

PRODUCT-INFO



Measuring - Controlling - Regulating
All from the same source

TEMPERATURE REGULATOR for milk cooling systems

MPR-M



www.welba.de

Device description



Welba's milk temperature regulators are used to control stirrer motors and refrigeration compressors in milk cooling systems.



The currently measured milk temperature is permanently displayed of all controller models on the display. If the milk temperature exceeds the selected setpoint temperature by the value of the hysteresis, the compressor contactor and the stirrer are automatically switched on. When the setpoint temperature is reached, the compressor contactor switches off, the stirrer continues to move by the set "additional stirring time". During the cooling pauses, the stirrer switches on again according to the set pause time, in order to ensure an even temperature distribution of the milk.

Adjustable minimum pauses and minimum response times for each switching stage allow an individual adaptation to the various conditions of the systems.

The benefits of our milk temperature regulators include not only the high functionality and the various connection possibilities but also a high degree of reliability, which can be attributed not least to the exclusive use of high-quality components.

Parameterization in general

In order to ensure easy operation (by the user) and clear parameterisation (by the plant engineer), the development of the devices was given the utmost importance to easy-to-understand programming.

Parameter levels

The operation and presetting of the controller are divided into three levels, the access authorization of which is to be assigned by the system manufacturer.

Working level

The working level is used for everyday operation by the user. Unintentional parameter adjustments are not possible here. The set target temperature for relay contact K1 can be read and changed here at any time by pressing a button.

Programming level

This is the level at which the regulatory parameters are set.

Setting is more complex and possible only using specific combinations of buttons so as to prevent accidental changes to settings.

Configuration level

This is the level at which the basic functions of the regulator are set.

As subsequent interventions by the end user (after the parameters have been set) can result in dangerous changes to functions which might not be immediately obvious, access to the configuration level is even more complex.

Operation overview for configuration level

Switching to configuration level: see description

	Display setting	Altering setting	Factory setting
Sensor failure function K1	SET	\oplus Δ ∇	1
Sensor failure function K2	SET	\oplus Δ ∇	1
Hysteresis-mode for T1	SET	\oplus Δ ∇	1
Hysteresis-mode for T2	SET	\oplus Δ ∇	1
Limit for target-temp. T1 downw.	SET	\oplus Δ ∇	0
Limit for target-temp. T1 upw.	SET	\oplus Δ ∇	10
Limit for target-temp. T2 downw.	SET	\oplus Δ ∇	0
Limit for target-temp. T2 upw.	SET	\oplus Δ ∇	20
Limit for Hyst. 1 downwards	SET	\oplus Δ ∇	0,1
Limit for Hyst. 1 upwards	SET	\oplus Δ ∇	2
Limit for Hyst. 2 downwards	SET	\oplus Δ ∇	0,1
Limit for Hyst. 2 upwards	SET	\oplus Δ ∇	2
Min. action time Compr. K1	SET	\oplus Δ ∇	0
Min. pause time Compr. K1	SET	\oplus Δ ∇	0
Switching T1 to T2	SET	\oplus Δ ∇	0
Mode intermitt. stirring	SET	\oplus Δ ∇	1
Temperature scale	SET	\oplus Δ ∇	0

To switch back to the working level:

Press for 5 seconds simultaneously (Switches back automatically after 30 seconds.)

Milk temperature regulator MPR-M

Milk temperature regulator in standard housing



48 x 96 mm

The microprocessor-controlled milk cooling temperature regulator MPR-M is used to control agitator motors and refrigeration compressors on milk cooling equipment.

- Relay for agitator and compressor
- integr. automatic post-agitation
- Intermediate stirring function

Features

- Easy operation via three work levels
- 2 freely selectable target temperatures
- Various intermediate stirring functions
- Intermediate stirring times freely programmable
- Target temperature and intermediate stirring also adjustable externally
- Freely selectable target temperatures and hysteresis
- LED display of agitator and compressor status
- Target temperature limits freely adjustable
- Lockable buttons to prevent changes to target temperature
- Alarm in the event of sensor short-circuit/sensor fault (adjustable relay switching state in event of fault)
- Adjustable minimum action time and minimum pause time for output relays
- Automatic parameter storage without data loss when a power-cut occurs

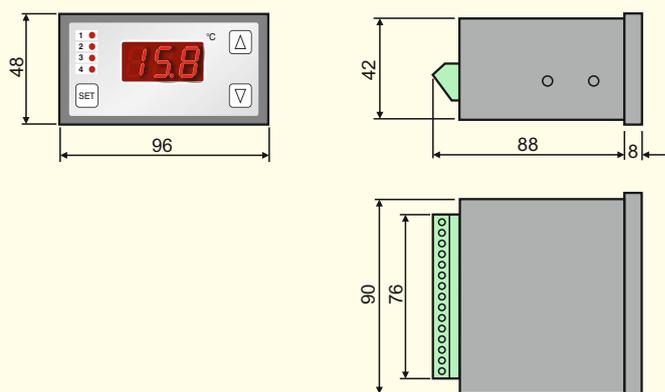


Technical data

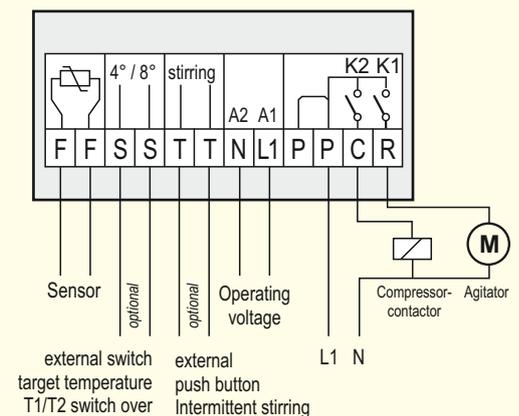
Operating voltage	230 V AC, 50/60 Hz
Relay contact	2 voltage-free make-contacts
max. switching current	12A AC1 each
max. switching voltage	250 V ~
Display	13 mm LED - Display, 3 digits
Display range	-99 .. 999
Resolution	
- Range -9,9 .. 50° C	0.1°C
- other	1.0°C
Sensor	KTY 81-210
Sensor cable length	2 metres (or as required)
Target temperature T1*	standard adjusting 8°C
Target temperature T2*	standard adjusting 4°C
Control type	two-step-controller
Hysteresis	0.1 to 99.9 K free adjustable Standard adjusting 0,7 K
Stirrer	
- resting time (interval) *	factory-set to 2 min.
- stirring time *	factory-set to 20 min.
Housing	Norm panel housing
- front panel cut out	- 90 x 42 mm
- insertion depth	- 88 mm
Protection (housing front)	IP 64
Connection	Screw terminals
Environment specifications:	
- storage temperatur	-20 to 70° C
- operation temperatur	0 to 50° C
- max. humidity	75 % (no dew)

* freely adjustable

Dimension



Connection



Customized developments



The development of solutions tailored to solve our clients' specific problems is one of Welba's major strengths. Here we can offer extensive experience, as well as excellent references.

On the basis of many previous development projects we are in a position to devise a solution to meet your specific needs. Nor is our know-how not restricted to temperature measurement technology; we can also develop solutions in completely different areas of measurement and regulation technology. We can often achieve the necessary simply by modifying our standard products.

In any event, we will always recommend the best solution for you.

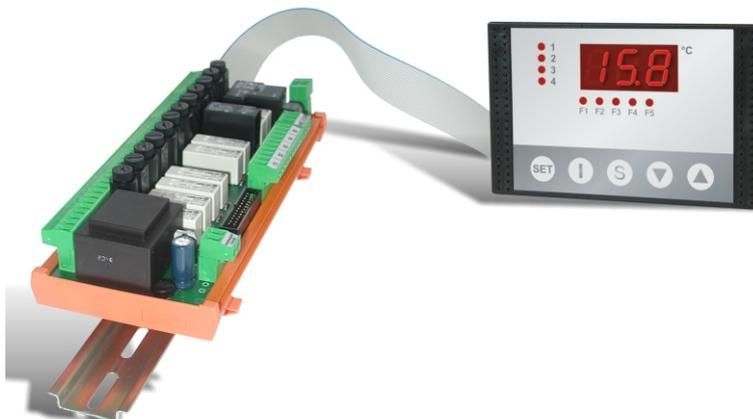
A full service

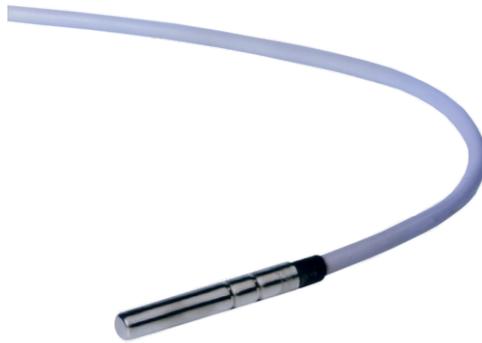
In many cases we offer more than just development work.

At Welba we also understand service to include the development of concepts for the use of the new product by your own customers, the design and production of frontal foils or even housings, or the provision of operating instructions with your own corporate design.

Not always major developments...

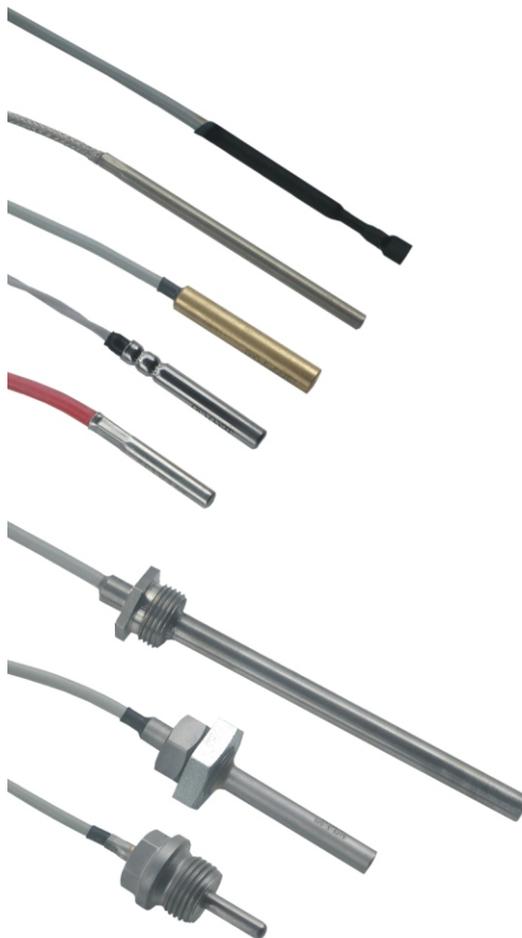
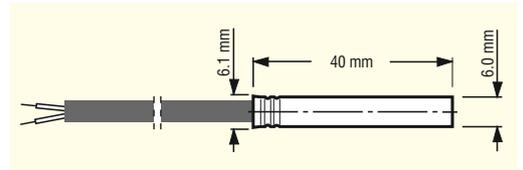
For many of our clients we also develop and manufacture simple electronic systems for straightforward applications.





Welba's standard temperature sensors are characterized by high measuring accuracy and a long service life.

The case material made of stainless steel (1.4301) is food-safe and allows the use in many aggressive media.



On request, we manufacture sensors in different case shapes and cable materials.

The following figure gives an impression of the possibilities.