www.kem-kueppers.com
info@kem-kueppers.com

Küppers Elektromechanik GmbH

Technical Datasheet

SCE

Electronic Linearization

for Flow Meters with Viscosity Compensation

Description

The SCE family of smart flow meter signal conditioners amplifies, linearizes and scales the output signal of almost all commercially available mechanical flow meters.

Furthermore, the SCE is able to compensate the influence of viscosity changes of the measured medium on the measuring result for example caused by temperature changes. In particular, this effect is relatively big with turbine flow meters as its known. In the SCE several calibration curves for a flow meter at different viscosities of the medium can be stored. Based on this and on the use of the respective medium temperature which is required as an additional input parameter, correction values of the measured input (impulses, frequencies) are calculated in the software of the SCE. A corresponding measurement, which is compensated on the influence of viscosity, is provided at the output.

Technical Data

Inputs

Carrier Frequency (RF) Input	Input frequency: 1 to 4,000 Hz Inductance: 1 mH Resistance: 10 to 13 Ω Carrier frequency: 45 to 55 kHz
Sinus Signal Input	From magnetic flow meter sensors Input voltage: 10 mVss to 10 Vss
Puls Input	U_{low} < 1.5 V U_{high} > 3 to 30 V Range: 0.4 to 32 kHz Input impedance > 10 kΩ
Temperature Input	PT100 4-Wire or 0 - 10 V

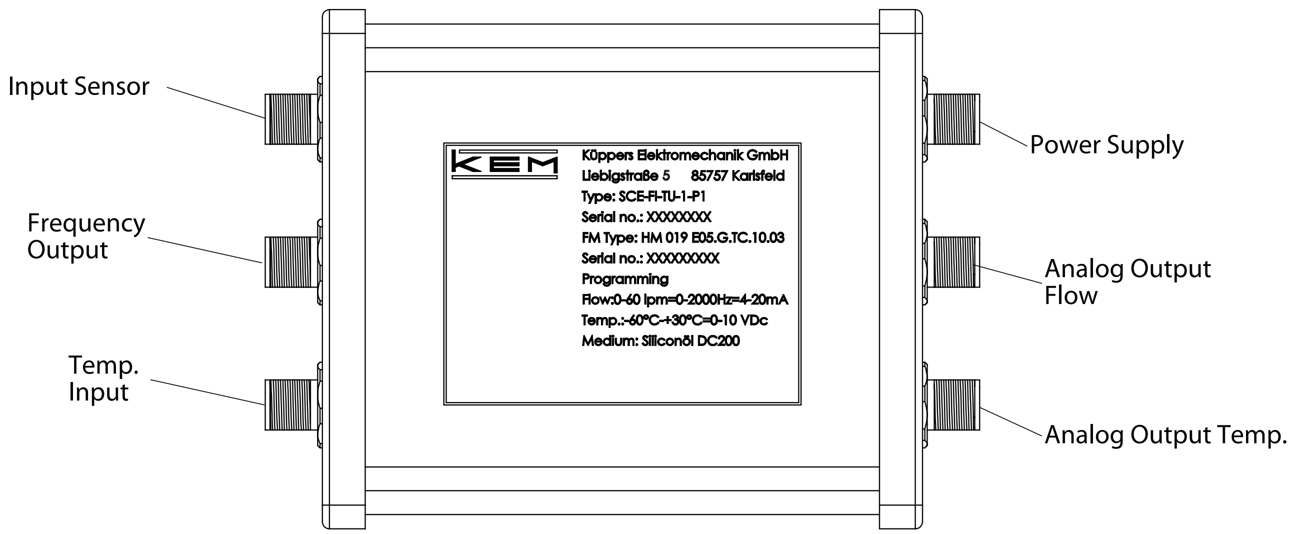
Outputs

Frequency	Linearized and scaled frequency: 5 V NPN referred to analog ground Scaleable top frequency: 50 - 4,800 Hz Output Impedance: < 2.2 kΩ Accuracy: 0.1 % of reading Resolution: 0.018 Hz Computing time: 1.5 to 2.5 ms for the linearization + 1 measuring period
Analog	0 - 10 V linearized and scaled Zero point offset: <= 10 mV to analog ground Accuracy: 0.1 % full scale Resolution: 16 bits (~0.16 mV) Option: 4 - 20 mA

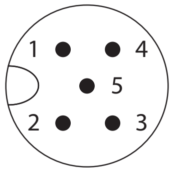
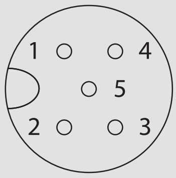
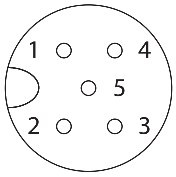
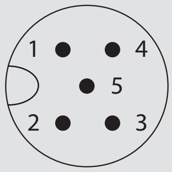
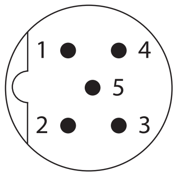
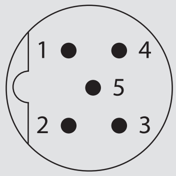
Further Data

Linearization	Up to 32 points (frequency/viscosity vs. pulses/liter), linear interpolation between points
Update Time (average value)	0 to 3.5 seconds
Low Flow Suppression	0.6 to 3.5 seconds per pulse, maximum waiting period
Data Processing	All linearization data are permanently stored inside the SCE
Environmental Conditions	Operating temperature: -40 °C up to +85 °C [-40 °F up to +185 °F] Storage temperature: -55 °C up to +125 °C [-67 °F up to +257 °F] Humidity: 0 - 85 % relative, non-condensing
CE	EN 61010, EN 61000-6-2, EN 61000-6-4
Size	Approx.: 130 x 110 x 60 mm
Weight	Approx.: 440 g

Connections



Pin Allocation/Wiring Diagram

Power Supply	M12 plug-in connector (5-pin, male, A-coded) Pin 1 = 12 to 32 V DC supply input Pin 2 = n.c. Pin 3 = 0 V Pin 4 = n.c. Pin 5 = n.c.	
Analog Output Flow	M12 socket plug (5-pin, female, A-coded) Pin 1 = +U (0 to 10V) or +I (4 to 20mA) Pin 2 = 0 V or -I (4 to 20mA) Pin 3 = n.c. Pin 4 = n.c. Pin 5 = n.c.	
Analog Output Temperature	M12 socket plug (5-pin, female, A-coded) Pin 1 = +U (0 … 10 V) or +I (4 to 20 mA) Pin 2 = 0 V or -I (4 to 20 mA) Pin 3 = n.c. Pin 4 = n.c. Pin 5 = n.c.	
Flow Meter Input	M12 plug-in connector (5-pin, male, A-coded) Pin 1 = +24 V, 9 to 30 V/DC Pin 2 = frequency input Pin 3 = 0 V/GD Pin 4 = n.c. Pin 5 = n.c.	
Frequency Output	M12 plug-in connector (5-pin, male, B-coded) Pin 1 = n.c. Pin 2 = n.c. Pin 3 = 0 V Pin 4 = 5 V (TTL Pulse) frequency output Pin 5 = n.c.	
Temperature Input	M12 plug-in connector (5-pin, male, B-coded) Pin 1 = PT100 (+ Supply) or +U (0 to 10 V) Pin 2 = PT100 (+ Sense) or -U (0 to 10 V) Pin 3 = PT100 (- Sense) Pin 4 = PT100 (- Supply)	

Ordering Code

	SCE	-	XX	-	XX	-	X	-	XX	-	X
Evaluation Electronic											
Voltage (Flow Output)			FU								
Current (Flow Output)			FI								
Voltage (Temp. Output)					TU						
Current (Temp. Output)					TI						
Pt 100 (Temp. Input)							1				
0 - 10 V DC (Temp. Input)							2				
Carrier Frequency (RF) Input									P1		
Magnetic Input									P2		
Pulse Input									P3		
Options											
Incl. Clip-Set for 35mm DIN-Rail											H

KEM Headquarters

Liebigstraße 5
85757 Karlsfeld
Germany

T. +49 8131 59391-0
F. +49 8131 92604

info@kem-kueppers.com

KEM Manufacturing Center

Wettzeller Straße 22
93444 Bad Kötzting
Germany

T. +49 9941 9423-0
F. +49 9941 9423-23

production@kem-kueppers.com

KEM Sales

Liebigstraße 5
85757 Karlsfeld
Germany

T. +49 8131 59391-100
F. +49 8131 92604

sales@kem-kueppers.com

KEM Service & Repairs

Wettzeller Straße 22
93444 Bad Kötzting
Germany

T. +49 9941 9423-37
F. +49 9941 9423-24

service@kem-kueppers.com

More distributors & partners can be found at:
www.kem-kueppers.com