
Model MD 152.1 (TF) Signal Amplifier

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Due to the continual development of our products, we reserve the right to modify specifications without forewarning.



SAFETY PRECAUTIONS

1. Make sure that all Magtrol electronic products are earth-grounded, to ensure personal safety and proper operation.
 2. Check line voltage before operating electronic equipment.
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1.0 INTRODUCTION

1.1 Functional Description

The Model MD 152.1 (TF) Signal Amplifier has been designed for the connection of full-bridge measuring transducers with a transducer sensitivity of at least 5 to 10 mV/V (e.g. a Magtrol DT Series Displacement Transducer).

The amplitude modulated input signal is amplified by the MD 152.1, de-modulated and finally transformed into normalized 0 to 10 V and 4 to 20 mA output signal.

1.2 Technical Data

Supply Voltage	Standard: 19 to 30 VDC (160 mA) Option: 230/115 VAC $\pm 10\%$
Input Power	approx. 2 VA typ. 85 mA at 24 VDC
Transducer Supply Voltage	8 kHz / 5 V _{eff}
Transducer Impedance	$\geq 80 \Omega$
Transducer Sensitivity	5 to 10 mV/V
Output Signal	0 to 10 V R _{LOAD} $\geq 10 \text{ k}\Omega$ 0 (4) to 20 mA R _{LOAD} $\leq 500 \Omega$
Precision Class	0.25%
Temperature Range	Operating temperature: 0 °C to +50 °C Storage temperature: -20 °C to +70 °C
Format	Euroboard (100 × 160 mm)
Power Connections	Clip contact connector 14 pins

2.0 INSTALLATION/CONFIGURATION

2.1 Power Connection – Auxiliary Voltage / Supply

Connection of the auxiliary tension will be carried out according to the board type:

Power Supply	Connecting Pin	
19 to 30 VDC (standard version)	PIN 1	–
	PIN 2	+
230/115 VAC; 50 to 60 Hz (option)	PIN 1	L
	PIN 2	N



CAUTION: PLEASE TAKE NOTE OF THE INSTRUMENT DESIGNATION.

2.2 Connecting the Displacement Transducer

The transducer and the signal output must be connected according to the following pin assignment:

1	0 V	Supply
2	19 to 30 V	
3	N.C.	
4	N.C.	
5	0 V	Current Output
6	0 to 20 mA or 4 to 20 mA	
7	0 V	Voltage Output
8	N.C.	
9	U_{ref} (-2.5 V)	
10	0 to 10 V	
11	5 V_{eff} / 8 kHz	red
12	Input (+)	white
13	0 V	blue
14	Input (-)	green



Note: Make sure that the cable shield is only connected at one end, either to the transducer housing or to the amplifier. Non-compliance with this rule will result in a ground loop with a negative effect on the functioning, and less resistance to jamming, of the system.

Always select a 4-pin cable shielded in pairs for connecting the transducer (e.g. Magtrol K-414 Cable). The cable must be installed continuously, without clamps and fully complying with the general installation rules applicable to measuring as well as to signal transmission cables.

Avoid the following configurations:

- Combined installation of signal and power cables,
- Ground loops, as well as
- Installation of the signal amplifier close to possible sources of interference such as rectifiers, contactors and induction ovens.

The internal wiring in the sub-rack will also be carried out with a 4-pin, cable shielded in pairs.

Non-compliance with these wiring instructions will have unpredictable effects on the factory phase adjustment. These changes will affect temperature compensation and linearity.

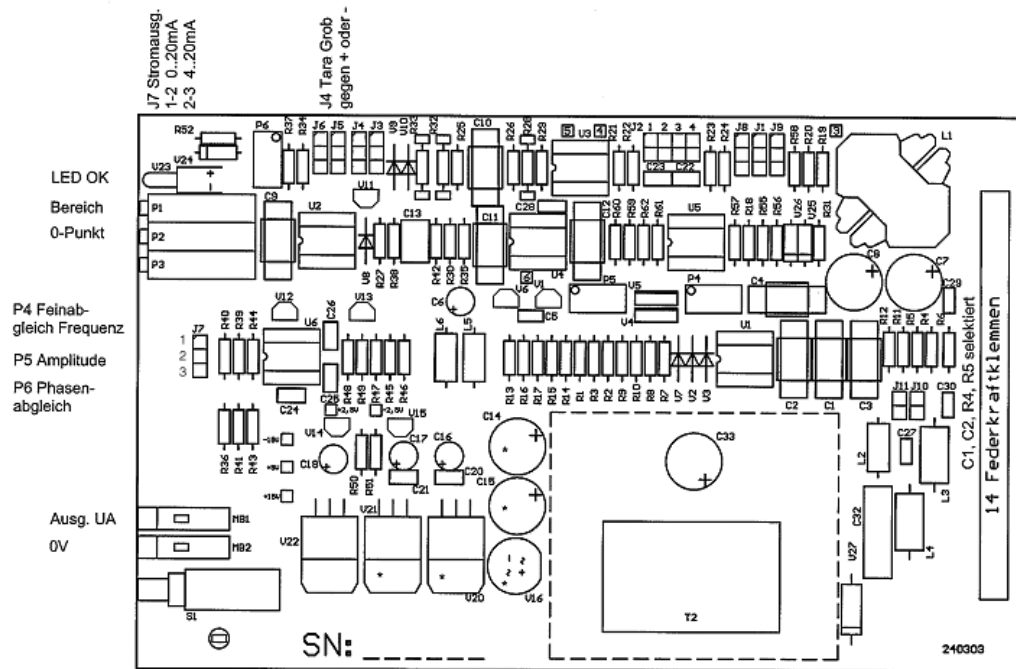
A new phase adjustment will only be possible by using an oscilloscope.

3.0 BALANCE / CALIBRATION

1. Connect a DC voltmeter between pin 10 (+) and pin 7 (0 V).
2. Bring the transducer to the zero position, adjust the output to 0 V using the potentiometer P2.
3. Bring the transducer to its final position and adjust the output to +10 V using the potentiometer P1. Should the adjustment range not be sufficient, the resistance R28 can be used for coarse adjustment of the gain factor. In case of a negative output voltage (e.g. an output signal in final position of -10 V) invert the cables connected pin 12 and 14.

R28 Resistance	
For DT 210, DT 211 and DT 212	49.9 kΩ
For DT 213, DT 214 and DT 215	86.6 kΩ

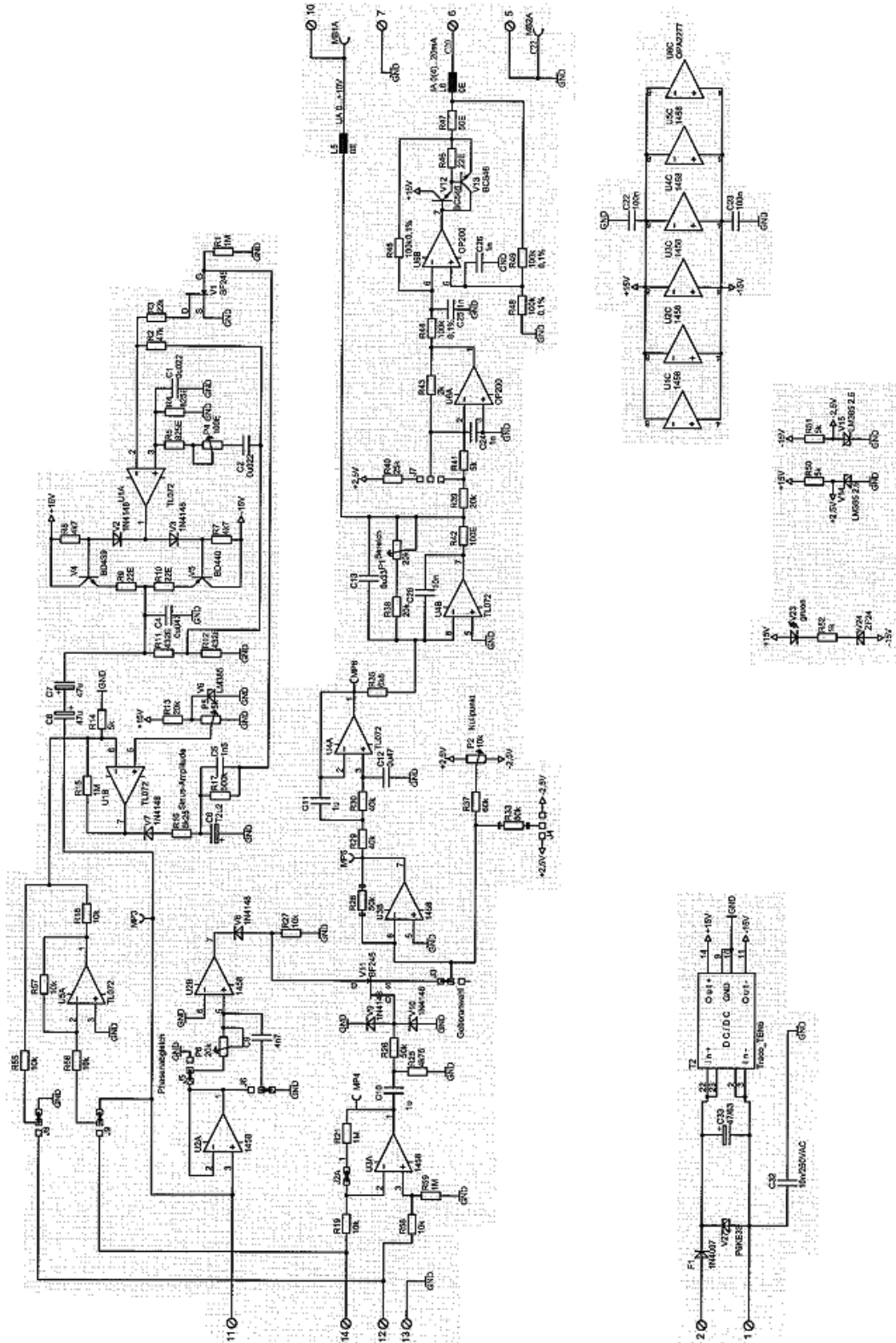
4. Pre-select with jumper J7 the current output 0 to 20 mA or 4 to 20 mA and adjust the zero position with potentiometer P2 and the final position with potentiometer P1.



* = option MD152.1/24VDC

4.0 SCHEMATIC DRAWINGS

4.1 Wiring Schematic



Revised May 2004



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