

# Automation System TROVIS 6400

## Industrial Controller TROVIS 6497



Designed for panel mounting  
Front panel 96 x 96 mm (3.78 x 3.78 inch)

### Application

Microprocessor-controlled industrial controller with flexible software design; used for automating industrial and process engineering plants.



The TROVIS 6497 Industrial Controllers can be used for almost any control task. They can be used not just for constructing simple control loops, but also for solving complex control tasks. A flexible software design allows the user to configure all common control circuit arrangements without having to modify the controller hardware. This is facilitated by means of function blocks, stored in memory, which can be adapted to the different settings of the plant-specific configuration.

### Special features

- Display panel containing two digital LED displays (red) which, in "standard operation", display controlled variable (process value) X and output variable Y
- Front-panel operation and configuration with just six keys
- Universal input options: Pt 100 resistance thermometers, potentiometers, four different thermocouples or standardized 4(0) to 20 mA 0(2) to 10 V signals
- Connection for two-wire transmitters
- Bumpless transfer (MANUAL/AUTOMATIC mode) guaranteed in both directions
- Data and parameters protected against power failure in non-volatile memory (EEPROM)
- Fully sealed membrane keyboard; degree of protection IP 54 on the front side
- Selection between units of temperature, either °C and °F
- Self-tuning feature
- User-selectable controller output: Continuous analog, on-off (two-point) and three-step

### Versions

These TROVIS 6497 Industrial Controllers are delivered in panel-mounting cases according to DIN IEC 61554 (dimensions of the front frame: 96 x 96mm). They can optionally be equipped with an RS-485 serial interface and Modbus RTU software.

### TROVIS

6497-03

Continuous/ of-off/three-step, analog output, limit switches

### Option

Two additional limit switches  
RS-485 serial interface with Modbus RTU software



Fig. 1 · TROVIS 6497 Industrial Controller

## Design features

TROVIS 6497 accepts the following universal inputs:

- Three-wire Pt 100 resistance thermometer available in two hardware versions:
  - 100 °C to +400 °C in 1 °C steps or
  - 30.0 °C to +150.0 °C in 0.1 °C steps
- Standardized 4(0) to 20mA current signal
- Standardized 0(2) to 10V voltage signal
- Four thermocouples with stored linearization tables:
 

NiCr-Ni	(K)	DIN IEC 584	50 to +1200 °C
Pt 10 Rh-Pt	(S)	DIN IEC 584	50 to +1700 °C
Fe-CuNi	(L)	DIN 43 710	50 to + 800 °C
Cu-CuNi	(U)	DIN 43 710	50 to + 600 °C

The various input options can be selected via front-panel keys. Therefore, no hardware configuration (various input cards) is necessary, allowing subsequent modification of the input signal when required.

The TROVIS 6497 Industrial Controller has the advantage that both a continuous and an on-off/three-step controller output (or also pulse-modulated controller outputs) can be configured (Figs. 2 and 3).

In addition, limit switches GW3 and GW4 can optionally be added to upgrade the TROVIS 6497.

The industrial controller can be switched to the MANUAL mode with the MANUAL/AUTOMATIC selector switch. In this mode, it can be operated as an "open-loop" controller. The controller output signal is then modified via the cursor keys.

An internal power supply (3) provides +24 V/max. 30 mA (Fig. 4) for connecting a two-wire transmitter (1). The industrial controller (2) accepts a load-independent current signal from 4 to 20 mA. There is also an internal connection (4) between the negative (-) poles.

An external setpoint\*, WE, can be connected either by actuating the WE/WI changeover key (9 in Fig. 5), or by supplying an external signal at terminals 12 and 5 (connection diagram).

\*Reference variable

## Ordering text

Industrial Controller TROVIS 6497-03

Universal input for Pt 100: –100 to 400 °C/–30.0 to +150.0 °C

Power supply: 230 V~/ 120 V~/ 24 V~

With/without RS-485 serial interface w. Modbus RTU software

Reference junction for thermocouple, order no. 1600-1269

Option: Two additional limit switches

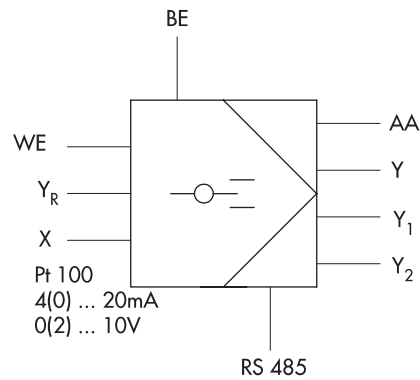


Fig. 2 · TROVIS 6497 with switching output

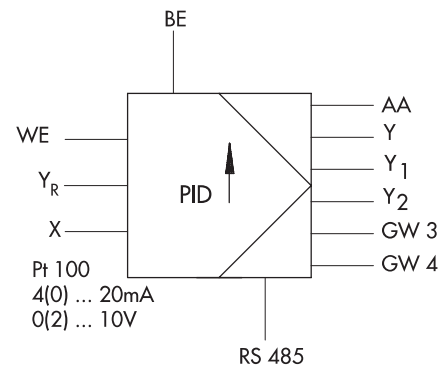
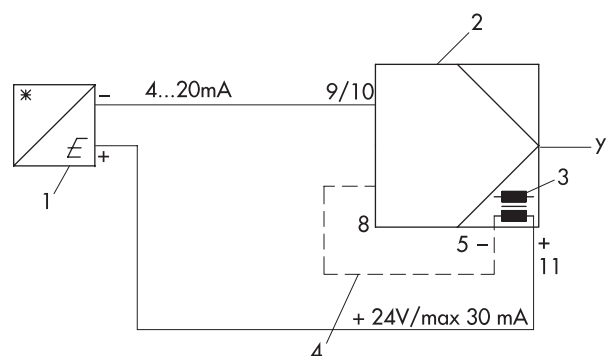


Fig. 3 · TROVIS 6497 with continuous output



- 1 Transmitter
- 2 Industrial controller
- 3 Internal power supply
- 4 Internal negative (-) pole connection (over terminals 5 and 8)

Fig. 4 · Circuit diagram of a TROVIS 6497 Industrial Controller with a two-wire transmitter

## Operation

TROVIS 6497 uses a three-level operating structure:

- Operating level
- Parameterization level
- Configuration level

Parameter and configuration levels are protected against unintentional or unauthorized access by means of user-definable code numbers.

### Operating level

This is the "standard operating level" of the controller. The actual value of controlled variable X is displayed in the LED display (1), and the output variable Y is displayed in the digital LED display (2). All other controlled variables are selected by pressing the operating key (7).

### Parameter level

A code number must be entered in order to access the parameter level. Numeric values of the parameters are determined using the cursor keys (6). The associated values can be viewed in the first digital LED display (1). Parameter designations such as proportional-action coefficient, KP, reset time, TN, etc. appear in the second digital LED display (2).

### Configuration level

This level is also protected by means of a code number. The cursor keys can be used to select any sequence of configuration blocks, these of which can be viewed in the second digital LED display (2). The associated configuration modes are displayed in the first digital LED display (1).

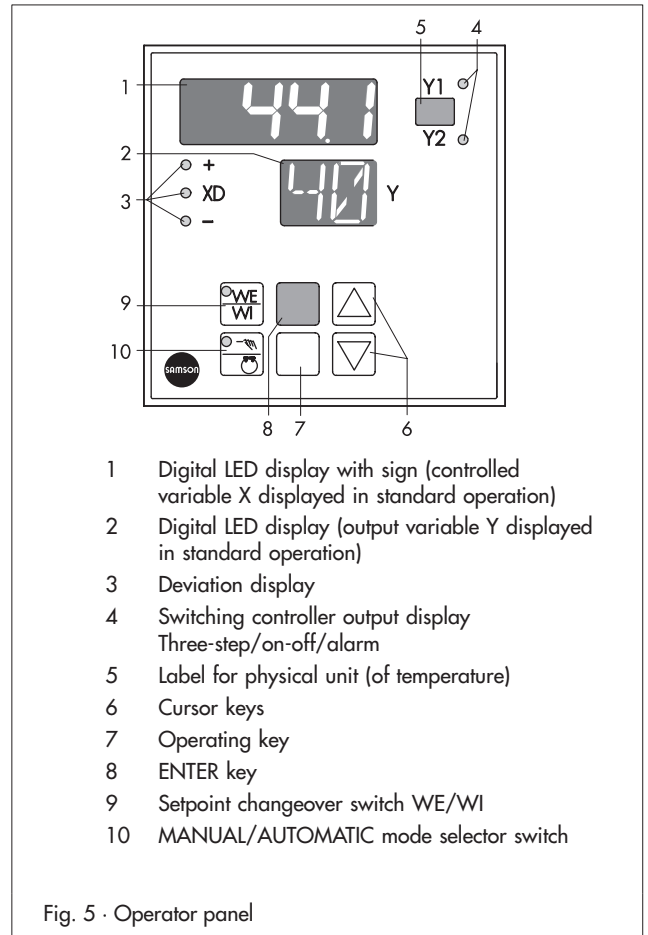
### Installation and electrical connection

Panel-mounting version with two mounting elements for securing in a control panel.

Electrical connection: Modular terminal blocks for signal wires 0.5 to 1.5 mm<sup>2</sup> (terminal markings according to DIN 45140).

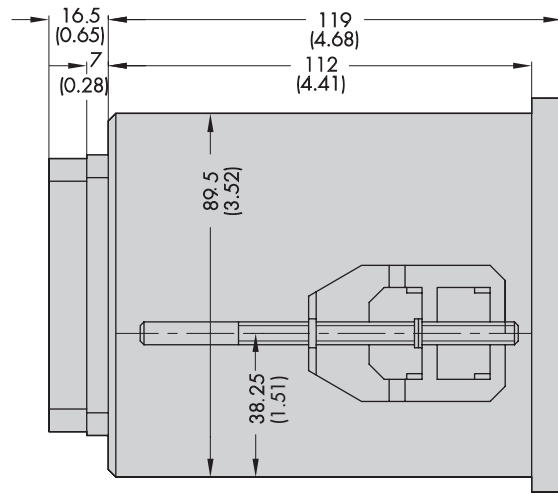
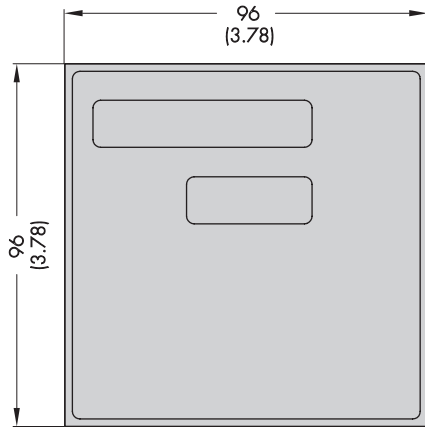
### Technical data

<b>Inputs</b>	
Analog inputs	<b>Controlled variable X:</b> 4 (0) to 20mA, 0 (2) to 10V, Pt100 or thermocouple <b>External feedback YR:</b> Potentiometer 0 to (200 to 1000) Ω in two-wire circuit, meas. current at 1000-Ω potentiometer approx. 2.7 mA; meas. current at 200-Ω potentiometer approx. 1.3 mA or current signal 4 to 20 mA (with shunt resistance 549 Ω, 0.5 W, 1 %) <b>External setpoint WE:</b> 4 (0) to 20 mA or 0 (2) to 10 V
Binary input	Changeover between internal and external setpoints WI/WE
Transmitter supply	+24 V, maximum 30 mA
<b>Outputs</b>	
Continuous output	-20, 4 (0) to 20 mA (load R <sub>B</sub> < 500 Ω), -10, 0 (2) to 10 V (load R <sub>B</sub> > 500 Ω)
Switching output	Two switching controller outputs, maximum load max. 250 V~, 1 A (on-off/three-step output or limit switch)
Analog output	0 (4) to 20 mA (load R <sub>B</sub> < 500 Ω), 0 (2) to 10 V (load R <sub>B</sub> > 500 Ω)
Options	Two additional limit switches
<b>Displays</b>	Digital LED display with 3-digit numeric display with sign 2-digit alphanumeric digital display, optionally output variables (%) or variable display Lighted displays for switching controller outputs and limit value messages (alarms), sign of deviation
<b>Configuration</b>	Function blocks stored in memory for fixed setpoint and follow-up control Changeover between internal/external setpoints WE/WI
<b>Power supply</b>	230 V~/120 V~/24 V~ (optional), 48 to 62 Hz
<b>Ambient temperature</b>	0 to 50 °C
<b>Degree of protection</b>	Front panel IP 54 · Terminals IP 20
<b>Electromagnetic compatibility</b>	Requirements stipulated in EN 61000-6-2, EN 61000-6-3 are fulfilled
<b>Weight</b>	0.8 kg



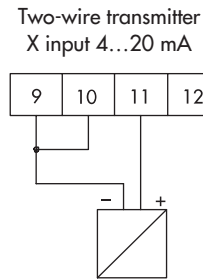
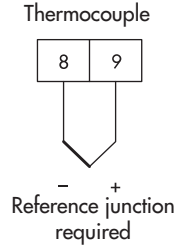
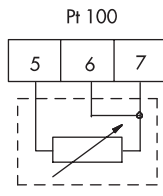
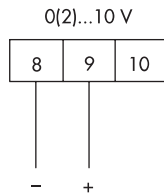
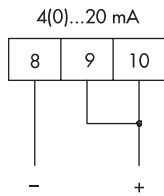
## Dimensions in mm (inch)

Panel-mounting version 96 x 96 (3.78 x 3.78)  
 Panel cut-out 92<sup>+0,8</sup> x 92<sup>+0,8</sup> (3.62<sup>+0,3</sup> x 3.62<sup>+0,3</sup>)

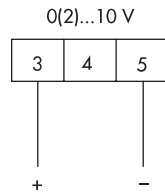
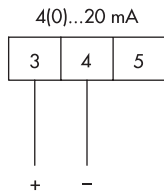


## Electrical connection

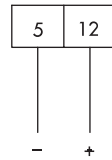
### Controller input: Controlled variable X



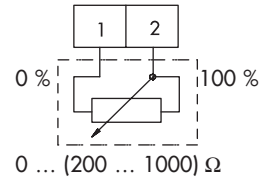
### External set point WE



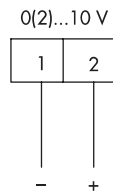
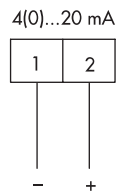
Changeover between set points  
24 V DC WE/WI



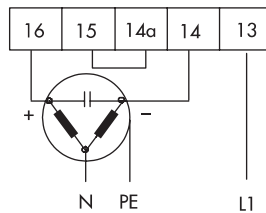
External position feedback



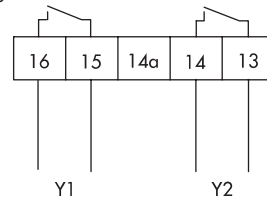
### Controller output: Output variable Y



Three-step output  
At a load > 50 VA contactors or relays are provided



2 limit switches



Option: 2 limit switches

