Automation System TROVIS 6400

TROVIS 6493 Compact Controller

For panel mounting (front frame 48 x 96 mm/1.89 x 3.78 inch)

Application

Microprocessor-controlled compact controller with flexible software design for automation of industrial and processing plants

The TROVIS 6493 Compact Controller is suitable for use in simple control loops as well as for solving more complex control tasks. The flexible software design allows the operator to configure control circuits without modifying the hardware. The functions are stored in a read-only memory and can be adapted to the specific requirements of the respective control system.

Special features

- Operation and configuration using 6 keys
- Infrared interface for configuration and parameterization using the optional SAMSON TROVIS-VIEW software
- Two analog inputs
- One binary input with selectable function
- Free choice of either continuous-action, on/off or three-step output
- External reference variable or two internal reference variables to be selected directly
- Smooth switchover between manual and automatic mode using manual/automatic key or binary input
- Filtering and function generation of input and output variables
- Linking of input variables (addition, subtraction)
- Reference variable ramp, output ramp
- Control signal limitation
- Definition of start-up and restart conditions
- Analog limit alarm
- Start-up adaptation
- Code number and keyboard lock (optional)
- Degree of protection IP 65 for front panel

Versions

The TROVIS 6493 Compact Controller is delivered in a housing (48 x 96 mm) designed for panel mounting.

TROVIS	**6493-0x1x**
Inputs	
Input 1 0 (4) to 20 mA or 0 (2) to 10 V Input 2 Resistance thermometer	**1**
Input 2 0 (4) to 20 mA	**2**
Power supply	
24 V AC	**3**
90 to 250 V AC	**4**

TROVIS® Electronics from SAMSON

Fig. 1 · TROVIS 6493 Compact Controller

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Data Sheet **T 6493 EN**

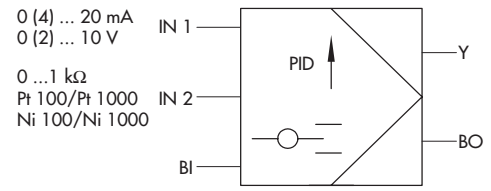
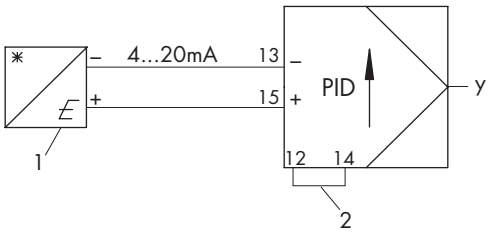
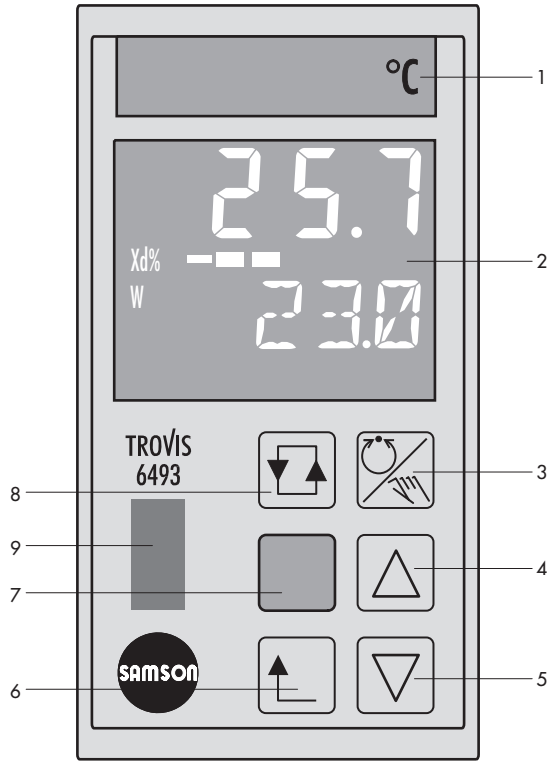


Fig. 2 · Block diagram (version 6493-01)



1 Two-wire transmitter
2 External bridge

Fig. 3 · Block diagram with two-wire transmitter (version 6493-01)



1 Exchangeable label
2 Display
3 Manual/automatic key
4 Arrow key (increase, forward)
5 Arrow key (decrease, back)
6 Reset key
7 Enter key
8 Selector key
9 Infrared interface

Fig. 4 · Operation

Inputs and outputs

The controller includes two inputs which can optionally be assigned to the controlled variable X or the reference variable W. Additionally, the software enables you to determine a specific input signal for each input. Input 1 can process signals from 0(4) to 20 mA or 0(2) to 10 V. A two-wire transmitter can also be connected. There are two versions for input 2. In version 6493-01, the following options are available: Pt 100, Pt 1000, Ni 100 or Ni1000 resistance thermometer or 0 to 1000 Ω potentiometer. In version 6493-02, input 2 is designed for 0 (4) to 20 mA.

The compact controller comprises a programmable binary input which can, for example switch between the current internal and external reference variables or launch the reference variable ramp.

TROVIS 6493 can optionally generate a continuous-action, an on/off or a three-step signal. When programming a switching output, the continuous-action output can be used as analog output for a recorder. This allows you to record the manipulated variable Y, the external reference variable WE or the error Xd.

The binary output can be used to generate fault messages and transmit them to an external system.

Operation

The controller is operated using six keys whose functions depend on the selected level.

Operating level

Normally, the compact controller works in operating level.

After switching on or restarting the controller, the display indicates the controlled variable and the manipulated variable. The compact controller is in manual operating mode.

The selector key (8) can be used to switch between the following variables shown in the bottom line of the display (2): internal reference variable W or W2, external reference variable WE, manipulated variable Y or error Xd%. To activate a different reference variable, select it using the selector key and confirm by pressing the enter key. The internal reference variables W and W2 can be changed using the arrow keys.

Configuration and parameter levels

Use the enter key (7) to access the configuration and parameter levels. Adjust the parameters and functions of the compact controller, adapting it to the special requirements of your plant.

The functions are to be found in different levels, which branch off to further sublevels.

The enter key is used to access the levels, to activate function blocks and parameters as well as to confirm modified values. Use the arrow keys (4, 5) to browse through a level backward and forward or to switch between the different function settings. Press the selector key (8) to access the parameters of the selected function. Each individual parameter can be activated by pressing the enter key. Use the arrow keys to set a new value and confirm by pressing the enter key.

Use the reset key (6) to return to the next higher level at any time.

The function blocks, parameters and calibration values can be protected against unauthorized modifications with a code number.

TROVIS-VIEW Configuration and Operator Interface

The TROVIS 6493 Compact Controller can be configured, parameterized and operated with SAMSON's TROVIS-VIEW Configuration and Operator Interface using the infrared interface integrated into the controller's front panel.

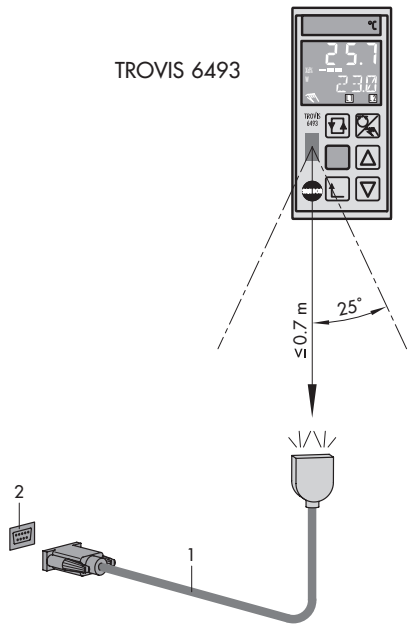
Operating TROVIS-VIEW is similar to working in Windows Explorer. Apart from configuration, parameterization and operation, TROVIS-VIEW provides additional features to record controller data. The features include, e.g. editing plant texts, saving and printing various configuration and parameterization data as well as indicating analog inputs, analog outputs and binary status reports in tables.

The TROVIS-VIEW software with its database module specifically for the TROVIS 6493 Compact Controller is delivered on CD-ROM (order no. 6661-1031).

For system requirements, refer to Data Sheet T 6661 EN or to the *readme.txt* file on the CD-ROM.

Communication between the PC and the compact controller is established using the infrared interface integrated into the controller. The infrared interface can be accessed on the controller's front panel. It is located to the left of the yellow enter key.

An infrared adapter (order no. 8864-0900) is required to transfer data between the PC's serial RS-232 interface and the controller's integrated infrared interface.



1 Infrared adapter
2 Optionally:
COM 1 … COM 4 port of the PC

Fig. 5 · Connecting an infrared adapter

Technical data

Inputs		Two analog inputs, optionally for controlled variable X or reference variable W
Analog input 1 Analog input 2 (two controller versions)		mA, V or two-wire transmitter (see below) Version 6493-01: temperature sensor or potentiometer (see below) Version 6493-02: mA or two-wire transmitter (see below)
Input for mA or V	Measuring ranges	0(4) to 20 mA or 0(2) to 10 V
	Measuring range changeover	Carried out by software
	Maximum permissible values	Current ± 50 mA, voltage ± 25 V
	Internal resistance	Current R_i = 50 Ω, voltage R_i = 20 kΩ
	Permissible common mode voltage	0 to 5 V
	Fault	Zero < 0.2 %, span < 0.2 %, linearity < 0.2 %
	Temperature influence	Zero < 0.1 %/10 K, span < 0.1 %/10 K
Transmitter supply		Acc. to DIN IEC 381 (NAMUR NE 06) 20 V, max. 25 mA, resistant to short circuit
Temperature sensor	Measuring range	Pt 100, Pt 1000: –100 °C to 500 °C Ni 100, Ni 1000: –60 °C to 250 °C
	Wire resistance	Three-wire cable $R_{L1} = R_{L2} = R_{L3}$ < 15 Ω
	Fault	Pt 100, Pt 1000: zero < 0.1 %, gain < 0.1 %, linearity < 0.1 % Ni 100, Ni 1000: zero < 0.2 %, gain < 0.2 %, linearity < 0.2 %
	Temperature influence	Zero < 0.2 %/10 K, span < 0.2 %/10 K
Potentiometer	Measuring range	0 to 1 kΩ, three-wire cable
	Wire resistance	R_L < 15 Ω each
	Fault	Zero < 0.2 %, gain < 0.2 %
	Temperature influence	Zero < 0.1 %/10 K, gain < 0.2 %/10 K
Binary input		External switching voltage 24 V DC, ± 30 %; 3 mA

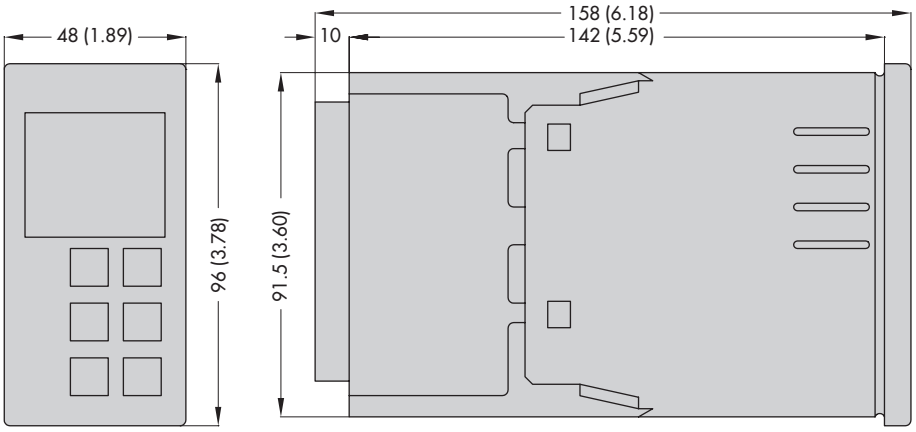
Technical data (continued)

Outputs		Optionally continuous-action, on/off or three-step output
Continuous-action output	Signal range	0 (4) to 20 mA, load < 740 Ω
	Control range	0 to 22 mA (0 to 110 %)
	Fault	Zero < 0.2 %, gain < 0.1 %
	Temperature influence	Zero < 0.1 %/10 K, span < 0.1 %/10 K
Switching output		2 relays with floating switching contact Max. 250 V AC, max. 250 V DC, max. 1 A AC, max. 0.1 A DC, cos θ = 1
	Spark suppression	C = 2.2 nF and varistor U = 275 V
Binary output		Isolated transistor output, max. 50 V DC and 30 mA, min. 3 V DC
Infrared interface		
Transfer protocol		SAMSON protocol
Transfer rate		9600 bit/s
Angle of reflection		50 °C
Distance		Max. 0.7 m
General details		
Display		4-digit LCD
Configuration		Function blocks saved in read-only memory for fixed set point and follow-up control
Power supply		90 to 250 V AC, 47 to 63 Hz 24 V AC (21.5 to 26.5 V AC), 48 to 62 Hz
Power consumption		13 VA (90 to 250 V AC), 6 VA (24 V AC)
Temperature range		0 °C to 50 °C (operation), –20 °C to 70 °C (shipping and storage)
Degree of protection		Front panel IP 65, housing IP 30, terminals IP 00
Device safety		Design and testing according to EN 61010:1994
Protection class		II
Overvoltage category		II
Degree of contamination		2
Noise emission		EN 61000-6-3
Noise immunity		EN 61000-6-4
Electrical connection	Supply voltage and process signals	1.5 mm² screw terminals
Total delay time		≤ 100 ms
Resolution		Input: 0.1 °C; 0.1 %
Dimensions		See dimensions diagram
Weight		Approx. 0.5 kg

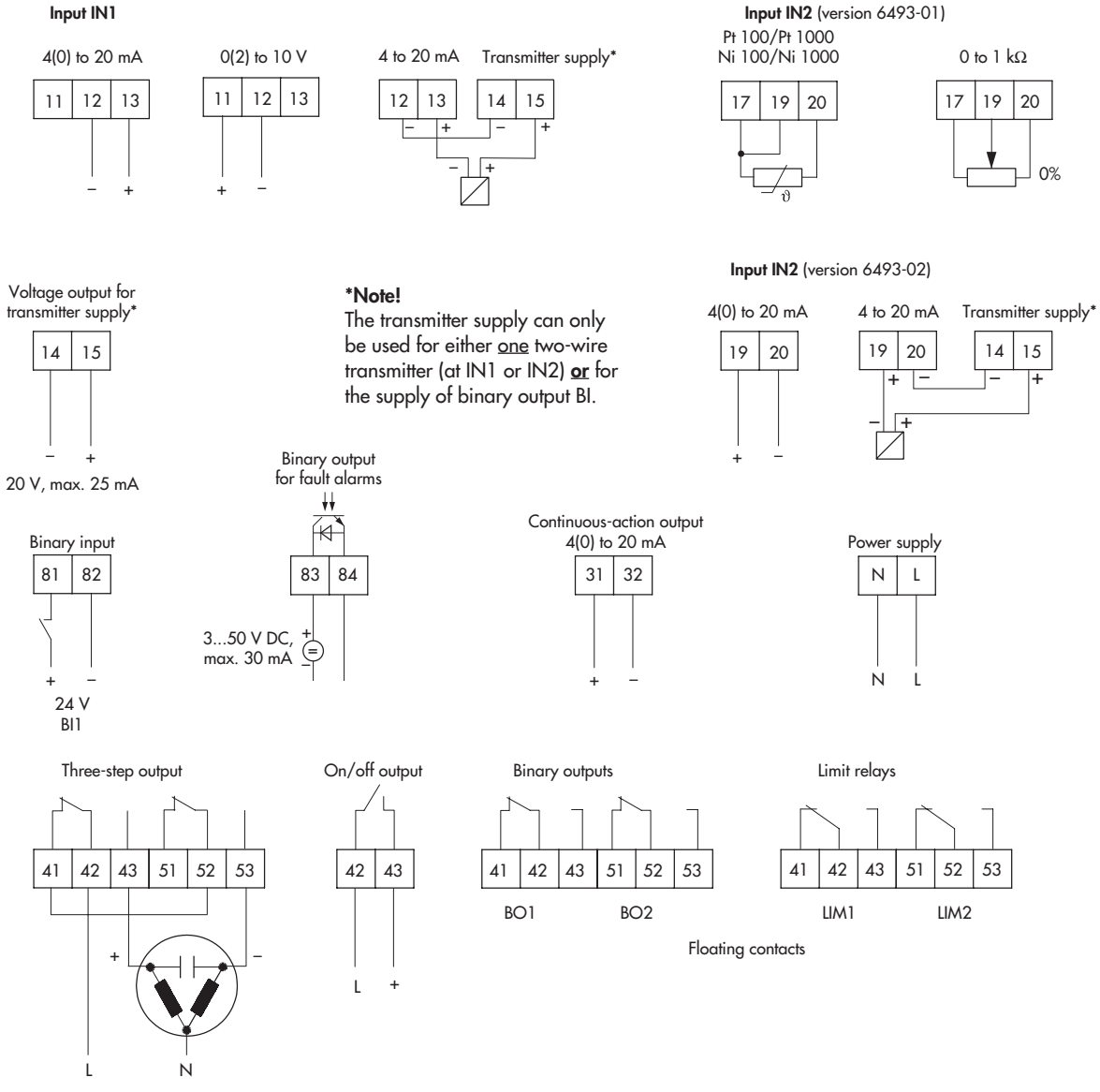
Specifications subject to change without notice.

Dimensions in mm (inch)

Panel cut-out $45^{+0.6}$ x $92^{+0.8\ mm}$ ($1.77^{+0.023}$ x $3.622^{+0.0315}$ inch)



Electrical connection



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