

# SR11 SYSTEM FOR INJECTION MOULDS WITH HEATED CHANNELS

## FEATURES:

- Password protection
- PID algorithm
- Auto-tuning
- Fuzzy Logic
- Soft Start

## INPUTS:

- 8x
- 

## OUTPUTS:

- 8x SSR 15 A
- RS 485

## GALVANIC ISOLATION:

- Supply
- RS 485



SR11-3



SR11-6



SR11-8

- Complete set for temperature control in injection moulds with heated channels.
- System equipped with 1 or up to 8 controllers in one housing (depending on the version).
- Built-in 15 A SSR output for each control zone (output resolution: 0.1 A).
- PID control with autotuning and Fuzzy logic algorithm ensuring a high temperature control accuracy and optimal energy consumption.
- "Soft start" function enables the mould preheating.
- Monitoring of the leakage current of heater.
- Signalling of breaks, short-circuits and inverse polarization of the sensor.
- Measurement of the heater leakage current and detection of the maximal current exceeding.
- Measurement of the load current, detection and damage signalling.
- Emergency work mode after the thermocouple damage with a mean power delivered before the damage or with the output turned off.
- RS-485 interface with MODBUS protocol (ASCII and RTU modes) for connection with PC, recorders or other Modbus devices.
- Decreased temperature mode (remote activation with logic input or local activation using the buttons).
- Relay output to signal the alarm states.

## EXAMPLE OF APPLICATION



SR11 set



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### INPUT

Input type	Range	Error
FE-CuNi (J)	0 .. 537 °C	≤ 0.2% of range +/- 1 digit
logic	24 V d.c.	

### OUTPUTS

Output type	Properties	Remarks
SSR relay	15 A, 230 V a.c./ heating zone	up to 8 control outputs
voltageless relay	1 A maximum 50 V a.c./d.c., NO contact	signaling of control deviation overflow

### DIGITAL INTERFACE

Type of interface	Properties	Remarks
RS-485	Modbus ASCII (8N1, 7E1, 7O1) and RTU (8N1, 8N2, 8E1, 8O1)	baud rate up to 19 200 bit/s

## EXTERNAL FEATURES

Overall dimensions of the housing:	SR11-1XXXX	R11-3XXXX	SR11-6XXXX	SR11-8XXXX
Height [mm]	200		197	
Width [mm]	77.5	215	365	465
Depth [mm]			355	
Weight of the SR11 system [kg], ca.	2	7	10	12
Readout field	14 mm LED, 2 x 3 digits			
Protection grade (acc. to EN 60529)	IP30			

## RATED OPERATING CONDITIONS

Supply voltage	1 zone system: 230 V a.c. +/- 10%	frequency 50/60 Hz +/- 10%
	2 .. 8 zone system: 3 x 230/ 400 V a.c. +/- 10%	
Temperature	ambient: 0 .. 40°C	storage: -20...70°C
Relative humidity	< 85%	inadmissible condensation
Operating position	vertical	
External magnetic field	< 400 A/m	

## SAFETY AND COMPATIBILITY REQUIREMENTS

Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Pollution level	2	
Installation category	III	
Maximal operating phase-to-earth voltage	for supply circuit and output circuit: 300 V	for other circuits: 50 V
Altitude a.s.l.	2000 m	

## ELEMENTS OF THE SYSTEM

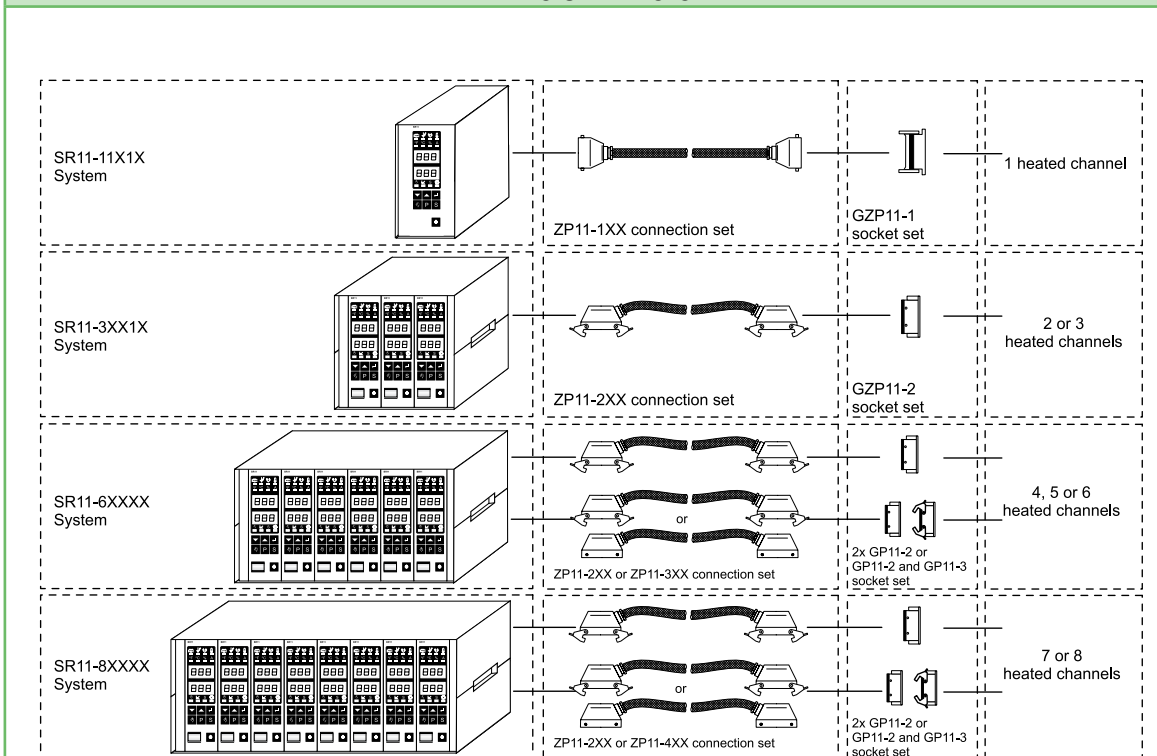


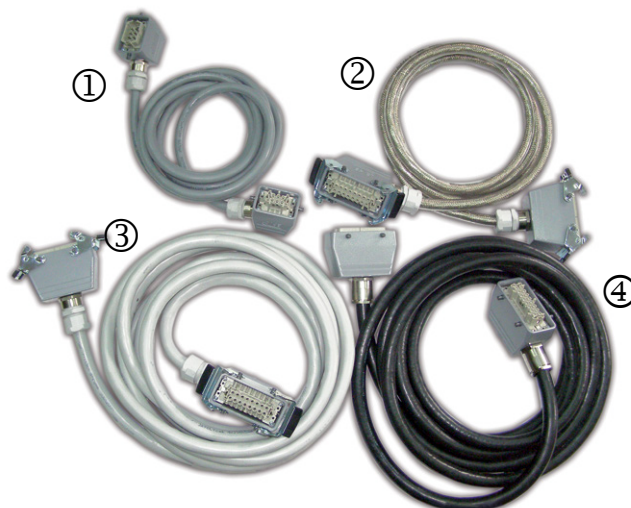
Fig.1. Completion of the SR11 system with ZP11 connections sets

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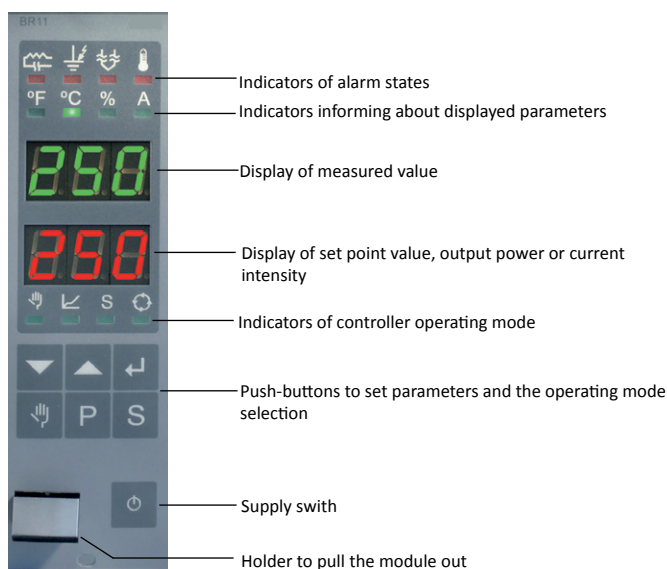
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## ACCESSORIES

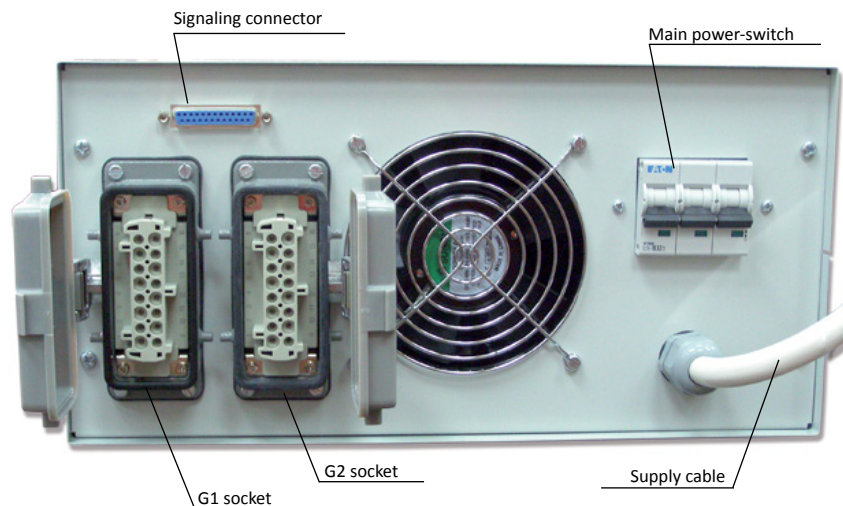


- 1 - ZP11-1 connection set
- 2 - ZP11-2 connection set
- 3 - ZP11-3 connection set
- 4 - ZP11-4 connection set

## VIEW OF THE SYSTEM PLATE



**Fig.2 Frontal plate**



**Fig.3. Lay-out of SR11-6XX1X system connectors.**

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## ORDERING

System SR11 -	X	X	X	X	X
<b>Housing dimensions:</b>					
housing width 77.5 mm	1				
number of controllers: 1					
housing width 215 mm	3				
number of controllers: 2, 3					
housing width 365 mm	6				
number of controllers: 4, 5, 6					
housing width 465 mm	8				
number of controllers: 7, 8					
<b>Number of controllers:</b>					
1 controller	1				
2 controllers	2				
3 controllers	3				
4 controllers	4				
5 controllers	5				
6 controllers	6				
7 controllers	7				
8 controllers	8				
<b>RS-485 interface:</b>					
without RS-485 interface	0				
with RS-485 interface	1				
<b>Connection for moulds:</b>					
common connectors for thermocouples and heaters	1				
separate connectors for thermocouples and heaters <sup>1)</sup>	2				
<b>Acceptance tests:</b>					
without extra quality requirements	0				
with an extra quality inspection certificate	1				
acc. to customer's request <sup>2)</sup>	X				

<sup>1)</sup> concerns only versions with 365 mm and 465 mm housing width

<sup>2)</sup> after agreeing with the manufacturer

### ORDERING EXAMPLE:

The code: **SR11-6 5 0 1 8** - means: system for moulds with heated channels, in a housing of 365 mm width, with 5 controllers, without RS-485 interface, with common connectors for thermocouples and heaters, without extra quality requirements.

Connection set ZP11 -	X	X	X
<b>Kind of system:</b>			
SR11 with 1 controller	1		
one common cable for thermocouples and heaters			
SR11 with 2,3,4,5,6,7,8 controllers	2		
one common cable for thermocouples and heaters <sup>1)</sup>			
SR11 with 4, 5, 6 controllers	3		
one cable for thermocouples			
SR11 with 4, 5, 6 controllers	4		
one cable for heaters			
SR11 with 7, 8 controllers	5		
one cable for thermocouples			
SR11 with 7, 8 controllers	6		
one cable for heaters			
<b>Cable length:</b>			
3 m	1		
6 m	2		
<b>Acceptance tests:</b>			
without extra quality requirements	8		
with an extra quality inspection certificate	7		
acc. to customer's request <sup>2)</sup>	X		

<sup>1)</sup> for SR11 systems with 5, 6, 7, 8 controllers, 2 cables are required

<sup>2)</sup> after agreeing with the manufacturer

### ORDERING EXAMPLE:

The code: **ZP11-1 2 8** - means: connection set of ZP11 type for the SR11 system, with 1 controller for mould with heated channels, with a cable of 6 m long, without extra quality requirements.

Set of sockets for moulds GP11 -	X
<b>Kind of socket:</b>	
one male socket for mould and ZP11-1XX connection set	1
one male socket for mould and ZP11-2XX <sup>1)</sup> , ZP11-4XX and ZP11-6XX <sup>2)</sup>	2
one female socket for mould and ZP11-3XX and ZP11-5XX <sup>3)</sup> connection set	3

<sup>1)</sup> For cables with common wires for heaters and thermocouples, one male socket for one cable is required.

<sup>2)</sup> For cables with separated wires for heaters and thermocouples, one male socket for one heater cable is required.

<sup>3)</sup> For cables with separated heater and thermocouple wires, for one thermocouple cable, one female socket is required.

### ORDERING EXAMPLE:

The code: **GP11- 3** - means: set of sockets for moulds of GP11 type, with one female socket for mould, for the thermocouple wire of the connection set with separated heater and thermocouple wires.

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