



Member of the FM Global Group

FM Approvals
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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

Measuring System Portavo Type 90aXc

IS / I / 1 / ABCD / T* Tmin < Ta < Tmax; Entity – 209.009-110 IP67
 I / 0 / AEx ia IIC T* Tmin < Ta < Tmax; Entity – 209.009-110 IP67

- a = 2 without USB Interface
4 USB Interface Version
- c = PH pH / ORP / °C measurement, analog
COND Conductivity / °C measurement, analog
MULTI Memosens PH, COND, OXY

Batteries	* Temperature class	Ambient temperature range
4 x Duracell MN1500	T4	-10 °C ≤ Ta ≤ +40 °C
4 x Energizer E91	T3	-10 °C ≤ Ta ≤ +50 °C
4 x Power One 4106	T3	-10 °C ≤ Ta ≤ +50 °C
4 x Panasonic Pro Power LR6	T3	-10 °C ≤ Ta ≤ +50 °C

Entity Parameters	Input					Output					
	Groups ABCD					Groups AB		Group C		Group D	
	Ex ia IIC/IIB/IIA					Ex ia IIC		Ex ia IIB		Ex ia IIA	
Division 1, Class I Zone 0	Uo (V)	Io (mA)	Po (mW)	Ci (µF)	Li (mH)	Co (µF)	Lo (mH)	Co (µF)	Lo (mH)	Co (µF)	Lo (mH)
pH Measuring (MEAS)	4.1	0.1	0.1	0	0	100	1000	1000	1000	1000	1000
Temperature Measuring (TEMP 1, TEMP 2)	4.1	4.4	4.6	0.123	0	99	1000	999	1000	999	1000
pH / Temperature Measuring (MEAS, TEMP 1, TEMP 2)	7.2	4.4	4.6	0.123	0	13.3	1000	239	1000	999	1000
Conductivity Measuring (MEAS)	7.2	36	36.9	0.0012	0	13.4	27	239	109	999	219
Conductivity / Temperature Measuring (MEAS, TEMP 1, TEMP 2)	7.2	40.6	41.7	0.124	0	13.3	22	239	88	999	176
Memosens Interface (1)	4.6	113	130	3.62	0	96	2.8	996	11	996	22



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(MS and/or MEAS)												
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Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D hazardous (classified) locations in accordance with drawing 209.009-110, Intrinsically Safe for Class I, Zone 0, Group IIC hazardous (classified) locations

FM Approved for:

Knick Elektronische Messgeraete GmbH & Co Kg
Berlin, Germany



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This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	2011
Class 3610	2010
ANSI 60079-0	2009
ANSI 60079-11	2011

Original Project ID: 0003054586

Approval Granted: 10 June 2015

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
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FM Approvals LLC

J.E. Marquedant
Manager of Electrical Systems

10 June 2015

Date