Uni-Probe LB 490

A universal field device for various applications

A versatile compact device

- Versatile detector for various applications
- Compact field device with integrated evaluation unit
- Communication via HART, Foundation Fieldbus or Profibus PA
- Communication can be switched from Bus to HART at any time
- High operational safety, FMEDA with SFF 96 %
- Inexpensive and solid system for standard applications.

Robust compact device for high demands

The level measurement system LB 490 Uni-Probe is a proven compact device provided with a robust stainless steel housing. It comes at a reasonable price, is reliable and precise and only requires very little source activity. It features all common communication capabilities such as HART, Profibus PA and Foundation Fieldbus. A FMEDA study revealed a SFF (Safe Failure Fraction) of 96 %. This is an excellent result and an impressive testimony of the high reliability and operational safety provided by these systems.

Monitored current output

By monitoring the current output, it is ensured that the correct measurement values are displayed. The device constantly compares the actual flowing current with the target value. In the event of deviations, a failure current is generated. A Watch Dog Timer monitors the functioning of the CPU simultaneously.

Communication

The following user interfaces are available for communication and parameter settings:

HART

- HART communicator
- DTM for FDT
- Siemens Simatic PDM

Profibus PA

- Siemens Simatic PDM
- Alternatively also via HART

Foundation Fieldbus (FF)

- HART communicator
- Process control system
- Alternatively also via HART

LB 490

Detector operating data

Power supply	100 … 240 VAC, ±10 %, 50 … 60 Hz, 15 VA 24 VDC (18 … 32 VDC), 15 W; 24 VAC +10 %/-15 %, 50 … 60 Hz, 15 VA
Cable connections	4 cable entries, 3/4 inch, NPT, closed with blind plug Option: metric adapters and cable glands upon request
maximum cable length	3300 m (120 Ω), 1600 m (250 Ω), 800 m (500 Ω)
Wire cross-section	0.5 … 1.5 mm²
Housing material	Stainless steel ISO 1.4301 / AISI 304
Water cooling	Option, max. 6 bar
Cascading	up to 8 detectors

	Scintillator size Ø x length [mm]	Weight [kg]	Weight with cooling system [kg]	Collimator
CrystalSENS (point detectors)	50 x 50 (NaI/Tl)	22,5	24	Standard
UniSENS (rod detectors)	50 x 500 (polymer)	14	18,5	Option
	50 x 1000 (polymer)	17	25	Option
	50 x 1500 (polymer)	19	30,5	Option
	50 x 2000 (polymer)	21	36	Option
TowerSENS	50 x 1000 basic module (polymer)	20	27	–
	50 x 2000 basic module (polymer)	26	41	–
	50 x 2000 extension module (polymer) up to 3 extension modules	17	32	–
SuperSENS	150 x 150 (polymer)	52	62	Standard

Ambient temperature Operation and storage	-40 ... +60 °C (-40 ... +140 °F) for NaI/Tl and/or -40 … +55 °C (-40 … +131 °F) for polymer Observe possible temp. restrictions for Ex-protection! for 100...240 VAC version, operation only up to max. 50 °C
Temperature stability	≤0.002 %/°C (-40 ... +50 °C) for NaI/Tl and/or ≤0.01 %/°C (-40 … +50 °C) for polymer

Detector certificates & tests

IP protection	IP65 / IP66 + Nema 4X		
Explosion protection	ATEX:	II 2 GD EEx d IIB T5 IP66 T80 °C	-40 … +80 °C
		II 2 GD EEx d IIC T6 IP66 T80 °C	-40 … +60 °C
		(...+50°C for LB 490 TowerSENS and SuperSENS)	
		II 2 GD EEx d [ia] IIC T6 IP66 T80 °C	-20 … +50 °C
	FM/CSA:	Class I Division 1 Group A, B, C, D	
		Class II Division 1, Group E, F, G	-40 … +50 °C
Other certificates	Nepsi, IECEx, Kosha, CCOE, others upon request		

Signal inputs and outputs

Signal output	HART 4 … 20 mA potential-free, active or passive max. impedance: 500 Ω (active) Voltage supply: 12 V … 24 V (passive) max. impedance at 12 V: 250 Ω and/or 24 V: 500 Ω (passive) Option: intrinsically safe HART current output 4 ... 20 mA, potential-free, passive Voltage supply: 12 ... 30 V, voltage drop <3.5 V, 20 m signal cable (blue), pre-assembled Exi IIB: Lo=14.78 mH; Co=679 nF / Exi IIC: Lo=2.18 mH; Co=84 nF
Bus output - Option	Bus interface: Profibus PA or Foundation Fieldbus Bus powered, typical 13 mA with 2xAI function blocks Option: intrinsically safe Bus interface, 20 m signal cable (blue), pre-assembled Approval according to ATEX and FISCO
Digital inputs	Dig In 1: Hold input , Dig In 2: Empty adjustment
Digital outputs	1 relay (SPDT) for collective fault message 3 relays (SPDT) alternatively for: Hold signal, min. / max. alarm, detector temperature, radiation interference detection Permissible load at ohmic load: max. 5 A at 250 VAC or 30 VDC
Interfaces	RS 232 for software update
Data backup	in non-volatile memory