

STATOP 500 Series PID CONTROLLERS



Simple, intuitive configuration and operation

Customizable alphanumeric messages

Multiple configurable logic functions

Advanced setpoint programmer

Measure up



STATOP 500 Series

Advantages & specific features

High-level series

The STATOP 500 Series PID controllers form a family of products designed to control the temperature and other physical quantities (pressures, flow-rates, etc.) in industrial processes and manage the positioning of power-operated valves.

The 500 Series is a complete range of 3 high-performance models: STATOP 548 - 589 - 596. They are distinguished by their dimensions (1/16, 1/8 and 1/4 DIN), the amount of information displayed and the number of logic inputs offered.

Simple configuration

Configurable without the user's manual in just 7 steps and only a few minutes, directly using the controller keypad or with the PYROtools configuration software on a PC.

Advanced, customizable functions

The 500 Series offers a large number of functions such as the setpoint programmer, logical blocks, the timer, the energy monitor and alerts for preventive maintenance. Because they are configurable, these can be saved and reused for future applications.

Universal solution

With their universal input and Modbus RTU communication, the 500 Series is easy to integrate into all command systems or programmable logic controllers (PLCs).

Intuitive use

Equipped with a backlit LED display indicating all the process information, the 500 Series is simple and intuitive to use for any operator.

Smart display

More than 300 preconfigured and customizable alphanumeric messages provide clear, precise information on the process such as: diagnostics, alarms, process status.

Examples of display texts: ALARM, HEAT, 4-20 MA,

New generation of industrial temperature and process controllers equipped with the latest technological advances



Clear, simple operator interface

More than just a simple controller...

With their logical blocks and their monitoring functions, the STATOP 500 Series can replace a small PLC or an energy monitor.

Control of energy costs

Equipped with an internal energy monitor, the STATOP 500 Series models calculate and indicate your energy consumption on the process tested, in kW and/or €.

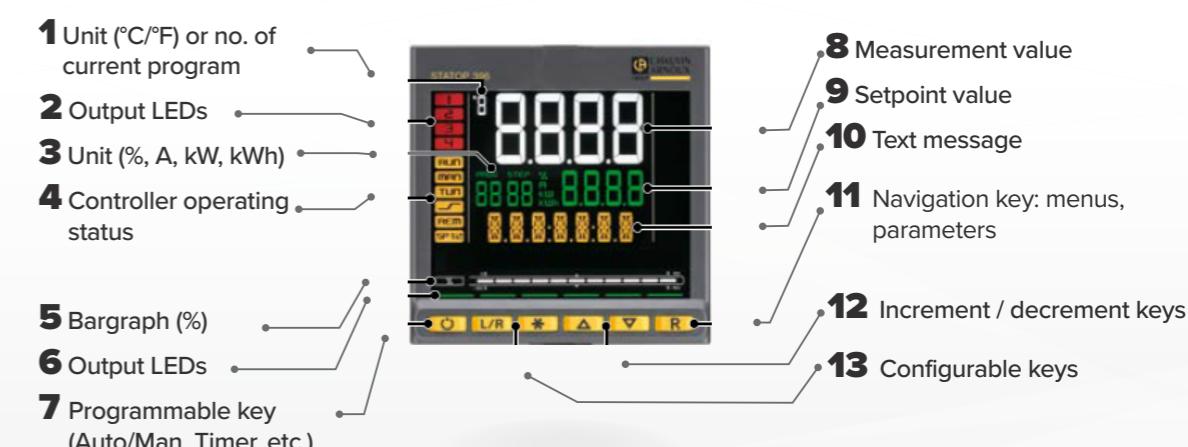
Integrated maintenance system

Particularly useful for programming preventive maintenance operations, the STATOPs handle counting of the commands and programming of the alarm thresholds. The operator is informed of the maintenance to be performed on the actuators by a message on the display.

PYROtools assistant

The PYROtools software can be used to set up an extended configuration, create working recipes and update the controller's firmware via a PC without having to power the controller.

All the information at a glance!



APPLICATIONS

Temperature & processes

Choice of control type

The STATOP 500 models offer a choice between simple on-off control and PID control with the possibility of step-by-step valve control.

Quick, precise control



Thanks to extremely fast processing of the measurement in 120 or 60 ms, the sampling interval of the 500 Series enables a quick reaction to any change in your process.

Optimization of the settings

Advanced **tuning algorithms** guarantee optimum, stable settings, including with critical or extra-fast thermal systems. Depending on your control needs, these settings can be activated manually or automatically.

Fault detection

Complete diagnostics are performed if:

- ✓ the probe breaks or is connected incorrectly,
- ✓ the load is totally or partially cut off,
- ✓ there are variables outside the range and anomalies in the control loop.

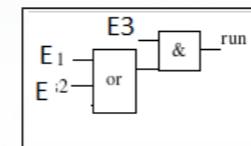


If a fault is reported quickly, it helps to limit production losses and achieve energy savings.

Functional application blocks

Sixteen AND, OR or Timer **functional blocks** can be used to create customizable logical sequences in order to ensure comprehensive, flexible control of the machine.

The controller's hardware resources are fully exploited, without requiring additional external equipment (e.g. timers and small PLCs).



Timer

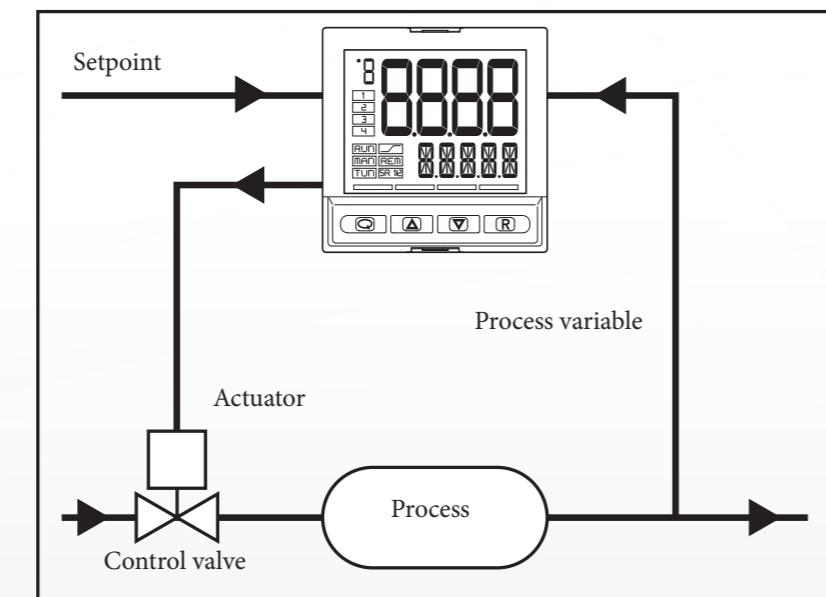


Three types of timer can be used to define:

- ✓ wait times before activation of the setting,
- ✓ setpoint hold times,
- ✓ scheduled setpoint changes.

Control of power-operated valves

The 500 Series is equipped with algorithms for controlling power-operated valves. This function can be used to manage **adjustment of the valves without feedback**. This practical function means that the valve's position is calculated and displayed on screen.



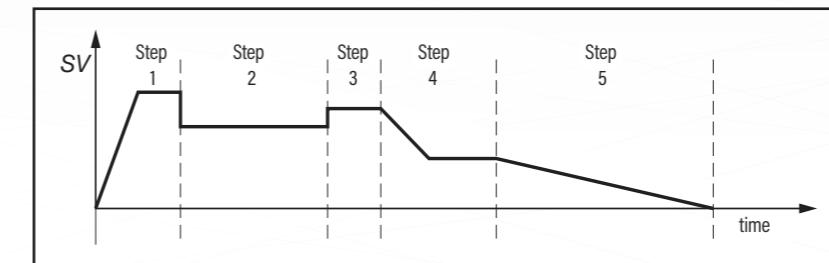
The 500 Series is equipped with a large number of functions for more effective work in the field

Setpoint programmer



The temperature profiles can be programmed with up to 12 steps and can be grouped and stored in 4 programs, with programmable ramps, holds and event inputs and outputs.

The programmer function helps to avoid temperature overruns and ensure a smooth transition when passing from one setpoint to another.



Remote configuration & control with PYROtools

The PYROtools software allows you to:

- ✓ read and write the configuration of the controller,
- ✓ store the recipes on a PC,
- ✓ display in graphic form all the parameters used by the Programmer function,
- ✓ display/configure logical operations,
- ✓ configure the parameters of the user configuration menu,
- ✓ configure alphanumeric messages,
- ✓ download Firmware upgrades



Energy monitor



The **Energy Monitor function** can be used to calculate and monitor energy consumption, estimate energy costs and report any anomalies. Values indicated: in kW and/or in €.

Preventive maintenance



This controller function allows you to monitor the life cycle of the actuators. It calculates the number of operations executed by the actuator or the duration of component operation. When compared with the average life cycle of the actuator, these data enable you to program its replacement preventively.

Large number of alarm and threshold functions



The alarms monitor the measurements and/or the difference between the setpoint and the measurement, with the possibility of linking up to **4 programmable alarms** to an output. They ensure:

- ✓ protection of the production goods and the installation,
- ✓ quality monitoring by early detection of deviations from the optimum values and triggering of an alarm in the event of threshold overruns.

PID CONTROLLERS - 500 SERIES

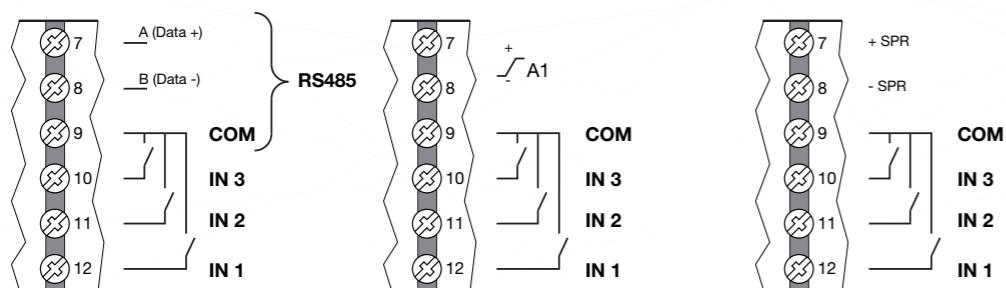
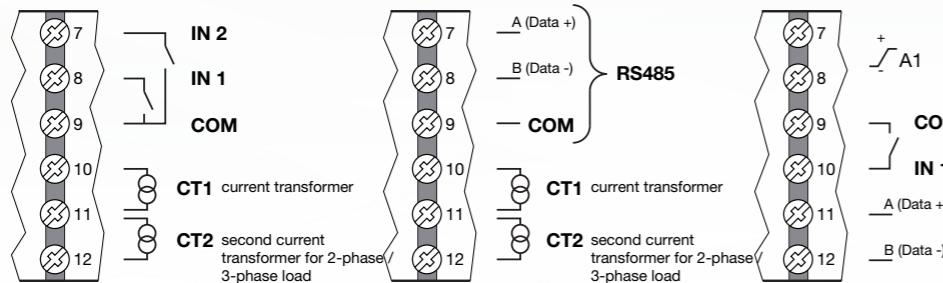
TECHNICAL SPECIFICATIONS

	STATOP 548	STATOP 589	STATOP 596
OPERATOR INTERFACE			
Type	LCD with black background		
Screen area (L x H)	35 x 30 mm	37x 68 mm	83x68 mm
Lighting	Backlit with LEDs, life > 40,000 hours @ 25 °C		
PV display	Number of digits: 4 to 7 segments, with decimal point Digit height: 17 mm; Color: white or "custom"	Number of digits: 4 to 7 segments, with decimal point. Digit height: 23 mm; Color: white or "custom"	Number of digits: 4 to 7 segments, with decimal point. Digit height: 11 mm; Color: green or "custom"
SV display	Number of digits: 5 to 14 segments, with decimal point. Digit height: 7.5 mm; Color: green or "custom"	Number of digits: 4 to 7 segments, with decimal point. Digit height: 14 mm; Color: green or "custom"	Number of digits: 4 to 7 segments, with decimal point. Digit height: 11 mm; Color: green or "custom"
F display		Number of digits: 5 to 14 segments, with decimal point. Digit height: 9 mm; Color: amber or "custom"	Number of digits: 7 to 14 segments, with decimal point. Digit height: 9 mm; Color: amber or "custom"
Unit of measurement	Selectable, °C, °F or custom 1; Color: same as PV display		
Controller state signals	Number: 6 (RUN, MAN, _/-, REM, SP1/2), Color: amber		
Output state signals	Number: 4 (1, 2, 3, 4) Color: red		
Bargraph indicator, configurable		Type: graphic bargraph,11 segments Power indication: 0...100% or -100...100% Current indication: 0...100% f.s. Valve position indication: 0...100%	
KEYPAD	Number of keys: 4 silicon (Man/Auto, INC, DEC, F), Type: mechanical	Number of keys: 6 silicon (Man/Auto, L/R, *, INC, DEC, F)	
INPUTS			
Sensor type	TC, RTD (PT100, JPT100), IR ES1B, DC linear sensor		
MAIN INPUT	TC inputs: Calibration accuracy: < +/- (0.25% of reading value in °C +0,1°C) Linearization accuracy: 0.1% of reading value Cold junction accuracy: < +/- 1.5°C at 25°C room temperature Cold junction compensation: > 30:1 rejection to the change of the room temperature RTD input: Calibration accuracy: < +/- (0.15% of reading value in °C +1°C) Temperature drift: < +/- (0.005% of reading value in °C +0.015°C)/°C from 25°C room temperature Linearization accuracy: 0.1% of reading value Linear inputs: Calibration accuracy< 0.1% full scale Temperature drift: < +/- 0.005% full scale /°C at 25°C room temperature		
	Accuracy		
	Sampling time	60 ms / 120 ms, selectable	
	Digital filter	0.0...20.0 s	
	Temperature unit of measurement	Degrees C / F, selectable from keypad	
	Signal interval	Type: linear Scale: -1999...9999, settable decimal point	
	TC (thermocouple) input	Thermocouple: J, K, R, S, T, C, D; Linearization: ITS90 or custom;	
	RTD (resistance thermometer) input	Resistance thermometer: PT100, JPT100; Input impedance (Ri): ≥ 30 kΩ; Linearization: DIN 43760 or custom; Max. line resistance: 20 Ω	
	DC linear input	0...60 mV input impedance (Ri): > 70 kΩ 0...1 V input impedance (Ri): > 15 kΩ 0...5 V / 0...10 V input impedance (Ri): > 30 kΩ 0/4...20 mA input impedance (Ri): 50 Ω Linearization: linear or custom	
AUXILIARY INPUT	Remote setpoint	0...1 V, 0...10 V, 0/4...20 mA	
	Scale	0...1 V input impedance (Ri): > 15 kΩ 0...10 V input impedance (Ri): > 10 kΩ 0/4...20 mA input impedance (Ri): 50 Ω	
	Accuracy	0.1% f.s. ±1 digit @25 °C	
CT INPUT (ammeter)	Type	Isolated via external transformer	
	Accuracy	Number: 2 max - Max. capacity: x / 50 mA AC - Line frequency: 50/60 Hz - Input impedance (Ri): 10 Ω ±2% f.s. ±1 digit @25 °C	
DIGITAL INPUTS	Number	3 max	5 max
	Type	voltage-free contact, or NPN 24 V - 4,5 mA, or PNP 12/24 V - max 3,6 mA.	
	Isolation	500 V	
OUTPUTS			
ALARMS	Relay (R)	Number: 4 max Type of relay contact: NO Max. current: 5 A, 250 VAC / 30 VDC, Minimum load: 5 V, 10 mA - Life cycle: > 100,000 operations - Double isolation	Number: 4 max Type of relay contact: NO Max. current: 5 A, 250 VAC / 30 VDC, $c_{op} = 1$
	Logic (D)	Number: 2 max - Type: for solid-state relays - Voltage: 24 V ±10% (min 10 V @20 mA) - Isolated from main input	
	Triac (long life relay) (T)	Number: 1 max Load: resistive Voltage: 75...264 VAC Current max: 1 A Isolation 3 kV; snubber circuit integrated zero crossing switching	Number: 1 max Load: resistive Voltage: 12...240 VAC Current max: 2 A Isolation 2.5 kV zero crossing switching

	STATOP 548	STATOP 589	STATOP 596
ALARMS			
Continuous (C)	Number: 1 max Current: 4...20mA $R_{out} < 500 \Omega$ Resolution: 12 bit Isolated from main input		
Analog retransmission (A1)	Number: 1 max Signal: 10V, 0/4...20mA 0...10 V, max 20 mA, $R_{out} > 500 \Omega$ 0...20 mA, 4...20 mA, $R_{out} < 500 \Omega$ Resolution: 12 bit Isolated from main input		
Number of alarm functions	4 max, assignable to an output		
Possible configurations	Maximum, minimum, symmetric, absolute/relative, exclusion at firing, memory, reset from keypad and/or contact, LBA, HB, HBB Hold Back Band if enabled with Programmer function		
CONTROL FUNCTIONS			
Type	Single loop		
Control	PID, ON/OFF, single action heat or cool, double action heat/cool		
Control output	Continuous or ON/OFF Cycle time: constant or optimized (BF)		
Control output for motorized valves	OPEN/CLOSE for floating motorized valve on Relay, Solid-state, Triac outputs		
Number of programs	Max 4, Start / Stop / Reset / Skip via digital inputs and/or outputs from logic operations Output state: Run / Hold / Ready / End		
Number of steps	Max 12, each with own setpoint, ramp time and hold time; Times settable in HH:MM or MM:SS Max 4 consents, configurable for ramp and for hold Max 4 events, configurable in ramp and in hold		
Number of setpoints	Max 4, selectable from digital input Each setpoint change is subject to set ramp, different for up and down ramp		
MULTIPLE SETPOINTS			
LOGIC' OPERATIONS	Function blocks		
TIMER FUNCTION	Modes		
ENERGY COUNTER			
DIAGNOSTIC			
Short circuit or open circuit (LBA alarm) Interrupted or partially interrupted load (HB alarm) Short circuit of control output (SSR alarm)			
RETENTIVE MEMORY	Type EEPROM Max. number of writes 1,000,000		
SERIAL INTERFACE			
	Type: RS485 Baudrate: 1200, 2400, 4800, 9600, 19,200, 38,400, 57,600, 115,200 bit/s Protocol: MODBUS RTU Isolated from main input		
GENERAL DATA			
POWER SUPPLY	Operating voltage 5 W max Power dissipation Protections Overvoltage 300 V / 35 V	100...240 VAC/VDC ±10%, 50/60 Hz (on request 20...27 VAC/VDC ±10%) 10 W max 10 W max	
CONNECTIONS	Connection Serial configuration port (for USB connection)	Screw terminals and crimp connector, max. wire section 1 mm ²	
	Inputs and outputs	Connector: microUSB Screw terminals and crimp connector, max. wire section 2,5 mm ²	
AMBIENT CONDITIONS	Use Altitude Operating temperature Storage temperature Relative humidity	Indoor 2000 m max -10 ... +55 °C (as per IEC 68-2-14) -20 ... +70 °C (as per IEC 68-2-14) 20...85% RH non-condensing (as per IEC 68-2-3)	
PROTECTION LEVEL		IP 65 on front panel (as per IEC 68-2-3)	
ASSEMBLY	Positioning Installation regulations	On panel, removable faceplate Installation category: II; Pollution degree: 2, Isolation: double	
DIMENSIONS		48X48 mm (1/16 DIN), Depth.: 80 mm	48X96 mm (1/8 DIN) Depth.: 80 mm
WEIGHT		0.16 kg	0.24 kg
CE STANDARDS	EMC (electromagnetic compatibility) UL EAC FM	96X96 mm (1/4 DIN) Depth.: 80 mm Conformity C/UL/US File no. E216851 Conformity TC N° RU Д-IT-A 32.b.01762 FM approvals project NO: 0003054712	

PID CONTROLLERS - 500 SERIES

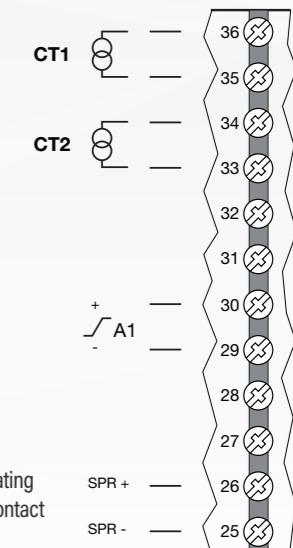
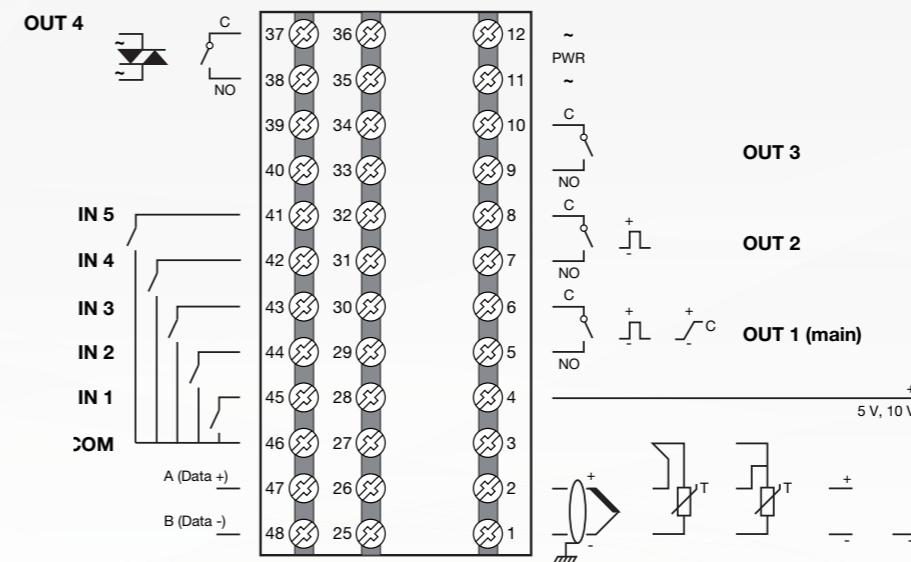
STATOP 548 connections



LEGEND

~ PWR	Power supply
~	Linear input in voltage / current
—	Input for current transformer
+ SPR	Remote Set-point
- SPR	
	Isolated digital inputs
	Thermocouple input
	Input PT100 JPT100 2 / 3 wires
	Logic output
	Relay output
	RS485 serial line
	DC analog output
	Isolated analog output

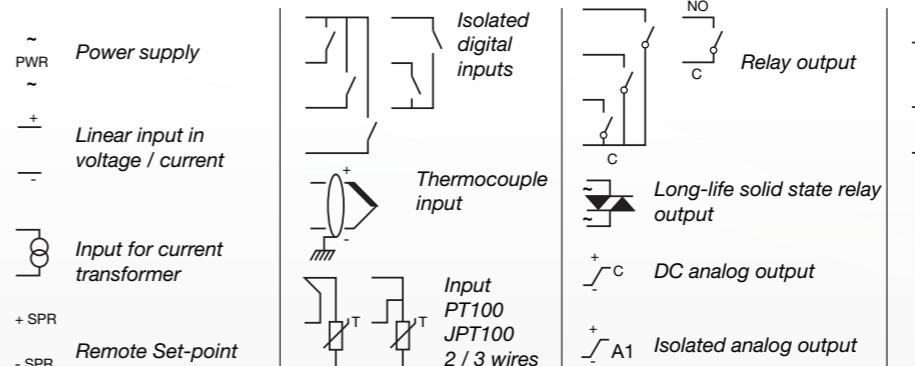
STATOP 589 / 596 connections



LEGEND

~ PWR	Power supply
~	Linear input in voltage / current
—	Input for current transformer
+ SPR	Remote Set-point
- SPR	
	Isolated digital inputs
	Thermocouple input
	Input PT100 JPT100 2 / 3 wires
	Long-life solid state relay output
	Relay output
	A1 Isolated analog output
	RS485 serial line
	Logic output

STATOP 548 / 589 / 596 Input/Output specifications



PID CONTROLLERS - 500 SERIES

To order

STATOP 548 controller

Power supply 100...240 VAC

Code	Model	Valves	Programmer	Inputs		Outputs					Logic functions	Total Number of Outputs	
				Digital	CT	SPR	Relay	Triac	Logic	Analog I	Analog V/I		
LST548C-002	STATOP548C-D-R00-00000-1-P						1		1				2 outputs
LST548C-001	STATOP548C-R-R00-00000-1-P						2						
LST548C-004	STATOP548C-D-R00-00120-1-P	2	1				1	1					
LST548C-003	STATOP548C-D-RRO-00000-1-P						2	1					
LST548C-005	STATOP548C-R-RRO-00000-1-P						3						
LST548C-009	STATOP548C-R-RTO-00000-1-P						2	1					
LST548C-010	STATOP548C-D-RRO-00030-1-P	3					2		1				
LST548C-007	STATOP548C-D-RRO-00200-1-P			2			2	1					3 outputs
LST548C-006	STATOP548C-C-RRO-00000-1-P						2		1				
LST548C-008	STATOP548C-D-R00-01030-1-P	3					1	1		1			
LST548C-014	STATOP548C-R-R00-01030-1-P	3					2			1			
LST548C-012	STATOP548C-R-RRO-00101-1-P			1			3				•		
LST548C-011	STATOP548C-D-RRR-00000-1-P						3	1					
LST548C-015	STATOP548C-R-RRR-00000-1-P						4						
LST548C-013	STATOP548C-D-RRR-00220-1LFP	2	2				3	1			•		
LST548C-016	STATOP548C-D-RRR-00031-1LFP	3					3	1			•		
LST548C-019	STATOP548C-D-RRR-00201-1LFP			2			3	1		•	•		
LST548C-020	STATOP548C-D-RRO-01011-1LFP			1			2		1	•	•		4 outputs
LST548C-017	STATOP548C-C-RRR-10030-1LFP			3	1		3		1	1			
LST548V-018	STATOP548V-R-RRR-00000-1-P	•					4						
LST548V-022	STATOP548V-R-RRR-00030-1-P	•		3			4						
LST548P-023	STATOP548P-D-RRR-00000-1-P		•				3	1					
LST548P-021	STATOP548P-D-RRR-00030-1LFP		•	3			3	1			•		
LST548C-024	STATOP548C-D-RRR-01030-1LFP			3			3	1	1	1	•		5 outputs

STATOP 589 controller

Power supply 100...240 VAC

Code	Model	Valves	Programmer	Inputs		Outputs					Logic functions	Total Number of Outputs	
				Digital	CT	SPR	Relay	Triac	Logic	Analog I	Analog V/I		
LST589C-001	STATOP589C-D-R00-00000-1-P						1		1				2 outputs
LST589C-002	STATOP589C-R-R00-00000-1-P						2						
LST589C-003	STATOP589C-D-R00-00150-1-P	5	1				1	1					
LST589C-004	STATOP589C-D-RRO-00000-1-P						2		1				
LST589C-005	STATOP589C-R-RRO-00000-1-P						3						
LST589C-006	STATOP589C-D-RRO-00050-1-P	5					2	1		1			
LST589C-007	STATOP589C-D-RRO-00200-1-P		2				2		1				
LST589C-008	STATOP589C-C-RRO-00000-1-P						2	1		1			3 outputs
LST589C-009	STATOP589C-D-R00-01050-1-P	5					1	1		1			
LST589C-010	STATOP589C-R-R00-01050-1-P	5					2			1			
LST589C-011	STATOP589C-R-RRO-00101-1-P		1				3				•		
LST589C-012	STATOP589C-D-RRR-00000-1-P						3	1					
LST589C-013	STATOP589C-R-RRR-00000-1-P						4						
LST589C-015	STATOP589C-R-RRT-00000-1-P						3	1					
LST589C-014	STATOP589C-D-RRR-00250-1LFP	5	2				3	1			•		
LST589C-016	STATOP589C-D-RRR-00051-1LFP	5					3	1			•		
LST589C-017	STATOP589C-C-DRR-00051-1LFP	5					2	1	1	1	•		
LST589C-018	STATOP589C-D-RRR-00201-1LFP		2				3				•		4 outputs
LST589C-019	STATOP589C-C-RRR-10050-1LFP	5					1	3		1	1		
LST589V-020	STATOP589V-R-RRR-00000-1-P	•					4						
LST589V-021	STATOP589V-R-RRR-00050-1-P	•	5				4						
LST589P-022	STATOP589P-D-RRR-00000-1-P	•					3	1					
LST589P-023	STATOP589P-D-RRR-00050-1LFP	•	5				3	1			•		
LST589C-024	STATOP589C-D-RRR-01050-1LFP	5					3	1	1	1	•		5 outputs

STATOP 596 controller

Power supply 100...240 VAC/VDC

Code	Model	Valves	Programmer	Inputs		Outputs					Logic functions	Total Number of Outputs	
				Digital	CT	SPR	Relay	Triac	Logic	Analog I	Analog V/I		
LST596C-001	STATOP596C-D-R00-00000-1-P						1		1				2 outputs
LST596C-002	STATOP596C-R-R00-00000-1-P						2						
LST596C-003	STATOP596C-D-R00-00150-1-P	5	1				1	1					
LST596C-004	STATOP596C-D-RRO-00000-1-P						2		1				
LST596C-005	STATOP596C-R-RRO-00000-1-P						3						
LST596C-006	STATOP596C-D-RRO-00050-1-P	5					2	2	1				
LST596C-007	STATOP596C-D-RRO-00200-1-P			2			2	2	1				
LST596C-008	STATOP596C-C-RRO-00000-1-P						2	2	1	1			
LST596C-009	STATOP596C-D-R00												

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