

Carrier frequency measuring amplifier

MBI 46.32



The measuring amplifiers of the MBI 46.32 series, derived from the MBI 46.31 series, were developed to operate inductive displacement transducers in differential inductance or differential transformer (LVDT) configuration.

- ↕ **Standardized cases for EN rail mounting**
- ↕ **Compact 1-channel or 2-channel version**
- ↕ **Supply ± 15 VDC or +24 VDC**
- ↕ **Output 10 V or 4...20 mA**
- ↕ **Individual zero and span adjustment per channel**

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Technical description

The carrier frequency measuring amplifier MBI 46.32, separate per channel, supplies a 5 kHz excitation signal for inductive transducers and it conditions the signal from the transducer. In its 2-channel version, both channels are synchronised and commonly supplied but equipped with individual adjustment facilities for independent transducer operation.

The amplifier is available with either voltage output (max. ± 10 V) or current output (4 ... 20 mA). The voltage out put can be set to ± 1 V ... ± 10 V. The zero is adjustable to any value within the full range, with symmetric and non-symmetric transducers.

As baseline, the amplifier supply is +24 VDC. Optionally, ± 15 VDC supply is available. Connection is made via terminal block.

The carrier frequency amplifier channel is accommodated on a small-size board (70 x 90 mm) European standard size PCB 100 x 160 mm. It can directly be inserted into 19"-units or racks, interfacing via a DIN 41612 connector or a terminal block. Optionally, a housing-integrated (IP 65) version is available.

Separate adjustment facilities per channel, accessible from case front, are provided for zero, the gain (span fine, optionally plus span coarse) and, if necessary, for phase.

In connection with MESSOTRON transducers, amplifiers are factory-pre-adjusted before delivery.

Model range

MBI 46.32.xy

Supply ± 15 VDC	.....	1	+	1	10 V-output
Supply +24 VDC	.....	3	+	2	4 ... 20 mA-output
2-channel version	.....	4	+		

Note: The 10 V port delivers an output signal of ± 10 V with symmetric systems (most standard inductive transducers), with asymmetric systems (e.g. MESSOTRON transducers type WP) between **0 ... 10 V**. Signal customisation is possible (option).

Specifications

Compatible transducers

Type	inductive quarter-bridge, half-bridge or full-bridge (LVDT) configuration
Required sensitivity	20 ... 600 mV/V

Oscillator (synchronised for both channels)

Carrier frequency	5 kHz \pm 5% (sinusoidal); other frequencies optional
Bridge supply voltage	approx. 2 V _{eff}
Supply current max.	12 mA _{eff}

Amplifier (per channel)

Accuracy	0.3% F.S.O.
Linearity error	< 0,1% F.S.O.
Temperature coefficient of zero	< 0,1% /10K @ 100 mV/V transducer output < 0,15% /10K @ 20 mV/V transducer output
Temperature coefficient of span	< 0,05% /10K @ 100 mV/V transducer output < 0,15% /10K @ 20 mV/V transducer output
Noise level (Residual carrier voltage)	< 5 mV _{eff}
Input resistance	approx. 200 k Ω
Max. load current	6 mA
Zero adjustment range	ca. \pm 10% of nominal range, by trimmer up to 100% of nominal range, by resistor
Cut-off frequency of measuring signal (-3 dB)	200 Hz

General technical data

Power demand max.	2 W per channel
Zero adjustment	by trimmer
Span/gain adjustment	fine by trimmer coarse by resistor (optional: trimmer)
Phase adjustment (dispensable with pre-adjusted amplifier)	fine by trimmer coarse by capacitor
Interface	19-pin terminal block
Operating temperature	0 ... 60°C
Storage temperature	-25 ... 85°C
Protection rating	case IP 40, terminal block IP 20

Model dependent technical data

Supply	+20 ... +30 V stabilized; \pm 15 V stabilized max. 20 mV _{eff} ripple
Output	\pm 10 V; 4 ... 20 mA
Dimensions (without cover)	ca. W 100 x H 75 x D 110 mm
(with cover)	ca. W 100 x H 75 x D 125 mm
Front panel dimensions	W 94 x H 52 mm
Mass	approx. 0.35 kg (1-channel version) approx. 0.45 kg (2-channel version)

Subject to change without prior notice