RESISTRON

ROPEX

RES-5009

User Guide

Important features

- CAN interface CAN 2.0A as per ISO 11898 for complete regulator control
- CANopen®[1] Protocol (as per CiA®[1] profile 301 in version 4.2.0)
- ROPEX CAN protocol
- Automatic zero calibration (AUTOCAL)
- Automatic optimisation (AUTOTUNE)
- Automatic configuration of the secondary voltage and current range (AUTORANGE)
- Automatic phase correction (AUTOCOMP)
- Automatic frequency adaptation
- Booster output standard
- Analogue output 0…10 VDC for ACTUAL temperature
- Additional 24 VDC control signals for START 0 (setpoint 0) and START 1 (setpoint 1)
- Alarm function with error diagnosis
- Heating element alloy and temperature range can be selected
- Wide voltage range for the use of 110…480 V
- Eight channels for administration of various calibration values
- Micro-USB interface for ROPEXvisual®
- cULus approval

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1. CiA® and CANopen® are European Union trade marks of CiA e.V.

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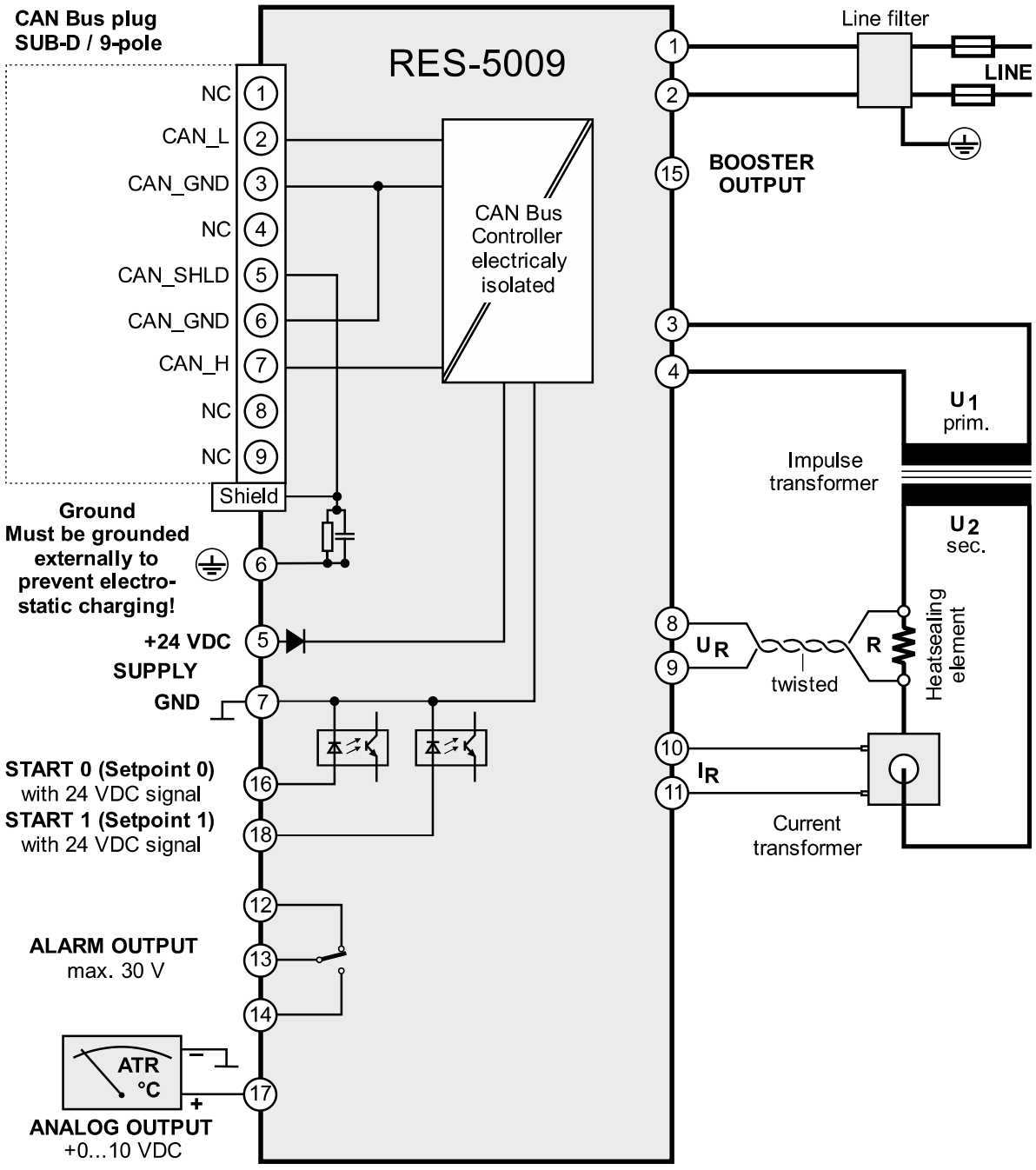
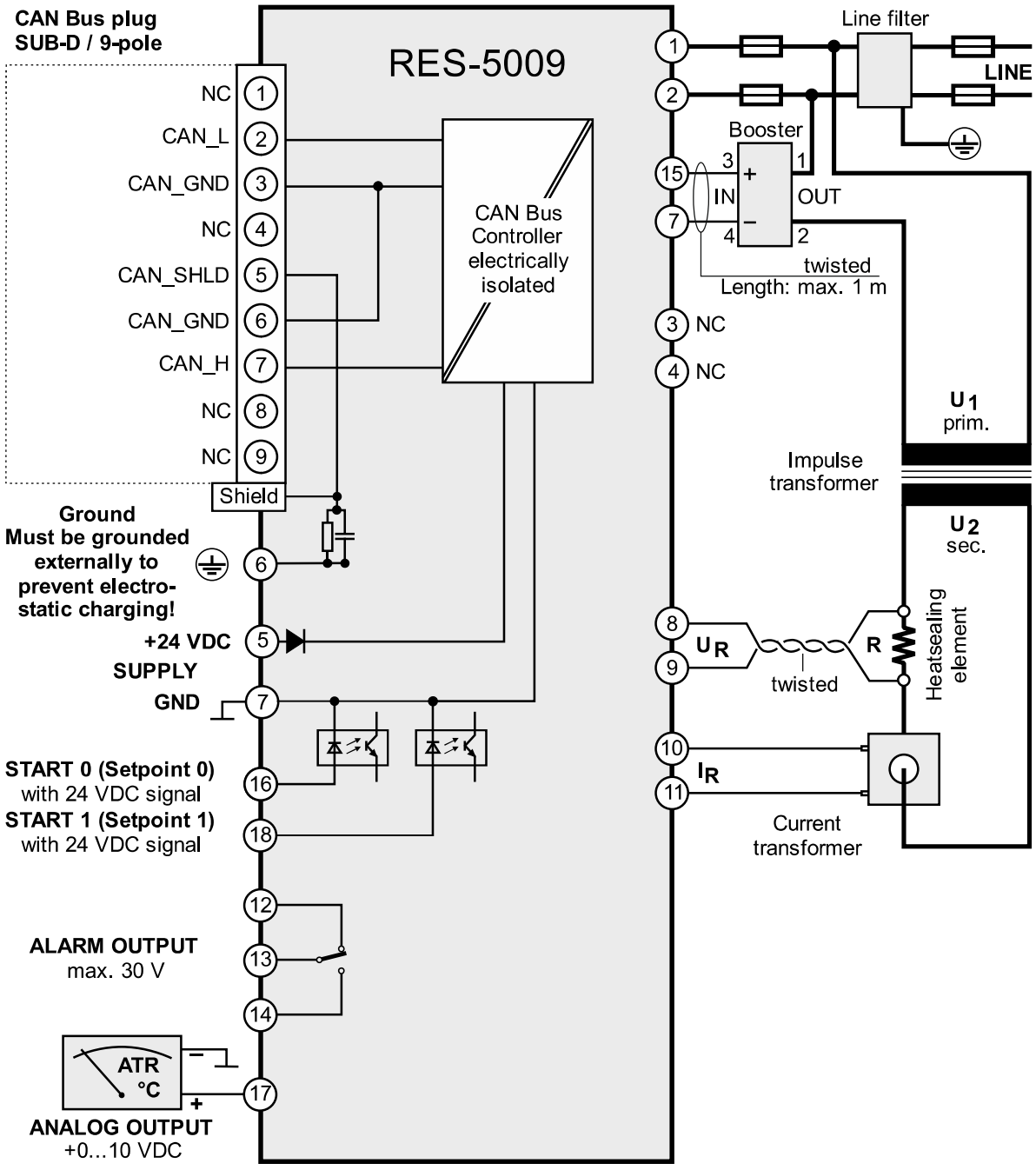
7.6 Wiring diagram (standard)



7.7 Wiring diagram with booster connection



Careless and uncontrolled disposal can cause damage to the environment and human health. Help protect the environment and human health, and dispose of the product or recycle it responsibly.

	NOTE
	This device must not be disposed of in the residual waste bin!

15 Technical data

CAUTION
Operation of the temperature controller outside of these technical specifications results in loss of warranty and can cause defects.

Design	Housing for electrical cabinet mounting Can be snapped on to TS35 top hat rail (35mm) in accordance with EN 60715 Basic surface: 90x75 mm; depth: 135 mm (incl. connection terminals)
Line voltage	Connected between neutral conductor and an outside conductor: 110 VAC -15%…300 VAC +10% or Connected between two outside conductors: 110 VAC -15%…480 VAC +10% **CAUTION** **The voltage between outside conductor and earth must not exceed 300VAC.**
Power supply	Symmetrical TN or TT network Overvoltage category III **CAUTION** **Operation in voltage-free network (e. g. IT network) only after checking with ROPEX.**
Line frequency	47…63 Hz, automatic frequency adjustment in this range
Current consumption (Primary current of the impulse transformer)	I_{max} = 5 A (ED = 100%) I_{max} = 25 A (ED = 20%, playing time 1 min. A booster must be used for higher power requirements.)
24VDC power supply Terminals 5+7	24 VDC, I_{max} = 100 mA (control mode), 1 A (switch-on current) Tolerance: ±10% SELV or PELV supplied from maximum 300VAC, Cat II
Measurement range	Secondary voltage U_R: 0.4 ...120 VAC (lower voltages with MOD 01, higher voltages with a ROPEX series resistor) Secondary current I_R: 30…500 A with current transformer PEX-W4/W5 (lower currents: Secondary cables lead through the current transformer several times, higher currents with a load resistor) The dimensioning is made in the ROPEX application report.

CAN interface	CAN interface CAN 2.0A as per ISO 11898 Baud rates: 10 kBaud; 20 kBaud; 50 kBaud; 100 kBaud, 125 kBaud; 205 kBaud; 250 kBaud; 500 kBaud; 800 kBaud; 1 MBaud SUB-D9 connector as per CiA 303/1 specification
CAN protocol	CANopen protocol (as per CiA profile 301 in version 4.2.0) ROPEX CAN protocol
Heating element type and temperature range	Apart from setting via the rotary encoder switch or the CAN interface, the setting for the temperature range and temperature coefficient can be made through the ROPEX visualisation software (↬ section 9.8 "USB interface for visualisation software ROPEXvisual®" on page 47): Temperature range: 200 °C, 300 °C, 400 °C or 500 °C Temperature coefficient: 400…4000 ppm/K (variable setting range) Five areas can be set over rotary coding switches or CAN interface: Temperature coefficient 1100 ppm/K, 0…300°C (e. g. alloy A20) Temperature coefficient 780 ppm/K, 0…300 °C (e. g. alloy L) Temperature coefficient 1100 ppm/K, 0…500 °C (e. g. alloy A20) Temperature coefficient 780 ppm/K, 0…500°C (e. g. alloy L) Temperature coefficient 3500 ppm/K, 0…300°C Please take the necessary setting from the ROPEX application report
Analogue output (Actual value) Terminals 17+7	0…10 VDC, I_{max} = 5 mA corresponding to 0…300°C or 0…500°C Precision: ±1% plus 50 mV
Alarm relay Terminals 12, 13, 14	U_{max} = 30 V (DC/AC), I_{max} = 0.2 A, changeover contact, voltage-free (for UL certification: I_{max} = 0.2 A)
Power loss	Max. 20 W
MTTF as per ISO 13849-1	1522 years (see EN ISO 13849-1, table C.3, Triacs)
Ambient conditions	Maximum altitude 2000 m Ambient temperature: +5…+45 °C Maximum relative humidity: 80% at temperatures up to +31 °C, decreasing linearly to 50% relative humidity at +45 °C.
Degree of protection	IP 20 **CAUTION** **When the terminals are open, the screw must be screwed in to ensure contact protection.**