



## GREEN LINE

INDUSTRIAL SPEED SENSORS

# 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 allows straight forward signal detection, monitoring and conditioning.









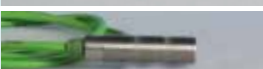



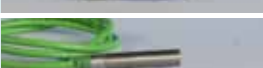
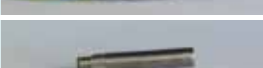

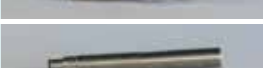






Sensors are available with VR or Hall technologies with cable or connector interfaces. Sizes range from 3/8-24 and M10X1 to 3/4-16 and M16X1.5. Sensor capability ranges from zero speed to high frequency detection and all units have sealed sensing areas to prevent liquid intrusion. Also available are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

The JAQUET T400 series F-DC tachometers are available with current or voltage analog output and they also provide a sine to square wave converter/re-transmit signal, sensor health monitoring and a high/low limit relay. All inputs and outputs are galvanically isolated. T400's are configured via a PC with supplied software using the PC-T400 cable. Available packages include DIN-rail mount and panel mount with display.

The new GreenLine sensors and tachometers can be used to provide either a complete measurement chain solution or individual speed sensing products as needed. Technical product overviews follow in this brochure.


## VR Electromagnetic Speed Sensors

- Temperature rating: -40...125°C • Signal output: Frequency and amplitude proportional to speed • Frequency range: up to 20 kHz
- Electrical: Sine wave output, 850 Ohm, 135 mH • Module / DP Range: M: 0.5 or larger / DP: 50 or coarser

Type		Housing	Connection	Mechanical
E12A		Threaded M12x1 stainless steel IP67	Connector, M12x1, 4 pin, sealed	Overall length: 60 mm Thread length: 40 mm
E12S		Threaded M12x1 stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 69 mm Thread length: 50 mm
E16A		Threaded M16x1.5 stainless steel IP67	Connector, M12x1, 4 pin, sealed	Overall length: 60 mm Thread length: 40 mm
E16A25		Threaded M16x1.5 stainless steel IP67	Connector, M12x1, 4 pin, sealed	Overall length: 84 mm Thread length: 64 mm
E16A40		Threaded M16x1.5 stainless steel IP67	Connector, M12x1, 4 pin, sealed	Overall length: 122 mm Thread length: 102 mm
E16AM		Threaded M16x1.5 stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 61 mm Thread length: 33 mm
E16AM25		Threaded M16x1.5 stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 92 mm Thread length: 64 mm
E16AM40		Threaded M16x1.5 stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 130 mm Thread length: 102 mm
E16S		Threaded M16x1.5 stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 69 mm Thread length: 50 mm
E16S25		Threaded M16x1.5 stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 83 mm Thread length: 64 mm
E16S40		Threaded M16x1.5 stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 121 mm Thread length: 102 mm
E38A		Threaded 3/8"- 24 UNF stainless steel IP67	Connector, M12x1, 4 pin, sealed	Overall length: 48 mm Thread length: 34 mm
E38S		Threaded 3/8"- 24 UNF stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 54 mm Thread length: 34 mm
E58A		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12x1, 4 pin, sealed	Overall length: 60 mm Thread length: 40 mm
E58A25		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12x1, 4 pin, sealed	Overall length: 84 mm Thread length: 64 mm
E58A40		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12x1, 4 pin, sealed	Overall length: 121 mm Thread length: 102 mm
E58AM		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 61 mm Thread length: 33 mm
E58AM25		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 92 mm Thread length: 64 mm
E58AM40		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 130 mm Thread length: 102 mm
E58S		Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 69 mm Thread length: 50 mm
E58S25		Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 83 mm Thread length: 64 mm
E58S40		Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 121 mm Thread length: 102 mm








## VR Electromagnetic Speed Sensors

- Temperature rating: -40...200°C • Signal output: Frequency and amplitude proportional to speed
- Frequency range: up to 20 kHz • Electrical: Sine wave output, 850 Ohm, 135 mH
- Module / DP Range: M: 0.5 or larger / DP: 50 or coarser

Type	Housing	Connection	Mechanical
E58HAM	 Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 61 mm Thread length: 33 mm






## Digital Electromagnetic Speed Sensors

- Temperature rating: -40...125°C • Signal output: Frequency proportional to speed • Frequency range: up to 20 kHz
- Supply Voltage: 5...32 VDC • Electrical: Square wave, NPN with 2.2 kOhm pull up
- Module / DP Range: M: 0.5 or larger / DP: 50 or coarser

Type	Housing	Connection	Mechanical
EV58AM	 Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-3P, 3 pin	Overall length: 61 mm Thread length: 33 mm
EV58AM25	 Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-3P, 3 pin	Overall length: 92 mm Thread length: 64 mm
EV58AM30	 Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-3P, 3 pin	Overall length: 105 mm Thread length: 77 mm
EV58AM40	 Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-3P, 3 pin	Overall length: 130 mm Thread length: 102 mm
EV58S	 Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 69 mm Thread length: 50 mm
EV58S25	 Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 83 mm Thread length: 64 mm
EV58S40	 Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 121 mm Thread length: 102 mm



## VR Electromagnetic Speed Sensors - EX ATEX Zone 1/ EX NA Class 1 Div 1

- Temperature rating: -40...125°C • Signal output: Frequency and amplitude proportional to speed
- Frequency range: up to 20 kHz • Electrical: Sine wave output, 250 Ohm, 70 mH coil
- Module / DP Range: M: 1.0 or larger / DP: 25 or coarser **CERTIFIED FOR USE IN EXPLOSIVE ATMOSPHERES**

Type	Housing	Connection	Mechanical
EX58H	 Threaded 5/8"- 18 UNF stainless steel IP67	1/2 - 14 NPT Cable PTFE, 3 m	Overall length: 88 mm Thread length: 48 mm
EX58H35	 Threaded 5/8"- 18 UNF stainless steel IP67	1/2 - 14 NPT Cable PTFE, 3 m	Overall length: 129 mm Thread length: 89 mm
EX58H85	 Threaded 5/8"- 18 UNF stainless steel IP67	1/2 - 14 NPT Cable PTFE, 3 m	Overall length: 256 mm Thread length: 216 mm
EX34H	 Threaded 3/4"- 20 UNF stainless steel IP67	1/2 - 14 NPT Cable PTFE, 3 m	Overall length: 88 mm Thread length: 48 mm
EX34H35	 Threaded 3/4"- 20 UNF stainless steel IP67	1/2 - 14 NPT Cable PTFE, 3 m	Overall length: 120 mm Thread length: 89 mm



## VR Electromagnetic Speed Sensors - EX NA Class 1 Div 2

- Temperature rating: -40...125°C • Signal output: Frequency and amplitude proportional to speed
- Frequency range: up to 20 kHz • Electrical: Sine wave output, 850 Ohm, 135 mH
- Module / DP Range: M: 0.5 or larger / DP: 50 or coarser **CERTIFIED FOR USE IN EXPLOSIVE ATMOSPHERES**

Type	Housing	Connection	Mechanical
EX10A	 Threaded M10x1 stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 48 mm Thread length: 34 mm
EX10S	 Threaded M10x1 stainless steel IP67	Cable, PTFE, 3m 0.21 mm <sup>2</sup> , AWG 24	Overall length: 54 mm Thread length: 34 mm
EX12A	 Threaded M12x1 stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 60 mm Thread length: 40 mm
EX12A35	 Threaded M12x1 stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 109 mm Thread length: 89 mm
EX38A	 Threaded 3/8"- 24 UNF stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 48 mm Thread length: 34 mm
EX38S	 Threaded 3/8"- 24 UNF stainless steel IP67	Cable, PTFE, 3m 0.21 mm <sup>2</sup> , AWG 24	Overall length: 54 mm Thread length: 34 mm
EX58AM	 Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 61 mm Thread length: 33 mm
EX58AM25	 Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 92 mm Thread length: 64mm
EX58AM40	 Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-4P, 2 pin	Overall length: 130 mm Thread length: 102 mm
EX58S	 Threaded 5/8"- 18 UNF stainless steel IP67	Cable, PTFE, 3 m 0.21 mm <sup>2</sup> , AWG 24	Overall length: 69 mm Thread length: 50 mm
EX58S25	 Threaded 5/8"- 18 UNF stainless steel IP67	Cable, PTFE, 3 m 0.21 mm <sup>2</sup> , AWG 24	Overall length: 83 mm Thread length: 64 mm
EX58S40	 Threaded 5/8"- 18 UNF stainless steel IP67	Cable, PTFE, 3 m 0.21 mm <sup>2</sup> , AWG 24	Overall length: 121 mm Thread length: 102 mm


## Differential Hall Effect Speed Sensors

- Temperature rating: -40...125°C • Signal output: Frequency proportional to speed
- Frequency range: 5 Hz to 20 kHz • Supply Voltage: 8...32 VDC
- Electrical: Square wave push-pull output • Module / DP Range: M: 0.5 or larger / DP: 50 or coarser

Type	Housing	Connection	Mechanical
D12A	 Smooth 10.8 mm OD flange mount IP67	Connector, M12x1 4 pin, sealed	Overall length: 60 mm Shaft length: 25.7 mm
D12P	 Threaded M12x1 stainless steel IP67	Cu cable insulation PTFE, 0.35 m, 021 mm <sup>2</sup> AWG 24 with connector 3 pin AMP	Overall length: 92 mm Thread length: 64 mm


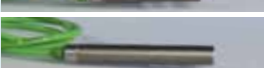
## Dual Channel Hall Effect Speed and Direction Sensors

- Temperature rating: -40...125°C • Signal output: Frequency proportional to speed (channel 1) and direction (ch 2)
- Frequency range: 0 Hz to 15 kHz • Supply Voltage: 8...32 VDC
- Electrical: Square wave output, NPN plus direction line • Module / DP Range: M: 1.0 or larger / DP: 25 or coarser

Type	Housing	Connection	Mechanical
Y12AD	 Threaded M12x1 with O-ring and locator key	Connector, M12x1 4 pin, sealed	Overall length: 75 mm Shaft length: 36 mm

## Dual Channel Hall Effect Speed and Direction Sensors

- Temperature rating: -40...125°C • Signal output: Frequency proportional to speed (channel 1) and direction (ch 2)
- Frequency range: 0 Hz to 15 kHz • Supply Voltage: 8...32 VDC
- Electrical: Square wave output, NPN plus direction line • Module / DP Range: M: 1.0 or larger / DP: 25 or coarser




Type	Housing	Connection	Mechanical
F12A	 Threaded M12x1 stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 60 mm Thread length: 40 mm
F12S	 Threaded M12x1 stainless steel IP67	Cable, silicone, 1 m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 69 mm Thread length: 50 mm
F16A	 Threaded M16x1.5 stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 60 mm Thread length: 40 mm
F16A25	 Threaded M16x1.5 stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 84 mm Thread length: 64 mm
F16A40	 Threaded M16x1.5 stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 121 mm Thread length: 102 mm
F16S	 Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 69 mm Thread length: 50 mm
F16S25	 Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 83 mm Thread length: 64 mm
F16S40	 Threaded M16x1.5 stainless steel IP67	Cable, Silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 121 mm Thread length: 102 mm

## Zero Speed Hall Effect Speed Sensors - continued

- Temperature rating: -40...125°C • Signal output: Frequency proportional to speed
- Frequency range: 0 Hz to 15 kHz • Supply Voltage: 8...25 VDC
- Electrical: Square wave, NPN with 2.7 Ohm pull up • Module / DP Range: M: 1.0 or larger / DP: 25 or coarser

Type		Housing	Connection	Mechanical
F58A		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 60 mm Thread length: 40 mm
F58A25		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 84 mm Thread length: 64 mm
F58A40		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, M12x1 4 pin, sealed	Overall length: 121 mm Thread length: 102 mm
F58AM		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-3P, 3 pin	Overall length: 61 mm Thread length: 33 mm
F58AM25		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-3P, 3 pin	Overall length: 92 mm Thread length: 64 mm
F58AM40		Threaded 5/8"- 18 UNF stainless steel IP67	Connector, MS 3102A-10SL-3P, 3 pin	Overall length: 130 mm Thread length: 102 mm
F58S		Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 69 mm Thread length: 50 mm
F58S25		Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 83 mm Thread length: 60 mm
F58S40		Threaded 5/8"- 18 UNF stainless steel IP67	Cable, silicone, 1m 0.34 mm <sup>2</sup> , AWG 22	Overall length: 121 mm Thread length: 102 mm

## Mating Cable Assembly for all Sensors with M12x1 Connector

Type		Material	Connection
C20A		PUR (poly-urethane), Length: 2 m, Color: Green Temperature rating: -20...85°C	M12 standard, overmoulded. Pin 1 = brown, Pin 2 = white, Pin 3 = blue, Pin 4 = black
C50A		PU (poly-urethane), Length: 5 m, Color: Green Temperature rating: -20...85°C	M12 standard, overmoulded. Pin 1 = brown, Pin 2 = white, Pin 3 = blue, Pin 4 = black
C65A		PTFE, Length: 6.5 m, Color: White, Temp. rating: Cable -40...260°C / Connector -30...90°C	M12 standard, overmoulded. Pin 1 = red, Pin 2 = black, Pin 3 = brown, Pin 4 = yellow

## Complete measurement chain by JAUQUET

### JAUQUET speed sensors - OEM or customized



JAUQUET speed sensors are designed to endure the most demanding ambient conditions and are used in a multitude of applications e.g. turbochargers, hydraulic motors, diesel and gas engines, turbines, pumps and compressors, just to name a few. Our platform approach enables us to take an appropriate sensing technology and package it in either one of our huge array of existing housings or in something matched to your specific requirements. Need a high temperature helicopter turbine sensor or a railway traction control sensor that delivers tooth frequency x 16 from the first tooth? Consider it done! We are ready for the next challenge.

### JAUQUET pole wheels and pole bands



JAUQUET pole wheels and pole bands represent the highest quality of target technology and complement the chain of speed measurement. Please refer to the pole wheels and pole bands brochure for further information.

### JAUQUET systems



From hydro electric power stations high in the Pyrenees to nuclear submarines at the bottom of the ocean, JAUQUET tachometer products are in service providing optimum solutions for measurement, control and that all important machine protection function.

Find more information about the JAUQUET T400 family in the following chapter of this brochure.

### JAUQUET Handheld tachometers



To complete our speed measurement portfolio - JAUQUET also offers handheld tachometers. For more information about these products, please take a look at the last section of this brochure.



## JAQUET 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

### T400 advantage

- Fast response to over speed conditions
- Germanischer Lloyd's approval for marine applications
- CSA Ordinary Location Approval
- Digital display of speed value for models T411 and T412
- 0/4...20 mA or 0/2...10 V analog output with rising or falling slope
- 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
- Quick Disconnect terminals - programmable measurement & analog output filter times
- Integrated 2 or 3 wire sensor monitoring and system watchdog



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

Type number: T401.00 (without display)	Product number: 383Z-05307
Type number: T401 .03 (without display)	Product number: 383Z-05671
Type number: T411.00 (with display)	Product number: 383Z-05318
Type number: T411 .03(with display)	Product number: 383Z-05595

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

Type number: T402.00 (without display)	Product number: 383Z-05308
Type number: T402 .03 (without display)	Product number: 383Z-05672
Type number: T412.00 (with display)	Product number: 383Z-05319
Type number: T412 .03 (with display)	Product number: 383Z-05596



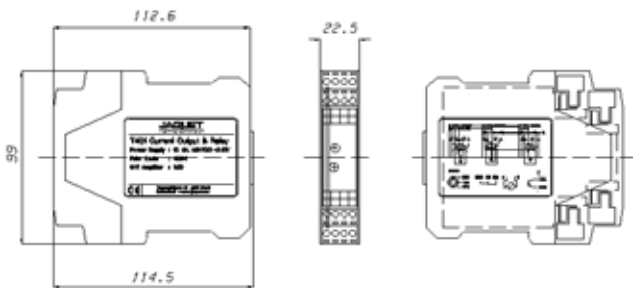
**Technical Data**

Measuring range	Lowest: 0...1.000 Hz Highest: 0...35.00 kHz
Accuracy	0.5% referred to the analog output end of range value
Analog output	T401/T411: Current output 0...20 mA or 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: max. 500 Ohms corresponding to a maximum of 10 V Load T402: 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	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 instructions)
Data I/O	(Serial EIA) RS232 interface with +5 V-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: Analog output: - 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 Relay: - 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: Analog output: - Maximum: Period of the input frequency + 7.5 ms Relay: - 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 5 V or 500 mV to 5 V (factory configuration) peak depending on the amplitude of the input signal
Sensor supply	Built-in sensor power supply: + 14 V, max. 35 mA, short-circuit proof / + 5 V for .03 versions Built-in pull up (+14 V / + 5 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...25 mA. Sensors with consumption below min. or above max. current 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

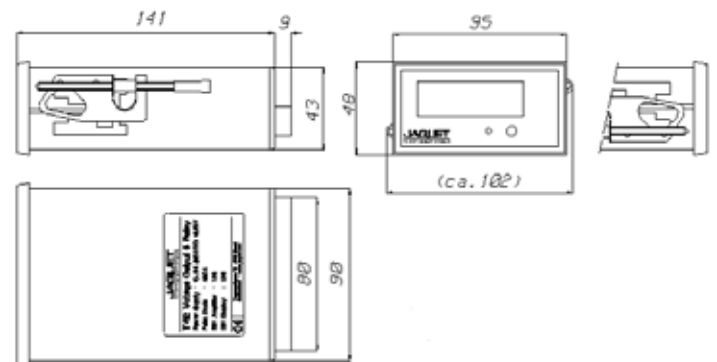
Binary inputs	For external selection between two sets (A/B) of programmable relay control and acknowledge functions: (No external pull up needed)  Low active :U < +1.5 V                      High (open) :U > +3.5 V
Environmental	KUE according to DIN 40 040  Operating temperature: - 40...+85 °C  Storage 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    CSA Ordinary Location

**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 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 programming cable not included.



## JAQUET Handheld tachometers - HO 100, HM 100 and HC 100

**JAQUET HO 100 Optical 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.

### 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 30 cm)	
Operating temperature	0...50 °C (32...122 °F)	
Operating humidity	80% RH max.	
Power supply	9 V 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 33 mm	HM 100: 150 x 51 x 33 mm
Weight	HO 100: 114 g / HM 100: 142 g	

### Range specifications

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

## Swiss know-how and quality matched to your demands

JAQUET manufactures speed sensors in quantities from 1 to millions per project per year. These typically customer specific solutions add value through being matched to individual applications. **Since 1889, a spirit of excellence complementing tradition and innovation.**



### Automotive turbochargers

Turbocharger for trucks, passenger cars, construction equipment

- Speed of VG/VNT turbochargers
- Gearbox shaft and retarder speed



### Railway systems

- Optimum traction control
- WSP (wheel slide protection) systems
- Speed information for automatic train control



### Power generation

Gas, hydro, steam and wind turbines

- Overspeed protection
- Speed measurement and control



### Hydraulics

Agricultural machinery, construction and mining equipment, cranes, ROV – remote operated vehicles

- Motors and pumps, flowrate measurement
- Position measurement, traction synchronization



### Diesel and gas engines

Large diesel and gas engines in marine, rail, off-road applications and power production.

- Cam and crank shaft for dynamic position
- Turbocharger speed, engine diagnostics

#### Quality systems

ISO TS 16949  
ISO 9001  
AS 9100  
IRIS



### Worldwide and local to you through

JAQUET Technology sales offices, subsidiaries and distributors.