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Acquisition • Measurement • Control



The Tracker 300 Series
Signal Conditioners
Data Acquisition
PID Control
Alarm Trip

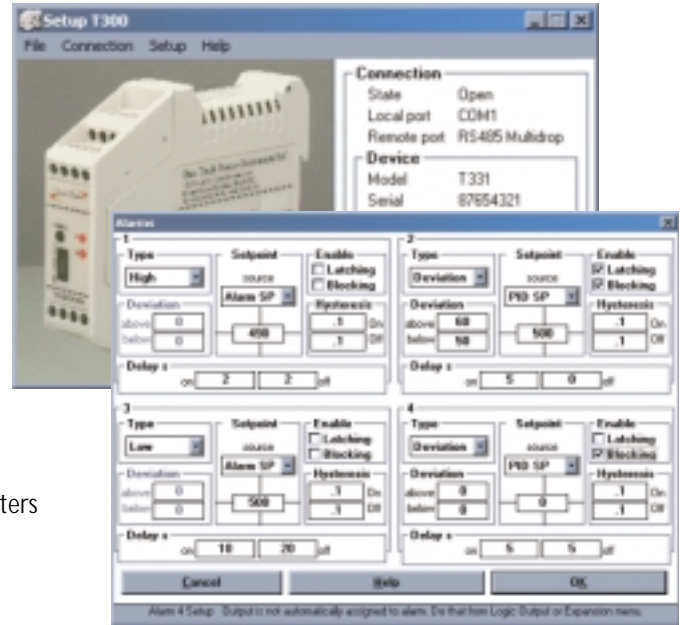
TRACKER 300

The Tracker 300 series

The Tracker 300 series is a low cost Signal Conditioner, Trip Amplifier and PID Controller, for use in a variety of process applications. Its small size enables high packing density on standard TS35 DIN rail. A built in power supply, transmitter excitation and serial RS485 interface provides genuine single loop integrity with distributed data acquisition and control.

FEATURES

- Universal 20 bit input provides accurate measurement of a wide range of sensors
- Real time data available via the isolated RS485 serial interface
- Fully configurable by PC software – no internal links or potentiometers



Signal Conditioning

The isolation provided in the Tracker 300 series eliminates earth loops, which can cause noisy, inaccurate measurements. Any Tracker 320 or 330 module can be fitted with an isolated analogue output for signal re-transmission.



- Accurate analogue re-transmission of 1 part in 32,000 (15bit) 4-20mA, 0-20mA or 0-10VDC output.
- Linearisation of thermocouple and RTD sensors, so the output is linear to temperature
- User configurable linearisation for applications such as tank contents measurements.



Distributed Data Acquisition

Often the largest expense of a data acquisition system is the wiring. The Tracker 300 uses a simple two-wire communications link greatly reducing wiring costs and simplifying installation.

- Will power a two-wire transmitter (24VDC) or a strain gauge device (10VDC)
- Enables wiring runs of up to 1.2 km on RS485 interface, allows distribution to a single channel
- MODBUS RTU communications protocol allows easy integration with industry standard software





Tracker 300 Specifications

Maths Functions

18 Point user linearisation, Max / Min (Peak/Valley) memory
Square root, S.G. Correction, Zero, Tare

Alarm Functions

High, Low, Deviation (band), on delay time, off delay time, hysteresis, output selection (one alarm can switch more than one output)

Outputs energised or de-energised in the alarm state

PID Control (T331 & 332 Models only)

Type: PID with Auto-tune, PWM Logic or Analogue outputs

Control Action: Reverse, Direct or Heat / Cool

PWM Cycle Times: 0.1Sec to 30mins (Independent per output)

Auto / Manual switching: Via logic input (T340) or Communications Load and Partial Electrical Load Failure Function (PWM outputs only)

A/D Converter

Type: Sigma Delta, Resolution: 20 Bit plus Sign

Drift with temperature: <100ppm/°C

Update Rate: 15 / Second (7.5 / Sec for PV measurement)

Common / Series mode rejection: >150dB / >70dB (50 & 60Hz)

Thermocouple/RTD Measurement

Linearised ranges: Types J, K, T, N, B, S, R Thermocouples and

3 wire RTD Pt100 (alpha = 385) and Pt100 (alpha = 392)

Typical accuracy: Base Metal ±0.5°C, Rare Metal ±1.2 °C,

RTD 0.3°C. Engineering units: °C, °F or Kelvin

RTD Excitation current 0.25mA (Nom)

Thermocouple ageing feature and open circuit alarms

DC Voltage, Current & Resistance Inputs

Ranges (Impedance): ±100mV(1000M),

±10VDC(1M) and ±20mA(<5)

Accuracy: 0.02% Typical

Sensor Excitation Supply (Tracker 321 & 332)

Two Wire Loop Supply: 24VDC (Nom) @ 35mA max

Bridge Supply: 10VDC Regulated @ 35mA max

Logic Outputs (Tracker 331 only)

Relays Type: 1 x Normally open contacts. (Optionally 2 - No SSR)

Rating: 1 Amp @ 240VAC, 5 Amp @ 30VDC

SSR Drive output: 1 x 18VDC @ 20mA nominal

Serial Communications Interface

Type: RS485, 2-wire multidrop

Isolation: 500V DC/peak AC. Baud rate: Up to 19200

Protocols: Modbus RTU, Modbus Floating point and DTPI (ASCII)

Analogue Output (Option for all models)

Isolation: 500VDC / Peak AC

Output: Selectable 0-10V, 0-20mA or 4-20mA, Scalable

Maximum Load (mA): 1000 Ohms

Resolution: 15bit (1 part in 32768)

Tracker 340 Logic Modules (Option for all models)

Relays Types (4): Volt Free Change over contacts (TTL options)

Rating: 1 Amp @ 250VAC, 5 Amp @ 30VDC

Logic Inputs (2): Volt free contacts or TTL

Environmental

Temperature: 0-60°C Operating, -10 to 70°C Storage

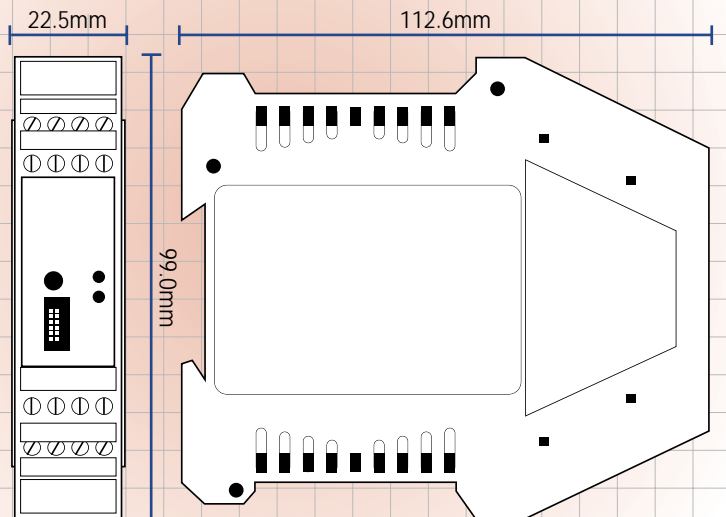
Humidity: 10-95% RH Non Condensing

Safety and EMC

Safety: EN61010, Susceptibility: EN50082-2

Emissions EN50081-1

CE certified 2004



Note: Depth 114.5mm when mounted on Din Rail TS35 / TS35D

Not shown at actual size



Industrial enclosures kindly supplied by Rittal Ltd.



Prodigy screenshot used with the kind permission of Tascomp Ltd.



All Tracker 300 units have been tested and comply with the European Directives on Electromagnetic Compatibility and safety and each carries the CE marking.

The enclosure is manufactured in re-cyclable and flame-retardant materials.

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Ordering Code



Model Number Analogue Output Power 2nd Relay T331 only Logic Module (if required)

Model: 321 Data Acquisition Module / signal conditioner
331 PID Controller / Trip Amp.
332 PID As 321 + PID Control (Requires T340 or analogue output option fitted for PID output)

Analogue: A = Output Fitted, N = Not Fitted

Power: 1 = 90-265vac 50/60 Hz (5VA)
2 = 24VDC / AC (5VA)

2nd Relay R = Fitted (Replaces SSR drive, 2 relays supplied)
T331 only N = Not fitted (1 x Relay + 1 x SSR drive supplied)

Logic Module: 341 4 x Relay (C/O) Outputs
(All with 2 342 1 x TTL + 3 x Relay (C/O) Outputs
Logic inputs) 343 4 x TTL Outputs