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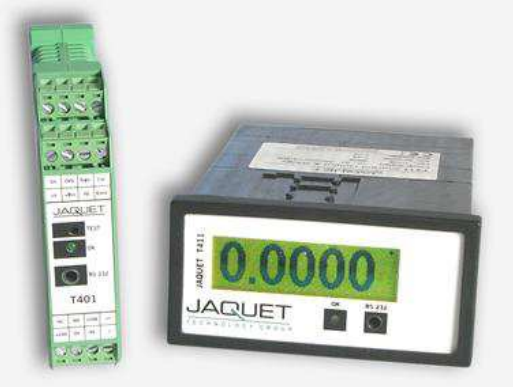


T400 TACHOMETER

T400 Speed measurement, switching and indicating instruments

Features

• Converts absolute speed into an analog signal
• Including 2 limits (A/B) with programmable hysteresis
• One changeover relay assigned via binary input to limit (A or B)
• T411 and T412 models with display
• Isolated signal input with automatic trigger level adjustment
• Built in isolated sensor supply with sensor monitoring
• Open collector output of sensor frequency
• Accuracy class 0.05% for limits and 0.5% for analog signals
• Configuration and status via Windows® software
• 5 digit machine factor allowing configuration and display in machine units
• Wide tolerance 10...36 VDC power supply

The T400 Advantage

• Fast response to over speed conditions
• Germanischer Lloyd's and ABS approval for marine applications
• Digital display of speed value for the models T411 and T412
• 0/4…20 mA or 0/2…10 V analog output with rising or falling characteristics
• Adaptive trigger provides high noise immunity e.g. with electromagnetic sensors
• Digital input for direct treatment of frequency signals
• 2 possible relay configuration sets e.g. for start-up bridging, controlled via binary inputs
• Pluggable terminals
• Integrated 2 or 3 wire sensor monitoring and system watchdog

One channel tachometer family T400

Type and part numbers	T401.00	4..20mA output	383Z-05307
	T402.00	2...10 V output	383Z-05308
	T411.00	display; 4...20 mA output	383Z-05318
	T412.00	display; 2...10 V output	383Z-05319
	T401.03	5 VDC sensor supply; 4...20 mA output	383Z-05671
	T402.03	5 VDC sensor supply; 2...10 V output	383Z-05672
	T411.03	display; 5 VDC sensor supply; 4...20 mA output	383Z-05595
	T412.03	display; 5 VDC sensor supply; 2...10 V output	383Z-05596
Optional accessories	Power Supply	MINI-PS-100-240AC/24DC/1 MINI-PS	383Z-05764
	Interface cable	PC-T400, FT100 RS232 1,5m Kabel	830A-36889

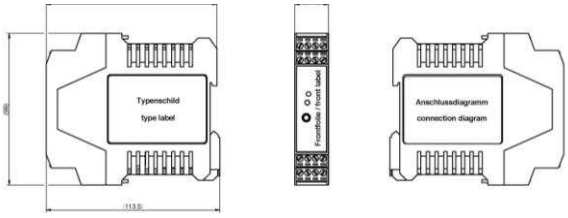
Technical Data

Measuring range		Lowest: 0…1.000 Highest: 0...35.00 kHz
Measurement time		Configurable min. measurement time (tM): 2/5/10/20/50/100/200/500 ms, 1/2/5 s
Reaction time		Current output: Typical tM + 7.5 ms Maximum Input period + tM + 7.5 ms Relays: Typical tM + 10.5 ms Maximum Input period + tM + 7.5 ms
Accuracy		0.5% referred to the analog output end of range value
Analog output (1)		T401/T411: Current output 0...20 mA resp. 4...20 mA T402/T412: Voltage output 0...10 V resp. 2...10 V Programmable rising or falling transfer function (min. end value 1.00 Hz) Load T401/T411: max. 500 Ohms corresponding to a maximum of 10 V Load T402/T412: min. 7 kOhm corresponding to a maximum of 1.4 mA Maximum open circuit voltage: 12 V Resolution: 12 bit corresponding to 1:4096 Maximum linearity error: 0.1 % Temperature drift: typ. ± 100 ppm/degree K, max. ± 300 ppm/degree K
Set points /relay (2)		Hysteresis: For each limit an upper and a lower set point may be set independently Change over contact: max. 250 VAC, 1250 VA (DC: see operating instructions)
Data I/O		RS232 interface with +5 V-CMOS level 3-pole. 3.5 mm stereo headphone connector on the front side.
Sensor inputs (1)		
	Input resistance	Analog 30 kOhm / Digital 46 kOhm
	Frequency range	0.01 Hz /35 kHz
	Trigger level	Analog input: Adaptive trigger level from 28 mV to 6.5 V or 250 mV to 6.5 V peak depending on the amplitude of the input signal. Digital input: Digital fixed trigger at 3 V ± 1.5 V hysteresis
Sensor supply		
	Standard	+ 14 V, max. 35 mA, short-circuit proof
	S5 version	+ 5 V , max. 35 mA, short-circuit proof
Sensor monitoring		Built-in pull up resistor 820 Ohm for connection of two-wire transmitters or daisy chaining of T400's 3 wire sensors: programmable current consumption limits of 0.5…35mA. Outside the selected range the sensor is signaled as faulty. Electromagnetic sensors: continuity checked. Open circuit signaled as a fault. None: Both sensor monitoring functions may be disabled.
Open collector output (1)		Galvanically separated output of sensor frequency

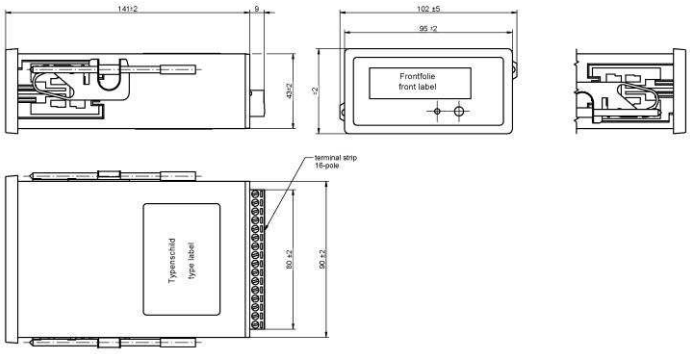
Binary inputs (1)	For external selection between two sets (A/B) of programmable relay control and acknowledge functions: (No external pull up needed) Low active :U < +1.5V High (open) :U > +3.5V
Environmental	KUE according to DIN 40 040 Operating temperature: - 40…+85 ˚C Storage temperature: -40…+90 ˚C
Power supply	10...36 VDC power consumption max. 3 W
Insulation	Galvanic separation between power supply, current output and the sensor power supply. Isolation 700 VDC / 500 VAC. Relay contact isolation: 1500 AC
EMC	Electromagnetic compatibility: Radiation in accordance with international standards and EN 50081-2. Immunity in accordance with international standards and EN 50082-2 Conducted emissions: CISPR 16-1, 16-2 Radiated emissions: EN 55011 Electrostatic discharge: IEC 61000-4-2 Electromagnetic fields: IEC 61000-4-3 Conducted fast transients: IEC 61000-4-4 Conducted slow transients: IEC 61000-4-5 Conducted high frequency: IEC 61000-4-6 Pulse module. elec. field: ENV 50140 Power frequency magnetic field: IEC 1000-4-8
Standards	EN 50155, GL / Germanischer Lloyd, ABS

Dimensions

T401/402



T411/412



Rail	Rail DIN 46277-3 (EN 50022) or mounting plate to DIN 43660 (41612)
Housing	Protection class IP40, terminals IP20
Terminals	Pluggable
Weight	T401/T402: 150 g , T411/T412: 210 g

T400 systems are supplied with a full documentation and the T400 Windows® Software.
The software allows:
- Quick and easy configuration of all operating parameters
- Unit interrogation of identity and parameters
- PC display of current measurement and relay status
- Archiving and printing of the configuration

RS-232 cable not included, see page 2 for optional accessories.
Please note: Information is subject to change. For more technical information please refer to operating instructions.

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