

CERTIFICATE OF COMPLIANCE

Certificate Number 20120705-E308146
Report Reference E308146-20120705
Issue Date 2012-JULY-05

Issued to: KNICK ELEKTRONISCHE MESSGERATE GMBH & CO
KG
BEUCKESTRASSE 22
14163 BERLIN GERMANY

This is to certify that representative samples of PROCESS CONTROL EQUIPMENT FOR USE IN
HAZARDOUS LOCATIONS
See Addendum Page


Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/ISA 12.12.01 - Nonincendive Electrical Equipment for
Use in Class I and II, Division 2 and Class III, Divisions 1
and 2 Hazardous (Classified) Locations
CAN/CSA C22.2 No. 213-M1987 - Non-incendive Electrical
Equipment for Use in Class I, Division 2 Hazardous
Locations

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Listing Mark for the US and Canada should be considered as
being covered by UL's Listing and Follow-Up Service meeting the appropriate requirements for US
and Canada.

The UL Listing Mark for the US and Canada generally includes: the UL in a circle symbol with "C" and

"US" identifiers:  the word "LISTED"; a control number (may be alphanumeric) assigned by UL;
and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product.

William R. Carney, Director, North American Certification Programs

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact a local UL Customer Service Representative at www.ul.com/contactus



CERTIFICATE OF COMPLIANCE

Certificate Number 20120705-E308146
Report Reference E308146-20120705
Issue Date 2012-JULY-05

Open Type-Device, Transmitter Series MemoRail, Type A1401B-P1-yz, may be followed by - (hyphen) and additional letters and/or digits (Refer to additional information for details) for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations when installed in accordance with manufacturer's control drawing no. 270.000-130.

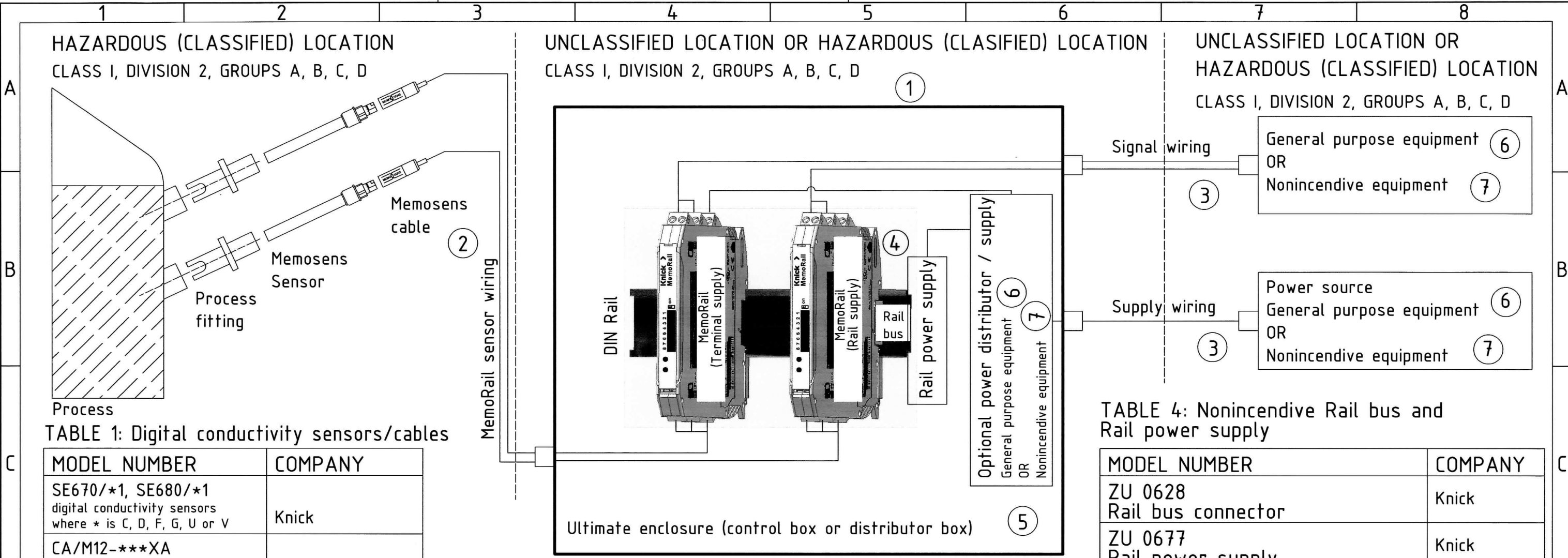
This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

William R. Carney, Director, North American Certification Programs
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at www.ul.com/contactus



The reproduction, distribution and utilization of this document as well as the communication of its contents to others without explicit authorization is prohibited.



HAZARDOUS (CLASSIFIED) LOCATION
CLASS I, DIVISION 2, GROUPS A, B, C, D

UNCLASSIFIED LOCATION OR HAZARDOUS (CLASSIFIED) LOCATION
CLASS I, DIVISION 2, GROUPS A, B, C, D

UNCLASSIFIED LOCATION OR
HAZARDOUS (CLASSIFIED) LOCATION
CLASS I, DIVISION 2, GROUPS A, B, C, D

TABLE 1: Digital conductivity sensors/cables

MODEL NUMBER	COMPANY
SE670/*1, SE680/*1 digital conductivity sensors where * is C, D, F, G, U or V	Knick
CA/M12-***XA M12 cable, *** is the length in meter, max. 150 m (490 ft)	Knick

TABLE 2: Memosens sensors/cables for various parameters

MODEL NUMBER	COMPANY	PARAMETER
SE5**X/-NMSN or -NMSH * is 1 thru 4 and ** is 32, 33, 46, 51, 52, 54, 55, 57, 59 or 64	Knick	pH, ORP sensor
SE604X-MS, SE630X-MS SE605H-XMS...	Knick	Conductivity sensor
SE7**X/*-NMSN * is 1 thru 3 and ** is 06 or 07	Knick	Oxygen sensor
CPS11D, 41D, 71D, 91D CPS471D, 441D, 491D CPF81D-7...0, CPF82D-7...0 CPS12D, 42D, 72D, 92D	Endress + Hauser	pH, ORP sensor
CLS15D, 16D, 21D	Endress + Hauser	Conductivity sensor
COS21D, 51D	Endress + Hauser	Oxygen sensor
CYP01D, 02D	Endress + Hauser	Sensor simulator
CA/MS-***XAA where *** is the length in meter, max. 100 m (330 ft)	Knick	Memosense cable, all parameters
CYK10 Max. cable: 100 m (330 ft)	Endress + Hauser	Memosense cable, all parameters

TABLE 3: Nonincendive field wiring parameters

MODEL NUMBER	COMPANY	Supply version	nonincendive field wiring TERMINALS	Voc (V)	Isc (mA)	Po (mW)	Ca (µF) GROUPS A, B, C, D	La (mH) GROUPS A, B, C, D
A1401B-P1-*0 * is 1 thru 4	Knick	Rail supply 24 VDC	4.1 to 6.2	3.1	38	120	1000	50
A1401B-P1-*1 * is 1 thru 4	Knick	Terminal supply 24 VDC/90 to 230 VAC	4.1 to 6.2	3.1	38	120	1000	50

TABLE 4: Nonincendive Rail bus and Rail power supply

MODEL NUMBER	COMPANY
ZU 0628 Rail bus connector	Knick
ZU 0677 Rail power supply	Knick

Weitergabe sowie Vervielfältigung dieses Dokuments, Verwertung und Mitteilung seines Inhalts sind verboten, soweit nicht ausdrücklich erlaubt.

Verteiler: FUL (2x)		Zul. Abweichungen für Maße ohne Toleranzangabe		Maßstab	
				Halbzeug	
		Bearb. Datum Name		Benennung	
		Gepr. (KON) 29.06.2012 dam		Control drawing UL Class I Div.2 MemoRail A1401B-P1..	
		Freigabe 02.07.12 RSW		Zeichnungsnummer	
		Schutzvermerk nach ISO16016 beachten.		270.000-130	
		Blatt		1	
		2 Bl.			
Nr.		Änderungen		Datum	
				Bearb. FGL KON	
				Elektronische Messgeräte GmbH & Co. KG	



The reproduction, distribution and utilization of this document as well as the communication of its contents to others without explicit authorization is prohibited.

Weitergabe sowie Vervielfältigung dieses Dokuments, Verwertung und Mitteilung seines Inhalts sind verboten, soweit nicht ausdrücklich erlaubt.

NOTES:

- ① For installations within the United States, install system in accordance with the requirements of the NEC (ANSI/NFPA 70). For installations within Canada, install system in accordance with the Canadian Electrical Code.
- ② MemoRail sensor connections utilize the Nonincendive field wiring concept (see Information Note below), which allows interconnection of nonincendive field wiring apparatus or intrinsically safe apparatus (Memosens) with an associated nonincendive field wiring apparatus (MemoRail) not specifically examined in combination as a system when $V_{max} \geq V_{oc}$, $C_a \geq C_i + C_{cable}$; $L_a \geq L_i + L_{cable}$ as specified for MemoRail models in Table 3. Interconnection is also allowed for all nonincendive field wiring systems consisting of MemoRail models as specified in Table 3 and sensor models as specified in Tables 1 and 2. Where the cable capacitance and inductance per foot are not known, the following values shall be used: $C_{cable} = 60 \text{ pF/ft}$. $L_{cable} = 0.2 \text{ }\mu\text{H/ft}$.
- ③ For field equipment suitable for Division 2 installation (i.e. nonincendive equipment), NEC wiring practices for Division 2 must be observed. For field equipment suitable for Division 2 installation in Canada (i.e. nonincendive equipment), Canadian Electrical Code wiring practices for Division 2 must be observed. If the MemoRail and all equipment connected to its output and power terminals are mounted in an unclassified location, wiring and installation shall be in accordance with the NEC and the CEC as appropriate for the area.
- ④ For the supply of MemoRail models with Rail supply in Division 2 installations, nonincendive Rail bus and Rail Power supply as specified in Table 4 shall be used.
- ⑤ Wiring between the nonincendive equipment and the MemoRail shall, for US installations, be installed per the Class I, Division 2 wiring methods specified by the NEC and, for Canadian installations, be installed per Class I, Division 2 wiring methods specified by the Canadian Electrical Code.
- ⑥ General purpose equipment is restricted to installation in unclassified locations.
- ⑦ Wiring between the nonincendive equipment and the MemoRail shall, for US installations, be installed per the Class I, Division 2 wiring methods specified by the NEC and, for Canadian installations, be installed per the Class I, Division 2 wiring methods specified by the Canadian Electrical Code.

Note: When installed properly, the nonincendive field wiring concept allows the live connection and disconnection of Memosens sensors without regard to the Division 2 hazardous location and eliminates the need for using a Division 2 wiring method for Memosens cables.

Verteiler: FUL (2x)		Zul. Abweichungen für Maße ohne Toleranzangabe		Maßstab	
				Halbzeug	
		Datum	Name	Benennung Control drawing UL Class I Div 2 MemoRail A1401B-P1...	
		Bearb.	21.06.2012 dam		
		Gepr. (KON)	29.06.12 JK		
		Freigabe	01.07.12 RSK	Zeichnungsnummer 270.000-130	
Schutzvermerk nach ISO16016 beachten.					
				2 Bl.	
Nr.	Änderungen	Datum	Bearb.	FGL KON	Elektronische Messgeräte GmbH & Co. KG

