T500 TACHOMETER
DualTach - a measurement & monitoring instrument with 2 frequency inputs

Features
• High accuracy speed measurement: 0.002% for limits and 0.1% referenced to 20 mA
• 2 frequency + 2 binary inputs
• 2 current, 4 relay and 2 Open Collector outputs
• Sensor monitoring for all sensor technologies
• Ethernet interface - configuration via Java™ based software
• Extensive parameter and limit setting possibilities
• Programmable logical, diagnostic and measurement functions
• Plug in terminals

The T500 Advantage
• Fast 8 ms relay reaction time on over speed
• 4 parameter sets each with 6 System Limits for almost limitless applications
• Logical limit combinations save relays & wiring
• Acceleration measurement
• Compatible with all popular sensor types

Typical Applications
• Micro turbine speed measurement and over speed protection
• Diesel engine start control and protection
• Dual turbocharger speed measurement
• Universal tachometer
2 Channel Tachometer with 4 Relays, 2 Open Collector and two 0/4-20mA Outputs:

Type and part numbers

<table>
<thead>
<tr>
<th>Type</th>
<th>AC version</th>
<th>DC version</th>
<th>Part number</th>
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<tbody>
<tr>
<td>T501.50</td>
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<td>384Z-05600</td>
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<td>T501.10</td>
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<td>384Z-05601</td>
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Technical Data

Measurement range

0.025 Hz… 50.00kHz

Measuring time

Configurable min. measurement time (tM): 2/5/10/20/50/100/200/500 ms, 1/2/5s.

Reaction time

Current output: Typical tM + 4.1 ms  
Maximum Input period + tM + 4.1 ms  
Relays: Typical tM + 6 ms  
Maximum Input period + tM + 6 ms

Accuracy

Limits / inputs

Frequency: 0.002%
Current: 0.025%
Temperature: 0.5 °C

Current output

0.1% referenced to 20mA or the end value
Max 0.2 % from measuring value + 2 LSB (-40°…+70°C)

Sensor inputs (2)

To measure frequency signals (speed sensors)

Frequency range

0.025 Hz to 50 kHz

Trigger levels

Selectable by software: Fixed at 3 V or adaptive from either 20 mVrms or 180 mVrms

Sensor supply

+14 V ±0.5 V, max 35 mA, short circuit proof

Sensor monitoring

3 wire sensors: Programmable current consumption limits of 0.5…35mA.
Electromagnetic sensors: Open circuit detection

Binary inputs (2)

Isolated inputs for binary signals

Levels

Low: < +5 V  High: > +15 V  (software selection of active Low or High)

Functions

External selection of controls (parameter sets)
Combination in System Limit  Reset for relay, creep and memory

Data I/O

Configuration and monitoring  Ethernet interface

Supply

AC version: 90…264 VAC max 14 W / 120…370VDC
DC version: 18…36 VDC max 6.8 W

Relays (4)

To treat the status of System Limits and sensor

4 parameter sets each with 6 System Limits (AND / OR combined values)
Freely programmable upper and lower set-points for each limit
Latching / inversion (fail safe)
Change-over: 230 VAC / max. 0.45 A 125 VAC / max. 1 A 30 VDC / max. 2 A

Open collector outputs (2)

Isolated outputs of sensor frequencies: programmable x1, x2 or x4 (subject to 2 channel phase shift)
Can also react on System Limits, see above
Latching / inversion (fail safe)
Umax = 36 Vdc Imax = 30 mA

Analog outputs (2)

Isolated current output to treat information of sensor 1, 2, analog in or of the math result
From - 99999 to + 999999 free programmable start and end value
0…20 mA / 4…20 mA
500 Ohm corresponding to a maximum of 10 V
14 bit corresponding to 1:16384 (actual resolution: 1.36 μA)
linearity error 0.015 %

Memory

To store important values
Max/min values  Sensor 1, sensor 2, analog in
Event memory  About 100 values of all status changes stored in either ring buffer or limited memory
Security event memory 100 measurements before and after the security event are stored with date and time

Operating temperature

AC Version: -25°…+50°C  DC Version: -40°…+70°C

Storage temperature

-40°…+85°C
Climatic immunity
In accordance with DIN 40 040

Relative humidity
75% averaged over 1 year; up to 90% for 30 days max.

Isolation
Min. 1000 V

EMC
Electrostatic discharge: IEC 61000-4-2
Fast transients: IEC 61000-4-4
RF common mode: IEC 61000-4-6
Electromagnetic fields: IEC 61000-4-3
Slow transients: IEC 61000-4-5
Magnetic fields: IEC 61000-4-8

Limits for limitless applications

T500’s allow you the freedom to choose the functions or system configuration that best match your application.

As well as being replacements for previous generation tachometers they can process multiple sensors data including frequency and binary inputs.

Want to know when a trip occurred? Could really do with more gear teeth than space allows? Need to swap between different parameter sets? - No problem - the T500 DualTach provides the solution.

Uniquely, the T500’s also enable you to logically combine decision parameters from more than one sensor or command to create control signals.
T500
Tachometer