

ECO Series Impulse Amplifier

Single / double tap with different output functions

FEATURES

- Compact design for flow meters
- Medium temperatures up to +150°C [+302°F]
- Scalable analog and digital outputs
- Flow direction detection
- Customer configurable
- Linearisation with up to 20 points possible
- Integrated Medium Temp. Measurement

BENEFITS

- ▶ Suitable for all mechanical meters
- ▶ Wide range of applications with one device
- ▶ Userfriendly same functionality for all Mechanical Meters
- ▶ Short delivery times
- ▶ Optimized for inventory (ECO configurator is required)

TECHNICAL DATA

Mounting:	Flush-Mount (1- or 2-Channel) Screw-in M14x1.5 (1-Channel)
Power Supply (Vcc):	12 ... 28 VDC, regulated
Current Consumption:	< 25 mA
Frequency Range:	1 ... 5.000 Hz; suitable for all KEM volumetric counters
Output Stages:	Push-Pull active, PNP, NPN NAMUR 4-20 mA passive + Freq/Pulse (NPN) 0-20 mA active + Freq/Pulse (PP, NPN, PNP) 0-10 V active + Freq/Pulse (PP, NPN, PNP)
Output Signal:	1:1- Frequency or Direction signal & doubled Frequency scaled output values
Temperature Measurement:	±1 °C ±0.5 %
Ambient Temperature:	-40 °C ... +60 °C [-40 °F ... +140 °F]
Medium Temperature:	Flush-Mount (1- or 2Channel) -40 °C ... +80 °C [-40 °F ... +176 °F] Screw-in M14x1.5 (1Channel) -40 °C ... +120 °C [-40 °F ... +248 °F] -40 °C ... +150 °C [-40 °F ... +302 °F]
Housing Material:	Aluminium die casting alloy 231 or Stainless Steel
Sensor Probe Material:	1.4404 [AISI 316L] all Variants
Protection Class:	Aluminium IP65 Stainless Steel IP68 with closed electrical connection
Weight:	approx. 200 g

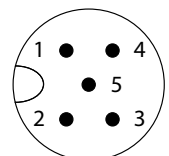


ELECTRICAL CONNECTION

(Short circuit proof, Reverse polarity protected)
M12 Connector (5-pole, male, A-coded)

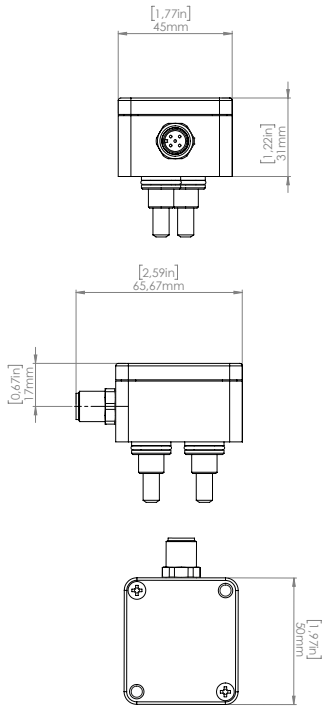
Pin

1	Vcc / Loop+ (24 V)
2	Digital Output 2 / NAMUR
3	GND / Loop-
4	Digital Output 1 / NAMUR
5	Active Analog Output

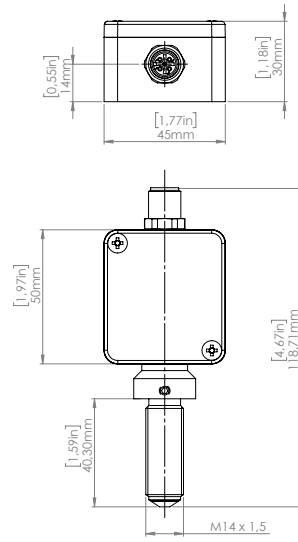


DIMENSIONS

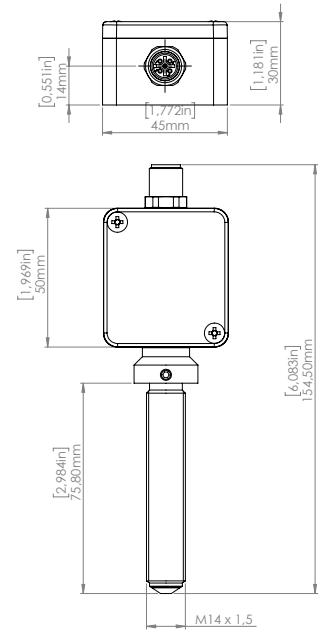
Flush-Mount (1- or 2-Channel)
 40°C...+80°C [40°F...+176°F]



Screw-in M14x1.5 short (1-Channel)
 -40 °C ... +120 °C [-40 °F ... +248 °F]



Screw-in M14x1.5 long (1-Channel)
 -40 °C ... +150 °C [-40 °F ... +302 °F]



MODEL CODE

ECO X X - X X - X X - X

Mounting

Flush-mount / ZHM 01/3-03 [+80°C; +176°F]	C
Flush-mount / ZHM 04 [+80°C; +176°F]	E
Screw-in M14x1.5 [+120°C; +248°F] / ≤ZHM 04, SRZ & HM	K
Screw-in M14x1.5 [+150°C; +302°F] / ZHM, SRZ & HM	L

Channel

1-Channel	1
2-Channel [DIR, 2 x f] (not available with "Mounting" K & L)	2

Output Function

Freq/Pulse (PP, NPN, PNP)	P
Namur Output	N
4-20mA passive + Freq/Pulse (NPN)	A

Advanced Output Function

None	N
0-20mA active + Freq/Pulse (PP, NPN, PNP)	V
0-10V + Freq/Pulse (PP, NPN, PNP)	W

Housing / Sensor / IP

Aluminum / 1.4404 [AISI 316L] / IP 65	A
Stainless / 1.4404 [AISI 316L] / IP 68	S

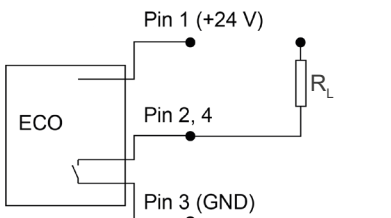
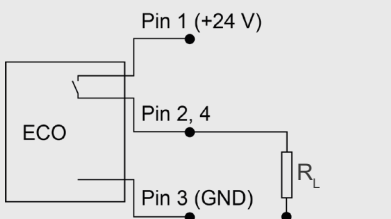
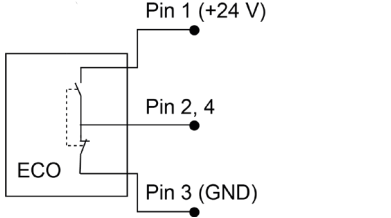
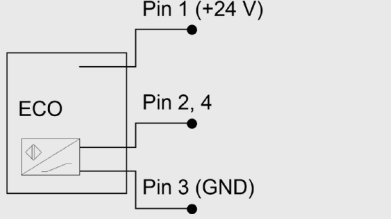
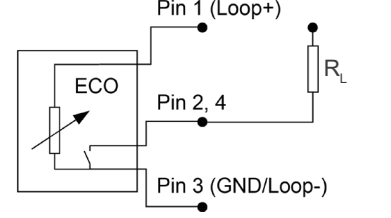
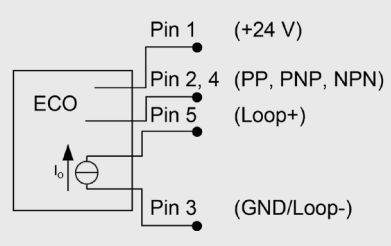
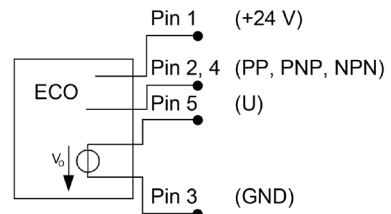
Connector

M12 Connector (5-pole, male, A-coded), material equivalent housing	P
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Explosion Protection

None	-
ATEX + IEC Ex (Zone 1)	Ex
ATEX (Zone 2)	Exn
cCSAus (Zone 1)	Ex1
ATEX + IECEx + cCSAus triple approval	Ex3
UKCA (Zone 1)	ExU
UKCA (Zone 2)	Exm

OUTPUT STAGES ELECTRICAL VALUES

NPN		R_L I_L U_L U_{VCC}	min. max. 2500 Ω 30 mA 28 V 12 V 28 V	$V_{high} = V_{CC} - 0,5 V - (940 \Omega * I_{Load})$
PNP		R_L I_L U_L U_{VCC}	min. max. 2500 Ω 27 mA 28 V 12 V 28 V	$V_{high} = V_{CC} - 0,5 V - (940 \Omega * I_{Load})$
Push-Pull		R_L I_L U_L U_{VCC}	min. max. 2500 Ω 30 mA 28 V 12 V 28 V	$V_{high} = V_{CC} - 0,5 V - (940 \Omega * I_{Load})$
NAMUR				
4 - 20 mA passive + Frequency/ Pulse (NPN)		R_L I_L U_{VCC}	min. max. 300 Ω 21 mA 21.6 V 28 V	$R_{Lmax} = \frac{(V_{CC} - 15 V)}{0,021A}$
4 - 20 mA active + Frequency/ Pulse (PP, PNP, NPN)		R_L I_L U_L U_{VCC}	min. max. 600 Ω 21 mA 25 V 16.8 V 28 V	$R_{Lmax} = \frac{(V_{CC} - 15 V)}{0,021A}$
0 - 10 V active + Frequency/Pulse (PP, PNP, NPN)		R_L I_L U_L U_{VCC}	min. max. 10 k Ω 22 mA 25 V 15 V 28 V	

EX PROTECTION

Product Certification Code: T100	
Approvals	
ATEX / IECEx Zone 1 / CAUK	Ex II 2G Ex ia IIC T4T3 Gb
cCSAus	Class1 Div1 Groups A, B, C, D T4T3 Class1 Zone1 Groups A, B, C, D T4T3
Temperature	
T4 = 135 °C; T _{amb} = -40°C up to 60°C T3 = 200 °C; T _{amb} = -40°C up to 85°C	
Design Values Supply and Puls/Frequency Outputs	
U _i = DC 28 V I _i = 93 mA P _i = 650 mW	