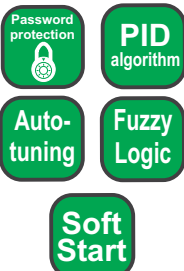


# SR11 SYSTEM FOR INJECTION MOULDS WITH HEATED CHANNELS

## FEATURES:



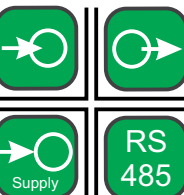
## INPUTS:



## OUTPUTS:



## GALVANIC ISOLATION:



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



| 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            |

# SR11 SYSTEM FOR INJECTION MOULDS WITH HEATED CHANNELS

## 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:<br>230 V a.c. +/- 10%<br><br>2 .. 8 zone system:<br>3 x 230/ 400 V a.c. +/- 10% | frequency 50/60 Hz +/- 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:<br>300 V | for other circuits: 50 V |
| Altitude a.s.l.                          | 2000 m                                          |                          |

## ELEMENTS OF THE SYSTEM

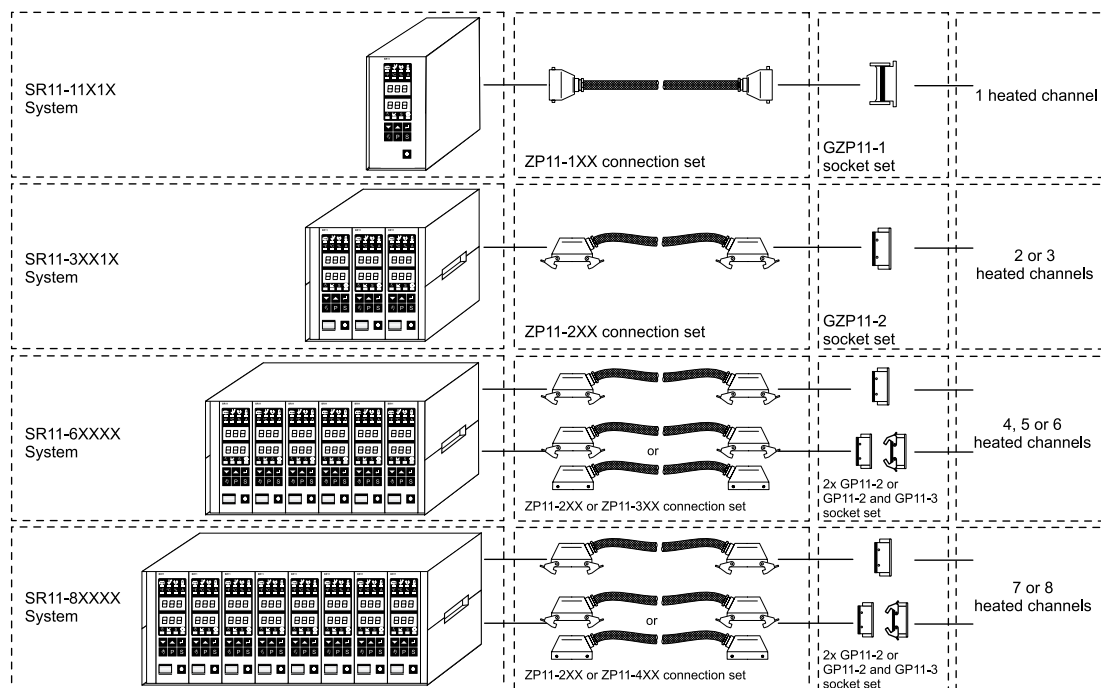
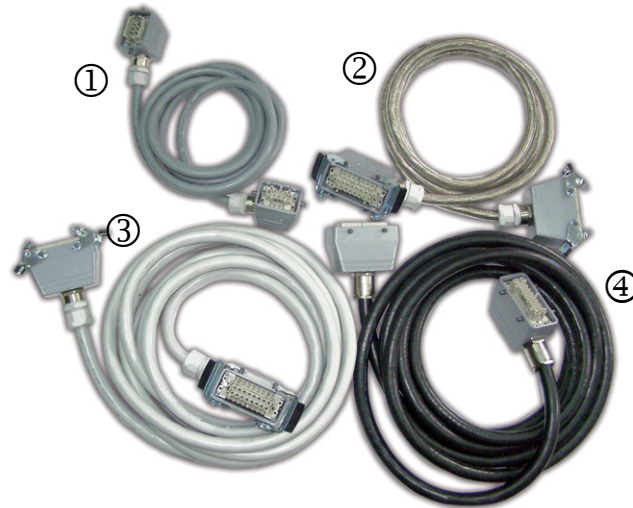


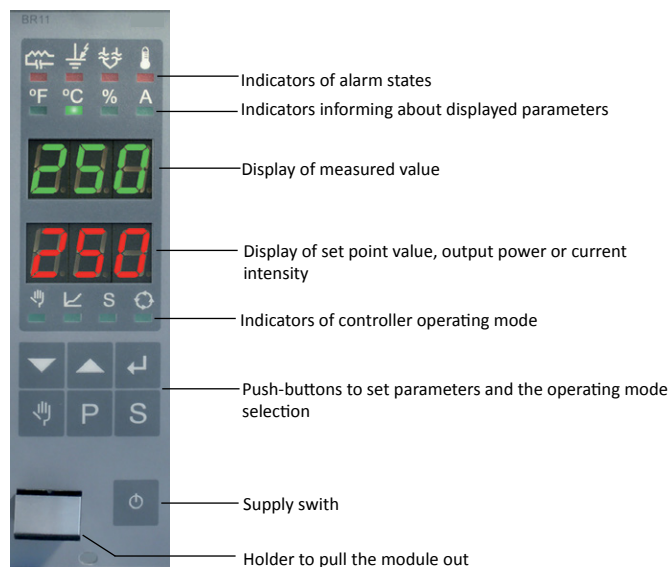
Fig.1. Completion of the SR11 system with ZP11 connections sets

## ACCESSORIES

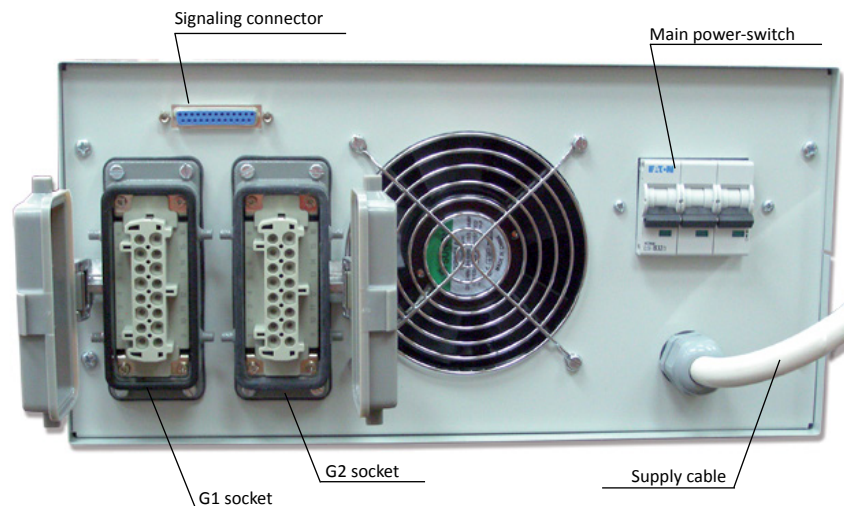


- 1 - ZP11-1 connection set
- 2 - ZP11-2 connection set
- 3 - ZP11-3 connection set
- 4 - ZP11-4 connection set

## VIEW OF THE SYSTEM PLATE



**Fig.2 Frontal plate**



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

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**Export department:**  
Tel.: +48 68 45 75 139 /  
/276/ 386  
Fax: +48 68 32 54 091  
e-mail: [export@lumel.com.pl](mailto:export@lumel.com.pl)

LUMEL S.A.  
ul. Sulechowska 1  
65-022 Zielona Góra  
POLAND

[WWW.LUMEL.COM.PL](http://WWW.LUMEL.COM.PL)

# SR11 SYSTEM FOR INJECTION MOULDS WITH HEATED CHANNELS

## 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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