Technical Data Sheet

Program Controller *Regulus*

Faster, auto-tuning PID or temperature profiling controller with a cycle time of just 200 µs.

The digital program controller *Regulus* was especially designed for demanding pyrometer temperature and control requirements where rapid, precise and time-accurate temperature control is necessary. Above all, this unit is an excellent complement to the *Metis* and *Sirius* product lines, where fast step response is important. A maximum of 9 process-related programs with up to 9 different temperature set points can be stored as individual steps in the controller. The longest possible set-time for each individual step is either 999.9 s or 999.9 min. One can set and recall the programs by using not only the front keyboard but also by means of the software program *RegulusWin* supplied with the unit.

Regulus Program Controller

The controller recognizes each pyrometer connected and retrieves the parameters which are set. If needed, all parameters can be modified via the *RegulusWin* software or via the keyboard. The set points can be initiated either in a time-independent fashion as temperature profile or by utilizing the set PID parameters.

The unit electronics is contained in a compact table top housing which is appropriate for front flush mounting. The internal power supply is used as well for a pyrometer connected externally. A second housing design having double the width and an integrated pyrometer and fiber optics is available as well.

Product Description

- **RP10** Program controller for all Metis und Sirius pyrometers, with 2 or 4 switching points as well upon request
- **RP12** Program controller with 4 – 20 mA actual value of analog pyrometers or linearized thermocouple input signals.
- **RP14** Program controller with 4 – 20 mA actual value of analog pyrometers or thermocouple Type K input signals.
- **RS10** Auto-tuning PID-controller

Remarks: The *Metis* MB, MI, MP, MS and MQ product lines are available upon request with an integrated PID-controller and auto-tuning, which can be set only via the software program *Sensorwin*. The *Metis* MY product line is the only one where this combination not available. Therefore, *Regulus* is not only highly recommended for the *Metis* line but also for all other pyrometric control processes where the settings made via the front panel keyboard are advantageous.

Output signals

In addition to the controller output, switchable from 0/4 - 20 mA into 0/2 – 10 V DC, the linear temperature output signal (real value) is available via a plug on the rear side. Start and finish of the measuring range can be easily configured within the span of each pyrometer connected to the unit. The minimum setting level is 51°C.
RS 232 or RS 485 with a max. of 115,2 kBd are available as standard digital interface options.

RegulusWin-Software

The parameterization of the controller and the attached pyrometer are part of the standard Windows[®] software program. At the same time, set value and evolution of the temperature can be displayed in graphic form and stored. Since the pyrometer settings can be stored as well, the protocols serve as documentation for quality control. Upon request, the control procedure (controller output) can be displayed provided the relevant function is activated.
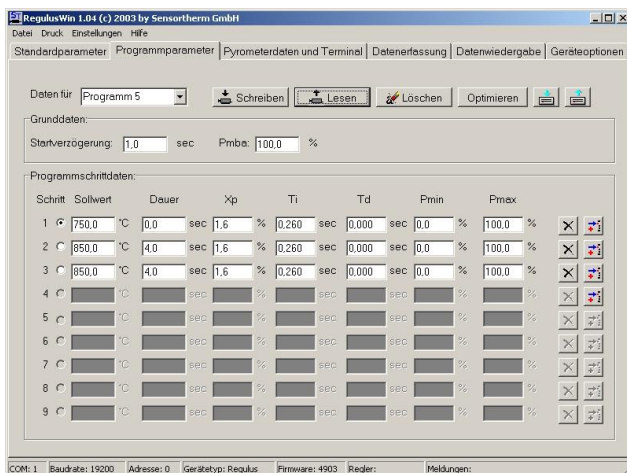
Since the connection of the computer is made via a separate interface cable, and can be removed once the setting procedure is completed, the system functions normally in a stand-alone mode. Should an automatic, process-dependent parameterization of the pyrometer or the controller, or, depending on the situation, the display or graphical storage of the measured temperatures be required, the interface connection can be maintained.
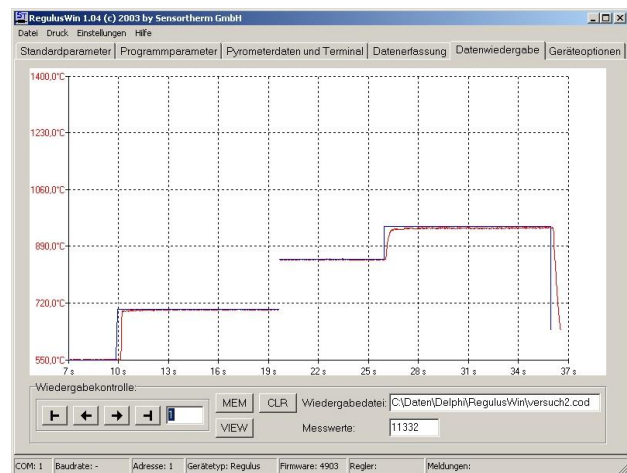
The following features, especially designed for the combined use of the controller with a pyrometer, offer additional functionalities:

- Manual pre-setting of the controller output for testing the control system
- Inversion of the controller output in order to control the cooling processes
- Pre-setting of the minimum and maximum limits of the controller output for determining the control process
- Pre-setting the maximum controller output quantity until starting the pyrometer measurement

Template for the entry of the program parameters

Template for the data presentation and collection

Additional Technical Data

Power supply:	100 – 240 V AC wide-range input 15 VA
Electrical connection:	via rubber connector plug on the rear side
Output voltage:	24 V DC, 300 mA
Analog output temperature:	current 0/4 – 20 mA, galvanically isolated
Analog controller output Y:	current 0/4 – 20 mA or voltage 0/2 – 10 VDC (switchable), galvanically isolated
Cycle time:	200 µs
Time for each step:	max. 999,9 sec, or optionally max. 999,9 min
External input:	program start or release, manual or emergency stop via 24 V DC
Digital interfaces:	RS232C or bus-enabled RS485 half duplex, galvanically isolated
Baud rates:	2400 bit/s, 4800 bit/s, 9600 bit/s, 19200 bit/s, 38400 bit/s,57600 bit/s, 115200 bit/s
Operating display:	2x16 digits, switchable background lighting
2 or 4 Limit contacts (optional):	relay, max. 5 A, 250 V AC or photo coupler, 10 – 30V DC, max. 100 mA
Pyrometer parameters:	via interface, can be modified or read: emissivity level, exposition time, peak picker reset time, address, baud rate, temperature range
Controller parameter:	manual, set point, holding time, controller output limit (min/max), PID-parameters can be set manually and determined via automatic optimization
Rating:	IP 30 (according to DIN 40 050)
Ambient temperature:	0 - +50°C on the housing
Storage temperature:	-20 - +70°C
Weight:	1,2 kg
CE-Label:	according to the EC directives on electromagnetic immunity
Maximum dimensions:	B x H x T: 126 x 96 x 280 mm (with mounted plug)

Accessories: The cable connecting the *Regulus* unit to the pyrometer is not supplied and must be ordered separately. Standard cable length is 5 m, longer cables available upon request.

5 m connecting cable Metis manufactured with 90° plug, pilot light button and Regulus plug	AK14-05
5 m connecting cable Metis manufactured with 90° plug, pilot light button, SC10 cable and Regulus	AK16-05
5 m connecting cable Sirius manufactured with sensor connector and Regulus plug	AK35-05

Scope of Delivery:

Regulus Table top unit with instruction manual and software
Power cable with rubber connector plug,
RS232 connector cable,
Connector plug for output signals and start functions
If Regulus is ordered with switching contacts, all plugs required for connecting the switching contacts will be supplied as well.

The technical data is based on the currently available product specifications. The specifications are subject to change without notice. DB_Regulus_de_10.10.27

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