

# TENDY

## West 6100+, 8100+ & 4100+ Temperature & Process Controllers

- Jumperless Configuration
- Auto Detected Hardware
- Process & Loop Alarms
- Modbus & ASCII Comms
- Auto or Manual Tuning
- Heat/Cool Operation
- Ramping Setpoint
- Remote/Dual Setpoint Options
- Available in 1/16, 1/8 & 1/4 DIN Formats



With their improved interface, technical functionality and field flexibility, the West 6100+, 8100+ and 4100+ give you the best in comprehensive control for most temperature and process control loops.

### Specification

#### Features

Control Types	Full PID with Pre-tune, Self-tune, manual tuning, or On-Off control. Heat only or heat & cool
Auto/Manual	Selectable from front panel or via digital input, with bumpless transfer
Output Configuration	Up to 3 possible, for control, alarm, 24VDC transmitter power supply or retransmit of process value or setpoint
Alarm 1 & 2 Types	Process high, process low, SP deviation, band, logical OR / AND. Also 1 loop alarm for process control security. Process alarms have adjustable hysteresis.
Human Interface	4 button operation, dual 4 digit 10mm & 8mm high (6100+, 8100+) and 13mm & 10mm high (4100+) LED displays, optional choice of colours (Red/Red, Red/Green, Green/Red or Green/Green), plus 5 LED indicators
PC Configuration	Off-line configuration from PC serial port to dedicated config socket (comms option not required). Configuration Software for Windows 98 or higher. West Part Number: PS1-CON

#### Input

Thermocouple	J, K, C, R, S, T, B, L, N & PtRh20%vsPtRh40%.
RTD	3 Wire PT100, 50Ω per lead maximum (balanced)
DC Linear	0 to 20mA, 4 to 20mA, 0 to 50mV, 10 to 50mV, 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V. Scaleable -1999 to 9999, with adjustable decimal point
Impedance	>10MΩ for Thermocouple and mV ranges, 47KΩ for V ranges and 5Ω for mA ranges
Accuracy	±0.1% of input range ±1 LSD (T/C CJC better than 1°C)
Sampling	4 per second, 14 bit resolution approximately
Sensor Break Detection	<2 seconds (except zero based DC ranges), control O/P's turn off, high alarms activate for T/C and mV ranges, low alarms activate for RTD, mA or V ranges

#### Outputs & Operations

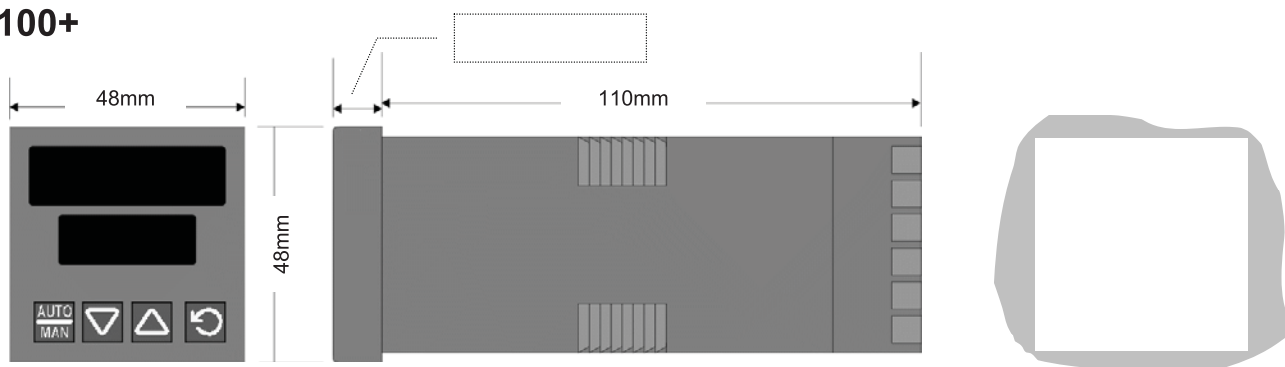
Control & Alarm Relays	Contacts SPDT 2 Amp resistive at 240V AC, >500,000 operations
Control SSR Driver Outputs	Drive capability >10V DC in 500 minimum
Triac Outputs	0.01 to 1 Amp AC, 20 to 280Vrms, 47 to 63Hz
DC Linear Outputs	0 to 20mA, 4 to 20mA into 500Ω max, 0 to 10V, 2 to 10V, 0 to 5V into 500Ω min. Control outputs have 2% over/under drive applied. Accuracy ±0.25% at 250Ω (degrades linearly to 0.5% for increasing burden to specified limits)
Transmitter Power Supply	Output 24VDC (nominal) into 910Ω minimum to power external devices
Communications	2 Wire RS485, 1200 to 19200 Baud, Modbus and ASCII protocol (selectable)
Digital Input	Selects between 2 setpoints or Auto/Manual control. Volt free or TTL input
Remote Setpoint Input	0 to 20mA, 4 to 20mA, 0 to 5V, 1 to 5V, 0 to 10V or 2 to 10V. Scaleable -1999 to 9999. Local/Remote setpoint selected from front panel

## Operating & Environmental

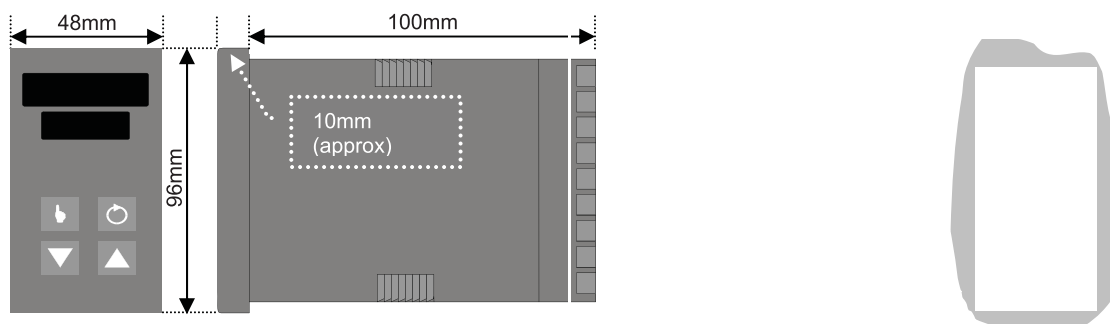
Temperature & RH	0 to 55°C (-20 to 80°C storage), 20% to 95% RH non-condensing
Power Supply	100 to 240V 50/60Hz 7.5VA (optional 20 to 48V AC 7.5VA/22 to 65V DC 5 watts)
Front Panel Protection	IEC IP66 (Behind panel protection is IP20)
Standards	CE, UL & ULC recognised

## Dimensions

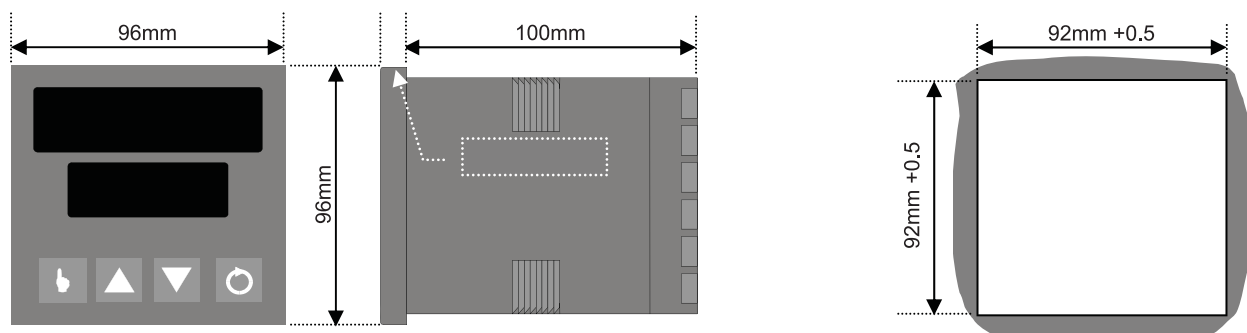
### 6100+



### 8100+

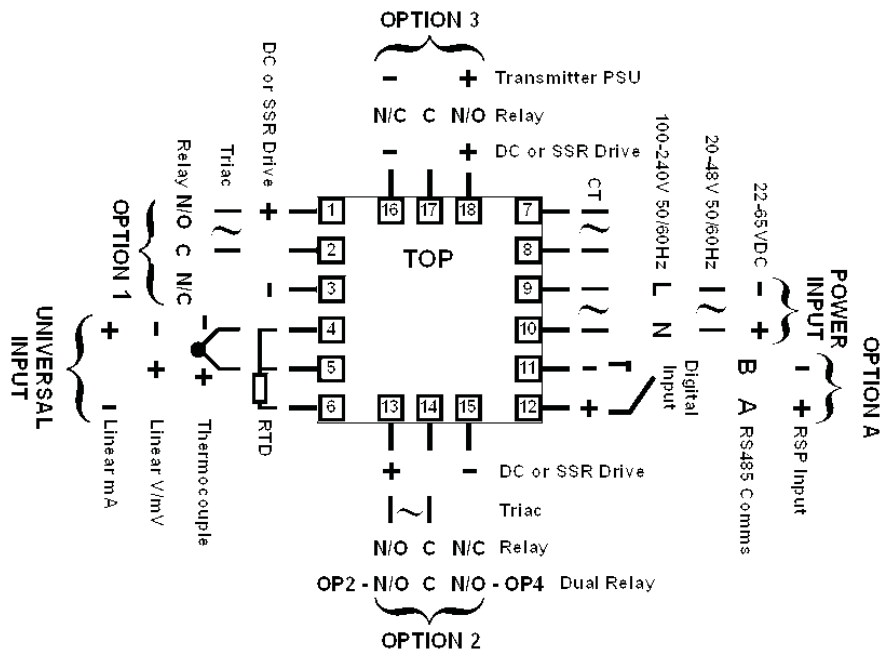


### 4100+

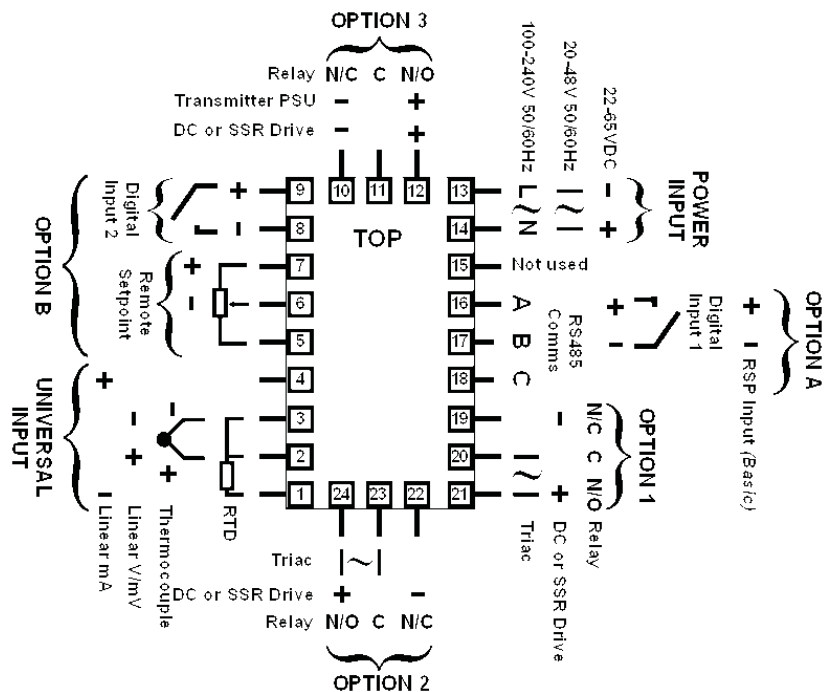


## Wiring Connections

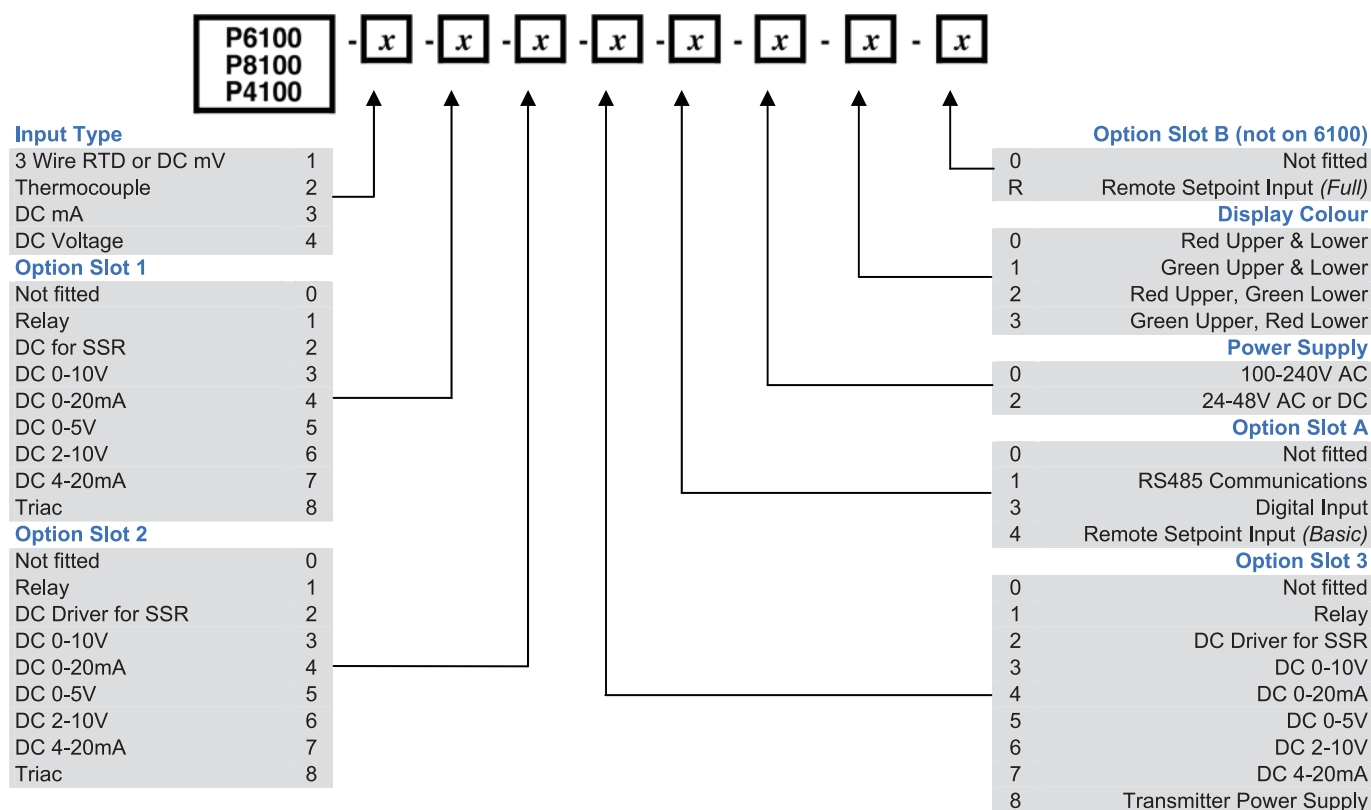
6100+



8100+/4100+



## Ordering Code



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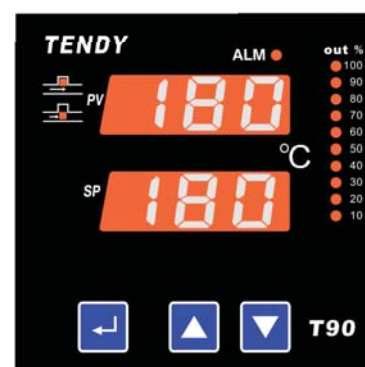
Brochures and datasheets are available for the complete range of West Control Solutions products, contact your local sales office or visit our website at: [www.west-cs.com](http://www.west-cs.com) for more information.

Specifications are subject to change without notice, as a result of continual development and improvement, E&OE

Microprocessor-based controller  $\mu$ Celsitron tendency T90,

## ***Universal three-position step controller***

Industrial controller with special PID step controller algorithm



☐ Compact design 96mm x 96mm x 120mm

☐ Compact design 48mm x 96mm x 120mm

- ☐ Easy operation
- ☐ User-defined operating level
- ☐ Digital displays for process variable and setpoint
- ☐ Indication of the manipulated variable
- ☐ Control structure PI and PID
- ☐ Two-position control
- ☐ Three-position control
- ☐ Setpoint ramp

- ☐ Robust self-optimisation
- ☐ Measurement input Pt100
- ☐ Serial interface
- ☐ Alarm functions
- ☐ Control via digital inputs
- ☐ Manual/automatic switch over
- ☐ Degree of protection Front IP 65
- ☐ Semiconductor memory for data protection

## 1. Function overview

### Basic device

Analog input Pt100	Analog input for the process variable PV
Relay OPEN	Controller output OPEN: opens the actuator
Relay CLOSE	Controller output CLOSE: closes the actuator
Relay ALARM	Alarm relay operates on the base of the idle current principle

### Additional functions (option\*)

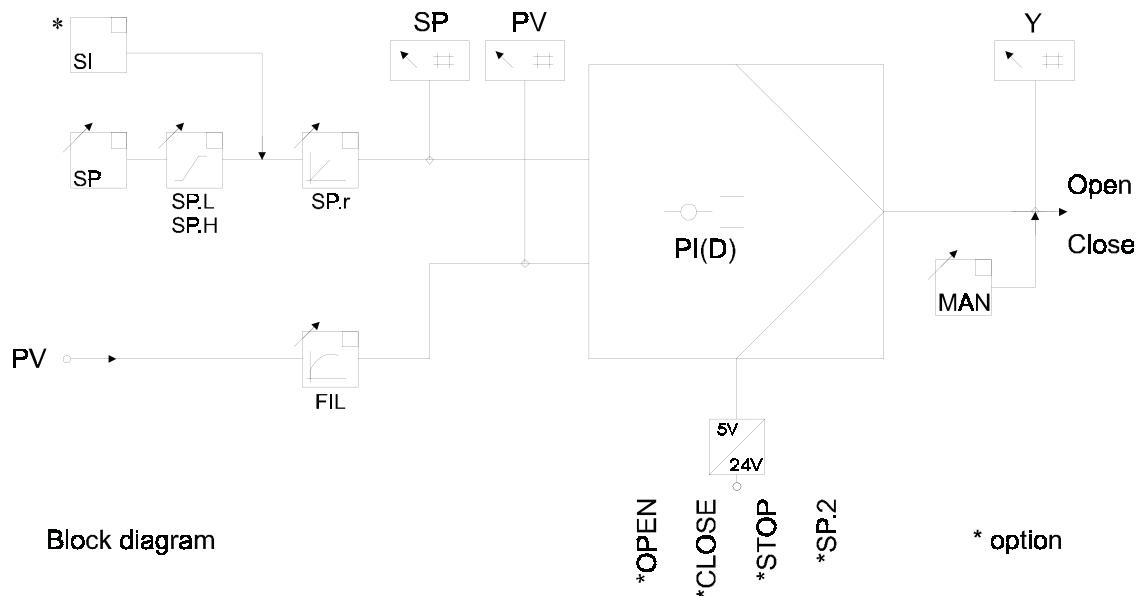
Serial interface RS 485	Data transfer	in accordance with modbus protocol.
Supply voltage 24 V DC	For 24 V DC	digital input and also 2-wire -transmitter at current input*

The optional digital input is definable to one of these functions by software:

Digital input OPEN	Actuator opens ...	} not in manual mode
Digital input CLOSE	Actuator closes ...	
Digital input STOP	Actuator persists in its current position ...	
Digital input SP.2	To switch over to the second setpoint SP.2 ...	

... if connecting 24 V DC (active state) to the appropriate digital input.

Priority: 1. STOP (highest priority), 2. CLOSE, 3. OPEN, 4. SP.2



Block diagram



Setpoint limiting . Minimum value SP.L (setpoint low), maximum value SP.H (setpoint high). Only setpoints within the setpoint limiting can be set via front keyboard.



Setpoint ramp SP.r . Setpoint change per minute or hour (gradient). Can be specified for internal and external setpoints by the setpoint ramp.



Filtering FIL of the process variable input PV. Interference signals and fast fluctuations of the process variable PV can be smoothed by an adjustable software filter.



\* Digital inputs , voltage range 0/12-24 V DC.



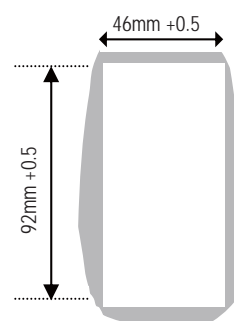
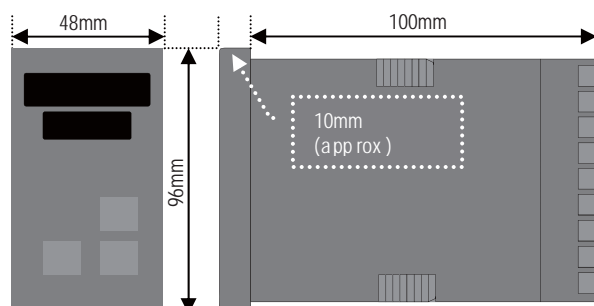
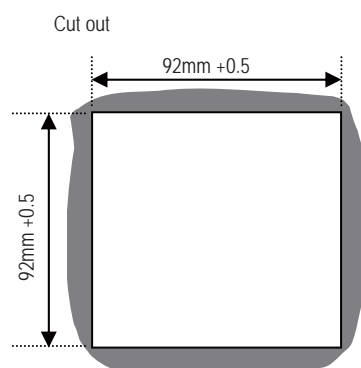
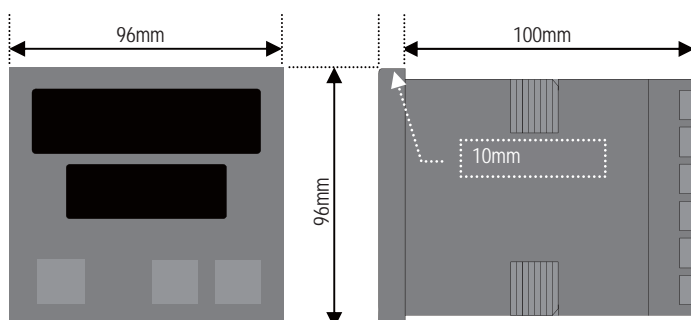
\* Serial interface RS 485 (modbus, RTU-mode).

## 2. Mounting

The device is suitable for installations into front panels as well as into consoles in any position.  
Insert the controller from the front into the prepared panel cut-out and fasten it with the supplied clamps.



The ambient temperature at the installation site must not exceed the permissible temperature for rated operation.  
Adequate ventilation must be assured even when the devices are mounted very close to each other.  
The device must not be installed within explosion-hazardous areas.

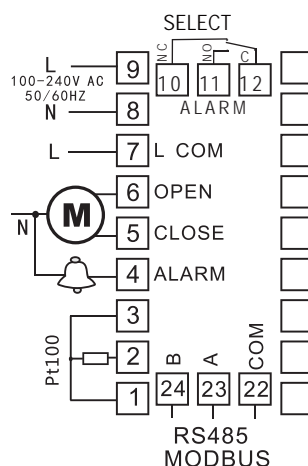


## 5. Electrical connection

The wiring diagram is located on the backplane (T80/T90) and on the top side (T80) of the device respectively.  
The plug-type terminals are located on the backplane of all devices.



The given national rules must be observed for installation.  
The electrical connection has to conform to the connection diagram of the device.  
For measurement and control leads (digital inputs) shielded cables must be used. Also in the switch cabinet these leads must be installed separately from the power systems with rated voltage.  
Before the device is switched on make absolutely sure that the operating voltage, specified on the rating plate, conforms to the mains voltage.  
The connecting terminals may only be disconnected from the device when the connected lines are in a de-energized state.



### 3. Technical data

Line voltage 100-240 V AC 50/60 Hz

Power consumption approx. 5 VA

Weight approx. 0.6kg

Permissible ambient temperature at

- operation 0°C to 50°C

- transport and storage -25°C to + 65°C

Degree of protection Front IP 65 according to DIN 40050

Design For control panel installation 96 x 96 x 120 mm at T90, T80 and 48 x 96 x 120 mm (W x H x D)

Installation position arbitrary

DI-feed voltage 24 V DC, I<sub>max.</sub> = 20 mA

Analog inputs Pt100, 2.4 = 0°C to 300°C or 2.2 = 0°C to 400°C

Connection in three-wire system

Measuring accuracy 0.1% of the measuring range

Digital inputs high active, low = n.c. / 0 V DC  
high = 15 V to 24 V DC

Displays Two 4-digit 7 segment displays, LED red,

Relay Switching capacity: 250 V AC / 3 A

Spark quenching element

Serial interface RS 485, modbus protocol in RTU-mode  
1200 to 19200 baud

1 start bit, 8 data bits, 1 stop bit, no parity bit

Data protection Semiconductor memory

### 8. Ordering number T80/T90

