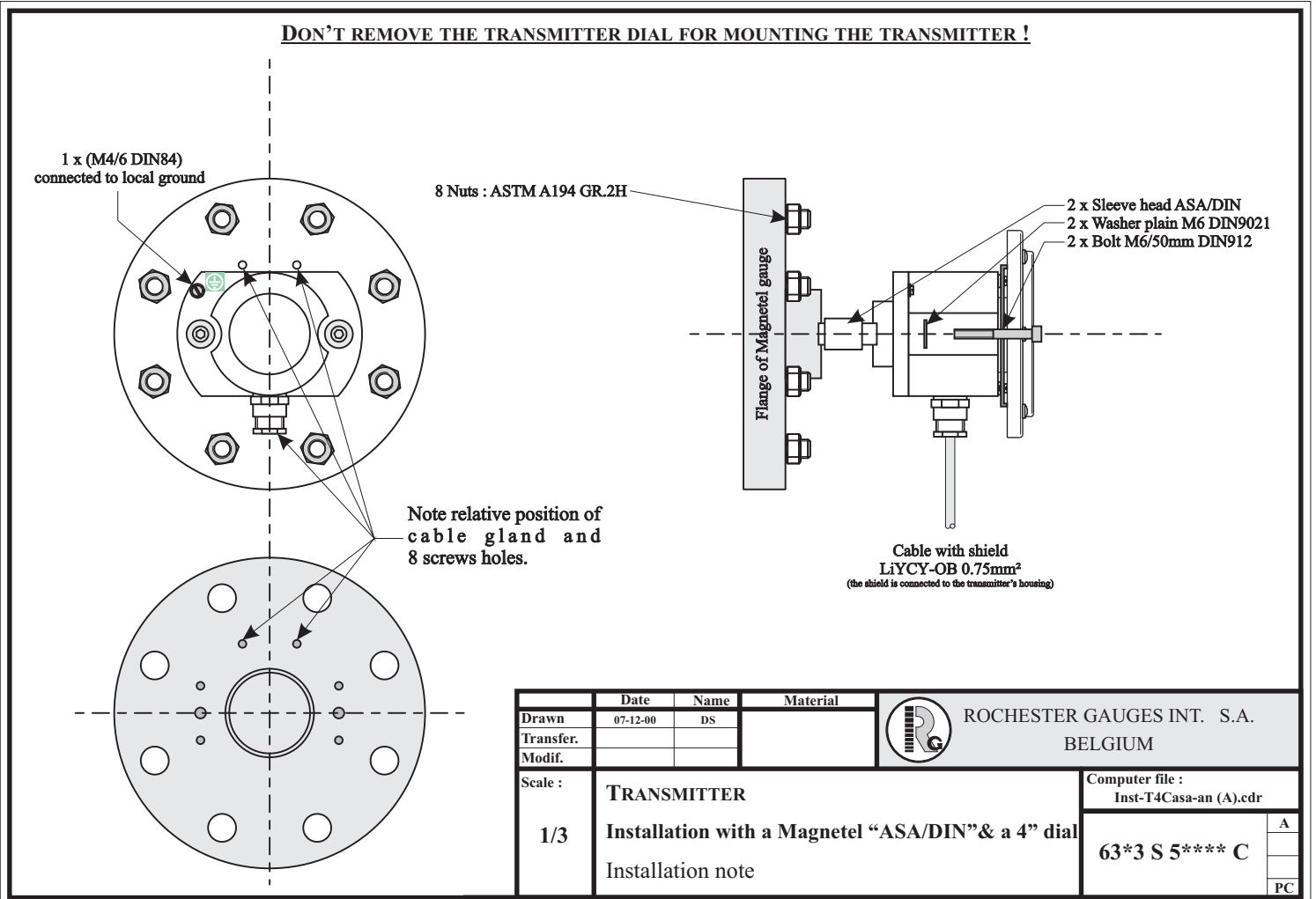
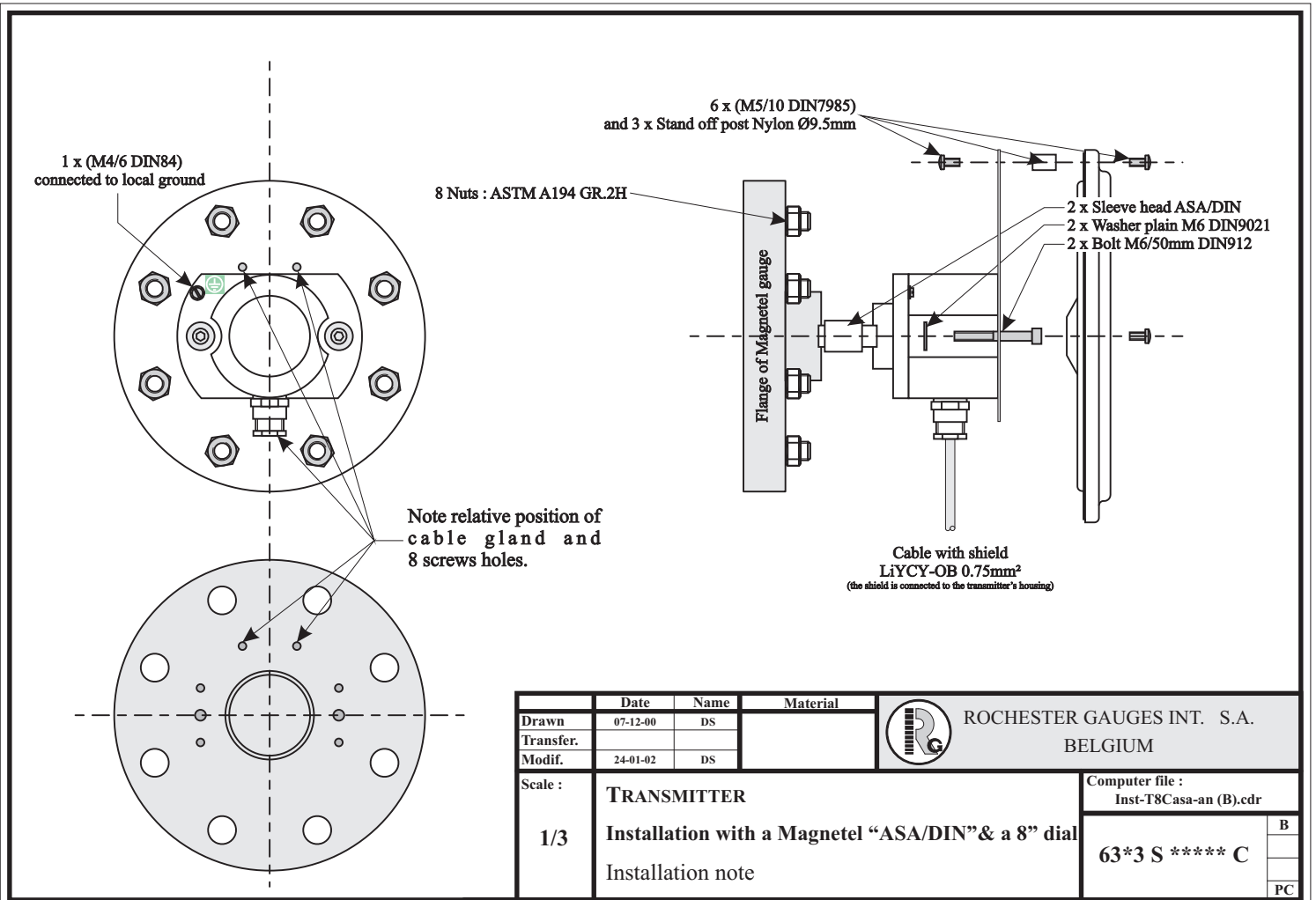
PC

3.3 Mounting on a Magnetel Gauge with ASA/DIN head

- Refer to attached drawing « 63*3 S 5**** C » for a transmitter with 4" dial.
- Refer to attached drawing « 63*3 S ***** C » for a transmitter with 8" dial.

Remove the dial and dismount the dial plate (0056S00005E) from the transmitter. Install on the gauge head the two « sleeve head ASA/DIN » supplied in the mounting kit with the transmitter. Place the transmitter on the two « sleeve head ASA/DIN ». Place the two « washer plain M6 DIN9021 » on the transmitter. Insert and fix the two Bolt (M6/50mm DIN912). Mount the dial plate and after mount the dial on its brackets and fix it with the dial screws.

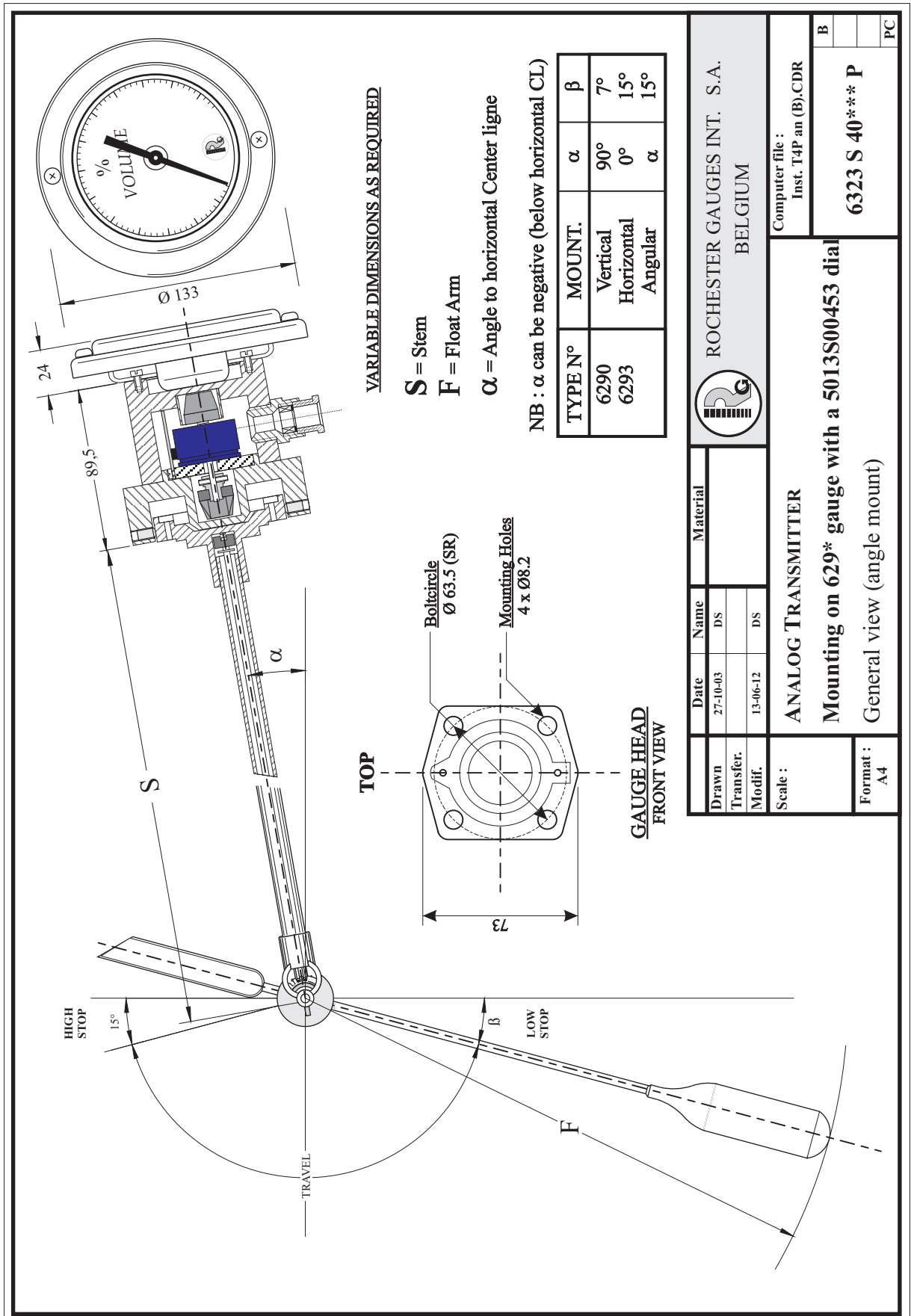




3.4 Mounting on a 629x Gauge (with 4" dial)

Refer to attached drawing « 63*3 S 40*** P » for a transmitter with 4" dial.

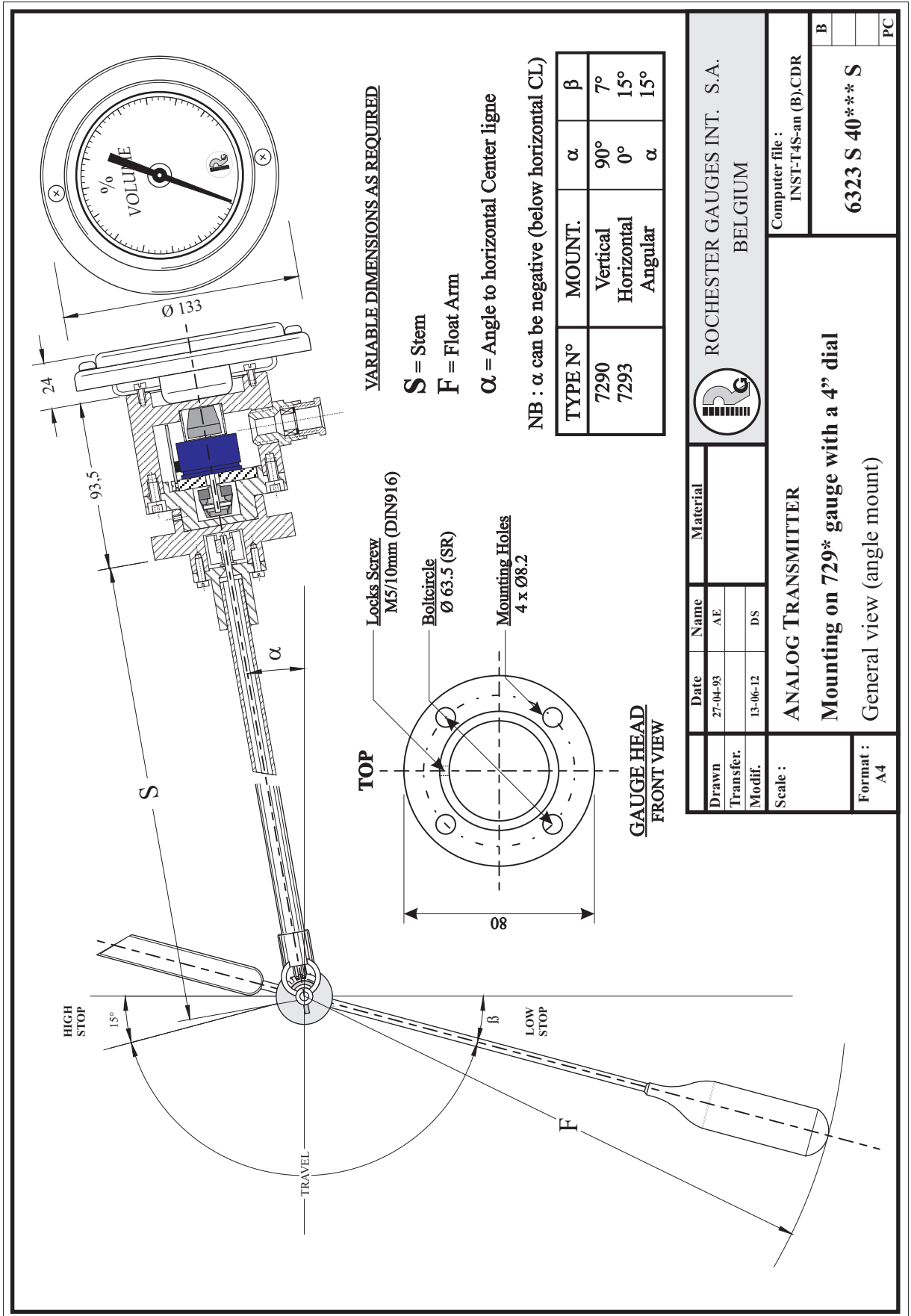
Remove the gauge dial by unscrewing the two screws and remove the dial bracket. Locate the transmitter on the gauge head with the cable gland on the same side as the squared mark. Block the transmitter by screwing the four clamping M6 screws gradually.



3.5 Mounting on a 729x Gauge (with 4" dial)

Refer to attached drawing « 63*3 S 40*** S » for a transmitter with 4" dial.

Usually the gauge is supplied with the transmitter installed on the head. The transmitter is located on the gauge head cavity and blocked by a clamping M5 screw. During reassembly be sure to install correctly the screw on its place because the proper reading conformity is related to the perfect angular alignment of the head and the transmitter.



3.6 Composition of different Mounting Parts Kits for Transmitters

0056S00005E MOUNT. PART 8"/STD TRANSMITTER

For mounting a 8" dial on a transmitter.

MOUNTING IN SERIES ON EACH 8" TRANSMITTER.

2	Bolts M4/6mm INOX A2 DIN84	0040-40601E
6	Bolts M5/8mm INOX A2 DIN7045	0040-50802E
3	Nylon spacers M5/15mm Fem/Fem	0070-50315E
1	Dial support plate	0093U00005E

0056S00011E MOUNT. PART STD TRANS./HEAD MAGNETEL UNC

For mounting a transmitter on a standard Magnetel with 1/2"UNC thread.

2	Extended Studbolts 1/2x2"3/4 UNC AcZn (ASTM A193 grade B7)	0056-00010E
4	Nut 13 UNC AcZn (ASTM A194 grade 2H)	0044-00121E

0056S00015E MOUNT. PART STD TRANS./HEAD MAGNETEL M12

For mounting a transmitter on a standard Magnetel with M12 thread.

2	Extended Studbolts M12/70mm AcZn (ASTM A193 grade B7) DIN976A	0056-00020E
4	Nut M12 AcZn (ASTM A194 grade 2H)	0044-00120E

0070S00110E MOUNT. PART 4" STD TRANS./HEAD ASA-DIN

For mounting a transmitter on a ASA/DIN Magnetela with a 4" dial.

2	Washers Plain M6/1.6mm Ø18mm INOX A2 DIN9021	0023-26182E
2	Bolts M6/50mm INOX A2 DIN912	0040-65000E
2	Sleeve head ASA/DIN (RGI Product)	0070U00100E

EU DECLARATION OF CONFORMITY

Wavre, 20th april 2016

I, PIERRE lionel, Managing Director of

ROCHESTER Gauges International S.A.

Zone Industriel Nord
Avenue Lavoisier, 6
B-1300 Wavre BELGIUM

hereby certify that the
TECHNICAL BOX (6315-xxxxxE),
enclosures for Remote System Sensor dedicated to industrial or light-industrial pressurised tanks are
in conformity with the European Directives and Standards applicable :

Directive ATEX 2014/34/EU, with limits required by :

EN 60079-0	ed.7	(2012-12)
EN 60079-1	ed.7	(2014-06)

type certified by

APPRAGAZ - Chaussée de Vilvorde, 156 - B-1120 Brussels (Belgium)

Marked

 **II 2 G Ex db IIB T6 EPL Gb APRAGAZ 10ATEX0127X**

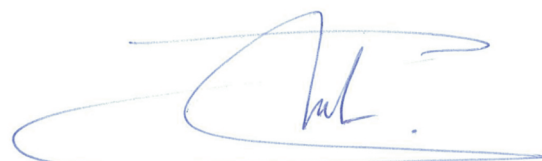
CE 0029 **T° ambient : -20°C to +65°C**

European Directives *MD 2006/42/EC* do not apply and *Low Voltage 2014/35/EU* and *EMC 2014/30/EU* also do not apply as the power supply is less than 75Vdc or 50Vac.

EC Type Examination Certificate according Annex 3 of the ATEX
directive 94/9/EC. Certificate n°: 10ATEX0124X

Production Quality Assurance Certificate according Annex 4 of the ATEX
directive 94/9/EC. Certificate n°: 07/BE/1303

Certificate can be downloaded from our web site www.rochester-gauges.be



PIERRE Lionel
Managing Director