www.eesiflo.com

Technical Specifications
Model: EASZ 1
2 wire- Intrinsically Safe
LOOP POWERED
Water in Oil Monitor

Features:

- Response time 1 second
- Measurement of total water in any form either dissolved, free, or emulsified
- Loop Powered
- 2 wire system
- Temperature Compensation
- Flexible ranges
- Monitors fluid conditions and contamination levels
- Inline full-bore type
- Easy Zero function
- Ex Approval ATEX, IECEx and CSA for Hazardous Areas

Applications:

- Truck Loading/Unloading
- Automatic Well Testing (AWT)
- Lease Automatic Custody Transfer (LACT)
- Basic Sediment & Water (BS&W)
- Lube Oil Monitoring
- Separator Systems

EASZ 1 Water in Oil/Fuel Monitor

2-Wire, 4-20mA Loop-Powered, Water Cut Meter

Overview

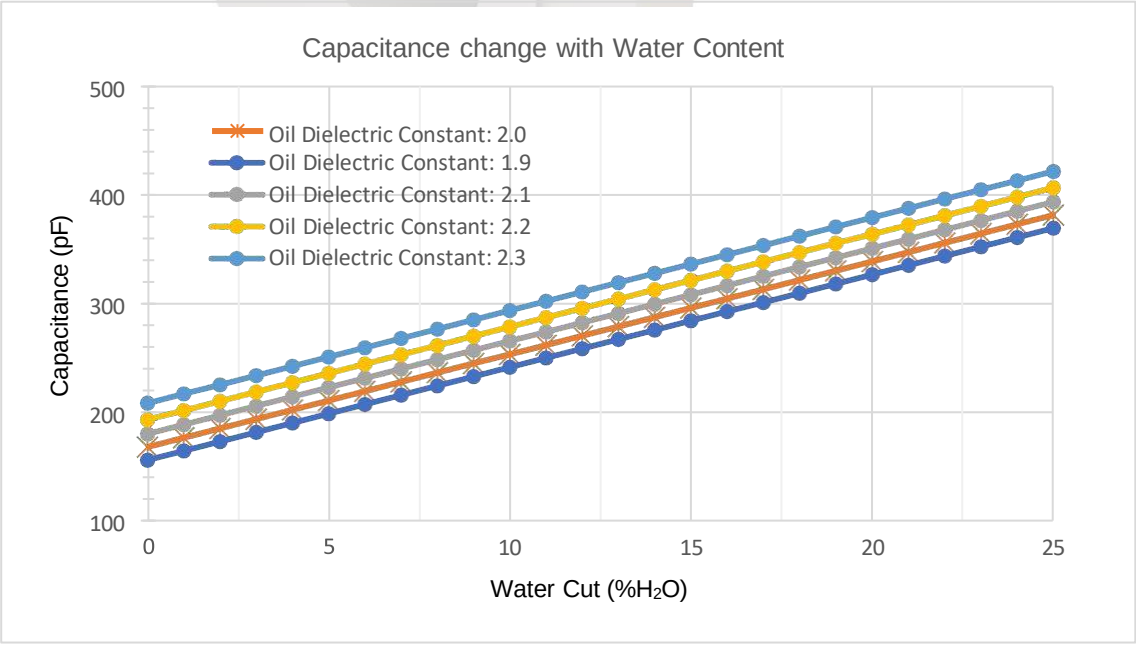
The EASZ-1 is a hazardous area approved online monitor that measures the amount of water in any oil or hydrocarbon under pressure. It is a 2-wire loop powered system that can be calibrated using RS-232 or RS-485.

Operating Principle

Oil and water are completely different chemically and are characterized by a fundamental difference in their dielectric constants. The EASZ-1 can easily measure a small or large change in water content due to this difference.

A standard range EASZ-1 can measure water content accurately in a range of 0-25%. The high range version from 0-50% (80%) or from 80-100% depending on the oil type.

The following graph shows the relationship between water content in oil and the change in capacitance for different oils in a range of 0-25% water.



General Specifications

Operating Principle
Capacitance/Dielectric Constant

Supply Voltage
12…24 V DC, 2 Wire Loop-Powered

Power Consumption
0.66 Watts

Output/Digital Protocol
4…20mA, HART
RS232 Full Duplex
Compatible with Universal HART®

Setup and Calibration
EASZ-1 GUI Software for Windows® PC
Connection Via USB-RS232 Comm. Cable (Optional: HART Modem Cable)

Typical Accuracy

Measuring range	0…5%	0…25%	0… Inversion	80…100%	0…100%
Accuracy	± 0.02	± 0.03	± 0.50	± 0.2	See EASZ-2

*Values are typical only and do not represent every situation .

Electronics Enclosure
Stainless Steel 316, IP66

Ambient Temperature
-20°C…60°C (-4°F…140°F)

Response Time
1 second nominal (no averaging applied)
1…20 second programmable averaging time

Start-Up Time
≤ 20 Seconds

Remote Display
Panel or Field Type (galvanically isolated)

Process Temperature
Up to 130°C (266°F)

Process Pressure
Up to 100 Bar (1,450 Psi), higher pressures consult EESIFLO with process information.

Connection Size
DN25…DN600 (1” Inch…24” Inch), larger sizes consult EESIFLO with process information.

Process Connection
NPT, BSP, ANSI flanges, PN flanges, JIS flanges

Body & Sensing Element Construction Material
Stainless Steel 316/316L (Standard), NACE Compliant.
Optional Duplex, Monel, Hastelloy and more upon request

Seals and Spacers
Teflon and Polyether Ether Ketone (PEEK)

Installation
Inline or bypass setup, (Optional: integral with dual element static mixer)

Approvals
Intrinsic Safety (IS)
ATEX, IECEx, CSA
CE Mark

General Arrangement

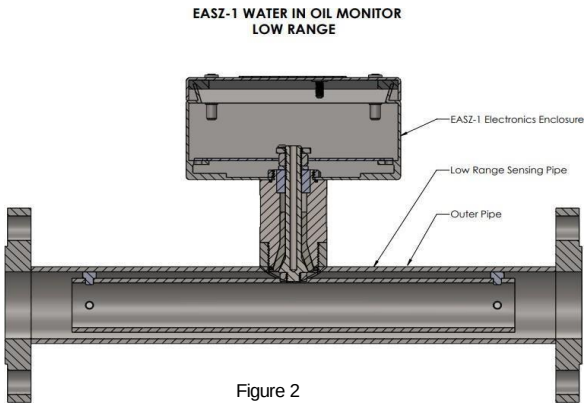


Figure 2

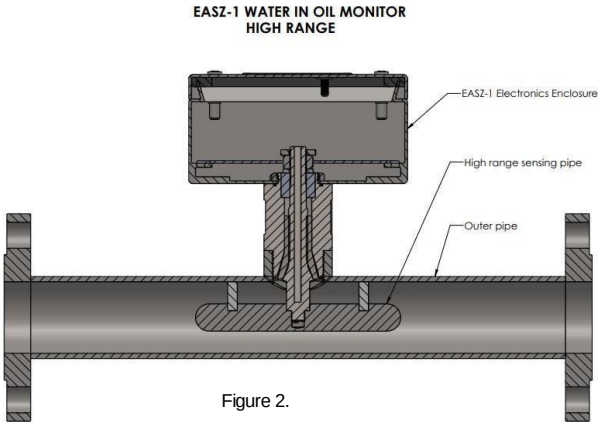


Figure 2.

Inline flow-through design

Standard design arrangement

NPS 1" (DN25)

- Available in threaded or flanged connection
- Connection End to End length (L): 9" (220mm) standard offer
- Custom length consults EESIFLO

NPS 1-½" (DN40)

- Available in threaded or flanged connection
- Connection End to End length (L): 13" (330mm) standard offer.
- Custom length consults EESIFLO

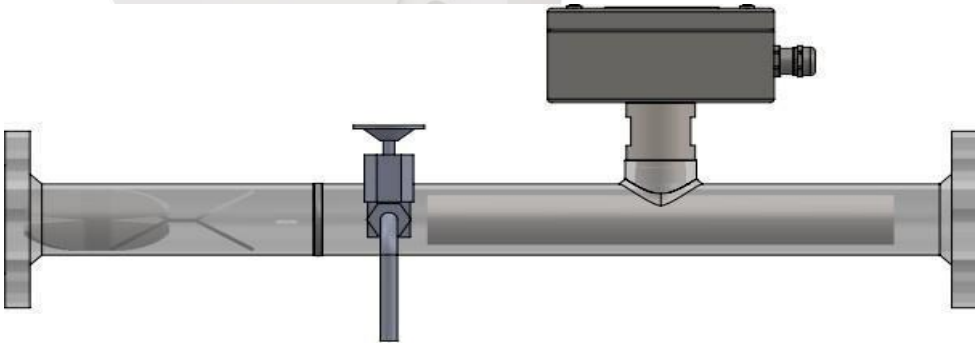
*Sizes ≥ NPS 2" (DN50), pressure rating ≤ 100 Bar (≤ 1450 Psi)

- flanged connection only
- flanged face to face length (L): 17" (430mm) standard offer.
- for custom length, consults EESIFLO

*Body material (pipe body and flanges) for carbon steel option > NPS" (DN80) only
*Sensing part material available in Stainless Steel 316L as standard, Duplex, Monel or Hastelloy as optional.

Optional: addon configuration

**EASZ 1 with either Integral Mixer or Sampling Port

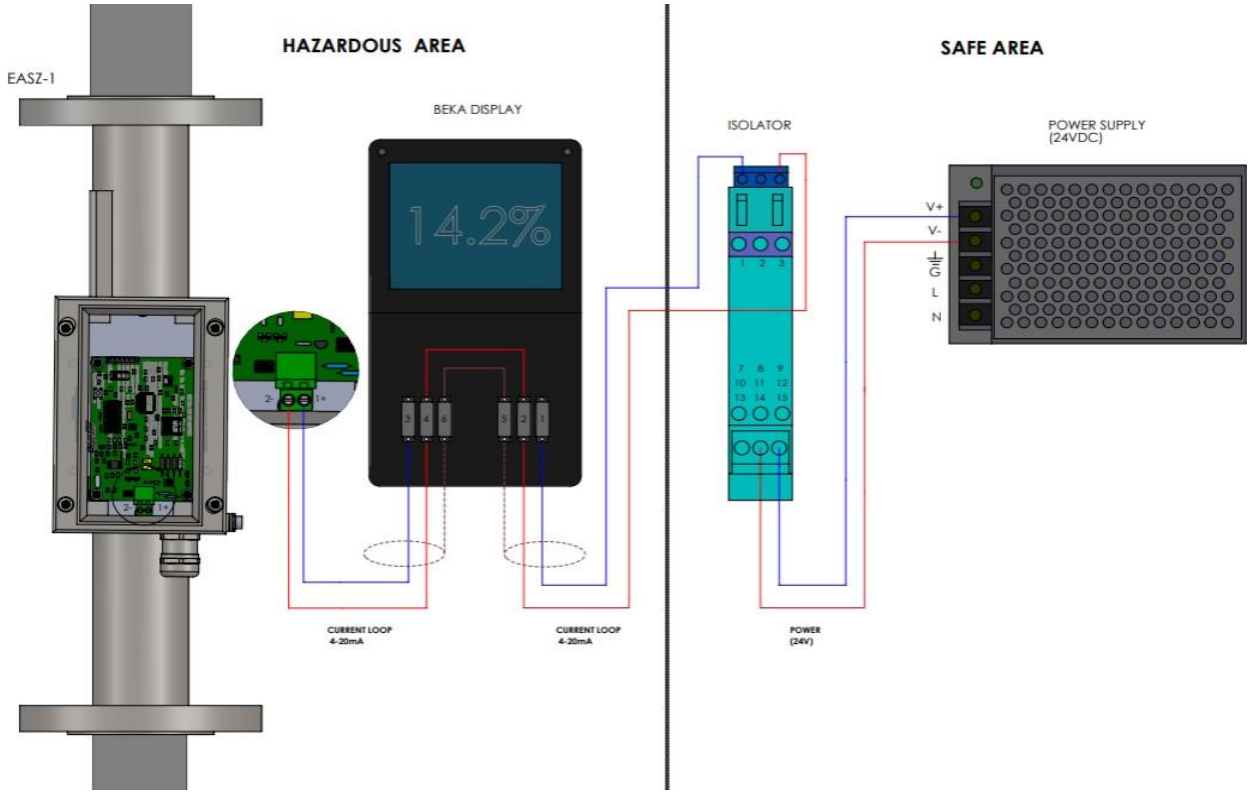


**Dimensions of the face to face lengths will vary depending on the process requirement. Consult EESIFLO for customized designs.

Hazardous Area "Ex ia" wiring concept (for intrinsic safe)

Overview

Terminal Wiring View



Application Notes:

Hazardous location installation instructions for associated apparatus (isolator) must be followed when installing this equipment.

For safe installation of an ATEX, IECEx, and/or CSA certified instrument in series with the EASZ 1 Water in Oil Monitor (Water Cut Meter) in hazardous locations, the installation instructions for the transmitter, remote display, and associated apparatus (isolator) must be compatible.

Parameters must meet the following requirements for both CSA and ATEX/IECEx applications.

U_i=28V | I_i=93 mA | P_i=0.66W | C_i=235.6µF@7.2V | C_i=116.3nF@28V | L_i=0µH

Markings

The **EASZ 1** will carry the following **ATEX** and **IECEx** markings:

II 1 G Ex ia I/IIB T4 Ga
-20°C < Ta < +60°C

The **EASZ 1** will carry the following **CSA** markings:

-20°C < Ta < +60°C
Class I, Division 1, Group C and D;
Class I, Zone 0; Exia IIB T4; IP66
Class I, Zone 0; AExia IIB T4; IP66

Remote Display (Optional)

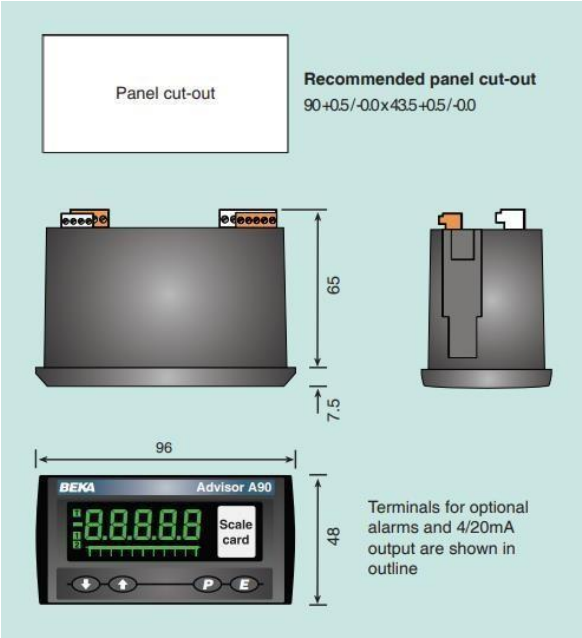
General Purpo

se “Non-Ex” (Non-Explosion proof protection) Digital Panel Mount Display/Indicator

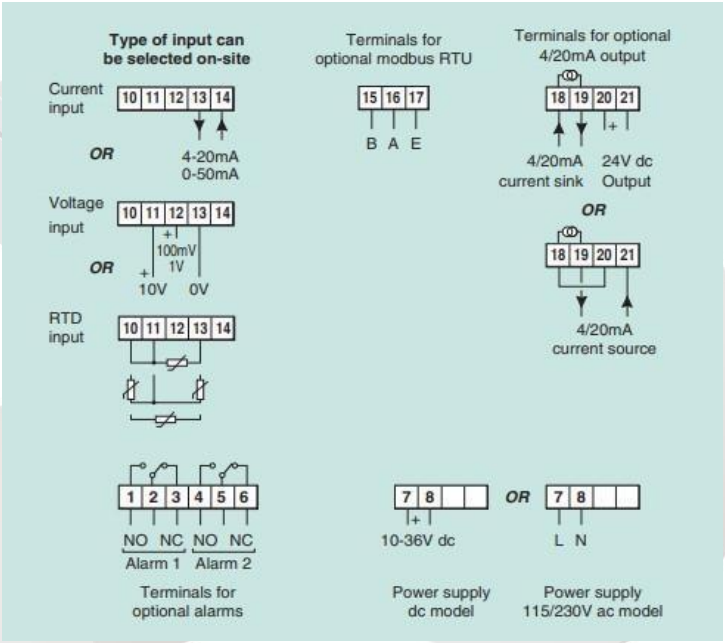
Recommended Model

Brand and Model: BEKA Associates Ltd / Advisor
A90 Manufacturer Model Code: A90-AC-ALM-CX
Product Origin: United Kingdom
Power Input: 90…264V AC / 47…63Hz
1x Isolated 4…20mA Signal input from Transmitter/Sensor
1x 4…20mA Re-transmission Output to data logger, chart recorder, PLC, etc. 2x alarm output relays, Single pole change over contact, 250V 5A or 30V 5A EESIFLO Ordering P/N: **981001-0**

Dimensions



Terminal connection diagram



Note: All optional accessories which are purchased directly from EESIFLO® will be configured/pre-set to EASZ 1 setup configurations.

EESIFLO® will not take any responsibility on equipment/accessories which are not pre-configured or supplied directly by EESIFLO®.

If in doubt, please consult EESIFLO®!

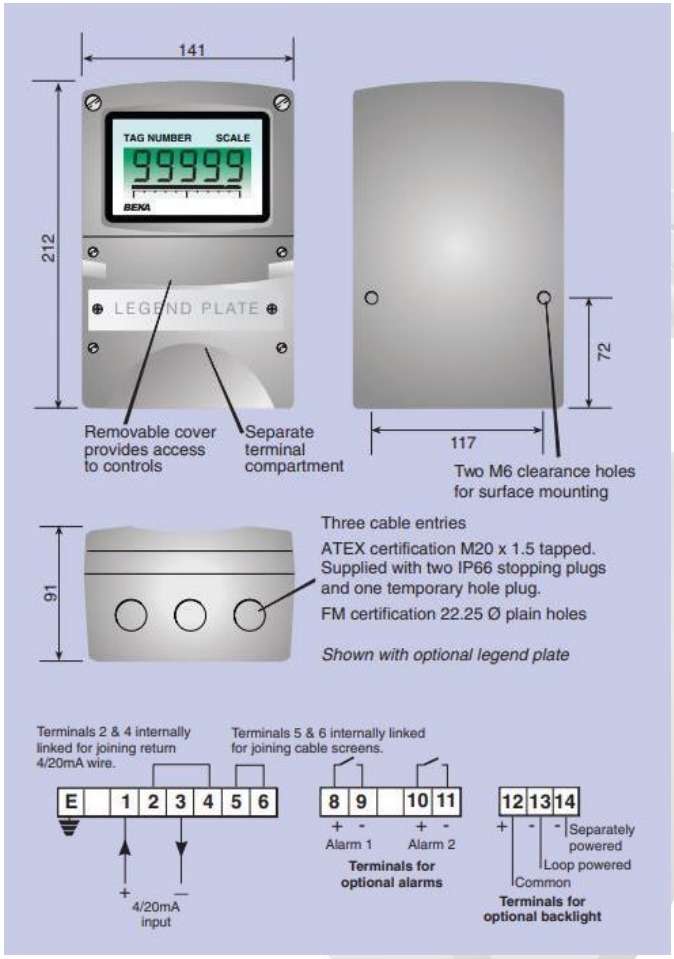
Digital Field Mount Display/Indicator. (for intrinsic safety) Loop-Powered Type

Recommended Model

Brand and Model: BEKA Associates Ltd / BA324E
Manufacturer Model Code: BA324E-BL-ALM
Product Origin: United Kingdom
Input: 5…28V DC, 4…20mA loop powered
2x alarm output, Ron: 5Ω +0.7V Max, Roff 1MΩ min.
Voltage Drop: without backlight 1.3 V maximum, with backlight 5.0 V maximum
EESIFLO Ordering P/N: **981001-1**

***Note: specify which approval required upon order, otherwise ATEX+IECEx approval as standard supply.**

Dimensions



Input parameters must meet the following requirements for both FM and ATEX/IECEx applications.

U_i=30V | I_i=200 mA | P_i=0,84W

Markings

The **BA324E** will carry the following **ATEX** and **IECEx** markings:

II 1 G, D Ex ia IIC T5 Ga,
Ex ia IIIC T80°C Da IP66
-40°C < Ta < +70°C

Or, the **BA324E** will carry the following **FM** and **cFM** markings:

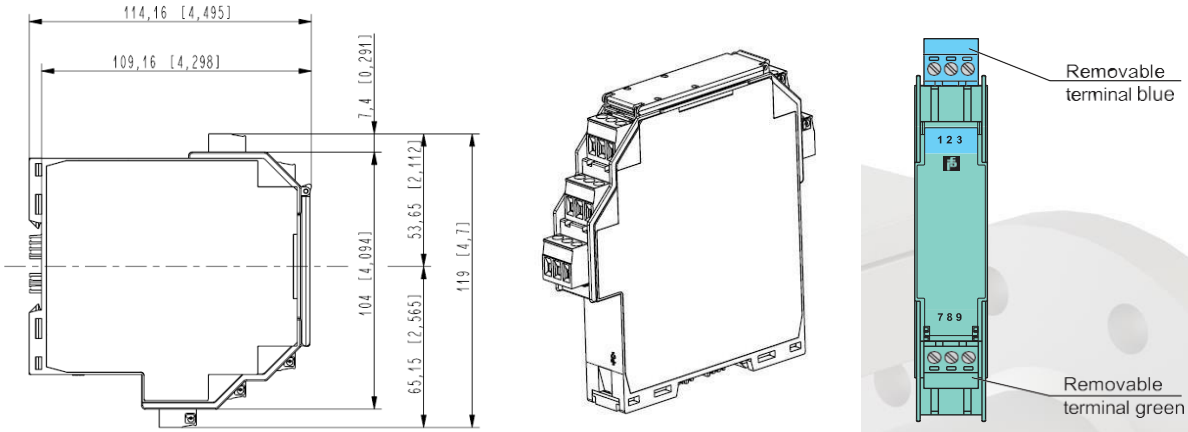
-40°C < Ta < +70°C
Class I, Division 1, Group A, B, C and D T5;
Class II, Division 1, Group E, G, & G T5
Class II, T5
Class I, Zone 0; AEx ia IIC T5; IP66

Isolator

Isolator for EASZ-1

Recommended Model
Brand and Model: Pepperl + Fuchs / KF SMART Series
Manufacturer Model Code: KFD0-SCS-Ex1.55 or KFD0-SCS-1.55
Product Origin: Germany
Input: 24 VDC, 4-20mA, HART® I/P
Voltage Drop: ≤ 5V maximum
EESIFLO Ordering P/N: 981002-0, for Ex Version or 981002-1, for Non-Ex Versions

Dimensions



The KF SMART Type KFD0-SCS-Ex1.55 is preferably used as passive supply and isolating unit for 2-wire measuring transducers or as isolating transformer for 4…20mA signal circuits.
It is installed outside of the hazardous areas.
The permissible temperature range is -20°C up to +60°C.

Parameters must meet the following requirements for ATEX applications.
Input Circuit ..... Operating Values:
(Terminal 8-, 9+)

U=30V, I=22 mA, U_m=253V

Input Circuit ..... Operating Values:
(Terminal 1+, 2,3-)

Maximum Values:
U_o=23.1V, I_o=28 mA, P_o=647mW
Rectangular characteristic
C_i=negligibly low
L_i= negligibly low

Markings

The **KFD0** will carry the following **ATEX** markings:

II (2) G [Ex ib Gb] IIC

EASZ-1 Water in Oil/Fuel Monitor, Part Code Builder

Model
EASZ 1 --- Water in Oil/Fuel measurement, Digital, integrated temperature compensation, 24V DC, 2 Wired, 4-20mA loop powered, auto zero function, HART® ready

Type
Gp --- Standard version for general purpose in ordinary location
Ex --- "Ex" version for explosion proof protection

Approval
N --- Without – EASZ 1 in ordinary location, No Explosion Proof Protection required.
A --- ATEX: <Ex> II 1G Ex ia I/IIB T4 Ga (-20°C < Ta < +60°C), Cert. No. ITS06ATEX25406X/4
IECEx: <Ex> Ex ia I/IIB T4 Ga (-20°C < Ta < +60°C), Cert. No. IECEx ITS 07.0010X
Ex safety instructions must be observed!
C --- CSA Approval USA-Canada "Class 1, Div 1: Group C & D, Zone 0; AEx ia IIB T4; IP66"
Ex safety instructions must be observed!

Transmitter enclosures
E --- SS316; IP66 Enclosure with M20x1.5 Nickel Plated Brass Cable Gland. Cable Entry Dia. Ø 5…10.3mm, Suitable for Ex-Protection and ordinary location.
S --- SS316; IP66 Enclosure with M20x1.5 SS316 Cable Gland. Cable Entry Dia. Ø 5…10.3mm, Suitable for Ex-Protection, ordinary location, and offshore applications.

Electronics Meas. Range
L ---Low range vers. (Range up to 25%)
F ---Full range vers. (Range up 100%)

Connection Size
01 --- NPS 1" (DN25)
1H --- NPS 1-1/2" (DN40)
02 --- NPS 2" (DN50)
2H --- NPS 2-1/2" (DN65)
03 --- NPS 3" (DN80)
04 --- NPS 4" (DN100)
06 --- NPS 6" (DN150)
XX --- consult factory for other sizes

Connection face to face Length
220 --- Standard, 9" (220mm) for NPS 1" (DN25) only.
330 --- Standard, 13" (330mm) for NPS 1-1/2" (DN40) only
430 --- Standard, 17" (430mm) for NPS 2" (DN50) onwards.
Custom Length
XX --- consult factory for custom length

Pipe schedule
01 --- Sch. 10
02 --- Sch. 20
4S --- Sch. 40s
04 --- Sch. 40
8S --- Sch. 80s
08 --- Sch. 80
XX --- Other Sch.

EASZ 1	-	Gp	-	A		E	-	L	/	04	-	430	-	A1s	-	04	-	A1	/	*	**

Type of connection
Thread Connection
T1 --- NPT Male Thread
T2 --- BSP Male Thread
T3 --- BSPT Male Thread
Flange Connection
A1 --- ANSI Class 150 flange
A2 --- ANSI Class 300 flange
A3 --- ANSI Class 600 flange
A4 --- ANSI Class 900 flange
P1 --- PN10/20 DIN flange
P2 --- PN16 DIN flange
P4 --- PN40 DIN flange
P6 --- PN100 DIN flange
J1 --- JIS 5K flange
J2 --- JIS 10K flange
J3 --- JIS16K flange
J5 --- JIS 40K flange
Flanged connection adds one of the following codes
s --- slip-on raised face
w --- weld neck raised face
r --- slip-on ring type joint
j --- weld neck ring type joint
f --- slip-on flat face
e --- weld neck flat face

Material of Manufacture (Body/Sensing Part)
S4 --- Body: Stainless Steel SUS304/304L (1.4301/1.4306), Sensing Part: SS316/316L (1.4401/1.4404)
SS --- Fully: ASTM 316/316L (1.4401/1.4404)
A1 --- Body: ASTM A105/A106 Gr. B, Sensing Part: SS316/316L
D1 --- Body: Duplex SS UNS S31803/2205 (1.4462), Sensing Part: SS316/316L (1.4401/1.4404)
D2 --- Body: Super Duplex SS UNS S32750/2507 (1.4410), Sensing Part: SS316/316L (1.4401/1.4404)
D3 --- Fully: Duplex SS UNS S31803/2205 (1.4462)
D4 --- Fully: Super Duplex SS UNS S32750/2507 (1.4410)
HH --- Fully: Hastelloy C 22/276 (2.4602/2.4819)
XX --- other material

Additional Options*

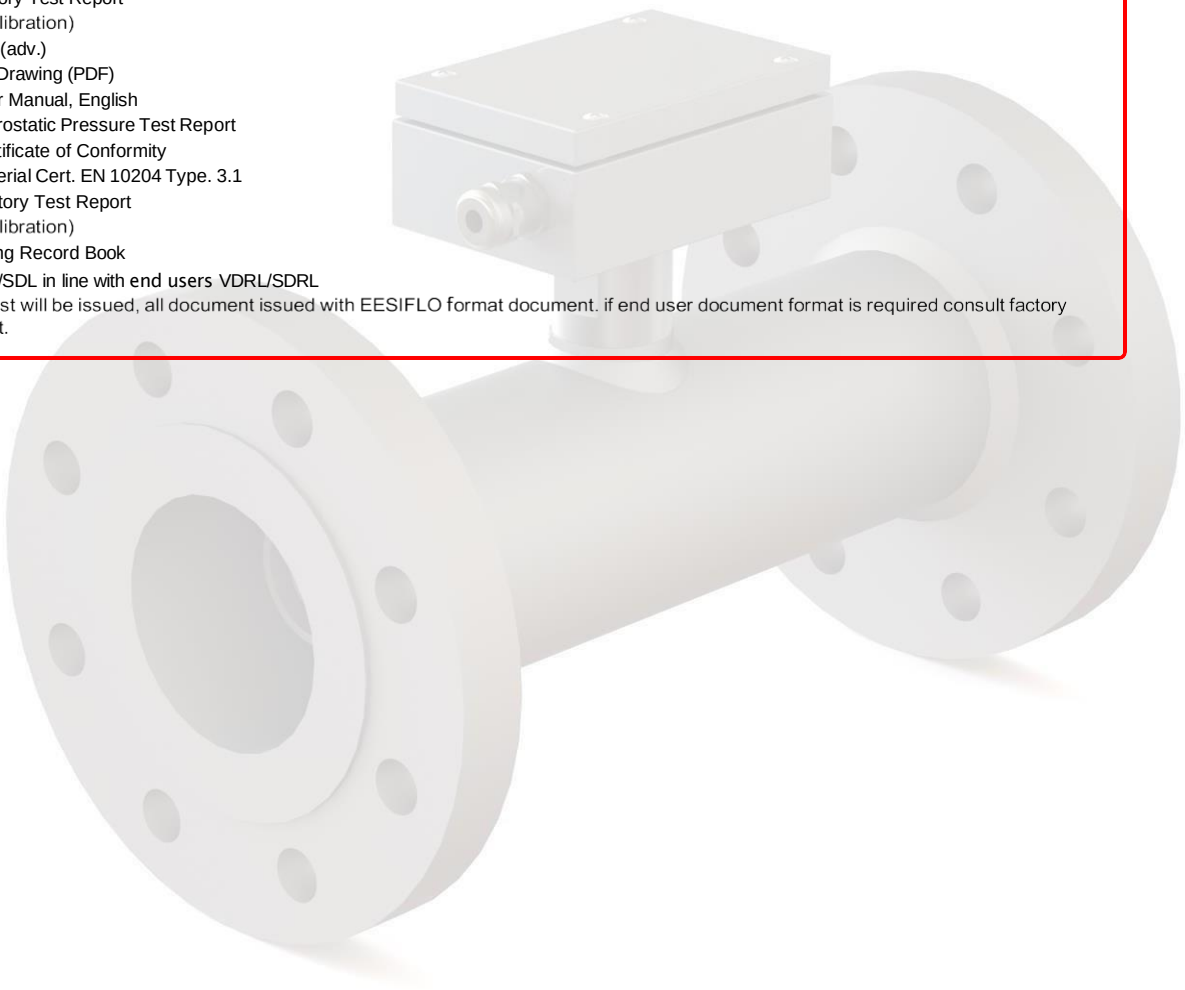
Additional Options
Integral Static Mixer and Sample Port Set
MM ---Standard Integral Static Mixer (Dual Mixing Element)
MP ---Integral Static Mixer (Dual Mixing Element) and Sampling port
MQ ---Integral Static Mixer (Dual Mixing Element) with Sampling Port, Valve & Quill

Document Package**

Document Package
D1 ---Document Package (gen.)
- [EMRD-GA] GA Drawing (PDF)
- [EMRD-EN] User Manual, English
- [EMRD-HT] Hydrostatic Pressure Test Report
- [EMRD-CC] Certificate of Conformity
- [EMRD-CR] Factory Test Report (Functional / Calibration)

D2 ---Document Package (adv.)
- [EMRD-GA] GA Drawing (PDF)
- [EMRD-EN] User Manual, English
- [EMRD-HT] Hydrostatic Pressure Test Report
- [EMRD-CC] Certificate of Conformity
- [EMRD-MT] Material Cert. EN 10204 Type. 3.1
- [EMRD-CR] Factory Test Report (Functional / Calibration)

D3 ---MRB – Manufacturing Record Book
Acc. EESIFLO VDL/SDL in line with end users VDRL/SDRL
*VDL/SDL check list will be issued, all document issued with EESIFLO format document. if end user document format is required consult factory for any cost impact.



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