DATASHEET

SpeedSys® T11

speed transmitter, monitor & switch

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The SpeedSys T11 is a speed measurement system, part of the SpeedSys tachometer series. The transmitter delivers speed monitoring functions for rotating equipment. The T11 converts the signal from a speed sensor into a processed output and is equipped with a display that shows the rotational speed. Enclosed in an industrial panel mount housing, it is designed for seamless integration in industrial environments.

SPEED MONITORING FOR A WIDE RANGE OF APPLICATIONS

- Speed monitoring and switching on rotating equipment.
- Advanced signal conditioning and conversion into highly accurate outputs for further processing

Typical applications include:

- Compressors and pumps
- Microturbines
- Wind turbines
- Gas and steam turbines
- Marine applications
- Elevators
- General automation

KEY FEATURES

- Fast system response to overspeed events
- One high speed relay
- Modbus connectivity
- Suitable for 3-wire voltage sensors and 2-wire voltage sensors

SYSTEM OVERVIEW

Interfaces

Sensor inputs	1x sensor input
Digital inputs	1x digital input
Relay outputs	1x SPDT
Analog outputs	1x analog output
Frequency outputs	1x frequency output
Power supply	1x power supply
Modbus	1x Modbus TCP

Speed monitoring

Overspeed	Yes
Underspeed	Yes

INPUT

Sensor input

Sensor input	Input for (a) 3-wire voltage sensors / PNP / NPN or (b) 2-wire voltage sensors
Frequency range	0.3 Hz to 35 kHz
Measurement accuracy	0.05 %

(a) 3-wire voltage input

Input type	3-wire voltage input (typical: Hall effect, eddy current, PNP or NPN)
Sensor power supply	24.0 V (@ 25 mA)
Input range	0 V to 24 V
Trigger level (programmable)	0 V to 12 V
Impedance	500 kΩ (typical)
Sensor monitoring	Open circuit detection, sensor power supply short circuit detection

(b) 2-wire voltage input

Input type	2-wire voltage input (typical: electromagnetic sensor)
Sensor power supply	n/a
Input range	50 mV_{RMS} to 80 V_{RMS}
Trigger level (programmable)	-12 V to 12 V
Impedance	100 kΩ
Sensor monitoring	Open circuit detection

Digital input

Input range	0 V to 24 V, max. 25 mA
Logic “0”	< 8 V
Logic “1”	> 14 V
Impedance	1 kΩ

OUTPUT

Relays

Number	1x high speed relays
Types	1x SPDT (1x COM 1x NC 1x NO)
Function	User-configurable relays for speed limits and/or diagnostics errors
Maximum switching capacity	30 V_{DC} / 2 A (resistive load) 30 V_{DC} / 100 mA (inductive load)
Hysteresis	User-configurable
Trip state	User-configurable normally open or normally closed

Analog output

Number	1x analog output
Type	4 to 20 mA current loop (device-powered)
Function	User-configurable range to transmit current output value equivalent to the measured speed.
Resolution	16 bit (0 – 24 mA)
Accuracy	0.1 %

Digital frequency output

Number	1x frequency output.
Type	Open collector output, NPN, requires pull-up resistor (≥ 1,200 Ω recommended)
Capacity	24 $V_{DC, external}$ / max. 20 mA

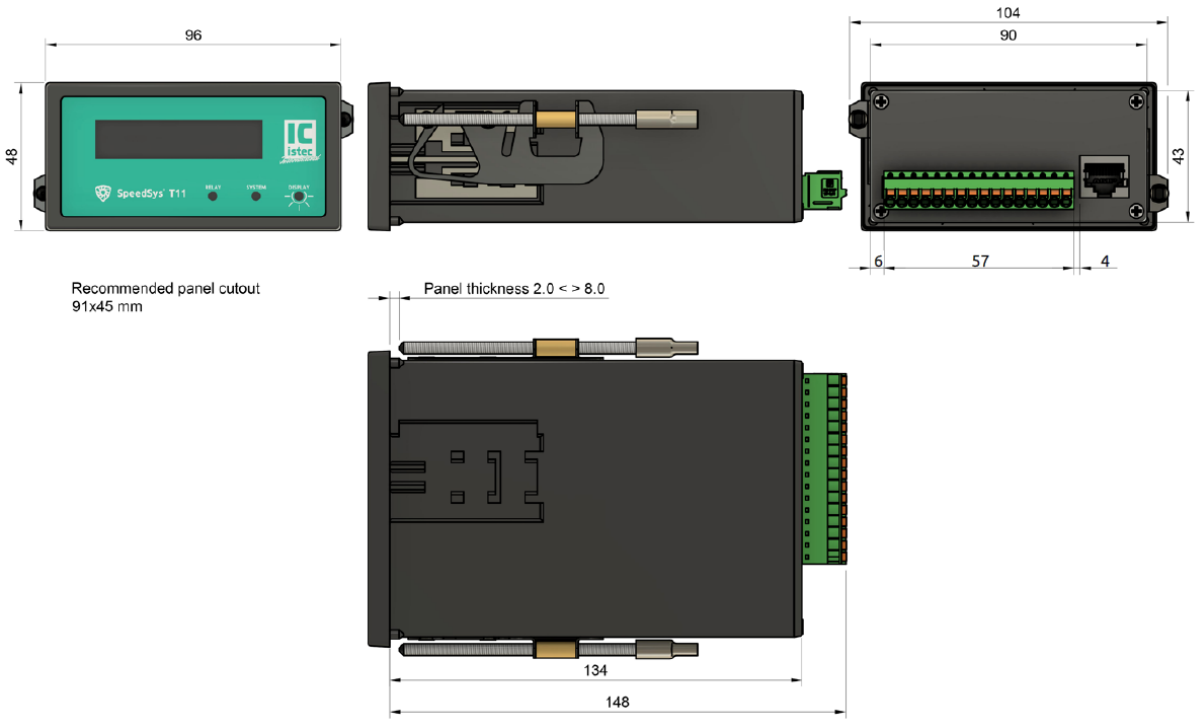
Status LED indicators

LED indicators	1x relay status & 1x system status

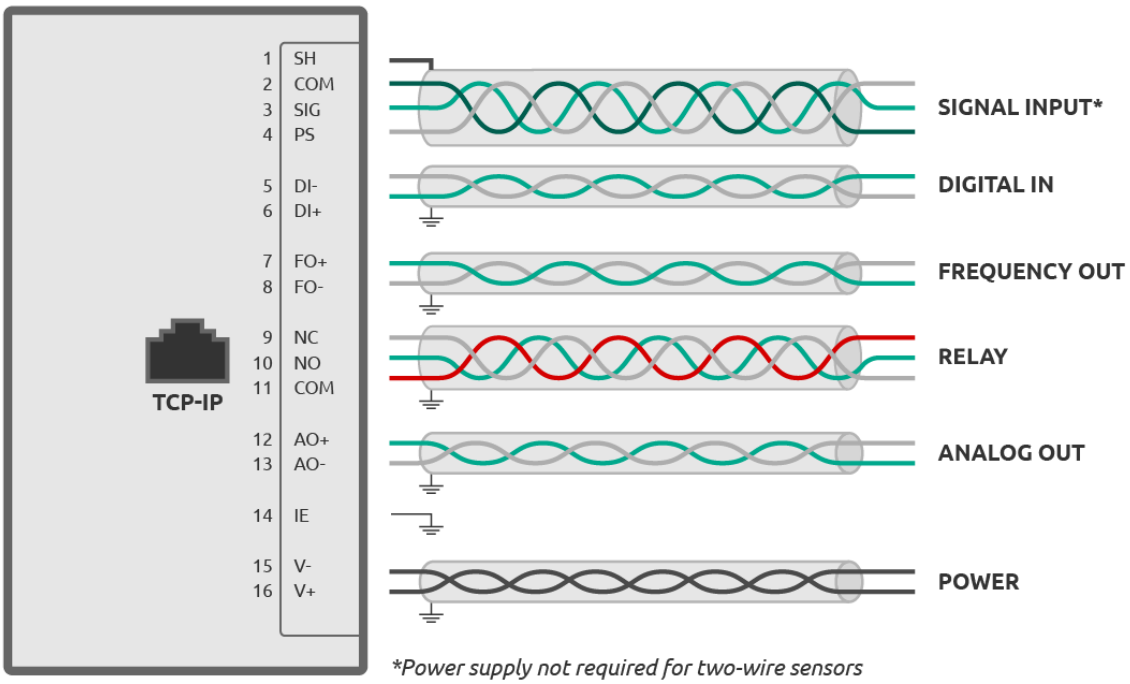
SYSTEM FEATURES

Reaction time		
Speed measurement time (T_m)	Dependent on signal frequency and averaging, typically ≤ 10 ms at high speed applications	
Hardware reaction time (T_h)	Relay:	≤ 4 ms
	Analog out:	≤ 20 ms
Total reaction time ($T_h + T_m$)	Relay, @T_m = 10 ms, typical:	≤ 14 ms
	Analog out:	≤ 32 ms
PC interface	TCP/IP programming and status reading (Windows® 10 and higher proprietary software application)	
Modbus interface	Modbus TCP	
Power supply input		
Input voltage range	24 V_{DC} (18 V_{DC} – 31.2 V_{DC})	
Current consumption	max. 260 mA	
Reverse polarity protection	Yes	
Heat dissipation	max. 4 W	
Housing		
Material	Noryl SE GFN1,	
Dimensions	141 x 95 x 90 mm (5.55 x 3.74 x 3.54“)	
Weight	245 g	
Mounting	Panel mount with uninorm screw clamps	
Connectors	Detachable terminal block. 0.25 – 1.5 mm^2 or AWG 26 – AWG 16	
Environmental conditions		
Operating temperature	-20 to 60 °C (-4 to 140 °F)	
Storage temperature	-40 to 85 °C (-40 to 185 °F)	
Operating & storage humidity	95 %. Condensation to be avoided.	
Conformal coating	Yes	
Ingress protection	Housing: IP 44 Terminals: IP 20 Indoor use or use in a protective enclosure	
Other	Overvoltage category II	
	Pollution degree 2	

DIMENSIONS



WIRING DIAGRAM



**Power supply not required for two-wire sensors*

APPROVALS

International standards	CE
Electromagnetic compatibility	EN 61326-1
Environmental	RoHS 3
Marine type approval	DNV

ABOUT ISTEC

We ensure maximal value generation of your critical machinery with advanced protection and monitoring solutions. Every Istec product is designed to meet the increasing demands of industrial applications and taps into our 50 years of experience in the industry.

Our expertise is to support and maintain these critical sensors and systems in the field throughout their operational life; to increase safety, maximize machine availability and to provide new monitoring data and machine insights.

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