

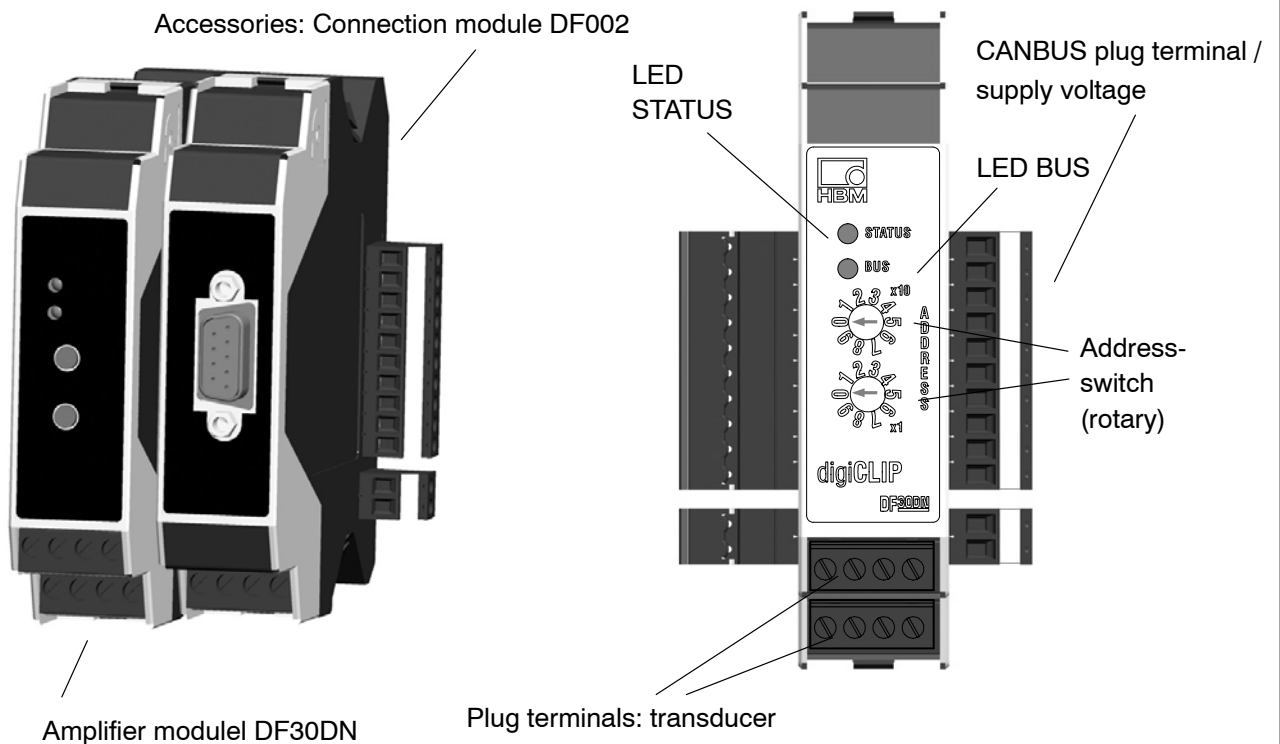
# digiCLIP

DF30DN



## 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 DeviceNet fieldbus coupling for parameterization and backup



# Specifications

<b>digiCLIP</b>			
<b>Accuracy class</b> (at $U_B = 2.5\text{ V}$ and $U_B = 1\text{ V}$ ); after autocalibration		0.05, typically 0.1 in an industrial environment as per EN 61326 0.2 in the 10 mV/V measuring range	
<b>Power supply</b>			
<b>Supply voltage,</b> Overvoltage and reverse polarity protection	$V_{DC}$	24	
Isolation voltage, without transients Potential separation between the supply bus and the transducer connection, functional separation, must not be used for safety considerations	$V_{DC}$	< 60	
<b>Permissible supply voltage range</b>	V	18 ... 30	
<b>Influence of supply voltage when there are changes in the specified range</b>	%/V	< 0.001	
<b>Power consumption, max.; incl. transducer</b>	W	1.5	
<b>Amplifier</b>			
<b>Carrier frequency, square</b>	Hz	600 (591.9 Hz $\pm$ 100 ppm)	
<b>Synchronization</b>		when several interconnected modules are used, the carrier frequency is synchronized automatically	
<b>Bridge excitation voltage <math>U_B</math>,</b> Peak-to-peak ( $\pm 10\%$ )	V	2.5	1.0
<b>Measuring range</b>	mV/V	$\pm 4$	$\pm 10$
<b>Connectable transducers</b> SG full bridge	ohms	80 ... 5000	
<b>Connection technique</b>		4 and 6-wire circuitry with single-wire open-circuit monitoring	
<b>Permissible cable length between transducer and amplifier, max.</b>	m	100	
<b>Input resistance</b>	MOhm	> 5	
<b>Measurement frequency range, adjustable</b> (-3dB) (see filter table)	Hz	0.05 ... 225	
<b>Filter characteristics</b>		Bessel, 4th order	
<b>Noise voltage</b> relative to input, for $U_B = 2.5\text{ V}$ , typical	$\mu\text{V/V}$	1.0 (at 100 Hz filter frequency) 0.05 (at 1 Hz filter frequency)	
<b>Influence of ambient temperature for change of 10 K</b> on the zero point (TK0) on sensitivity (TKC)	$\mu\text{V/V}$ %	0.1 0.05 f.s.	
<b>Linearity deviation</b>	% f.s.	0.005	
<b>Long-term drift, without AutoCal</b>	%	<0.001 (within 48 h)	
<b>Communication interface</b>			
Number of devices on the bus, max. Address settings Protocol  Hardware bus link Bit rate Line length, max. Bit rate selection PDO transfer Cycle time for time-driven triggering, Possibly restricted by chosen data types and filter frequency <sup>1)</sup> DeviceNet connection	    kBit/s m     ms	64 0 to 63 via rotary switch on front DeviceNet standard: "The DeviceNet Specification", available at <a href="http://www.odva.org">www.odva.org</a> Two-wire, as per ISO 11898 500 250 125 100 250 500 Automatic recognition after change of address Triggered by sampling rate, timing control or SYNC message  0.85 ... 25000  Plug terminal on the side: potential separation from power supply and measurement ground. Option: DF001: 9-pin sub-D (DIN 19245)	
<b>Signal conditioning</b>			
<b>A/D converter</b>		Delta-Sigma, 24-bit	
<b>Scaling accuracy</b>	bits	32	
<b>Sampling rate</b>	1/s	1184	

<sup>1)</sup> Floating point: 2 measured values at 0.85 ms; integers: 4 measured values at 0.85 ms; filters: see table overleaf

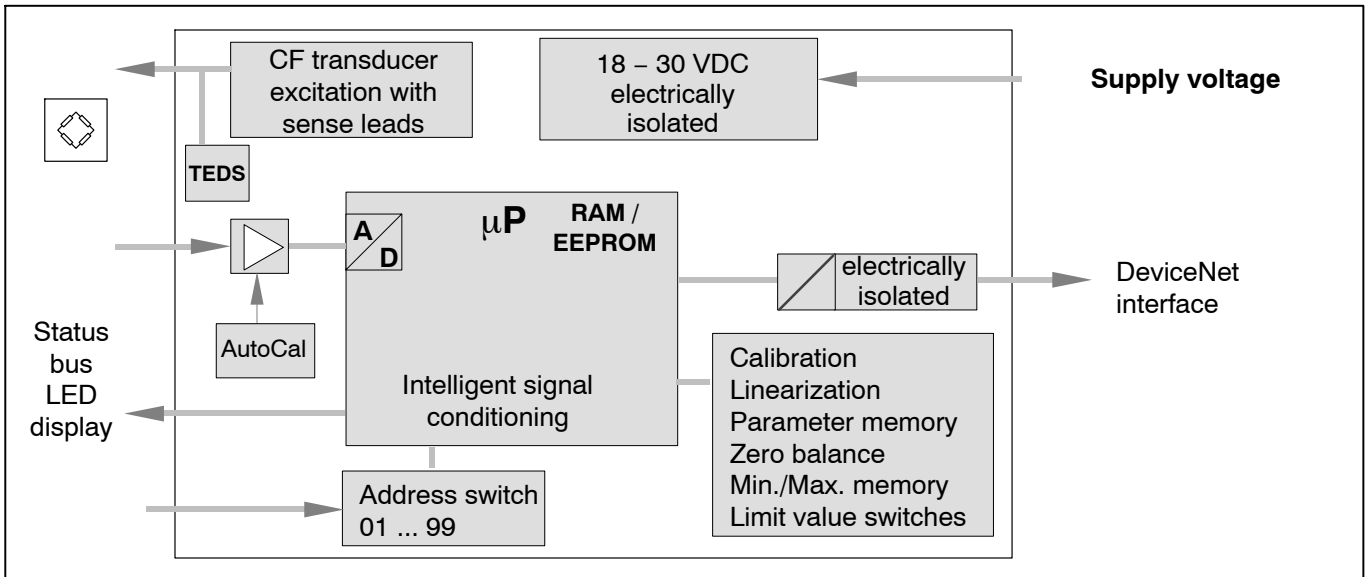
<b>Input of characteristic curve</b>		TEDS, calibration, editing
<b>Zero balance</b>		over the entire measuring range
<b>Tare balance</b>		over the entire measuring range
<b>Duration of balancing</b>	ms	< 2
<b>AutoCal</b>	ms	< 300
<b>Parameter memory</b>		1 set as per CiA DS404, protected in the EEPROM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

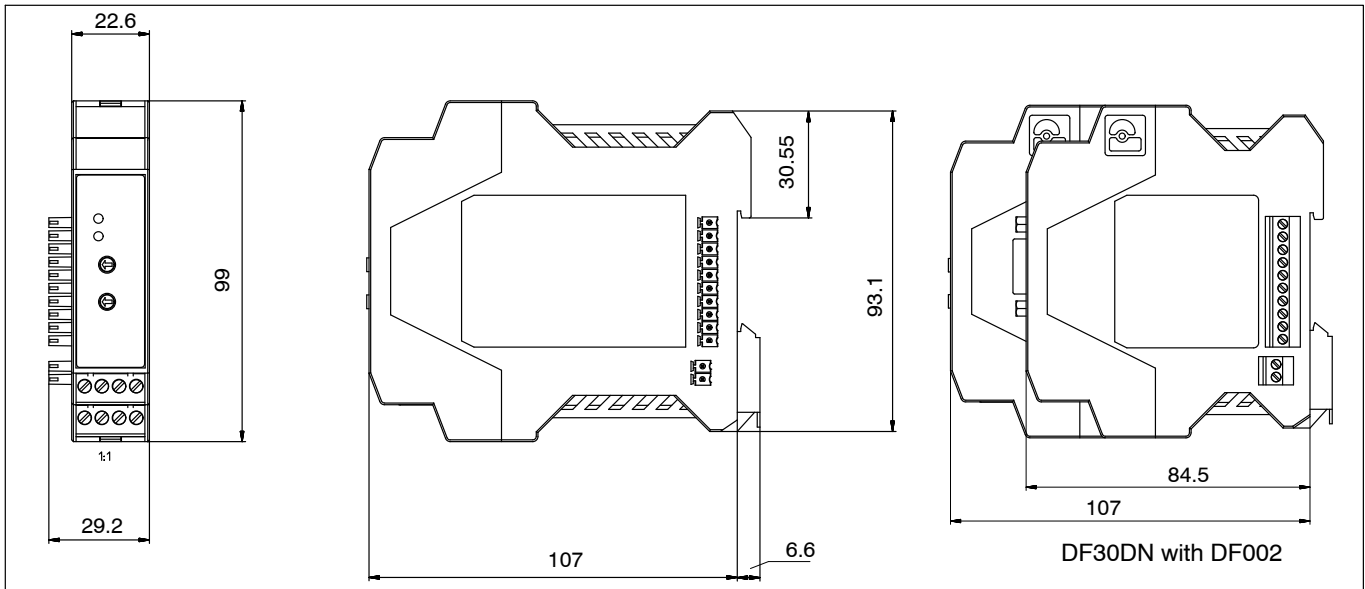
### Filter data and sampling rate

Desired frequency	-1 dB (Hz)	-3 dB (Hz)	-20dB (Hz)	Phase delay (ms)	Sampling rate (s <sup>-1</sup> )	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 :

DF30DN digiCLIP module

Coded connectors for sensor connection (2 pieces)

Plug terminal for DeviceNet and supply voltage

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)

Connection module for frontal assignment of the rear terminal strip (bus and voltage supply)

Order no.: 1-DF30DN

Order no.: 3-3312.0404

Combicon order no.: CR-MSTB

Order no.: 1-digiCLIP-ST

Order no.: 1-DF002

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Subject to modifications. All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.

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