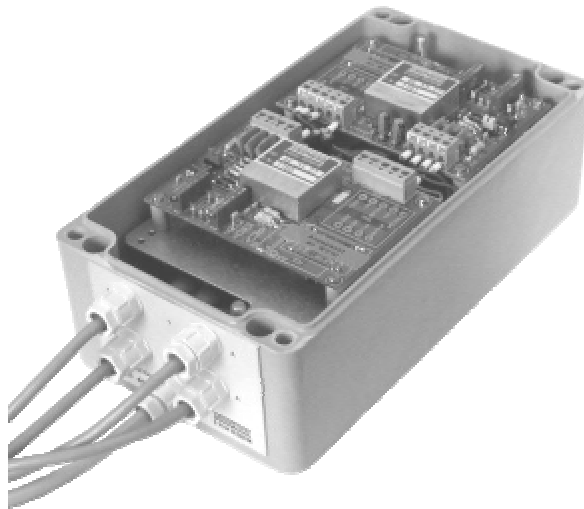


Carrier frequency measuring amplifier

MBI 46.33



The MBI 46.33 measuring amplifier is the two-channel version of the MBI 46.31 series, specifically developed to operate inductive – half-bridge or full bridge - displacement transducers.

- ↳ Robust IP 65 field case
- ↳ 2 amplifier channels
- ↳ Power supply 230 VAC or +24 VDC (optionally ± 15 VDC)
- ↳ Output ± 10 V or 4...20 mA
- ↳ separate adjustment facilities per channel for zero and gain

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Technical description

The carrier frequency measuring amplifier MBI 46.33 supplies, separately per channel, the 5 kHz (other frequencies optionally) bridge supply voltage to operate inductive transducers and it conditions the signal from the transducer. Separate trimming facilities for zero, gain and phase adjustment are provided. Supply is common to both channels, frequency synchronisation is possible when required.

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

As baseline, the amplifier supply is 230 VAC or +24 V DC; optionally ± 15 VDC supply is available. The robust field case of class IP 65 houses the two amplifier mini cards, connected via terminal blocks.

In connection with MESSOTRON transducers the amplifiers are adjusted ex-works.

Types

MBI 46.33.xy

(Supply ± 15 VDC .. 1)	7	10 V-output	
Supply 230 VAC	2	8	4 ... 20 mA-output
Supply +24 VDC	3		

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**. Custom adjustment of output signal is possible (option).

Specifications

Suitable transducers

Type	inductive transducer in differential inductor or differential transformer circuit
Required sensitivity	20 ... 600 mV/V

Oscillator (synchronised, if required)

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)

Class	0.3
Linearity error	< 0.1%
Temperature coefficient of zero-value	< 0.1% /10K @ 100 mV/V transducer sensitivity < 0.15% /10K @ 20 mV/V transducer sensitivity
Temperature coefficient of sensitivity	< 0.05% /10K @ 100 mV/V transducer sensitivity < 0.15% /10K @ 20 mV/V transducer sensitivity
Noise level (Residual carrier voltage)	< 5 mV _{eff}
Input resistance	approx. 200 k Ω
Max. load current	6 mA
Zero-value adjustment	by trimmers
Zero-value adjustment range	ca. $\pm 10\%$ of nominal range, by trimmer up to 100% of nominal range, by resistor
Gain adjustment	fine by trimmer coarse by resistor
Phase adaptation	fine by trimmer coarse by capacitor
Cut-off frequency of measuring signal (-3 dB)	500 Hz

Dispensable with
matched amplifier

General technical data

Power demand max.	2 W @ ± 15 V- or +24 V-supply voltage
Interface	9-pin terminal block per channel
Operating temperature	0 ... 60°C
Storage temperature	-25 ... 85°C
Protection class	IP 65

Type dependent technical data

Supply	+20 ... +30 VDC (option ± 15 VDC stabilized), max. 20 mV _{eff} ripple
Output	230 VAC ± 10 V; 4 ... 20 mA
Dimensions (without front panel and housing)	120 x 91 x 220 mm
Mass (without front panel and housing)	approx. 2.2 kg

Subject to alteration