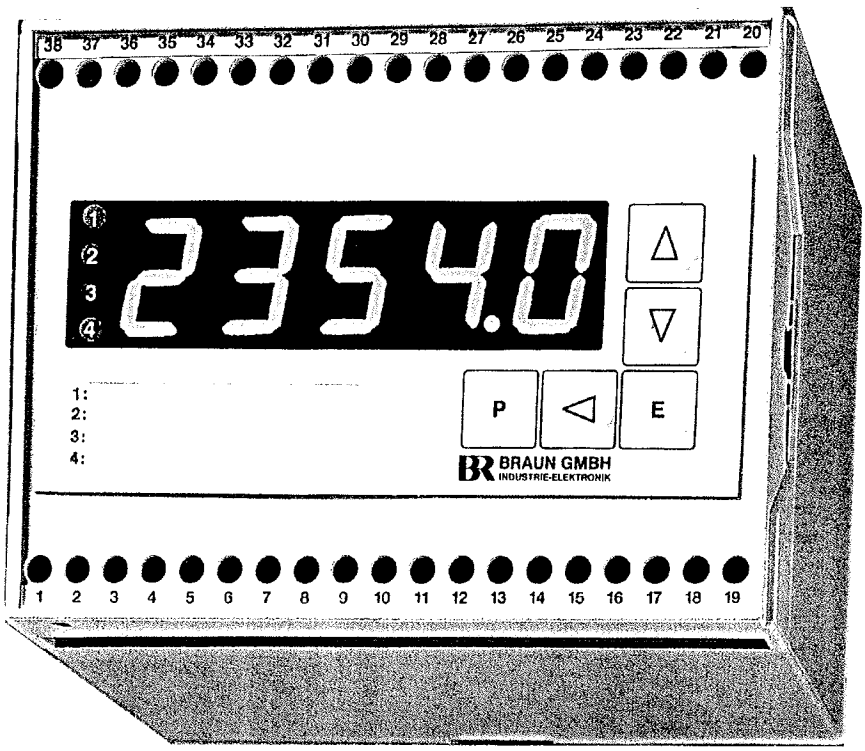
Single Channel Monitors Series D1553 with fast response to Speed and Frequency



Application

Monitoring of the machine speed in the mechanical and electrical industry, chemical processes and power plants. Whenever high reliability is required (but not the increased safety of a multiple channel system), the D1553 is the answer to monitor speed or any other quantity transmitted as a signal frequency

The D1553 responds with fast reaction to non-contact sensors (specifically our Hall-Effect based types as the ideal means), but also to incremental encoders, to tachogenerators, or to a pulse wheel on a web.

Functions

2 or (optional) 4 setpoint alarms, analog output, display of the variable, and (optional) data output.

All operational characteristics are free programmable without extra devices.

The D1553 offers monitoring of the sensor supply circuit against break or short circuit, with programmable effect to the monitor parameters.

Operation Principle

The D1553 uses the floating pulse interval measuring principle, which unifies fast response within 5 milliseconds + 1 input pulse, and steady results at high signal frequency.
Accuracy of measurement better than $\pm$ 0.01% $\pm$ 1LSD.

The setpoint alarms have individually programmable response characteristics, as hysteresis band and position, alarm condition under no-power, during starter phase and at sensor failure.
The analog output has programmable low and high end of the conversion band.
The scaling function accepts any relation between signal frequency and variable, to show all values by the required engineer unit.

Setpoint Alarms

2 or optionally 4 setpoints are available (see key to model Nos.). Each setpoint actuates a SPDT contact set as its output. Rating 250 v /1 amp/ 100 W.
Response delay 10 millisec plus one period of the input signal frequency.
LED lights indicate the alarm condition of each setpoint.
The setpoint is individually programmable, also its hysteresis by width and position. Further, the alarm condition (excess or not) as related to the de-energized relay (no power), to sensor supply failure, and to the starter phase. The starter phase extends to a programmable time elapse (max. 999 sec) after the (external) starter pulse signal. Important feature for low speed monitoring!

Function Monitoring

A permanent and comprehensive function check can be achieved assigning one of the setpoint alarms to a speed value which is definitely below the operational speed of the machine. For this setpoint, assign "no excess" status to no-power and also to sensor failure condition. Thereby, a "no excess" signal from this setpoint indicates a failure of whatever nature, and its contact output may be used as a warning signal. Use the starter function to override the warning during the start and shutdown phase.

Analog Output

Isolated from input, power supply, and ground. Output may be set as voltage signal (10 v / max 3ma) or as current (20 ma into max. 500 ohms). High end and low end of conversion, and live zero programmable. Resolution 12 bit.

Data Output (optional)

Serial data transmission according to RS232 or RS485. Baudrate programmable up to 19200 Baud.
The data interface transmits measurements and alarm conditions, following a request by specific protocol.

Signal input

The input accepts all our sensors with high level output, specifically:
Non-contact Hall series A5S05..09,
Encoder series G1000 and G3000,
Pulse Wheel series A1L02...
See our sensor specifications for further details.
General input specifications:
Signal level ON/OFF >7v/< 6v.
Maximum input 100 volts.
Input impedance 100 kohms.
Frequency range 0... 100 kHz.

Sensor supply:
12 v / 60 ma.
8 v supply via 1k load resistor to two-leads sensors (DIN19234/NAMUR),
Current drain response level >2/<1 ma.

Sensor supply monitor:
Against short circuit or breakage (current drain < 2 ma) of the 12 volts supply lead.
A programmable parameter defines its effect to the setpoint alarm outputs as excess, or no excess, or void.

Design

Snap-on-Track enclosure for 35 mm rail. Length (on rail) 100 mm, width 75 mm, height 110 mm.
Protection grade of housing IP 40, of terminals IP 20.
Terminals for wire or stranded cable up to 2.5 mm^2.
Display and keys are protected by a diaphragm. An incorporated label pocket under transparent section accepts individual customer text, such as unit, tag No. etc.
As an extra option, the D1553 can be placed in a IP65 (NEMA4) enclosure with transparent cover.

Programming

By pushbutton keys at the unit, without external means. The display reads step No. and parameter during the programming phase. Fast access to the program steps by grouped program structure.
Access protected by code figure.
Parameters are safe against loss by power failure.

Ordering No. Key: D1553.1XXUX

Analog Output
1 = included (10 V / 20 mA)

Setpoint Alarms
2 = 2 setpoints
4 = 4 setpoints

Power Supply
1 = 24 v (18...40 v) AC/DC
2 = 115/230 v (85...265 v) AC/DC

Data Interface
0 = none
1 = serial RS 485
2 = serial RS 232

Subject to change without further notice.

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