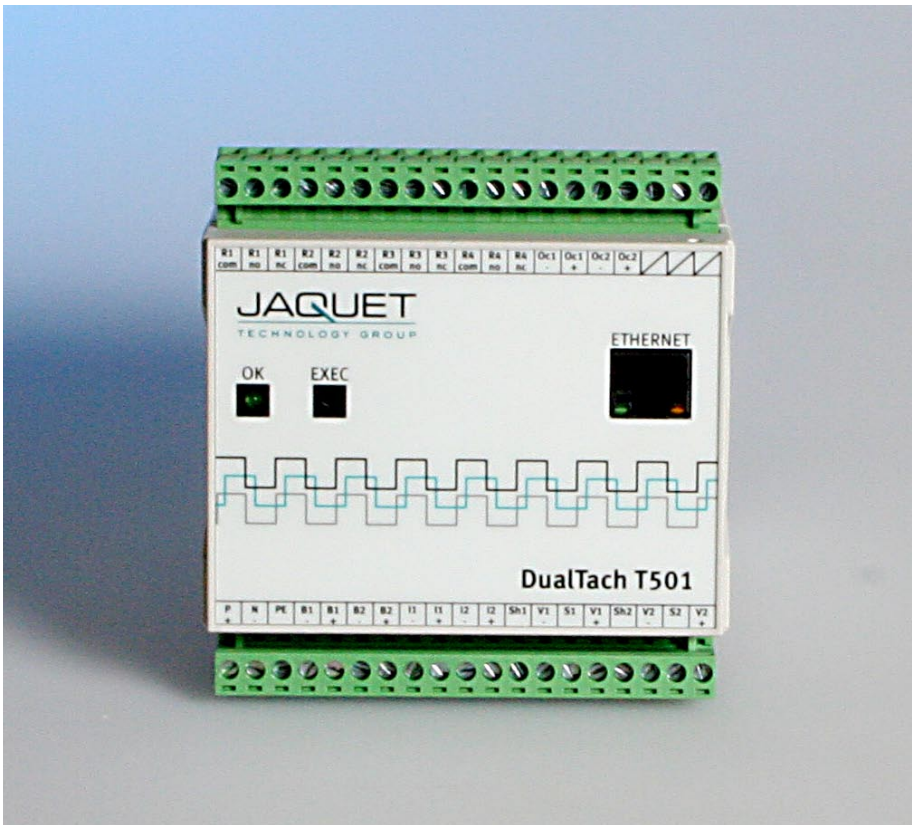
02-09

T500 DUALTACH

2 CHANNEL TACHOMETER

JAQUET TECHNOLOGY GROUP



JAQUET T500 DualTach

2 channel measurement & monitoring instrument

JAQUET T500 DUALTACH
2 CHANNEL MEASUREMENT AND MONITORING INSTRUMENT FOR DEMANDING MACHINE PROTECTION APPLICATIONS

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 Windows® software
- Extensive parameter and limit setting possibilities
- Programmable logical, diagnostic and measurement functions
- Supply 18..36 VDC or 90..264 VAC
- Plug in terminals

THE T500 ADVANTAGE

- Fast 8 ms reaction time on overspeed
- 4 parameter sets each with 6 System Limits for almost limitless applications
- Logical limit combinations save relays & wiring
- Acceleration measurement as standard
- x1, x2 or x4 frequency outputs
- Compatible with all popular sensor types
- Fulfills demanding safety requirements

TYPICAL APPLICATIONS

- Micro turbine speed measurement and overspeed protection
- Diesel engine start control and protection
- Dual turbocharger speed measurement
- Equipment in safety critical applications
- Universal tachometer

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2 CHANNEL TACHOMETER

2 Channel Tachometer with 4 Relays, 2 Open Collector and two 0/4-20mA Outputs:

Type and part numbers	AC version:	T501.50	part number: 384Z-05600
	DC version:	T501.10	part number: 384Z-05601

Technical Data

Measurement range 0.025 Hz... 50.00 kHz

Measurement time Configurable min. measurement time (t_0): 2/5/10/20/50/100/200/500 ms, 1/2/5 s

Reaction time

For input frequencies having period ‹ measurement time (t_M):

Current output:	t_M + 4.1 ms
Relays:	t_M + 6 ms

For input frequencies having period › measurement time (t_M):

Current output:	Maximum: Input period + t_M + 4.1 ms
Relays:	Maximum: Input period + t_M + 6 ms

Accuracy

Limits	0.002%
Current output	0.1% referenced to 20mA or the end value
	Max 0.15 % from measuring value + 2 LSB (-25°...+50°C)
	Max 0.20 % from measuring value + 2 LSB (-40°...+70°C)

Sensor inputs (2)

Frequency range	0.025 Hz to 50 kHz	
Input impedance	› 11.5 kOhm	
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	
Internal Pull Up	1 kOhm for connecting active 2 wire or NAMUR sensors to +14 V	
Sensor monitoring	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.

Binary inputs (2) Isolated inputs for external selection of parameter sets or combination in System Limits

Levels: Low: ‹ +5 V High: › +15 V (software selection of active Low or High)

Analog outputs (2) Programmable start and end value (negative transfer function possible)

Type: 0...20 mA / 4...20 mA

Maximum load	500 Ohm corresponding to a maximum of 10 V
Resolution	14 bit corresponding to 1:16384 (actual resolution: 1.36 µA)
Linearity error	Max. 0.015 %
Temperature drift	Typ. ± 50 ppm/K, max ± 120 ppm/K

Relays (4)

Limits	4 parameter sets each with 6 System Limits (AND / OR combined values)
Hysteresis	Freely programmable upper and lower set-points for each limit
Contacts	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.

Data I/O

Ethernet interface

Supply

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

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

Emissions in accordance with international standards and EN 50081-2.
Immunity to 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
Fast transients: IEC 61000-4-4
Slow transients: IEC 61000-4-5
RF common mode: IEC 61000-4-6
Pulse mode electric field: ENV 50140
Magnetic fields: IEC 1000-4-8

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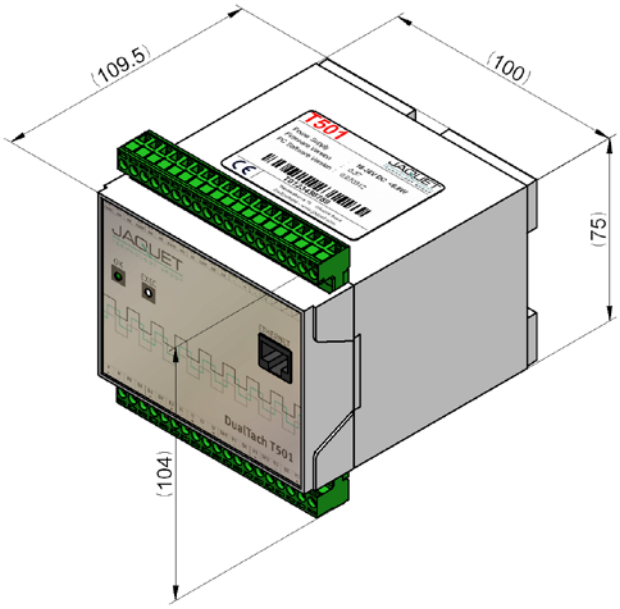
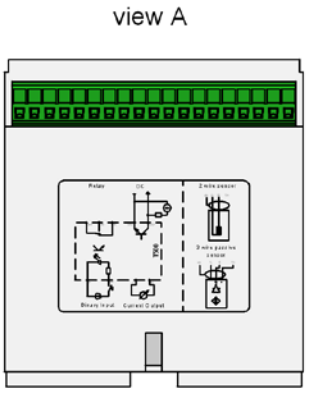
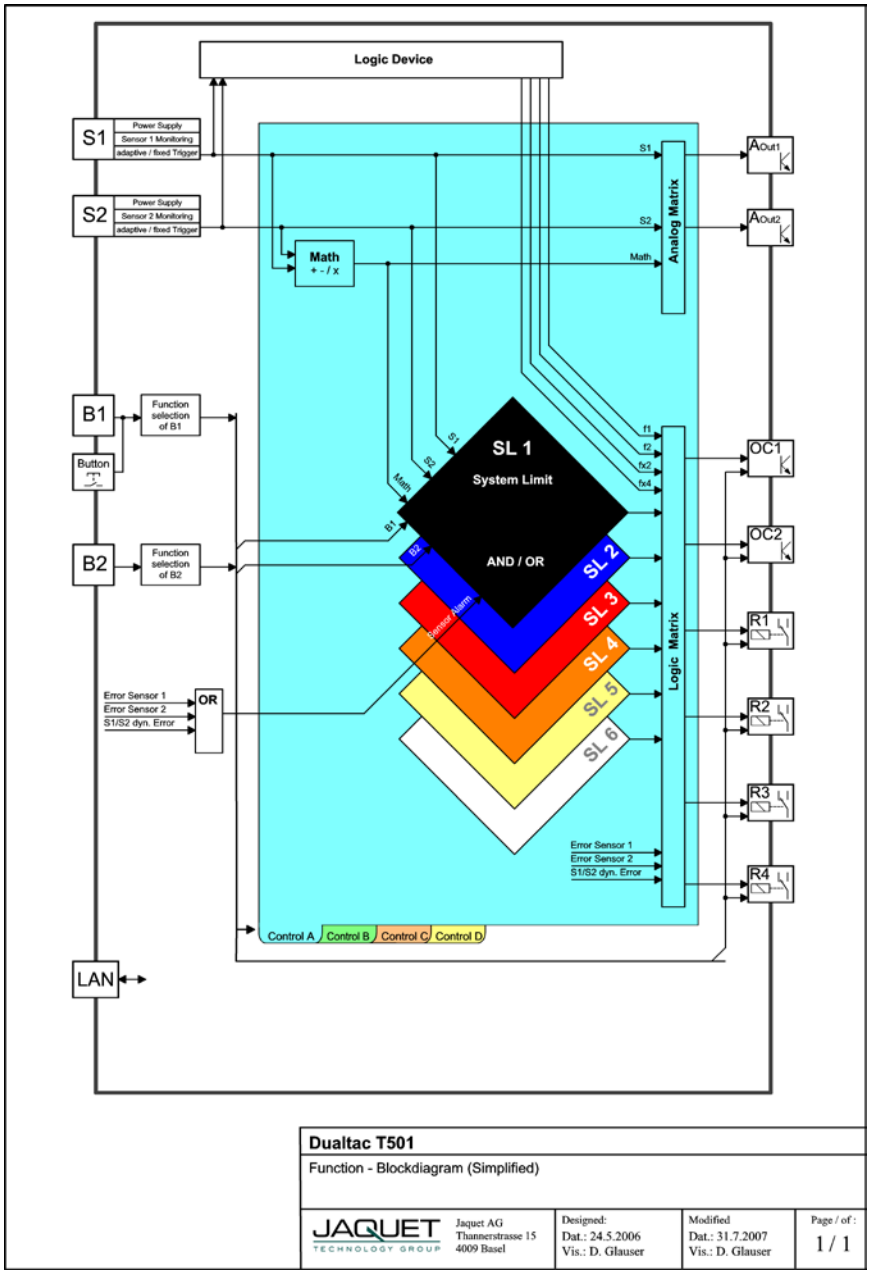
Dimensions





Mounting	DIN-rail DIN 4622713 (EN 50022) or mounting plate DIN 43660 (46121)
Housing	Material ABS, color RAL 7035
Terminals	Plug-in style
Weight	AC version: 384 g DC version: 371 g
Configuration / operating software	
Interface	Ethernet connection. (Please note: Ethernet cable is not included.) The software is stored in the unit. Configuratoion and display of values possible with Ethernet, no PC connection needed.
Functionality	• Fast and user friendly parameter set up • Access to stored parameters • PC display of measurement, relay and alarm status • Normal file handling and printing of parameter details
Scope of delivery	Complete documentation on a CD-ROM.

Limits for limitless applications



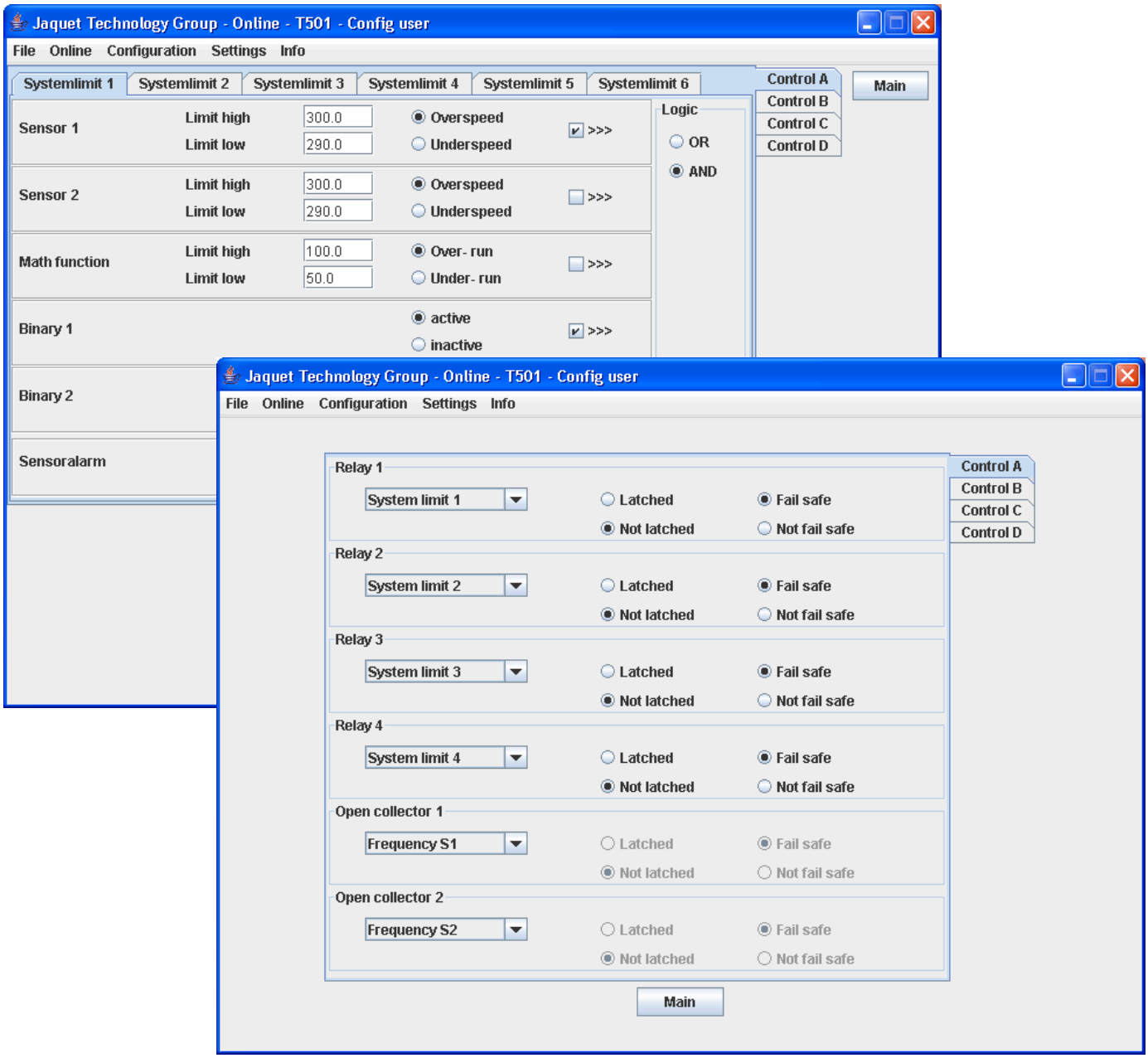
T500's allow you the freedom to choose the functions or system configuration that best match your application.

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.

System Limits for simple configuration of complex solutions

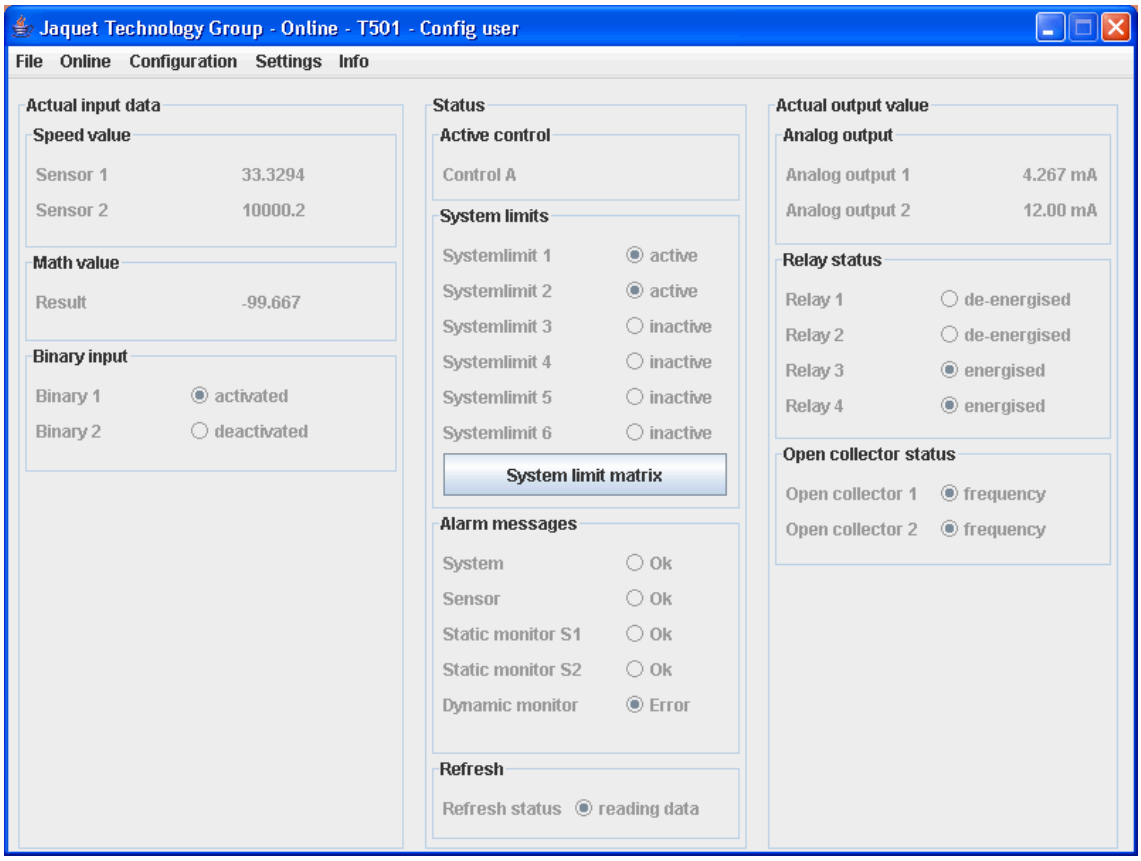


System Limit structure configuration is easy. You don't have to waste time thinking about parallel- and serial wiring, or inverting and double inverting of signals just to get that signal you need. Just concentrate on the value and/or signal you need and define a System Limit for it. As shown in the example on top:

A need for a TRIP as soon as machine turns faster than 300 rpm and there is no emergency stop coming in on binary 1.

After that just assign this System Limit to a relay and define its behaviour.

T500 configuration



The configuration software is stored in the T500 itself. So you never have to think about software version - it will always work with the firmware.

The software allows:

- Fast and user friendly parameter set up.
- Access to stored parameters.
- Normal file handling and printing or parameter details
- PC display of measurement, relay and alarm status.
- Password protection with 3 levels

All you need is an Ethernet terminal, a crossed Ethernet cable (not included) and an internet browser (no internet access needed).

Please note: Information is subject to change. For more technical information please refer to operating instructions.

COMPANY PROFILE

JAQUET TECHNOLOGY GROUP

JAQUET 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
- Aerospace
- 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

JAQUET – YOUR PARTNER

- Efficient and professional service - JAQUET 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

IN CHARGE OF SPEED

JAQUET TECHNOLOGY GROUP • Thannerstrasse 15 • 4009 Basel • Switzerland
Tel +41 (0)61 306 8822 • Fax +41 (0)61 306 8818 • info@jaquet.com • **www.jaquet.com**