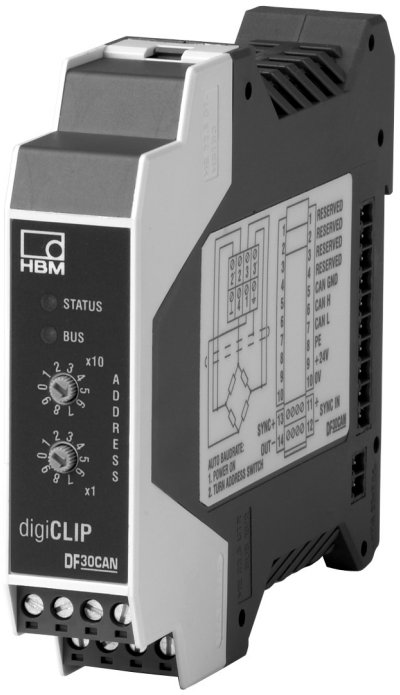
Data sheet

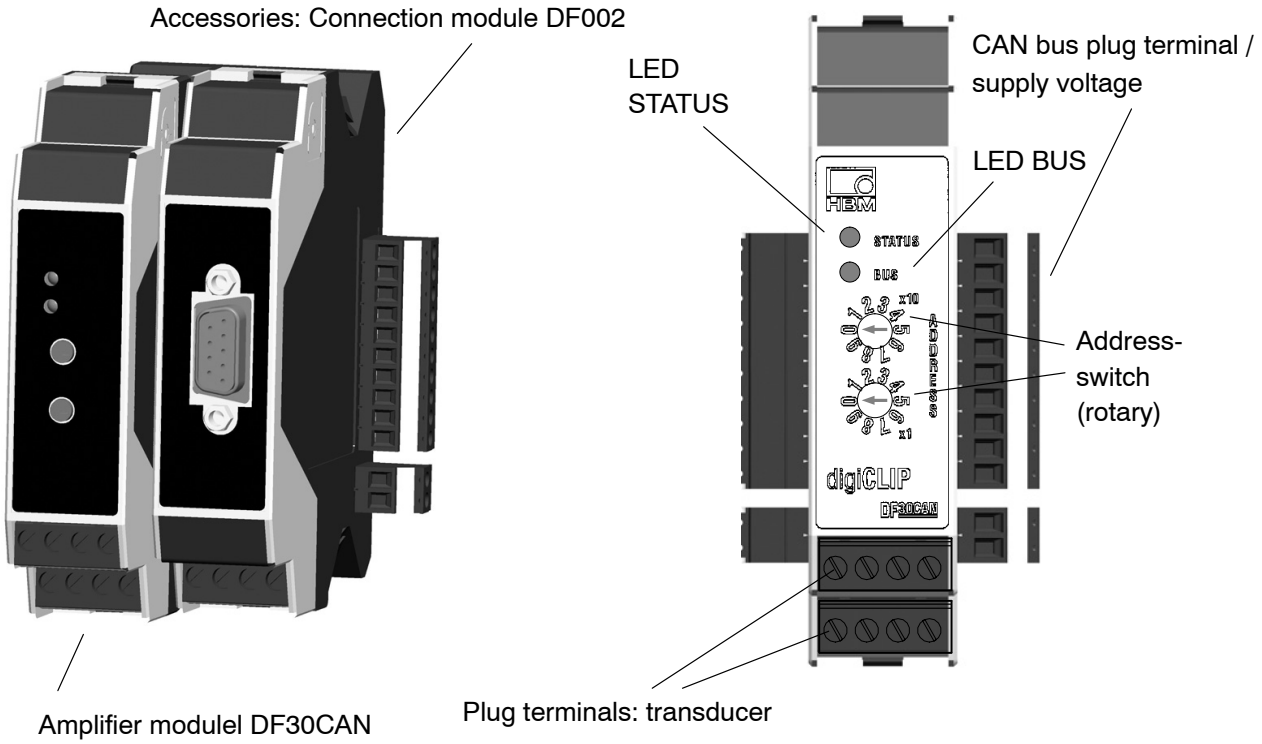
digiCLIP

DF30CAN



Special features

- **Digital amplifier for industrial automation tasks and production process monitoring**
- **600 Hz CF measurement technology with TEDS sensor recognition for SG full bridges**
- **Accuracy class, typically 0.05%**
- **Modular mounting on a DIN EN 50022 type DIN rail (IEC60715)**
- **Fast peak and limit value monitoring**
- **Standardized CANopen CiA fieldbus coupling for parameterization and backup**



Specifications

digiCLIP			
Accuracy class (at U_B = 2.5 V and U_B = 1 V); after autocalibration		0.05, typically 0.1 in an industrial environment as per EN 61326 0.2 in the 10 mV/V measuring range	
Power supply			
Supply voltage, Overvoltage and reverse polarity protection	V_{DC}	24	
Isolation voltage Potential separation between the supply bus and the transducer connection, functional separation, must not be used for safety considerations	V_{DC}	500	
Permissible supply voltage range	V	18 ... 30	
Influence of supply voltage when there are changes in the specified range	%/V	< 0.001	
Power consumption, max.; incl. transducer	W	1.5	
Amplifier			
Carrier frequency, square	Hz	600 (591.9 Hz ±100 ppm)	
Synchronization		when several interconnected modules are used, the carrier frequency is synchronized automatically	
Bridge excitation voltage UB, Peak–to–peak (±10%)	V	2.5	1.0
Measuring range	mV/V	±4	±10
Connectable transducers SG full bridge	ohms	80 ... 5000	
Connection technique		4 and 6–wire circuitry with single–wire open–circuit monitoring	
Permissible cable length between transducer and amplifier, max.	m	100	
Input resistance	MOhm	>5	
Measurement frequency range, adjustable (–3dB) (see filter table)	Hz	0.05 ... 225	
Filter characteristics		Bessel, 4th order	
Noise voltage relative to input, for UB = 2.5 V, typical	µV/V	1.0 (at 100 Hz filter frequency) 0.05 (at 1 Hz filter frequency)	
Influence of ambient temperature for change of 10 K			
on the zero point (TK0)	µV/V	0.1	
on sensitivity (TKC)	%	0.05 f.s.	
Linearity deviation	% f.s.	0.005	
Long–term drift, without AutoCal	%	<0.001 (within 48 h)	
Communication interface			
Number of devices on the bus, max.		97	
Address settings		1 to 99 via rotary switch on front	
Protocol		CAN 2.0B, CANopen-compatible, CiA DS301, DS404	
Hardware bus link		Two-wire, as per ISO 11898; available at www.can–cia.org	
Bit rate	kBit/s	1000 500 250 125 100 50	
Line length, max.	m	25 100 250 500 600 1000	
Bit rate selection		Automatic recognition after change of address	
PDO transfer		Triggered by sampling rate, timing control or SYNC message	
Cycle time for time–driven triggering, Possibly restricted by chosen data types and filter frequency [1]	ms	0.85 ... 25000	
CAN connection		Plug terminal on the side: potential separation from power supply and measurement ground. Option: DF001: 9–pin sub-D (DIN 19245)	
Signal conditioning			
A/D converter		Delta-Sigma, 24–bit	
Scaling accuracy	bits	32	
Sampling rate	1/s	1184	

[1] Floating point: 2 measured values at 0.85 ms; integers: 4 measured values at 0.85 ms; filters: see table overleaf

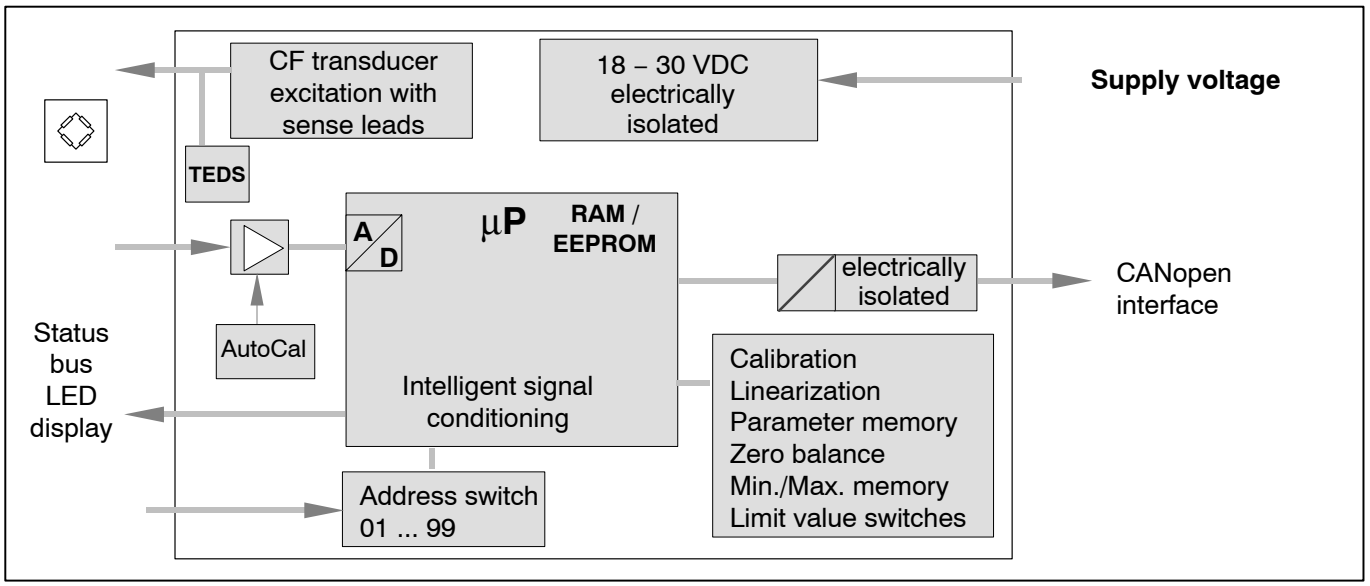
Input of characteristic curve		TEDS, calibration, editing
Zero balance		over the entire measuring range
Tare balance		over the entire measuring range
Duration of balancing	ms	< 2
AutoCal	ms	< 300
Parameter memory		1 set as per CiA DS404, protected in the EEPROM
Limit value switches		
Definition		as per CiA DS404, ALARM block
Number		4
Functions		Switching threshold, hysteresis (2-point control), greater than, less than
Signal source (user–selectable)		gross, net, max, min, peak–to–peak
Hysteresis		adjustable over the entire measuring range
Update		at each measured value
Peak–value memory		
Number		3
Function		min., max., peak–to–peak
Update		at each measured value
Clearing peak–value memory		< 2
Retaining the current measured value/peak value	ms	< 2
Current–value memory	ms	Run /Hold
Ambient conditions		
Nominal temperature range	°C	0 ... +50
Operating temperature range	°C	–10 ... +60
Storage temperature range	°C	–20 ... + 70
Permissible rel. humidity, non–condensing	%	10 ... 90
Housing		
Material		Polyamide PA 6.6
Dimensions (WxHxD)		
without connections	mm	23 x 100 x 114
Weight, approx.	g	150
Mechanical stress (test similar to DIN IEC 60068, Part 2–6)		
Vibration (30 min each direction)	m/s^2	50 (5...65 Hz)
Impact (3 times each direction, impact duration 11ms) (test similar to DIN IEC 60068, Part 2–27)	m/s^2	350
Mounting		Support rail, DIN EN60715 (IEC 60715)
Connection		Plug–in terminals
Degree of protection		IP20
Reliability		
MTTF (MIL–HDBK–217F, Feb. 1995)	hours	125000
EMC conformance		
as per EN 61326*)		in an industrial environment

* With measurement per EN 61326, May 2004 edition, Annex F, burst to shielding of the transducer or bus line, the class accuracy of 0.1 is complied with when using filter frequencies up to 2 Hz. When a filter frequency of 100 Hz is used, the measurement variation can be as much as 1.3%.

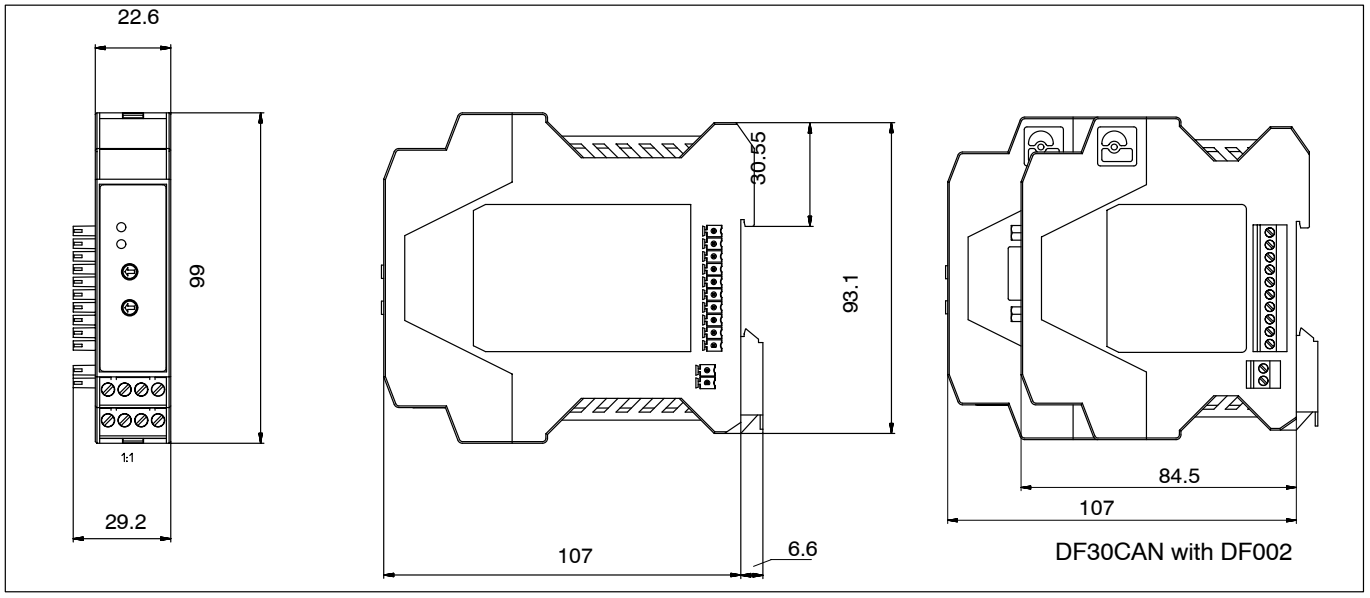
Filter data and sampling rate

Desired frequency	–1 dB (Hz)	–3 dB (Hz)	–20dB (Hz)	Phase delay (ms)	Sampling rate (s^{-1})	Min. cycle time (ms)
100 Hz	130	225	560	2.3	1184	0.85
50 Hz	48	82	220	4.6	1184	0.85
20 Hz	20	34	100	9.5	1184	0.85
10 Hz	10.5	18.6	56	16.6	1184	0.85
5 Hz	5.2	9.3	28	31	592	1.7
2 Hz	2.1	3.7	11.2	70	237	4.2
1 Hz	1.05	1.8	5.6	140	118	8.4
0.5 Hz	0.52	0.9	2.8	280	59	16.9
0.2 Hz	0.21	0.36	1.1	700	24	42.2
0.1 Hz	0.105	0.18	0.56	1400	12	84.5
0.05 Hz	0.052	0.09	0.28	2800	6	168.9

Block diagram



Dimensions in mm



Scope of supply :

DF30CAN digiCLIP module	Order no.: 1–DF30CAN
Coded connectors for sensor connection (2 pieces)	Order no.: 3–3312.0404
Plug terminal for CAN bus and supply voltage	Combicon order no.: CR–MSTB

CD–ROM including free setup software (digiCLIP Assistant), (a free updated version of the Assistant can be downloaded from http://www.hbm.com/support).

Accessories (not included in the scope of supply):

Connector set for digiCLIP modules (needed for two–tier installation in the control cabinet)	Order no.: 1–digiCLIP–ST
Connection module for frontal assignment of the rear terminal strip (bus and voltage supply)	Order no.: 1–DF002

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