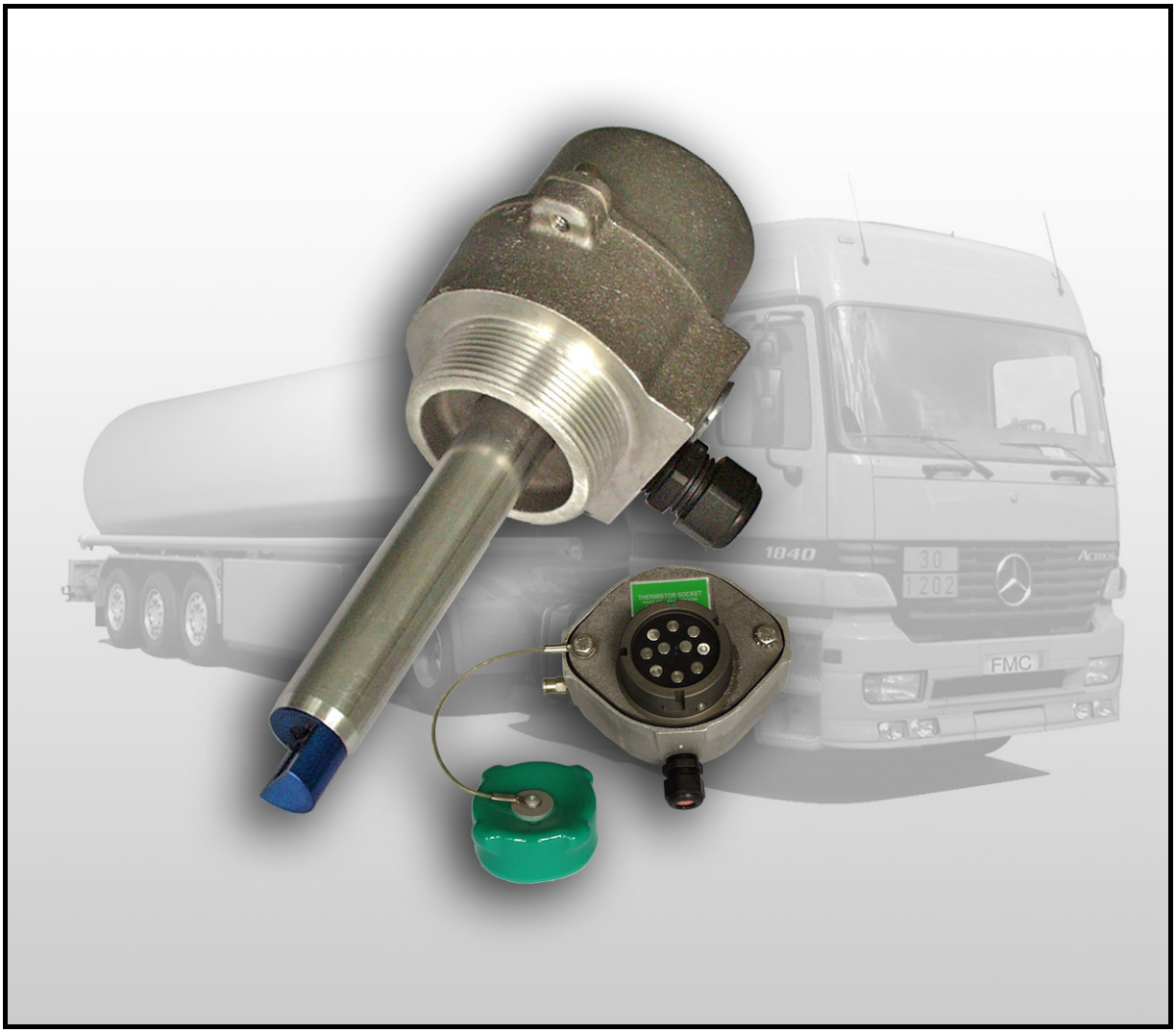
FMC Technologies

Installation Instruction
EuroTop
Truck Overfill Prevention

Issue / Rev. 1.40 / NB / jp / December 2006 **MNF04001EUS / DOK-402E**



Further documentation on this product:

Description	Order no.
not any	

History

Revision	Date	Editor	Status	Description
Rev. 1.10	July 1999	AA	released	first edition
Rev. 1.30	April 2003	ADS	released	minor modifications
Rev. 1.40	December 2006	JP	released	format modifications / editorial amendments

Important

All information and technical specifications in this documentation have been carefully checked and compiled by the author. However, we cannot completely exclude the possibility of errors. **F. A. Sening GmbH** is always grateful to be informed of any errors.

Contents

1 General Remarks

1.1 How to Use this Manual

This manual contains multiple information. In order to help you find the information you need, we created some orientation help.

- Pictographs
  The information in this manual ranges from intended use, formal instructions, concrete operating steps and feed-backs to good advice. For easier reference the information is marked with a special pictograph in the left marginal column.

  In this manual you will find the following symbols:

Danger! In this case: Danger of explosion.


Environment protection; recycling


Action that may damage the equipment

§ **Action** that may have legal consequences


Work step; concrete operation


Feed-back positive


Feed-back negative


Advice, tip


Optional or special case


Function / Functional description


NOTE: Indicates a special Situation


IMPORTANT: To be strictly observed

2 General Installation Instructions

Apart from the points outlined in the following, all the relevant regulations, such as VDE 0165, must be observed during installation, operation and maintenance. If the instructions below are followed, long and trouble-free operation can be ensured.

2.1 Preventive Measures

2.1.1 To Avoid Accidents (Due to Gas Explosion)

Keep aware of the regulations for the EX protection.
If PG glands on Al terminal boxes must be changed, only Ex approved glands must be used.

2.1.2 To Correspond to Norms

- Wiring must be carried out according to the supplied wiring diagrams. All colours are selected according to DIN 47100. Please **strictly** comply to the given colour selections.
- The electrical installation must be carried out according to EN60079-10 / VDE 0165.
- It is not permissible to fit additional components into the housing or in the coupling socket (e.g. additional terminals), since this would contravene the device approval.

2.1.3 To Ensure Trouble-Free Operation

- During welding work on the vehicle, the power supply must be disconnected.
- The lead entries must always be mounted at the side or underneath in order to prevent the ingress of water into the housing.
- The terminal and electronics boxes as well as the connectors must be protected against direct water spray (e.g. from the tyres).
- All cables must be routed such that they are not damaged or kinked.
- All electrical connections are implemented in either screw-secured plug-in connectors or terminals. The leads must be introduced into the housing through PG glands appropriate to the lead cross-section. The supplied screwdriver should be used for connection to the screw-secured plug-in connectors. When cutting the wire ends it is essential to make sure that no wire clippings drop into the open device. Otherwise, this may cause short circuits on the circuit board.

A connection between the housing/screen and the 0V strip must never be made.
If this advice is not followed, problems with the functioning of the device may occur.

2.1.4 To Make Work Easier for Future Users

- Terminal boxes should be fitted allowing easy access.
- Cables without connectors may be shortened.
- The cover mounting screws should be slightly lubricated before fitting (copper paste, graphite grease). Thus corrosion of the screws after long periods of operation is prevented and easy unscrewing enabled.

3 General description

The tank truck overfill prevention system **EuroTop** consists the optical sensors type **NSE16** installed in the respective compartment and a 10-pole coupling socket type **OFSP10** with push button switch.

- The push button switch is pneumatically attached to the interlock valve of the vapor adaptor, thus the overfill prevention system is only active when the vapour recovery hose is attached.
- The optical sensors are connected to the coupling socket by a common 5-core cable.
- This system works independently from the tank truck electronics. The power supply and the signal processing are provided by an amplifier installed at the depot. The connection to the tank truck is made via a 10-pole connector.
- If one of the sensors dips into liquid, the complete loading procedure on the depot is interrupted. Before the loading can be restarted, the tank truck must leave the load position and partially drain the overfilled compartment.

4 Assembly and wiring on the tank truck

4.1 OFSP10 type coupling socket

4.1.1 Assembly (drawing No. 52.351151 Sht.1)

The coupling socket is to be installed on a rigid metal holder close to the API couplings with a correct ground connection. It consists of the housing and front plate with socket and protection cap.

☞ Housing and front plate are screwed together by means of two hexagonal bolts. Small parts and cables for the housing connection and wiring are located inside the coupling socket and also packed in a separate bag.

☞ The housing is to be mounted via two holes 10 mm in Ø in such a way that both condensate drain holes are perpendicular. The upper hole is to be closed with a Philips self tapping screw (small parts) in a vertical position.

4.1.2 Wiring (drawing No. 52.351151 Sht.1 and Sht.2)

☞ The ground terminals No. 9 und 10 are pre-mounted. Nr. 9 is connected to the pneumatic push button switch.

☞ The thin single-core cable of the second screw terminal of the pneumatic push button switch is to be fitted with the large circular cable lug (small parts), before screwing in both ½" NPT cable glands (small parts). The circular cable lug is to be mounted below one of the housing fixing bolts.

☞ The circular cable shoe of cable No. 10 is to be connected with the front plate using a washer and Philips self tapping screw (small parts). For this purpose there is a hole in the front plate located near the socket.

☞ It is necessary to exchange the cable sealing of either one of the cable glands for one of those in the separate bag. The thick two-core cable (small parts) is to be fed through the cable gland and connected with the loose cable end No. 10 using a crimp connection (small parts).

☞ The cable is to be earthed outside the coupling socket (min. 100 mm away from the housing) with the circular cable lug (small parts) by means of a suitable screw connection.

☞ The 5-core sensor cable is to be fed through the second cable gland and the 4 wires fixed to the socket by means of circular cable lugs and Philips screws (small parts).

☞ The black earth sensor wire is to be fitted with a large circular cable lug (small parts). Then same is to be mounted below the second housing fixing screw.

4.2 NSE… sensor Type

4.2.1 Adjustment (drawing No. 52.351151 Sht.2)

The pick-up point of the sensor can be adjusted using the sliding sensor pipe. The pick-up point is to be determined according to the chamber's max. calculated filling level.

☞ The sensor pipe can be pushed out to the required size after loosening the fixing screw mounted on the side of the sensor head.

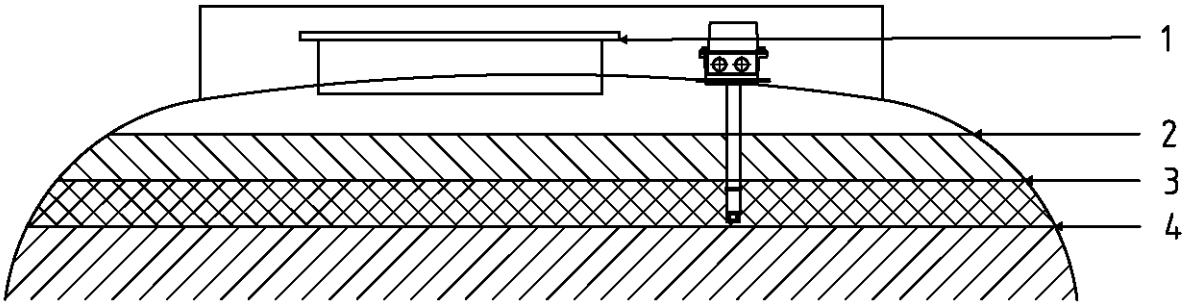
☞ In case the height of the sensor head is not sufficient for adjusting, it is necessary to shorten the sensor pipe and the 5-core cable.

☞ The sensor pipe can be cut back as far as the circular marking slot only.

☞ The pipe must be shortened with a pipe cutter and the plastic bushing re-inserted afterwards, to avoid damage to the cable inside the sensor pipe.

4.2.1.1 Sensor setting where the overfilled compartment is not corrected before transport.

Data annex: CEN/TR 15120; 2005 (E)



a. the distance between level 4 and level 3 should be a minimum of 10 mm and a maximum of 25 mm.
b. volume level 3 to level 2 should be a minimum of 150 litres.
c. volume level 2 to level 1 should be at least 3% of compartment capacity, although the exact percentage might be subject to national regulations.

4.2.2 Assembly

☞ The sensor is to be screwed in vertically in the G2 connecting thread with the aid of grease (e.g. Molikote).

☞ The seal and lock nut are to be removed beforehand.

☞ There are other connection possibilities, if there is no G2 connection available or if it is not desired:

a. Provide container opening ... 60.3 mm.
The sensor is inserted in this opening in such a way that it sits on the seal. It is to be tightened on the inside of the tank with a lock nut.

b. TW1 flange connection
Delivered with a TW1 adapter flange

4.2.3 Wiring (drawing No. 52.351151 Sht.1 and Sht.2)

All sensors are connected to a common 5-core cable using a coupling socket.

☞ All sensors, apart from sensor 1, are to be equipped with two M20x1.5 cable glands.

☞ Only one cable gland is necessary for sensor 1, the second threaded bore is to be closed with a sealing plug (small parts).

☞ The first sensor behind the driver's cabin is always designated as sensor 1.

☞ The cable connection is to be made inside the sensor heads using the crimp connections which are included in the small parts.

4.3 Overfill prevention final testing

☞ The final testing of the overfill prevention system must be accomplished with appropriate equipment.

☞ With this final testing all sensors belonging to one compartment must be tested.

5 Warranty and Service

In addition to the dealer's legal warranty in the purchase agreement we grant the end user a warranty for this device on the following conditions:

1. The warranty period is twelve months and starts at the time of delivery of the device by F. A. Sening. With electronic products the registration form must have been received at Sening fully completed and signed by the installation department.
2. The warranty includes the rectification of all device damage or defects occurring within the warranty period and which can be shown to be due to material or production faults.

   The warranty does not include:
   - slight deviations from the intended quality which are insignificant for the value or usefulness of the device,
   - damage or defects due to connection other than as specified, improper handling or non-observance of the installation guidelines and instructions for use,
   - damage caused by the chemical and electrochemical effects of water or other liquids, electrical or electromagnetic influences and or caused by abnormal ambient conditions in general,
   - damage due to external effects such as damage in shipment, damage due to shock or impact, the effects of the weather or other natural phenomena.

3. The right to claim under warranty becomes invalid if repairs or tampering have been carried out by persons not authorised by us for the work or if our devices have been fitted with supplementary parts or accessories which are not suitable for our devices and not released by us for that purpose.
4. The warranty service is carried out, free of charge and according to our choice, by repairing defective parts or replacing them by perfect parts. Replaced parts become our property.
5. During the first six months of the warranty period the warranty service is carried out without billing. Thereafter, travelling times, travelling costs and working time for the service staff and any transport costs occurred are billed or not reimbursed.
6. Work under warranty does not imply any extension of the warranty period nor does it initiate a further period of warranty. The warranty period for installed replacement parts terminates with the end of the warranty period for the complete device.
7. Any more extensive or additional claims, in particular those for compensation of damages or consequential damages occurred outside of the device are expressly excluded, provided no liability is deemed mandatory in law.

6 Address and contact

Important Note

All explanations and technical details given in this documentation have been produced and edited by the author with the greatest care. However the possibility of errors cannot be completely eliminated. ***Smith Meter GmbH - F. A. Sening*** would be very grateful for the notification of any errors found.

Our service department would be pleased to advise and help you.
They can be reached under:

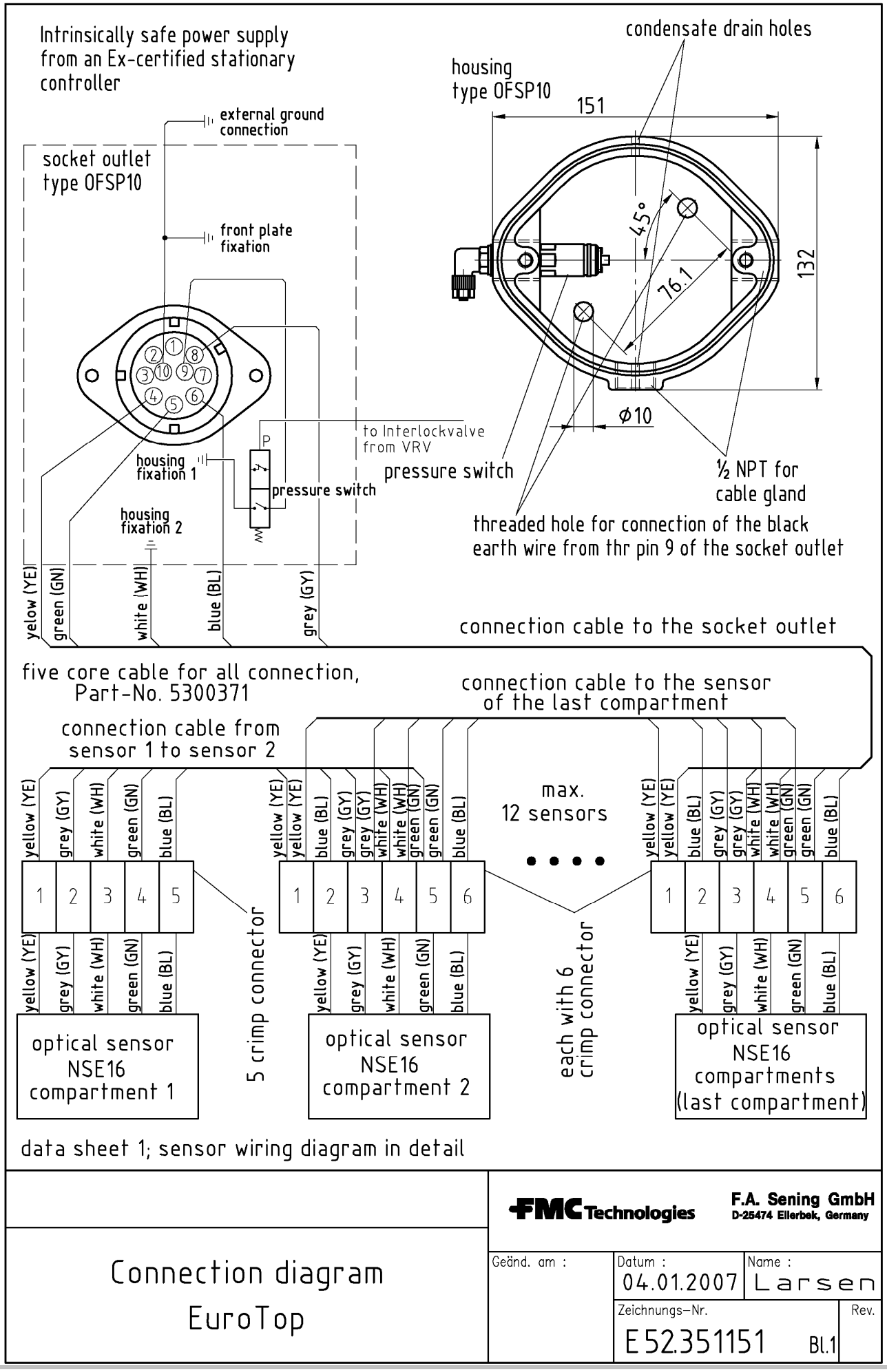
FMC Technologies

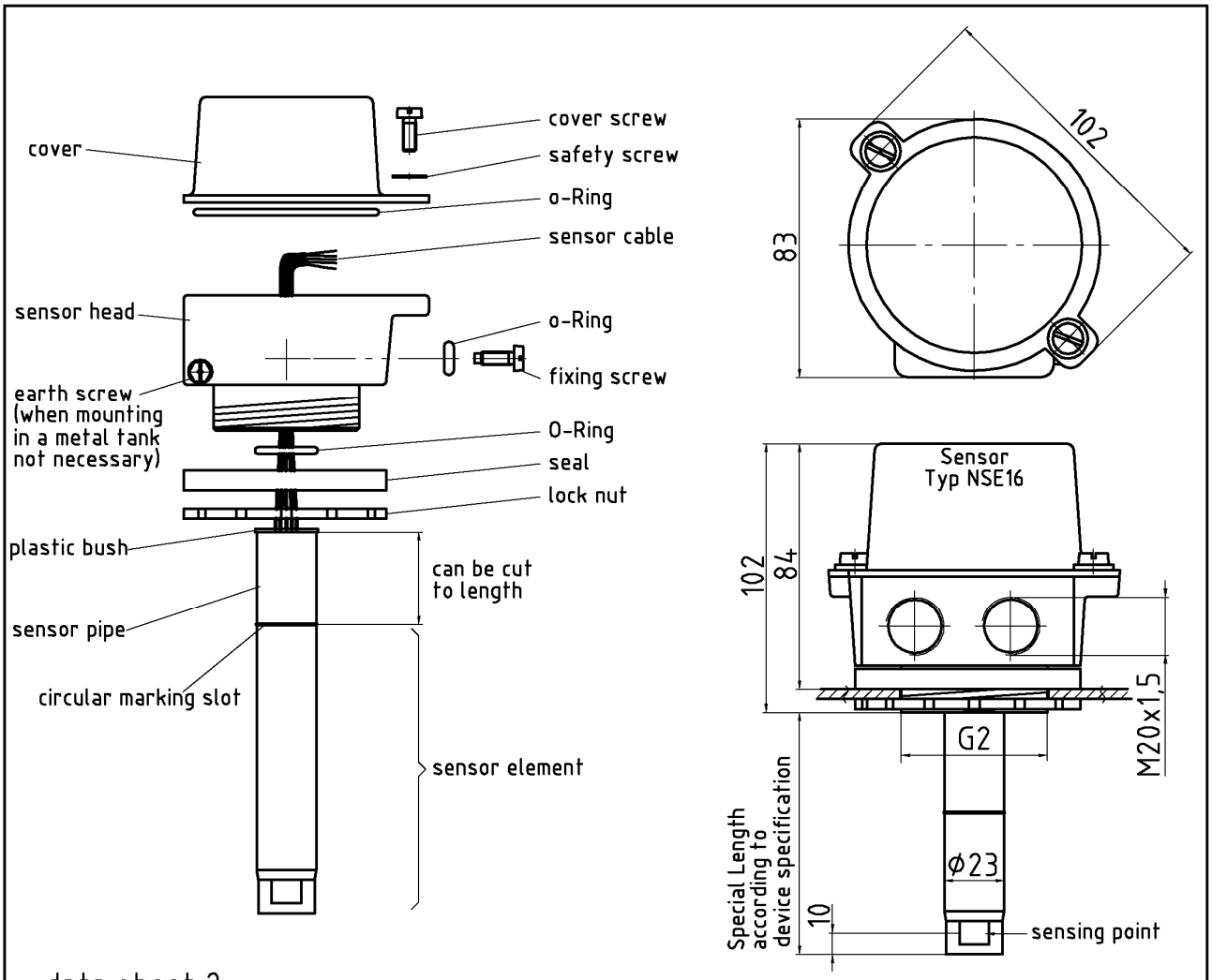
Measurement Solutions
F. A. Sening GmbH
Regentstrasse 1
D-25474 Ellerbek

Tel.:	+49 (0) 4101 304 - 0	(Switchboard)
Fax:	+49 (0) 4101 304 - 152	(Service)
Fax:	+49 (0) 4101 304 - 133	(Sales)
Fax:	+49 (0) 4101 304 - 255	(Customer Service)
E-Mail:	info.ellerbek@intl.fmcti.com	
Web:	www.fmctechnologies.com/measurementsolutions	

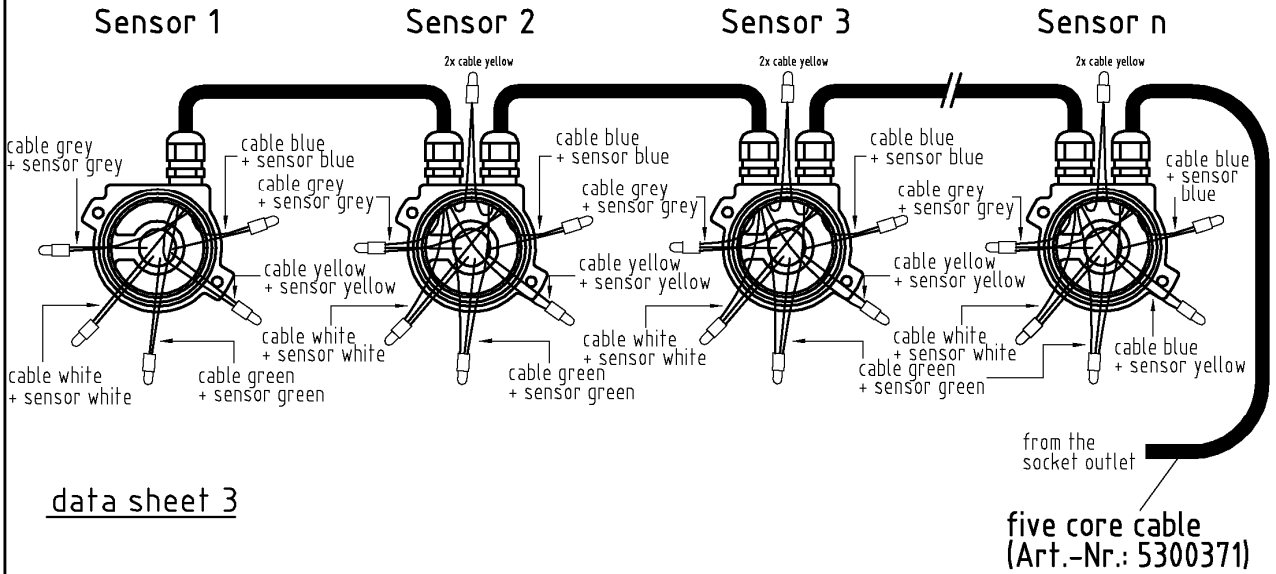
Appendix A. Drawings and Certificates

52.351151 – EuroTop wiring diagram sheet 1





data sheet 2



data sheet 3

DOK-402
"Schutzvermerk nach DIN ISO 16016 beachten"

FMC Technologies

F.A. Sening GmbH
D-25474 Ellerbek, Germany

Connection diagram
EuroTop

Geänd. am :	Datum :	Name :
	04.01.2007	Larsen
	Zeichnungs-Nr. E52.351151 Bl.2	Rev.

[1]
[2]

EC-TYPE EXAMINATION CERTIFICATE

Equipment or Protective System intended for use in Potentially explosive atmospheres Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **DEMKO 04 ATEX 0327342**

[4] Equipment or Protective System: **Models 1111, 1111E, 1301 and 1301E Five Wire Sensor Probes**

[5] Manufacturer: **Civacon - a division of Knappco Corporation**

[6] Address: **4304 Marrox Rd**
Kansas City, MO 64150 USA

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no: **0415138**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014:1997 E and A1 + A1 EN 50020:2002 E EN 50284: 1997 E

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of this Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by the certificate.

[12] The marking of the equipment or protective system shall include the following:

Ex II 1 G EEx ia IIB T4

On behalf of UL International Demko A/S

Herlev, 2004-07-22

Karina Christiansen
Certification Manager

UL International Demko A/S
Lyskaer 8, P.O. Box 514
DK-2730 Herlev, Denmark
Telephone: +45 44856565
Fax: +45 44856500

[13] # Schedule

[14] ## EC-TYPE EXAMINATION CERTIFICATE No.

DEMKO 04 ATEX 0327342

[15] Description of Equipment or protective system:

Models 1111 and 1301 five-wire sensor probes are designed or detect the ptesense of liquid to prevent overfill in petroleum dispensing tanks. The housing for the sensor is made of aluminum alloy. Model 1111 is the same as Model 1301 except provided with an aluminum alloy wiring housing to mount to a tank. Models 1111E and 1301E are the same as the 1111 and 1301 except for ratings as noted below and minor construction features.

Temperature range
The ambient temperature is -40°C to +60°C

Electrical data

Intrinsically safe specifications, Models 1111 and 1301:
Ui: 13V
Ii: 200 mA
Li: 0 mH
Ci: 0 nF

Intrinsically safe specifications, Models 1111E and 1301E:
Ui: 20V
Ii: 200 mA
Li: 0 mH
Ci: 0 nF

The devices were evaluated under the consideration that all five wires to the device could be connected in the most onerous fault condition.

Installation instructions
Installation instructions are provided

Mounting instructions
These devices were not evaluated as separation elements across hazardous location boundary walls per EN 50284.

Routine tests
Manufacturer is to conduct a routine Electrical Strength Test per Clause 10.6 of EN50020:2002 on 100% of production. The insulation between the enclosure and the intrinsically safe circuit shall withstand 500V during the test.

UL International Demko A/S
Lyskær 8, P.O. Box 514
DK-2730 Herlev, Denmark
Telephone: +45 44856565
Fax: +45 44856500

[13] # Schedule

[14] ## EC-TYPE EXAMINATION CERTIFICATE No.
DEMKO 04 ATEX 0327342

[16] Report No.: 0327342 (Hazardous Location Testing)
[0415138]
[0415139]

Drawings:

Number	Rev	Date	Model	Description
H52300M-1301	B	2003-08-12	1301	Marking Label
C40039A-XXX	E	1995-02-01	1301	Tube, Sensor Body
C40192-XXX	D	1994-07-18	1301	Assy, Optic Sensor
CEE40025	F	1992-10-06	1301	Schematic
D40147M	-	1997-12-05	1301	Circuit Trace Layout
C40191	D	2004-01-16	1301	Component Layout, Bill of Material
CC01111	+	2004-04-16	1111	Assy
H52301M-1111E	C	2004-05-20	1111E	Marking Label
H52300M-1301E	A	2004-05-20	1301E	Marking Label
CE150280-1301	A	2004-05-20	1301	Instructions
C40192E-XXX	A	2004-05-20	1111E& 1301E	Assembly
C40191E	A	2004-05-20	"E"	BOM
C40191E	A	2004-05-20	"E"	Assembly
CEE40025E	A	2004-05-20	"E"	Schematic

[17] Special conditions for safe use:
None

[18] Essential Health and Safety Requirements:

Concerning ESR this Schedule verifies compliance with the Ex standards only. The manufacturer's Declaration of Conformity declares compliance with other relevant Directives.

[19] Additional Information
None

UL International Demko A/S
Lyskaer 8, P.O. Box 514
DK-2730 Herlev, Denmark
Telephone: +45 44856565
Fax: +45 44856500

[13] # Schedule

[14] ## EC-TYPE EXAMINATION CERTIFICATE No.

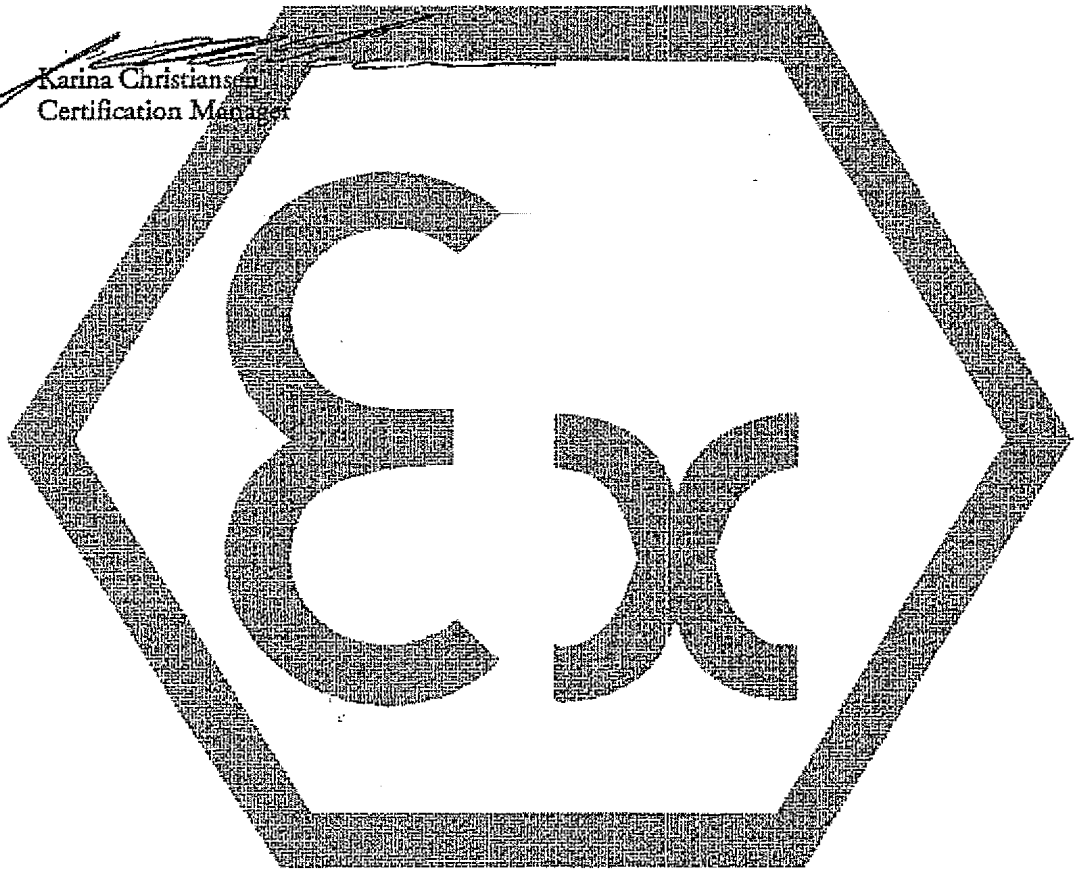
DEMKO 04 ATEX 0327342

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in ANNEX III to Directive 94/9/EC of the European Parliament and the Council of 23 March 1994.

On behalf of UL International Demko A/S

Herlev, 2004-07-22

Karina Christiansen
Certification Manager



UL International Demko A/S
Lyskær 8, P.O. Box 514
DK-2730 Herlev, Denmark
Telephone: +45 44856565
Fax: +45 44856500

Contact information is subject to change. For the most current contact information, visit our website at www.fmctechnologies.com/measurementsolutions and click on the "Contact Us" link in the left-hand column.

Headquarters:
500 North Sam Houston Parkway West, Suite 100 Houston, TX 77067 USA, Phone: +1 (281) 260 2190, Fax: +1 (281) 260 2191

Measurement Products and Equipment:
Eri, PA USA +1 (814) 898 5000
Ellerbek, Germany +49 (4101) 3040
Barcelona, Spain +34 (93) 201 0989
Beijing, China +86 (10) 6500 2251
Buenos Aires, Argentina +54 (11) 4312 4736
Burnham, England +44 (1628) 603205
Dubai, United Arab Emirates +971 (4) 883 0303
Los Angeles, CA USA +1 (310) 328 1236
Melbourne, Australia +61 (3) 9807 2818
Moscow, Russia +7 (495) 5648705
Singapore +65 6861 3011
Thetford, England +44 (1842) 822900

Integrated Measurement Systems:
Corpus Christi, TX USA +1 (361) 289 3400
Kongsberg, Norway +47 (32) 28 67 00
San Juan, Puerto Rico +1 (787) 772 8100
Dubai, United Arab Emirates +971 (4) 883 0303

Visit our website at www.fmctechnologies.com/measurementsolutions