



# MU-5000

## Measuring Transmitter for Electromagnetic Flowmeters SI-01 and SI-02



## Features

- / Easy to assemble
- / Separate or compact
- / Easy commissioning and  
maintenance
- / Optimal dynamics
- / Self-diagnostics
- / IP67

## Description:

The MU-5000 is a high-performance measuring transmitter based on a micro-processor with built-in alphanumeric multi-language display. The MU-5000 is always a part of SI-01 or SI-02 series of measurement pick-up. It supplies power to its magnetic coils and evaluates the signal transmitted by the electrodes. On the output side, the device has a power output of a 0(4) to 20 mA signal as well as an active and a passive impulse output. All outputs can be adjusted in unidirectional (positive flow direction only) as well as bidirectional (forward and backward) way and, a parameterizable limit value can be evaluated with an additional relay. A programmable time-constant acts on the display and output signals. Moreover, the measuring transmitter has a digital input with which the internal counter can be set to zero or the output signal can be controlled or fixed. The measurement pick-ups of the SI-01 or SI-02 series possess a SENSORPROM memory module in which their individual data is stored. The result is that every measurement pick-up of the SI series can operate along with every MU-5000 measuring transmitter without the need for prior parameterizing. After connecting the MU-5000 to a measurement pick-up the specific data is read into the MU-5000 and it begins to function immediately. The standard accuracy of the MU-5000 is  $\pm 0.4\% \pm 1 \text{ mm/s}$  of the measured value. In combination with the SI-02, however, the system can also be supplied optionally with calibration set to  $\pm 0.2\% \pm 1 \text{ mm/s}$ .



# Electrical Specifications:

## Supply voltage /

AC/DC-Version: 11...30 VDC or 11...24 VAC  
AC-Version: 115...230 VAC +10%-15% (50...60 Hz)

## Power consum. /

AC/DC-Version: 9 VA at 24 VAC  
( $I_N = 380 \text{ mA}$ ,  $I_{ST} = 8 \text{ A}$  (30 ms))  
or  
11 W at 12 VDC  
( $I_N = 920 \text{ mA}$ ,  $I_{ST} = 4 \text{ A}$  (250 ms))  
AC-Version: 17 VA at 230 VAC

## Cable insertion /

M20 x 1.5 at DIN-flanges or  
1/2"-NPT at ANSI (AWWA)-flanges

## Protection class /

Compact version: IP67  
19"-slider: IP20

## EMC-Function /

IEC/EN 61326-1 (any environment)  
IEC/EN 61326-2-5

## Digital input /

11...30 VDC, activation time 50 ms,  
current for 11 VDC  $I = 2,5 \text{ mA}$ ,  
current for 30 VDC  $I = 7 \text{ mA}$   
 $R_i = 4,4 \text{ k}\Omega$

## Digital output /

Frequency: 0...10 kHz, 50% scan ratio  
(uni-/bidirectional)  
Time-constant: 0.1...30 s, adjustable  
Impulse (active): 24 VDC, 30 mA,  
 $1 \text{ k}\Omega \leq R_i \leq 10 \text{ k}\Omega$ , short-circuit-proof  
Impulse (passive): 3...30 VDC, max. 110 mA,  
 $200 \Omega \leq R_i \leq 10 \text{ k}\Omega$   
Time-constant: 0.1...30 s, adjustable

## Relay output /

Time-constant: change-over realy,  
as the current output  
Load: 42 VAC at max. 2 A,  
24 VDC at max. 1 A

## Power output /

Output signal: 0...20 mA or 4...20 mA  
Load: < 800 Ohm  
Time-constant: 0.1...30 s adjustable

## Galv. Isolation /

All inputs and outputs are galvanic  
isolated.

## Display and Keypad /

Counter: two 8-digit counter for  
forward, backward and net flow  
Display: back-lit alphanumeric text, 3x20 characters for  
display of flow rate, counter values, settings and  
errors, display of backward flow by minus symbol.  
Time-constant: time-constant as current output time-constant

# Technical Specifications:

## Measuring principle /

magnetic-inductive with clocked  
constant field

## Empty tube /

empty tube identification (special cable  
required for separate mounting)

## Zero point setting /

automatic

## Creep vol. suppression /

0...9.9% of max. flow

## Exciter frequency /

depend on sensor size

## Electrode input impedance /

$> 1 \times 10^{14} \text{ Ohm}$

## Accuracy /

$\pm 0,4\% \pm 1 \text{ mm/s}$  (optional  $\pm 0,2\% \pm 1 \text{ mm/s}$ )

## Ambient temperature during operation /

-20...+60°C with display  
-20...+60°C without display

## Storage temperature /

-40...+70°C

## Materials /

Compact version: fiberglass reinforced polyamide  
(on request stainless steel AISI 316)  
19"-slider: standard 19" slider (aluminium/steel) as per  
DIN 41494 width 21 TE, height 3 HE

## Vibration-proof /

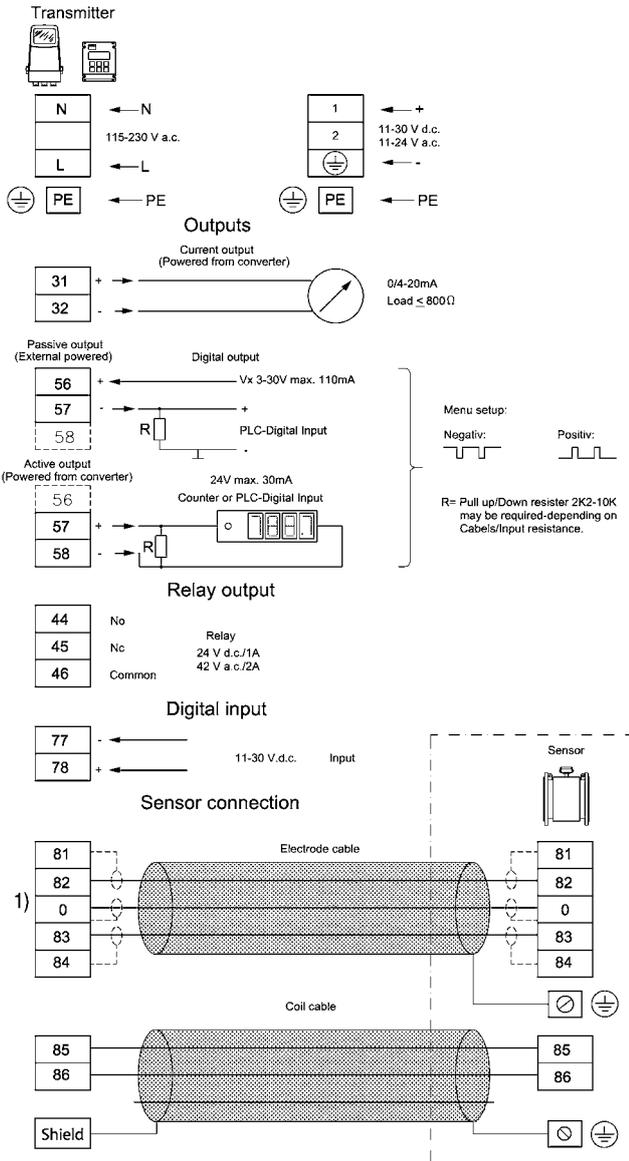
Compact version: 18...1000 Hz any, 3.17 g effectively,  
sinusoidal in all directions as per  
DIN IEC 68-2-36  
19"-slider: 1...800 Hz, 1 g, sinusoidal in all  
directions as per DIN IEC 68-2-36

## Weight /

Compact version: 0.75 kg  
19"-slider: 0.8 kg

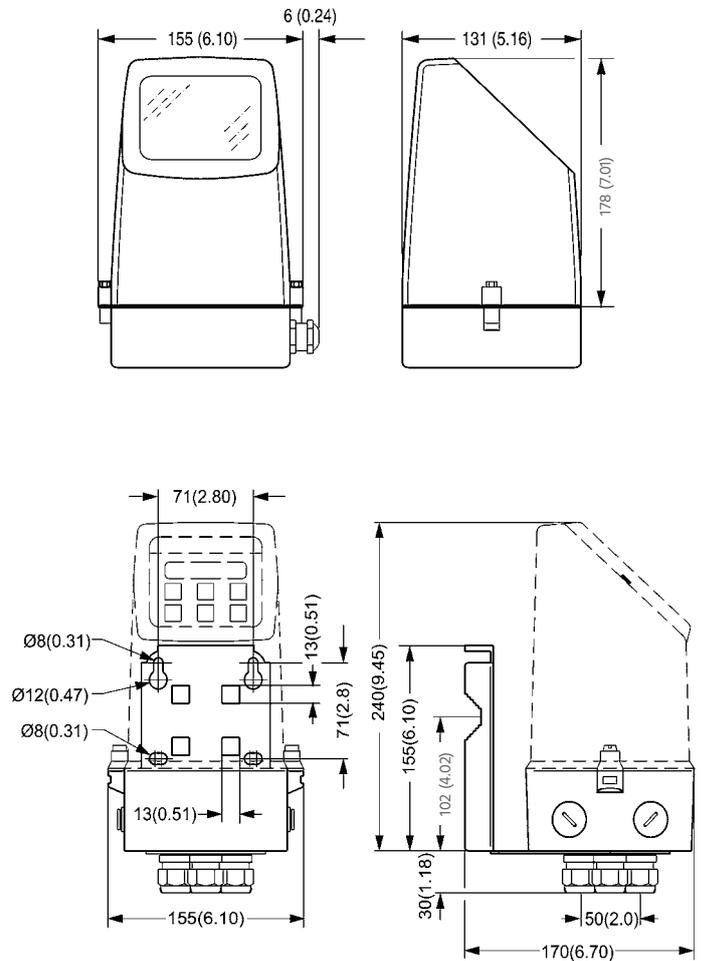


# Power supply:



1) Note  
Special cable with individual wire shields (shown as dotted lines) are only required when using empty pipe function or long cables

# Dimensions in mm (inch):



# Ordering Codes:

<b>Order number</b>	<b>MU-5000.</b>	<b>1.</b>	<b>1.</b>	<b>1</b>
<b>MU-5000 Measuring Transmitter for Electromagnetic Flowmeters SI-01 and SI-02</b>				
<b>Display /</b>	0 = without display 1 = with display			
<b>Assembly /</b>	1 = for direct mounting on the measurement pick-up 2 = with wall-mounting unit for assembly separate from measurement pick-up 3 = measuring transmitter for mounting on the 19" component assembly carrier (HART protocol not possible)			
<b>Supply voltage /</b>	1 = 11...30 VDC and 11...24 VAC 2 = 115/230 VAC 50/60 Hz 3 = 115/230 VAC 50/60 Hz with HART protocol for versions with display only			

