



DATASHEET

SpeedSys T20

Dual-channel speed monitor & switch

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The SpeedSys T20 is a dual-channel speed monitor and switch that delivers speed monitoring functions to rotating equipment. The T20 converts the signals from speed sensors to processed outputs. The transmitter-based layout has a small technical footprint and allows for a low impact installation. The T20 is part of the SpeedSys Tx0-series with the 1-channel T10 and 3-channel T30.



SPEED MONITORING FOR A WIDE RANGE OF APPLICATIONS

- Speed monitoring and switching on rotating equipment
 - Converts rotational speed into a highly accurate analog signal for further processing
 - Extensive monitoring functions such as: reverse rotation, creep, overspeed, underspeed, acceleration, standstill, and dynamic sensor monitoring
 - Adds speed monitoring to SpeedSys ODS-series (SpeedSys 200 & SpeedSys 300)
- Typical applications include:**
- Compressors and pumps
 - Microturbines
 - Wind turbines
 - Gas- and steam turbines
 - Marine applications

SYSTEM FEATURES

- Fast 8 ms hardware response time (relays)
- 2 trip relays + 2 alarm relays
- Modbus TCP & Modbus RTU
- Suitable for Hall-effect sensors, electromagnetic (MPU) sensors, and speed encoders

INPUT

Input channels

Sensor input	2 sensor inputs for Hall-effect sensors, MPU sensors, and speed encoders
Frequency range	0.025 Hz to 35 kHz (200 kHz for encoder)
Measurement accuracy	0.05 %

(1) Hall effect sensor

Input type	3-wire voltage input
Sensor power supply	24.0 V (@ 25 mA)
Input range	0 V to 24 V
Trigger level (programmable)	0 V to 10 V
Impedance	500 k Ω (typical)
Sensor monitoring	Open circuit detection, sensor power supply short circuit detection
Note	Hall effect sensors are typically suitable for cable lengths up to 300 m

(2) Electromagnetic sensor (MPU)

Input type	2-wire voltage input
Sensor power supply	n/a
Input range	20 mV _{RMS} to 80 V _{RMS}
Trigger level (programmable)	0 V to 10 V
Impedance	100 k Ω
Note	Electromagnetic sensors (MPU) are typically suitable for cable lengths from 30 to 300 m, depending on sensor and application design

(3) Speed encoder

Input type	2-wire active voltage or open collector input
Input range	0 V to 24 V
Trigger level (programmable)	0 V to 10 V
Impedance	500 k Ω (typical)
Hysteresis	User-configurable

OUTPUT

Trip relays

Number	2 trip relays
Type	Double pole single throw (DPST) trip relay 2 x COM and 2 x NO contacts available
Function	User-configurable relays for speed limits (e.g., overspeed or underspeed)
Maximum switching capacity	30 V _{DC} / 2 A (resistive load) 30 V _{DC} / 100 mA (inductive load)
Hysteresis	User-configurable
Safe state	Normally open (de-energized to trip)

Additional relays

Number	2 alarm relays
Type	Single pole single throw (SPST) relay 1 x COM and 1 x NO contacts available
Function	User-configurable relays for speed limits (e.g., overspeed and underspeed)
Maximum switching capacity	30 V _{DC} / 2 A (resistive load) 30 V _{DC} / 100 mA (inductive load)
Hysteresis	User-configurable
Safe state	User-configurable normally open or normally closed

Analog output

Number	2 analog outputs
Type	4 to 20 mA current loop
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	2 frequency outputs
Type	Digital open collector output
Signal	Max 24 V _{DC} / 100 mA

Status LED indicators

Relay indicators	2 LED indicators for trip and alarm status
Power / error indicators	2 LED indicators for power and module okay status

SYSTEM

Reaction time

Measurement time (T_m)	Dependent on signal frequency and averaging, typically ≤ 2 ms
Hardware reaction time (T_h)	Relays: ≤ 8 ms Analog out: ≤ 100 ms
Total reaction time ($T_h + T_m$)	Relays, typical: ≤ 10 ms Analog out, typical: ≤ 100 ms

PC interface

TCP-IP programming and status reading
(Windows® 10 and higher proprietary software application)

Modbus interface

Modbus TCP
2x Modbus RTU (RS485)

Power supply input

Input voltage range	24 V _{DC} (18 V _{DC} to 36 V _{DC})
Current consumption	210 mA @ 24 V _{DC}
Reverse polarity protection	Yes

Heat dissipation

Maximum 5.0 W (@ 24 V_{DC})

Housing

Material	Polyamide (PA 66 GF 30)
Dimensions	45 x 117 x 114 mm (1.78 x 4.61 x 4.49")
Mounting assembly	DIN rail
Connectors	12 plug-in connectors with 4 contacts, push-in type terminals
Weight	± 240 g

Environmental conditions

Operating temperature	-20 to 60 °C (-4 to 140 °F)
Storage temperature	-40 to 85 °C (-40 to 185 °F)
Operating humidity	5 to 80 % RH (non-condensing)
Storage humidity	5 to 85 % RH (non-condensing)

Ingress protection

IP20 according to IEC 60529
Indoor use or use in a protective enclosure

Other

Overvoltage category II
Pollution degree 2

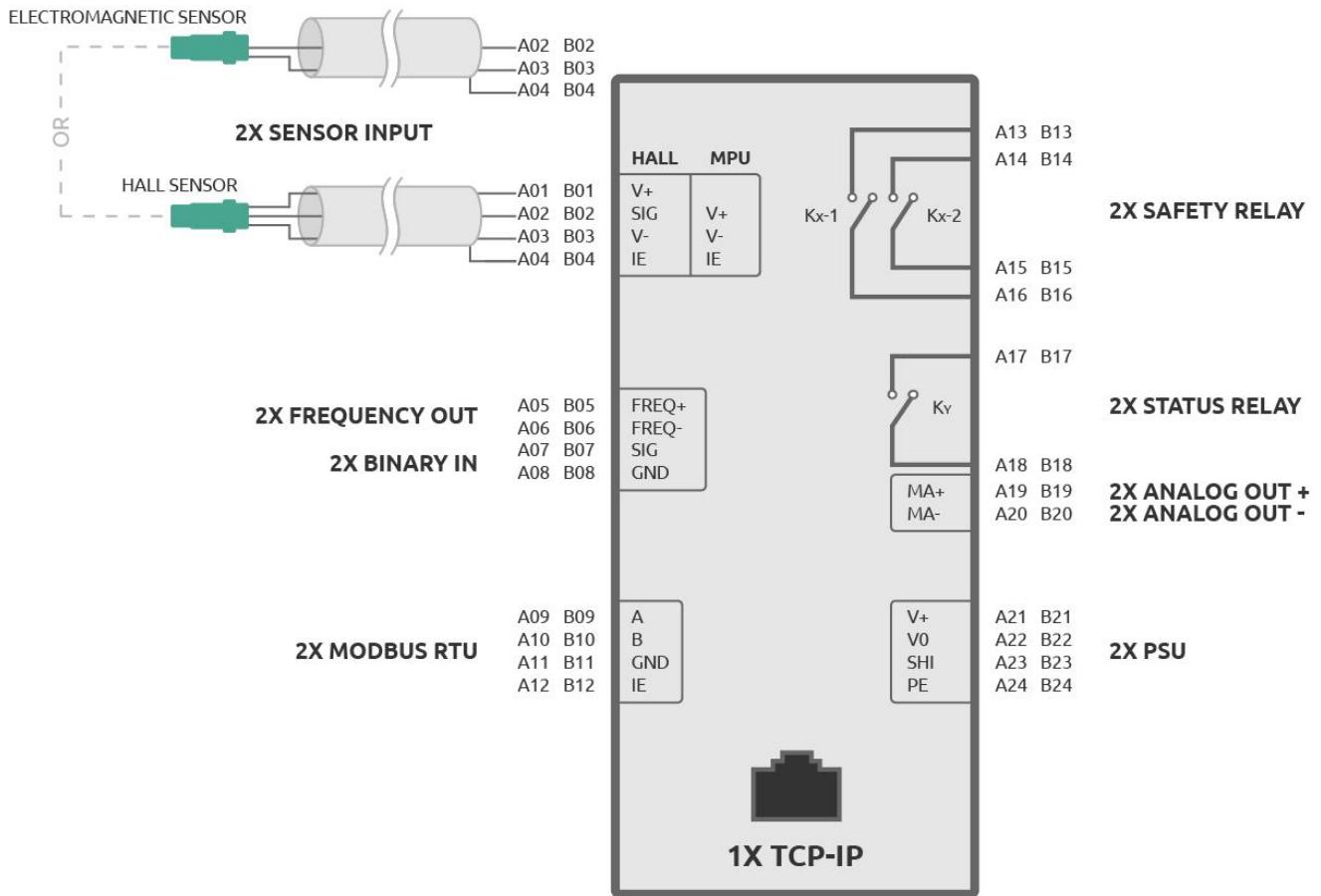
Warranty

24 months from date of invoice

APPROVALS

EU conformity	CE
UK conformity	UKCA
Electromagnetic compatibility	EN 61326-1 and EN 61326-3-1 EN 55011
Environmental	RoHS compliant (2011/65/EU)
Marine Class	Pending

Note: the specifications of the SpeedSys T20 may be subject to change without notification.



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Note: Specifications are subject to change without notice. Always check for the latest version with your supplier. This document is cleared for public release.