

SpeedSys T30

Three-channel speed monitor & switch

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The SpeedSys T30 is a 3-channel speed monitor and switch that delivers extensive speed monitoring functions to rotating equipment. The T30 converts the signals from speed sensors to processed outputs and offers extensive speed monitoring functions. The transmitter-based layout has a small technical footprint and allows for a low impact installation. The T30 is part of the SpeedSys Tx0-series with the 1-channel T10 and 2-channel T20.



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)
- 3 trip relays + 3 alarm relays
- Modbus TCP & Modbus RTU
- Suitable for Hall-effect sensors, electromagnetic (MPU) sensors, and speed encoders

INPUT

Input channels

| | |
|----------------------|--|
| Sensor input | 3 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 | 3 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 | 3 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 | 3 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 | 3 frequency outputs |
| Type | Digital open collector output |
| Signal | Max 24 V _{DC} / 100 mA |

Status LED indicators

| | |
|--------------------------|---|
| Relay indicators | 3 LED indicators for trip and alarm status |
| Power / error indicators | 3 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
3x 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 | 67.5 x 117 x 114 mm (2.67 x 4.61 x 4.49") |
| Mounting assembly | DIN rail |
| Connectors | 18 plug-in connectors with 4 contacts, push-in type terminals |
| Weight | ± 360 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

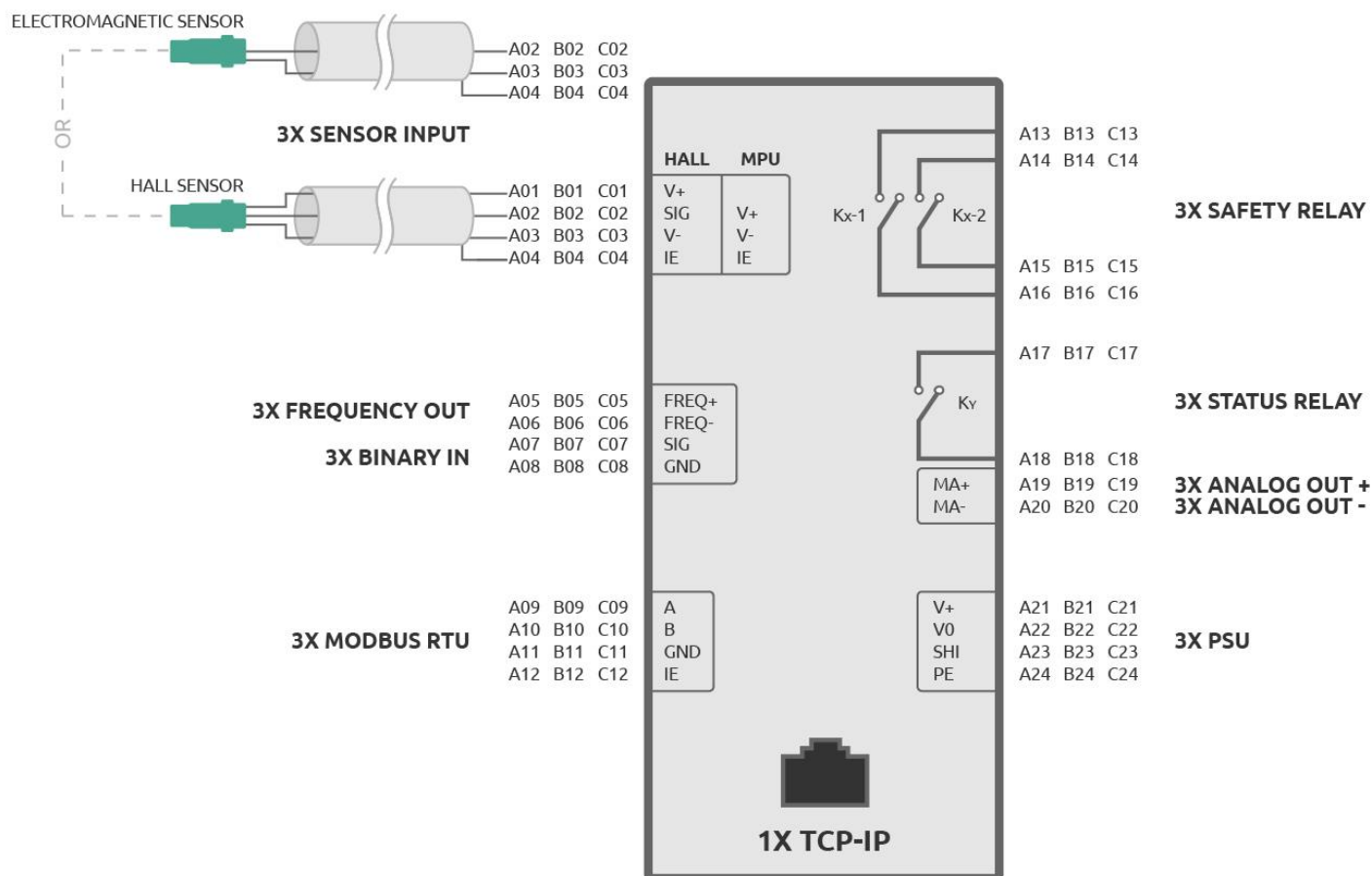
Warranty

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 T30 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.