



GREEN LINE

INDUSTRIAL SPEED SENSORS

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JAQUET Corporate Overview

Industrial speed sensors and tachometers

The GREENLINE family is the newest line of Industrial Speed Sensors and Control Modules from JAQUET TECHNOLOGY GROUP. These sensors and tachometers provide solutions for speed sensing and control applications both for End Users and small OEM's. Our offering of 50 plus Sensors and 4 Tachometer modules allow straight forward signal detection, monitoring, and conditioning.

Sensors are available with VR or Hall technologies with cable or connector interfaces. Sizes range from 3/8-24 and M10X1 to 3/4-16 and M16X1.5. Sensor capability ranges from zero speed to high frequency detection with all units having sealed sensing areas to prevent liquid intrusion. Also available are Direction Sensing units and Hazardous Location versions for both North America (NEC, CEC) and Europe (ATEX) (Q4 2007).

The T400 Series Tachometers are available with current or voltage F-DC analog output, and provide a sine to square wave convertor/re-transmit signal, sensor health monitoring, and a high/low limit relay. All inputs and outputs are optically isolated. Available packages include a DIN-Rail mount or a Panel Mount with display, and set up is with supplied software via a PC using the PC-T400 cable.

The new GL sensors and tachometers can be used to provide a complete measurement chain solution, or individual speed sensing products as needed. Technical product overviews follow in this brochure, while complete data sheets are available on www.jaquet.com under the Green Line Sensors link.

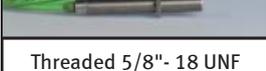
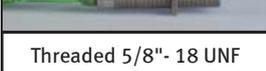
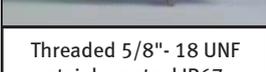
VR ELECTROMAGNETIC SPEED SENSORS

Temperature rating: -40...125°C **Signal output:** Frequency and amplitude proportional to speed **Frequency range:** up to 20 kHz.

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	E12A			
Threaded M12x1 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 60 mm Reach: 40 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E12S			
Threaded M12x1 stainless steel IP67	Cable, Silicone, 1m 0.34 mm ² , AWG 2	Length: 60 + 9 mm Reach: 50 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16A			
Threaded M16x1.5 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 60 mm Reach: 40 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16A25			
Threaded M16x1.5 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 84 mm Reach: 64 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16A40			
Threaded M16x1.5 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 70 mm Reach: 45 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16AM			
Threaded M16x1.5 stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 61 mm Reach: 33 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16AM25			
Threaded M16x1.5 stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 92 mm Reach: 64 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16AM40			
Threaded M16x1.5 stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 103 mm Reach: 102 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16S			
Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 60 + 9 mm Reach: 50 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16S25			
Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 74 + 9 mm Reach: 64 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E16S40			
Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 112 + 9 mm Reach: 102 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E38A			
Threaded 3/8"- 24 UNF stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 48 mm Reach: 34 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser

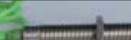
VR ELECTROMAGNETIC SPEED SENSORS - continued

Temperature rating: -40...125°C **Signal output:** Frequency and amplitude proportional to speed **Frequency range:** up to 20 kHz.

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	E38S			
Threaded 3/8"- 24 UNF stainless steel IP67	Cable, Silicone, 1m 0.34 mm ² , AWG 22	Length: 45 + 9 mm Reach: 34 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58A			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 60 mm Reach: 40 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58A25			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 84 mm Reach: 64 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58A40			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 121 mm Reach: 102 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58AM			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 61 mm Reach: 33 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58AM25			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 92 mm Reach: 64 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58AM40			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 130 mm Reach: 102 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58S			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1m 0.34 mm ² , AWG 22	Length: 60 + 9 mm Reach: 50 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58S25			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 74 + 9 mm Reach: 64 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	E58S40			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 112 + 9 mm Reach: 102 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser

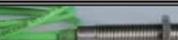
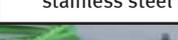
DIGITAL ELECTROMAGNETIC SPEED SENSORS

Temperature rating: -40...125°C **Signal output:** Frequency proportional to speed **Frequency range:** up to 20 kHz

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	EV58AM			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 61 mm Reach: 33 mm	Square Wave, NPN with 2.2 kOhm Pull Up	M: .5 or higher DP: 50 or coarser
	EV58AM25			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 92 mm Reach: 64 mm	Square Wave, NPN with 2.2 kOhm Pull Up	M: .5 or higher DP: 50 or coarser
	EV58AM40			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 130 mm Reach: 102 mm	Square Wave, NPN with 2.2 kOhm Pull Up	M: .5 or higher DP: 50 or coarser
	EV58S			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 60 + 9 mm Reach: 50 mm	Square Wave, NPN with 2.2 kOhm Pull Up	M: .5 or higher DP: 50 or coarser
	EV58S25			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 74 + 9 mm Reach: 64 mm	Square Wave, NPN with 2.2 kOhm Pull Up	M: .5 or higher DP: 50 or coarser
	EV58S40			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 112 + 9 mm Reach: 102 mm	Square Wave, NPN with 2.2 kOhm Pull Up	M: .5 or higher DP: 50 or coarser

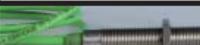
VR- ELECTROMAGNETIC SPEED SENSORS - EX ATEX Zone 0 Division 1

Temperature rating: -40...125°C **Signal output:** Frequency and amplitude proportional to speed **Frequency range:** up to 20 kHz

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	EX58H			
Threaded 5/8"- 18 UNF stainless steel IP67	Pipe thread cable	Length: 83 mm Reach: 48 mm	Sine Wave Output 2950 Ohm, 70 mH	M: 1.0 or higher DP: 25 or coarser
	EX58H35			
Threaded 5/8"- 18 UNF stainless steel IP67	Pipe thread cable	Length: 120 mm Reach: 89mm	Sine Wave Output 2950 Ohm, 70 mH	M: 1.0 or higher DP: 25 or coarser
	EX34H			
Threaded 3/4"- 16 UNF stainless steel IP67	Pipe thread cable	Length: 83 mm Reach: 48 mm	Sine Wave Output 2950 Ohm, 70 mH	M: 1.0 or higher DP: 25 or coarser
	EX34H35			
Threaded 3/4"- 16 UNF stainless steel IP67	Pipe thread cable	Length: 120 mm Reach: 89 mm	Sine Wave Output 2950 Ohm, 70 mH	M: 1.0 or higher DP: 25 or coarser

VR ELECTROMAGNETIC SPEED SENSORS -EX ATEX Zone 2 Division 2

Temperature rating: -40...125°C Signal output: Frequency and amplitude proportional to speed Frequency range: up

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	EX10A			
Threaded M10x1 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 48 mm Reach: 34 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX10S			
Threaded M10x1 stainless steel IP67	Cable, PTFE, 3m 0.21 mm ² , AWG 24	Length: 45 + 9 mm Reach: 34 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX12A			
Threaded M12x1 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 60 mm Reach: 40 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX12A35			
Threaded M12x1 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 109 mm Reach: 89 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX38A			
Threaded 3/8"- 24 UNF stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 48 mm Reach: 34 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX38S			
Threaded 3/8"- 24 UNF stainless steel IP67	Cable, PTFE, 3m 0.21 mm ² , AWG 24	Length: 45 + 9 mm Reach: 34 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX58AM			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 61 mm Reach: 33 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX58AM25			
Threaded 3/8"- 24 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 92 mm Reach: 64 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX58AM40			
Threaded 3/8"- 24 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P 2pin	Length: 130 mm Reach: 102 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX58S			
Threaded 3/8"- 24 UNF stainless steel IP67	Cable, PTFE, 3m 0.21 mm ² , AWG 24	Length: 60 + 9 mm Reach: 50 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX58S25			
Threaded M12x1 stainless steel IP67	Cable, PTFE, 3m 0.21 mm ² , AWG 24	Length: 74 + 9 mm Reach: 64 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser
	EX58S40			
Threaded 3/8"- 24 UNF stainless steel IP67	Cable, PTFE, 3m 0.21 mm ² , AWG 24	Length: 112 + 9 mm Reach: 102 mm	Sine Wave Output 850 Ohm, 135 mH	M: .5 or higher DP: 50 or coarser

DIFFERENTIAL HALL EFFECT SPEED SENSORS

Temperature rating: -40...125°C, **Signal output:** Frequency proportional to speed **Frequency range:** 5 Hz to 20 kHz

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	D12A			
Smooth 10.8 mm OD flange mount IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 60 mm	Square Wave Push-Pull Output	M: .5 or higher DP: 50 or coarser
	D12P			
Threaded M12x1	Cu cable insulation PTFE, 3.5 m, 021 mm ² , AWG 24 with connector 3 pol AMP	Length: 60 + 9 mm Reach: 50 mm	Square Wave Push-Pull Output	M: .5 or higher DP: 50 or coarser

DUAL CHANNEL HALL EFFECT SPEED SENSORS

Temperature rating: -40...125°C **Signal output:** Frequency proportional to speed (channel 1) and direction (channel 2), **Frequency range:** 0 Hz to 15 kHz

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	Y12AD			
Threaded M12x1 with O-ring and locator key	Connector, M12X1 Euro 4 Pin Sealed	Length: 75 mm	Square Wave Output NPN Plus, direction line	M: 1.0 or higher DP: 25 or coarser

ZERO SPEED HALL EFFECT SPEED SENSORS

Temperature rating: -40...125°C, **Signal output:** Frequency proportional to speed **Frequency range:** 0 Hz to 20 kHz

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	F12A			
Threaded M12x1 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed 2	Length: 60 mm Reach: 40 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F12S			
Threaded M12x1 stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 60 + 9 mm Reach: 50 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F16S			
Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 60 mm Reach: 40 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F16A			
Threaded M16x1.5 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 84 mm Reach: 64 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F16A25			
Threaded M16x1.5 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 121 mm Reach: 102 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser

ZERO SPEED HALL EFFECT SPEED SENSORS continued

Temperature rating: -20...+100 C **Signal output:** Proportional to the speed/amplitude **Frequency range:** 10 Hz...20 kHz.

HOUSING	CONNECTION	MECHANICAL	ELECTRICAL	MODULE / DP RANGE
	F16A40			
Threaded M16x1.5 stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 121 mm Reach: 102 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F16S			
Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1m 0.34 mm ² , AWG 22	Length: 60 + 9 mm Reach: 50 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F16S25			
Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1m 0.34 mm ² , AWG 22	Length: 74+9 mm Reach: 64 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F16S40			
Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1m 0.34 mm ² , AWG 22	Length: 112 + 9 mm Reach: 102 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F58A			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 60 mm Reach: 40 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F58A25			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 84 mm Reach: 64 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F58A40			
Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12X1 Escha 4 Pin Sealed	Length: 121 mm Reach: 102 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F58S			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1m 0.34 mm ² , AWG 22	Length: 60 + 9 mm Reach: 50 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F58S25			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 74 + 9 mm Reach: 60 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser
	F58S40			
Threaded 5/8"- 18 UNF stainless steel IP67	Cable, Silicone, 1 m 0.34 mm ² , AWG 22	Length: 112 + 9 mm Reach: 102 mm	Square Wave, NPN with 2.7 kOhm Pull Up	M: 1.0 or higher DP: 25 or coarser

JAQUET T 400 SPEED MEASUREMENT, SWITCHING AND INDICATING INSTRUMENTS



Universal Tachometer Solutions

Features

- Converts absolute speed into an analogue 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 analogue 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 approval for marine applications
- Digital display of speed value for the models T411 and T412
- 0/4...20mA or 0/2...10V analogue output with rising or falling characteristics
- Adaptive trigger provides high noise immunity e.g. with electromagnetic sensors
- 2 possible relay configuration sets e.g. for start up bridging, controlled via binary inputs
- Plug able terminals
- Programmable measurement & analogue output filter times
- Integrated 2 or 3 wire sensor monitoring and system watchdog

Typical Applications

- Diesel engine start control and over speed protection
- Micro Turbine measurement and protection
- Turbocharger speed measurement
- Machine protection in safety critical applications
- Universal speed measurement and indication
- Usable as SIL2 safety relay together with JAQUET's IQ-Sensor (see T420 application note)

The T400 family comprises of:

One channel tachometer with relay and 0/4-20 mA output:

Type number: T401 (without display) Product number: 383Z-05307
 Type number: T411 (with display) Product number: 383Z-05318

One channel tachometer with relay and 0/2-10 V output

Type number: T402 (without display) Product number: 383Z-05308
 Type number: T412 (with display) Product number: 383Z-05319

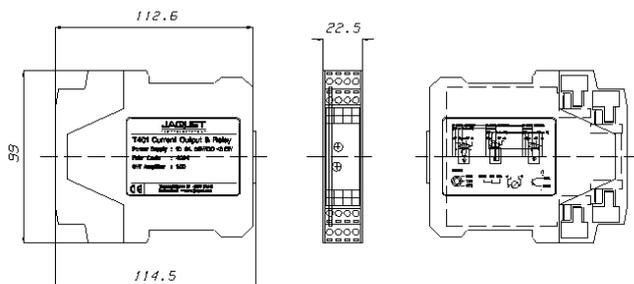


Technical Data

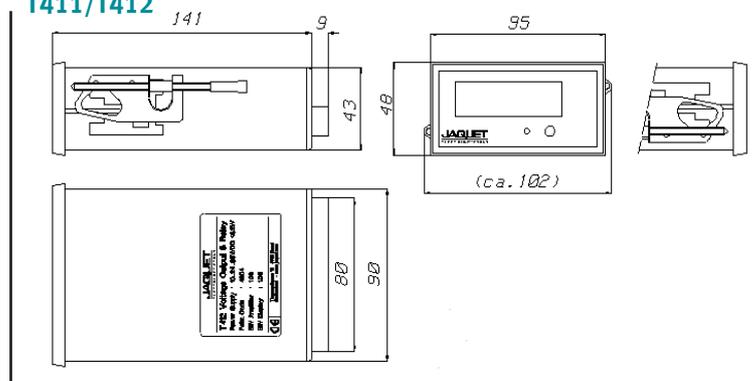
Measuring range	Lowest: 0...1.000 Hz	Highest: 0... 35.00 kHz
Accuracy	0.5% referred to the analog output end of range value	
Analogue output	T401/T411: Current output 0...20mA resp. 4...20 mA T402/T412: Voltage output 0...10V resp. 2...10 V Programmable rising or falling transfer function (min. end value 1.00Hz) Load T401: max 500 Ohms corresponding to a maximum of 10 V Load T402: min load 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	Range: See measuring range above 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 instructio)	
Data I/O	Serial EIA RS 232 interface with +5V-CMOS level 3-pole. 3.5 mm stereo headphone connector on the front side, common reference potential with negative pole of sensor supply.	
Measuring / response time	The min. measuring time (Fix-Time) is programmable: 2/5/10/20/50/100/200/500 ms, 1/2/5 s For input frequencies with a period SHORTER than the Fix Time: <i>Analogue output :</i> - Maximum: 2* Fix Time + max. period of the input frequency + 7.5 ms - Typical: Fix Time + 1 period of the input frequency + 7.5 ms <i>Relay</i> - Maximum: 2* Fix Time + max. period of the input frequency + 10.5 ms - Typical: Fix Time + 1 period of the input frequency + 10.5 ms For input frequencies with a period LONGER than the Fix Time: <i>Analogue out</i> - Maximum: Period of the input frequency + 7.5 ms <i>Relay</i> - Maximum: Period of the input frequency + 10.5 ms	
Sensor input	Input resistance: 30 kOhm Frequency range: (-3 dB): 0.01 Hz/35 kHz Trigger level: adaptive Trigger level from 20 mV to 5V or 500mV to 5V (factory configuration) peak depending on the amplitude of the input signal	
Sensor supply	Built-in sensor power supply: + 14V, max 35 mA, short-circuit proof Built-in Pull Up (+14 V) and Pull-Down (0 V) resistor 820 Ohm for connection of two-wire transmitters or Daisy Chaining of T400's	
Sensor monitoring	Powered 2 and 3 wire sensors: Min and Max current consumption values are selectable in the range 0.5...25mA. Sensors with consumption below I min. or above I max. will be signalled as defective. Electromagnetic/VR sensors: Open circuit state of sensors. This supervision runs permanently. Both monitoring functions can be switched off via the configuration software.	
Open Collector Output	Galvanically separated output of sensor frequency	

Binary inputs	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 Relative humidity up to 75% average over one year period, up to 90% max. for 30 days
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 modul. elec. field: ENV 50140 Power frequency magnetic field: IEC 1000-4-8
Standards	EN 50155 GL / Germanischer Lloyd Meets UL requirements - certification available upon request IEC 61508 SIL 2 - with T420 and JAQUET IQ speed sensor

Dimensions: T401/T402



T411/T412



Rail	Rail DIN 4622713 (EN 50022) or mounting plate to DIN 43660 (46121)
Housing:	Protection class IP40, Terminals IP20
Terminals:	See operating instructions
Weight:	T401/T402. 150 g T411/T412: 210 g

Full technical details can be seen in the operating instructions.

T401/T402 and T411/T412 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.

JAUQUET HANDHELD TACHOMETERS - HT 100 AND HO 100



JAQUET HO 100 Photo Tachometer uses precision optics and reflective tape to measure the RPM of rotating devices such as fans and gears.

JAQUET HM 100 Contact Tachometer uses convex and concave attachments to measure RPM. It also has a built-in wheel to measure the linear surface speed of moving devices such as conveyors and treadmills.

Careful use of this tachometer will provide years of reliable service.

Type number: HO 100 Photo Tachometer

Product number: XXXX - XXXXXX

Type number: HM 100 Contact Tachometer

Product number: XXXX - XXXXXX

Type number: HM XXX Combination Set

Product number: XXXX - XXXXXX

General specifications

Display	5-digit LCD Display
Range selection	Automatic range selection
Time Base	4 MHz Quartz Crystal
Sampling Time	1 second (>60 rpm); >1 second (10 to 60 rpm)
Photo Tachometer Distance	2 to 12" (5 to 30cm)
Operating Temperature	32 to 122oF (0 to 50oC)
Operating Humidity	80% RH Max.
Power supply	9V Battery
Battery Life	40 hours (approx.)
Applicable standards	HO 100: EN 50081-1/1992 (EN 55022) / HM 100: EN 50082-1/1997 (EN 55024)
Dimensions	HO 100: 124 x 51 x 33mm / HM 100 150 x 51 x 33mm
Weight	HO 100: 114g / HM 100: 142g)

Range specifications

Measurement	Range	Accuracy
Rotation - HO 100 Photo	10.000 to 99999 rpm	± (0.1% reading + 2 digits)
Rotation - HM 100 Contact	10.000 to 9999 rpm	± (0.1% reading + 2 digits)
Surface Speed - HM 100 Contact	1.0000 to 1999.9 m/min	± (1.5% reading + 2digits)

JAUQUET TECHNOLOGY GROUP offers the world's most versatile and advanced range of solutions for the detection, measurement, diagnosis and management of rotational speed.

Our industry and application specific expertise ensures that you will achieve an optimum solution. Completely matched to your individual requirements, meeting key industrial standards and certifications, our products help boost the performance of your machinery while reducing cost of ownership.

TYPICAL INDUSTRIES SERVED

- Automotive and truck
- Diesel / Gas engines
- Hydraulics
- Railway
- Turbines
- Turbochargers
- Industrial machinery

PRODUCTS – SPEED SENSORS

- Various technologies
- Standard, custom and OEM models
- For demanding applications, e.g. 300,000 rpm, temperature up to 320 °C / 600 °F, high vibration, shock to 200 g, etc.
- GreenLine speed sensors for general applications
- Ex models for hazardous areas
- Pole bands and target wheels available where needed

PRODUCTS – SYSTEMS

- Multi-channel overspeed protection systems
- 1–2 channel measurement, protection and control modules
- Engine diagnostic systems
- Redundant speed measurement and indication

SPECIAL PROJECT EXAMPLES

- An automotive linear movement sensor
- Integrated power and torque measurement for display and gearbox control
- Naval spec. turbine protection for nuclear submarines
- Speed measurement in turreted, tracked vehicles

QUALITY MANAGEMENT AND STANDARDS

- Quality management: TS 16949 and ISO 9001, ZELM ATEX 1020, KWU
- Sensors: GL, KWU, TÜV, ATEX, EN 50155, NF F 16-101 102, ABS, EMC
- Systems: IEC 61508 SIL 2 and SIL 3, API 670, GL, TÜV, KWU, EX
- Environmental: RoHs - EU directive 2002/95/EC

JAUQUET – YOUR PARTNER

- Efficient and professional service - JAUQUET TECHNOLOGY GROUP is headquartered in Basel, Switzerland and has subsidiaries in Belgium, China, Germany, the Netherlands, United Kingdom and United States along with a worldwide distributor and end-user service network.
- Flexible production quantities; from 1 to millions per project
- Reduction of total costs by intelligent and cost-effective solutions
- Fast turn around time