R6000 8-Channel High-Speed Temperature Controller with Data Logger

GOSSEN METRAWATT's R6000 compact 8-channel temperature controller provides concentrated control technology know-how in a rail mount housing.

Use of the R6000, supplied with a data logger as standard equipment, offers users the advantage of being able to evaluate any possible measuring range input or manipulating factor output errors in a logical fashion over a defined period of time (adjustable sampling rate).

The data logger has enough capacity for 3600 sampled value pairs including actual values and manipulated variables for all 8 channels. Recording is started over each time the device is reset, and data are lost if auxiliary power fails.
Values stored to memory can be picked up continuously and uninterruptedly by means of downloading at regular intervals.
Data can be accessed via the RS 232 or RS 485 interface using the EN60870 or Modbus protocol.

The controller generates new control variables for all 8 channels within a period of only 100 ms, and monitors heating current without interrupting the regulating cycle. The autonomous controller can be very quickly configured and adapted to control systems by means of self-tuning. Outstanding control performance is achieved by means of GOSSEN METRAWATT's own dead-beat PDPI control algorithm, which even assures outstanding results for critical applications in the field of plastics processing equipment manufacturing.

The logger sampling cycle (PI = 92h) can be configured within a range of 0.1 to 600.0 seconds. This results in recording times of 0.1 to 600 hours (6 minutes to 25 days).
The number of samples which can be read out can be queried with PI = 98h.
Actual values and manipulated variables are read out separately, and read-out is controlled by the sampled values at read-in starting points (for actual values PI = 94h, for manipulated variables PI = 95h).
Read-in starting points can be envisioned as flags for a sampled actual value or manipulated variable, as of which the sampled values are read out during the next read operation. The very first sampling is flagged after a reset.
The respective read-in starting point indicates how many samplings are read from the recent past up to the current point in time.
The value cannot be greater than the number of samplings (PI = 98h). If sampled values are read out, the respective read-in starting point is automatically reduced such that the next read-out of sampled values occurs uninterruptedly, and without overlapping. The read-in starting points are increased each time sampled values are saved.
If the read-in starting points are not manipulated via the interface, sampled values can be picked up continuously and uninterruptedly by means of downloading at regular intervals (before old values are overwritten).
Sampled values are read out with PI = 96h for actual values and PI = 97h for manipulated variables. Up to 120 values (15 samplings x 8 channels), or 8 x "read-in starting point" values can be requested. Memory contents are not changed by read-out.

Example:
• The logger sampling cycle is set to 10 seconds (PI = 92h: 100). This corresponds to a total recording time of 10 hours.
• Auxiliary voltage for the R6000 was switched on about 3 hours ago, and no sampled values have yet been queried. Querying of the quantities "read-in starting point sampled actual values" (PI = 94h), "read-in starting point sampled manipulated variables" (PI = 95h) and "number of samplings" (PI = 98h) results respectively in approximately 1080 = 3 x 60 x 60 / 10.
• Samplings for all 8 actual values over the last 15 minutes are now to be read out. The "read-in starting point sampled actual value" (PI = 94h) must be set to 90 = 15 x 60 / 10 to this end.
• The sampled actual values can now be picked up with 6 maximum length frames (PI = 96h, 120 values) (6 x 120 = 90 x 8).
• The "read-in starting point sampled actual value" (PI = 94h) is then reset to zero.
• The "read-in starting point sampled manipulated variable" (PI = 95h) remains unchanged.

Applications:
Injection molding, extrusion, blow molding, hot-runner technology, filtration systems