Product Catalog
Temperature and process control instrumentation
Introducing West Control Solutions

Focused on providing valued temperature and process control expertise, global presence and support

West Control Solutions (WCS), a Fortive operating company, is home to PMA, West Instruments and CAL Controls. This leading group combined their resources and expertise as a single organization to deliver innovative, cost-effective, and high-quality products that today’s process automation marketplace demands.

From simple, entry-level devices to highly sophisticated, functionally-rich solutions, our comprehensive product portfolio includes single and multi-loop controllers, limit devices, indicators, SSRs and transmitters along with recorders and tools for data acquisition.

WCS pride ourselves on being a dedicated global team of temperature and process control experts, who can provide in-depth application knowledge, and are always there to support our customers. As a result, our products are repeatedly used in control applications such as plastics machinery, ovens, furnaces, laboratory and test equipment, packaging machinery and food processing and many more.
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## Single Loop Panel Mounted Controllers

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<thead>
<tr>
<th>Model</th>
<th>MAXVU</th>
<th>CAL</th>
<th>CAL</th>
<th>CAL</th>
<th>P-Series</th>
<th>P-Series</th>
<th>N-Series</th>
<th>N-Series</th>
<th>West Pro</th>
<th>West Pro</th>
<th>West Pro</th>
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<tbody>
<tr>
<td><strong>Product Family</strong></td>
<td>MAXVU</td>
<td>CAL</td>
<td>CAL</td>
<td>CAL</td>
<td>P-Series</td>
<td>P-Series</td>
<td>N-Series</td>
<td>N-Series</td>
<td>West Pro</td>
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<td>11</td>
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<td><strong>Front Format</strong></td>
<td>1/32 DIN (24 x 48mm)</td>
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<td></td>
<td>1/16 DIN (48 x 48mm)</td>
<td>●</td>
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<tr>
<td></td>
<td>1/8 DIN (96 x 48mm)</td>
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<td>1/4 DIN (96 x 96mm)</td>
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<td></td>
<td>1/8 DIN horizontal (48 x 96mm)</td>
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<tr>
<td><strong>Depth (behind panel)</strong></td>
<td>70mm</td>
<td>107mm</td>
<td>107mm</td>
<td>1/16 110mm, other 100mm</td>
<td>1/16 110mm, other 100mm</td>
<td>110mm</td>
<td>110mm</td>
<td>112mm</td>
<td>118mm</td>
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<td><strong>Display type</strong></td>
<td>Large 2 x 4 digit LED</td>
<td>1 x 2 digit LED</td>
<td>2 x 4 digit LED</td>
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<td>1 x 4 digit LED</td>
<td>2 x 4 digit LED</td>
<td>1 x 4 digit LED + 1 x text</td>
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<td>2 x 4 digit/ text/bar LED</td>
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<td>Screw terminal - fixed</td>
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<td>●</td>
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<td>●</td>
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<td>MAXVU configurator</td>
<td>CALgrafix</td>
<td>CALgrafix</td>
<td>Plus Series configurator</td>
<td>Plus Series configurator</td>
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<td>110 VAC</td>
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<td>230VAC</td>
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<td>12VAC / DC</td>
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<tr>
<td>24VAC / DC</td>
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<td>O</td>
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<td>48V AC / DC</td>
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</table>

● = Fitted
○ = Option

(1) 9400 display: 2 x 4 digit LED

www.west-cs.com
The MAXVU is a cost effective temperature controller which is fast-to-configure, has improved display visibility and with only 70mm depth, reduces costs by minimizing wiring and panel space.

**Benefits and features**

- 1/16 DIN (48 x 48 mm) and 1/8 DIN (96 x 48 mm) 70mm depth
- Large high visibility LED display
- Universal input for thermocouple, PT100, mV, V and mA sensors
- 2 or 3 outputs
- RS485 Modbus RTU communications
- Heat/cool strategy
- Ramp/dwell with delay time
- Front panel keys or software set up
- CE, UL and cUL
The compact CAL 3200 1/32DIN temperature controller is designed to be easy-to-use and reliable within the most demanding process and manufacturing applications.

Designed for industrial or scientific applications CAL3200 has an impact resistant smoked fascia with large rubberized buttons with positive feedback. PID tuning is simple and efficient whilst the unique dAC function minimizes overshoot.

**Benefits and features**
- 1/32 DIN (24 x 48 mm) and 1/16 DIN (48 x 48 mm), 102mm depth
- High impact fascia with rubberized buttons
- Thermocouple, PT100 (2 wire) and mV sensor input 2 outputs
- Plug in terminal block
- Simple menu-driven setup
- Heat/cool control strategy
- CE, UL and cUL
The CAL range provides a choice of compact, impact resistant temperature controllers. The easy-to-use devices provide essential temperature control functionality including heat/cool operation and a simple ramp/dwell program. There is an integrated auto-tune feature for optimum PID settings and a unique dAC function to minimize overshoot.

**Benefits and features**

- 1/32 DIN (24 x 48 mm) and 1/16 DIN (48 x 48 mm), 107mm depth
- High impact fascia with rubberized buttons
- Thermocouple, PT100 (2 wire) and mV sensor input
- 2 outputs
- RS232 or RS485 Modbus RTU communications
- Simple menu-driven setup
- Single ramp/soak (dwell) program
- Heat/cool control strategy
- CE, UL, cUL, CSA and FM

---

**Outputs (Reversible)**

- 00 SSD / 2A relay
- 11 2A relay / 1A relay
- 22 SSD / SSD

**Supply**

- 0 100-240V AC
- 3 12-24V AC/DC

---

**Comms**

- 0 Not fitted
- 2 RS232 fitted
- 4 RS485

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(1) Models 3311, 9311, 9400, 9411 and 9422 are not currently available in low voltage 12-24V option.
The CAL 9500P is ideal for applications requiring fixed value or ramping temperature profiles in a compact 1/16th DIN unit. The programmer allows up to 31 programs with up to an overall total of 126 segments.

Set up of the instrument can be carried out using the front buttons or alternatively with the CALgrafix software. The tool allows quick configuration and is easy to create recipes using the graphical ‘drag and drop’ feature. Users can also clone parameter settings of one unit to multiple instruments in the same network.

Benefits and features
- 1/16 DIN (48 x 48 mm), 107mm depth
- High impact fascia with rubberized buttons
- Thermocouple, PT100 (2 wire), mA, V and mV sensor input
- 3 outputs
- RS232 or RS485 Modbus RTU communications
- Heat/cool control strategy
- Up to 126 segments shared in up to 31 programs
- Profiler functions include event outputs, loop, call, hold back and 3 power recovery modes
- Simple menu-driven setup
- CE, UL and cUL
The + series of controllers are used in many temperature and process control applications due to their versatility and ease-of-use. A wide range of input and output options include relay, SSR, transmitter power supply, linear, remote setpoint and digital inputs.

Control functionality includes remote and dual setpoint options, heat/cool control and setpoint ramping.

**Benefits and features**

- 1/16 DIN (48 x 48 mm), 110mm depth, 1/8 DIN (96 x 48 mm), 100 mm depth and 1/4 DIN (96 x 96 mm), 100mm depth
- Membrane fascia with common + series design
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 4 outputs
- Wide range of options available
- RS485 Modbus RTU communications
- Heat/cool control strategy
- Programming port for fast configuration using FTP software
- CE, UL, cUL and CSA

The + series of controllers are used in many temperature and process control applications due to their versatility and ease-of-use. A wide range of input and output options include relay, SSR, transmitter power supply, linear, remote setpoint and digital inputs.

Control functionality includes remote and dual setpoint options, heat/cool control and setpoint ramping.
The 6170+, 8170+ and 4170+ have been designed for valve motor drive (VMD) applications. They feature the common + series interface and greater field flexibility.

A unique VMD tuning algorithm continuously monitors the process to provide stable control at all times.

**Benefits and features**
- **1/16 DIN (48 x 48 mm), 110mm depth, 1/8 DIN (96 x 48 mm), 100 mm depth and 1/4 DIN (96 x 96 mm), 100mm depth**
- Membrane fascia with common + series design
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 4 outputs
- Wide range of options available
- RS485 Modbus RTU communications
- Valve Motor Drive control strategy
- Programming port for fast configuration using FTP software
- CE, UL, cUL and CSA
The West N2300 offers flexibility as a controller or an indicator. In addition to the main 4 digit display the N2300 benefits from three multi-color status LEDs for process, alarm and configuration indication.

The large, tactile rubberized keys provide a more practical human interface which is complemented with a specially developed PID tuning algorithm, Easy-Tune, which continuously monitors and improves control. The N2300 indicator has up to two outputs (relay or solid state driver) for alarm.

**Benefits and features**
- 1/32 DIN (24 x 48 mm), 110 mm depth
- High impact fascia with rubberized buttons
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 3 outputs
- RS485 Modbus communications
- PID control with manual override tune capability for specialized applications
- Simple operation and easy setup
- CE, UL and cUL

### Output Type
- 00 Indicator only
- 01 Indicator + alarm 1 (relay)
- 02 Indicator + alarm 1 (SSR)
- 12 Controller (relay) + alarm 1 (SSR)
- 21 Controller (SSR) + alarm 1 (relay)

### Display Color & Power Supply
- 0 Green display/100-240V AC supply
- 1 Red display/100-240V AC supply
- 2 Green display/12-30V DC/24V AC supply
- 3 Red display/12-30V DC/24V AC supply

### Option
- 0 Not fitted
- 1 Alarm 2 relay output
- 2 RS485 comms
The N6400 is a powerful, single loop programmable controller. It offers profiling capability with 4 programs each with up to 16 free format segments.

The N6400 is easy-to-use, benefiting from an informative display providing maximum process information at a glance. A dedicated configuration port allows setup directly from a PC.

**Benefits and features**
- 1/16 DIN (48 x 48 mm), 110 mm depth
- Membrane fascia
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 3 outputs
- RS485 Modbus communications
- Fast and accurate control via rapID fuzzy logic
- Profiler function 4 programs of 16 segments
- ‘Auto hold’ facility, remote run hold, event output, power failure recovery and guaranteed soak
- CE, UL and cUL

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**Option Slot 1**
- 1 Relay control
- 2 DC for SSR control
- 3 DC 0-10V control
- 4 DC 0-20mA control
- 5 DC 0-5V SP control
- 7 DC 4-20mA control

**Option Slot 2**
- 0 Not fitted
- 1 Relay ctrl, Alarm 2, event or alarm
- 2 DC for SSR control or alarm 2
- 3 DC 0-10V control
- 4 DC 0-20mA control
- 5 DC 0-5V control
- 7 DC 4-20mA control
- 8 Triac control

**Option Slot 3**
- 0 Not fitted
- 1 Relay ctrl, alarm 1, event or profile active
- 2 DC for SSR alarm 1 output
- 3 DC 0-10V re-transmit PV or SP
- 4 DC 0-20mA re-transmit PV or SP
- 5 DC 0-5V re-transmit PV or SP
- 7 DC 4-20mA re-transmit PV or SP

**Power Supply**
- 00 100-240V AC/no options
- 02 24-48V AC or DC/no options
- 10 100-240V AC/RS485 comms
- 12 24-48V AC or DC/RS485 comms
- 30 100-240V AC/remote run-hold
- 32 24-48V AC/DC/remote run–hold

**Input Type**
- 1 3 wire RTD or DC mV
- 2 Thermocouple
- 3 DC mA
- 4 DC voltage

**SSR Code**
- (blank) Special variant not required
- $14 10V DC SSR outputs (requires SSR output codes)
A compact, fully featured controller for demanding applications.

Pro-16 is the only controller of its size, flexible with up to 6 outputs, 2 digital inputs, a remote setpoint input, RS485 communications and linked to best in class BlueControl© software.

The Pro-16 offers many integrated features for unrivaled performance such as two PID sets to ensure reliable control over a wide setpoint range and separate PID for heat and cool strategies for optimized control and stability. Extensive flexibility is offered with 1 universal input and 1 optional process input, up to 4 digital inputs, 6 outputs and a built-in profiler.

Benefits and features
- 1/16 DIN (48 x 48 mm), 112 mm depth
- Display supports backlight color change and text
- Common West Pro family styling
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 6 outputs
- RS485 Modbus communications
- PID Heat/Cool and VMD control strategies
- Optional heater current or remote setpoint
- Customer specific linearization for sensors
- Transmitter power supply
- Profiler 16 profiles x 16 segments
- CE, UL and cUL

| Option 1       | R | Relay (switch over) |
|               | A | Single SSR          |
|               | Y | Dual SSR            |
|               | L | Linear mA/V DC output |
| Option 2      | 0 | Not fitted          |
|               | R | Relay               |
|               | D | Dual relay          |
|               | A | Single SSR          |
|               | Y | Dual SSR            |
| Option 3      | 0 | Not fitted          |
|               | R | Relay (changeover)  |
|               | A | Single SSR          |
|               | Y | Dual SSR            |
|               | L | Linear mA/V DC output |
| Language      | 0 | No manual           |
|               | 1 | German              |
|               | 2 | English             |
|               | 3 | French              |
|               | 4 | Italian             |
|               | 5 | Spanish             |

Supply Voltage
- 0 100-240V AC
- 1 24V AC 50/60Hz or 18 to 30V DC

Model
KS20 1/16 DIN universal industrial controller
The Pro-8 devices are intended for universal and precise control tasks in all process applications plus special features for plastics machinery. Embedded monitoring functions supervise sensors and heaters for preventative maintenance.

Benefits and features
- 1/8 DIN (96 x 48 mm), 118 mm depth
- Common West Pro family styling
- Programmable function key
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Customer-specific linearization for non-standard sensors
- Up to 3 outputs
- RS422/485 Modbus communications
- Optional heater current or remote setpoint
- PID heat/cool control strategy with water cooling
- Front interface and BlueControl© software
- Maintenance manager and error list
- Emergency operation after sensor break using % power output average
- Extended temperature range to 60°C
- CE, UL, cUL and EN 14597

Options
0 No option
1 Modbus RTU + U₁ + di2/3 + OUT5/6
8 U₁ + di2/3 + OUT5/6

Terminal Type
1 Screw terminals

Configuration
0 Standard configuration
9 Customer specific configuration

Power Supply Outputs
0 90-250V AC, 3 relays
1 24V AC / 18-30V DC, 3 relays
2 90-250V AC, INP2, 2 relays + mA/V/logic
3 24V AC / 18-30V DC, 2 relays + mA/V/logic
4 90-250V AC, 2 relays (Changeover) + mA/V/logic
The industrial and process controller Pro-4, takes over automatic control functions in all industrial sectors, precisely and economically. They offer the choice of simple On/Off control, PID control or stepping motor control. A bar-graph / text display provides the user with additional clear messages and process information.

**Benefits and features**
- 1/4 DIN (96 x 96 mm), 118 mm depth
- Day/night display with additional text/bar line
- Common West Pro family styling
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Optional second Universal input
- Customer-specific linearisation for non-standard sensors
- Up to 6 outputs
- RS422/485 Modbus or Profibus communications
- PID heat/cool and VMD control strategies
- Front interface and BlueControl© software
- Profiler function 16 programs x 16 segments
- Maintenance manager and error list
- CE, UL, cUL and EN 14597
## Multi-loop Panel Mounted Controllers

<table>
<thead>
<tr>
<th>Model</th>
<th>Pro-EC44</th>
<th>MLC 9000+</th>
<th>KS 98-2</th>
<th>KS Vario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page Number</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>21</td>
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<tr>
<td>Control Loops</td>
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<td>SSR driver</td>
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<td>DC linear</td>
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<tr>
<td>Triac</td>
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<td>Transmitter PSU</td>
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<td>On/Off, PID</td>
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<td>Heater break alarm</td>
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<tr>
<td>Logic capability</td>
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<td></td>
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<tr>
<td>Software</td>
<td>BlueControl</td>
<td>MLC 9000+ workshop software</td>
<td>ET/KS 98-2 and SIM/KS 98-2</td>
<td>Blue Control</td>
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<tr>
<td>Communication</td>
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<tr>
<td>Profinet</td>
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<tr>
<td>Power Supply</td>
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</tr>
<tr>
<td>110 VAC</td>
<td>o</td>
<td>o</td>
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</tr>
<tr>
<td>230VAC</td>
<td>o</td>
<td>o</td>
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<tr>
<td>24VAC / DC</td>
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<td>DC only</td>
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<tr>
<td>48V AC / DC</td>
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</tbody>
</table>

- ● = Fitted
- o = Option
Pro-EC44 includes many features to ensure good control performance and easy to use. Single or dual loop capability in a single device, cascade, valve and ratio enhanced control with support for advanced features so Pro-EC44 has the flexibility to fit many application needs. In addition datalogging, trending, USB, Ethernet options add even more capability to an already powerful device.

Benefits and features
- 1/4 DIN (96 x 96 mm), 117mm depth
- Graphical/text mono LCD display (red/green backlit LCD)
- 1 or 2 universal inputs for thermocouple, PT100, mV, V and mA sensors
- Customer-specific linearization for non-standard sensors
- Up to 9 outputs
- RS 485 Modbus or Ethernet Modbus TCP communications
- USB configuration and data access
- PID heat/cool and VMD control strategies
- Gain scheduling, ratio and cascade control
- Profiler function 64 programs with up to 255 segments
- Datalogger with real-time clock
- CE, UL, cUL
The MLC 9000+ system comprises of a bus module plus 1 to 8 control modules. 1, 3 & 4 loop control modules are available allowing up to 32 control loops per system. Heater break input is available on 1 and 3 loop modules. Communication modules for connecting to a PLC, HMI, PC or SCADA include Modbus, DeviceNet, Profibus and Modbus TCP.

The MLC 9000+ features a hot swap facility, a module can be replaced and back in service quickly due to automatic reconfiguration.

**Benefits and features**

- Bus module: 100 x 30 x 120mm format
  Loop module: 100 x 22 x 120mm format (HxWxD)
- Universal (TC, RTD, DC linear V, DC linear mA/mV)
- Up to 48 outputs per system
- Modbus RTU, Modbus TCP, Profibus, DeviceNet communications
- Heat/cool control strategy
- Quick to setpoint and fast reaction to process disturbances
- On-demand and auto-tuning
- Set-up 32 loops in less than 30 minutes
- CE, UL and cUL

**Bus Modules**

- **BM220 - MB**
  Modbus RTU
- **BM230 - DN**
  DeviceNet
- **BM240 - PB**
  Profibus-DP
- **BM250 - MT**
  Modbus/TCP

**Loop Modules**

- **Z1200 - 00**
  One universal input, two SSR/relay outputs
- **Z1300**
  One universal input, two SSR/relay outputs and one linear output or three SSR/relay outputs
- **Z1301**
  One universal input, one heater break input, two SSR/relay outputs and one linear output or three SSR/SP relay outputs
- **Z3611**
  Three universal inputs, one heater break input, six relay outputs
- **Z3621**
  Three universal inputs, one heater break input, six SSR outputs
- **Z3651**
  Three universal inputs, one heater break input, six outputs (three SSR/three relay)
- **Z4660**
  Four universal inputs, six outputs (four SSR/two relay)
- **Z4610**
  Four universal inputs, six relay outputs
- **Z4620**
  Four universal inputs, six SSR outputs

*MLC 9000+ Modular Controller System*
PMA’s multi-function instrument KS 98-2 combines PID control, process monitoring, sequence control, data logging and alarms.

Function blocks from an extensive library can be used to build an application by easily selecting and connecting the blocks graphically using the “ET/KS98”-utility. This method is ideal for creating tailored control, including user interface pages with minimal effort. As a complete solution in a single unit, the KS 98-2 multi-function instrument helps to reduce programming, installation cost and control cabinet space.

Benefits and features

- Modular automation system in a 1/4-DIN (96 x 96mm), 118 mm depth
- 3.5” color touch-screen display
- Universal Input (TC, RTD, DC linear mA/mV)
- Expandable with modular inputs and outputs
- Up to 20 additional process inputs
- Up to 26 outputs
- Ethernet, USB, CAN, RS485, Profibus DP, Profinet
- Process visualization, operation, alarm and alerts
- Comprehensive application-oriented functionality
- Graphical programming utility with simulator
- CE, cULus, DIN EN 14597

KS 98-2 Multi-function Controller

Power Supply & Outputs [P]

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<tr>
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<tbody>
<tr>
<td>0</td>
<td>90...250V (2 relays, 2 option module slots)</td>
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<tr>
<td>1</td>
<td>24V UC (2 relays, 2 option Slots)</td>
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<tr>
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<td>90...250V (4 relays)</td>
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<td>3</td>
<td>24V UC (4 relays)</td>
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Communication Options [D]

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<td>Standard interfaces plus RS485 / Modbus</td>
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<td>3</td>
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<td>Standard interfaces plus Profinet</td>
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I/O Extensions [B]

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<tr>
<td>2</td>
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Configuration

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Certification

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I/O Extensions [C]

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<tr>
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(1) Universal Input, 2 digital inputs, TPS, 2 option module slots
KS 98-2 Multi-function Controller

KS 98-2 offers comprehensive modular input and output options to adapt the unit to the application needs. The unit is optimized to handle the precise measurements required in the process industry via I/O modules supporting a variety of sensor types and also have galvanic isolation. Additional signal conditioners and isolating amplifiers are not necessary in most applications, saving cost and less installation.

Hardware flexibility
- Unprecedented number of I/O in a 1/4-DIN device
- Fully adaptable with up to 12 internal I/O-modules
- Almost every 1/4 DIN controller can be replaced/upgraded

KS 98-2 Option Modules
To be installed into KS98-2 in order line above
Please indicate for all option module slots (12 digits)

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</table>

Modules and Positions
- Universal input
- Dual Pt100/1000, Ni100/1000, resistance
- Dual Thermocouple, mV, 0/4...20mA
- Dual -50...1500mV (eg. Zirconia probe), 0...10V
- 0/4...20mA input with transmitter power supply
- Dual DC drive output for SSR
- Dual linear out (mAV DC)
- Dual bipolar linear out (-10V...10V)
- Dual digital I/O

Separate Module Orders

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<thead>
<tr>
<th>A98</th>
<th>M</th>
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</table>

Available Modules
- Universal input
- Dual Pt100/1000, Ni100/1000, resistance
- Dual thermocouple, mV, 0/4...20mA
- Dual -50...1500mV (eg. Zirconia probe), 0...10V
- 0/4...20mA input with transmitter power supply
- Dual DC drive output for SSR
- Dual linear out (mAV DC)
- Dual bipolar Linear Out (-10V...10V)
- Dual digital I/O
The KS vario behind panel multi-loop controller system was specifically developed for machine temperature control in combination with PLC systems. To ensure easy integration to wider plant systems, many common fieldbus systems are supported.

By selecting the necessary I/O modules, the system can be configured for up to 30 control loops very economically and in precise increments.

Benefits and features
• Remote I/O style mechanical design - Single module 12.2 x 120 x 71.5mm
• Up to 30 process inputs for thermocouple, PT100, mV, V and mA sensors
• Variety of outputs for control and alarms
• RS485 Modbus, Ethernet Modbus TCP, Profibus, Profinet, Ethernet/IP and CAN open communications
• PID control loops can be assigned to process inputs
• Additional process measurements and signals can be integrated
• Highly modular expansion
• Heater current monitoring
• CE, UL, cUL and CSA

Buscoupler

Controller

Protocol
0 For Ethernet Mod/TCP, Ethernet IP, Profinet
2 For CAN open

I/O Extension

For full dimensions see datasheet

For a full list of available modules please refer to the KS Vario price list or visit www.west-cs.com
## DIN Rail Panel Mounted Controller

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>MAXVU Rail</th>
<th>KS 45</th>
<th>CI 45</th>
<th>SG 45</th>
<th>Rail Line I/O modules</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
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### Device Type

<table>
<thead>
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</tr>
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<tbody>
<tr>
<td>23</td>
</tr>
<tr>
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<td>26</td>
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<td>26</td>
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<td>27</td>
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</table>

### Dimensions (mm)

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>MAXVU Rail</th>
<th>KS 45</th>
<th>CI 45</th>
<th>SG 45</th>
<th>Rail Line I/O modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>107</td>
<td>99</td>
<td>99</td>
<td>99</td>
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<td>Width</td>
<td>22</td>
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<td>Depth</td>
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<td>117</td>
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### Display

<table>
<thead>
<tr>
<th>Display type</th>
</tr>
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<tbody>
<tr>
<td>OLED</td>
</tr>
<tr>
<td>LCD</td>
</tr>
<tr>
<td>LCD</td>
</tr>
<tr>
<td>LCD</td>
</tr>
<tr>
<td>LED indicator</td>
</tr>
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</table>

### Connectors

<table>
<thead>
<tr>
<th>Connectors</th>
<th>MAXVU Rail</th>
<th>KS 45</th>
<th>CI 45</th>
<th>SG 45</th>
<th>Rail Line I/O modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw terminal - plug in</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Spring terminal - plug-in</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
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</tbody>
</table>

### Inputs

<table>
<thead>
<tr>
<th>Inputs</th>
<th>MAXVU Rail</th>
<th>KS 45</th>
<th>CI 45</th>
<th>SG 45</th>
<th>Rail Line I/O modules</th>
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</thead>
<tbody>
<tr>
<td>Thermocouple/RTD</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>DC linear V/mA</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Strain gauge</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Digital inputs</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
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<tr>
<td>Remote setpoint</td>
<td>●</td>
<td>●</td>
<td>●</td>
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### Outputs

<table>
<thead>
<tr>
<th>Outputs</th>
<th>MAXVU Rail</th>
<th>KS 45</th>
<th>CI 45</th>
<th>SG 45</th>
<th>Rail Line I/O modules</th>
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</thead>
<tbody>
<tr>
<td>Max. number of outputs</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>8 per module</td>
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<tr>
<td>Relay</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td>SSR driver</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
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<tr>
<td>DC linear</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td>Triac</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td>Transmitter PSU</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
</tbody>
</table>

### Features & Functions

<table>
<thead>
<tr>
<th>Features &amp; Functions</th>
<th>MAXVU Rail</th>
<th>KS 45</th>
<th>CI 45</th>
<th>SG 45</th>
<th>Rail Line I/O modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control type</td>
<td>On/Off, PID</td>
<td>On/Off, PID</td>
<td>Measurement and alarm</td>
<td>Measurement and alarm</td>
<td></td>
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<tr>
<td>Max. number of alarms</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Retransmission output</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td>Heater break alarm</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
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<tr>
<td>Software</td>
<td>MAXVU configurator</td>
<td>BlueControl</td>
<td>BlueControl</td>
<td>BlueControl</td>
<td>BlueControl</td>
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### Communication

<table>
<thead>
<tr>
<th>Communication</th>
<th>MAXVU Rail</th>
<th>KS 45</th>
<th>CI 45</th>
<th>SG 45</th>
<th>Rail Line I/O modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modbus RTU</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td>Buscoupler module support (for major Fieldbus)</td>
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<td>o</td>
<td>o</td>
<td>o</td>
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</tbody>
</table>

### Power Supply

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>110 VAC</th>
<th>230VAC</th>
<th>24VAC / DC</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

- ● = Fitted
- o = Option

www.west-cs.com
MAXVU Rail is a compact DIN-rail mount temperature controller/transmitter and limiter range for general industrial and scientific equipment requiring a reduced back panel footprint, centralized control or minimal front panel components.

**Benefits and features**

- DIN rail mounted, 107 x 22 x 103mm (HxWxD)
- OLED text/icon matrix display
- Thermocouple, PT100 or linear DC sensor input
- Isolated digital input
- Up to 3 outputs
- RS485 Modbus RTU communications
- Heat/cool control strategy
- Quick setup menu
- Front configuration port
- CE, UL & cUL

**MAXVU Rail Behind Panel Controller**

MAXVU Rail is a compact DIN-rail mount temperature controller/transmitter and limiter range for general industrial and scientific equipment requiring a reduced back panel footprint, centralized control or minimal front panel components.
Rail Line offers high accuracy measurement modules and independent control, monitoring and limiter modules for decentralized automation installations. It provides connectivity to the common field bus systems.

**Benefits and features**
- DIN rail mounted, 96 x 22.5 x 117.5mm (HxWxD)
- Field bus coupler for Profibus, CAN, Modbus TCP, Modbus RTU and Profinet
- Up to 62 modules in a system
- Configurable fail safe mode
- Stand alone function modules
- Hot swap capability
- Plug-in terminals
- CE, UL & cUL

**Field bus couplers**
- Profibus DP
- Profinet IO
- Modbus/TCP
- CAN open
- Modbus RTU
- And additional power supply for large systems

---

**Connector**

- Without terminal blocks
- Screw terminal
- Spring-clamp terminal

**Certification**

- None
- UL/cUL certified

**Option**

- CAN open
- Profibus DP/DPV1
- Modbus RTU
- Ethernet Modbus/TCP
- Profinet IO
- Power supply module 24V
The KS 45 process controller is a stand alone version for direct connection via RS485 Modbus or system version with buscoupler and inter-module connections permit additional controllers, transmitters and limiters to be fitted without additional power or communications wiring.

**Benefits and features**

- DIN-Rail Mounted 99mm x 22.5mm x 117.5mm (HxWxD)
- LCD configuration and status display
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Optional second universal input
- 3 outputs including one universal output
- RS485 Modbus RTU or system fieldbus communications
- PID heat/cool and VMD control strategies
- Fast sampling rate
- Timer and programmer
- Customer-specific linearization for non-standard sensors
- CE, UL, cUL and type tested to EN 14597

### Connector

- 0: Without plug-in connector terminals
- 1: With screw terminal connector
- 2: With spring clamp terminals

### Power Supply Outputs

- 0: 90-260V AC, 2 output relays, INP2 as current input (0-20mA)
- 1: 18-30V AC/18-31V DC, 2 output relays INP2 as current input (0-20mA)
- 2: 90-260V AC, mA/V/logic + 2 relays, INP2 as current input (0-20mA)
- 3: 18-30V AC/18-31V DC, mA/V/logic + 2 relays, INP2 as current input (0-20mA)
- 4: 90-260V AC, 2 optocoupler outputs, 1 relay, INP2 as current input (0-20mA DC and 0-50 mA AC)
- 5: 18-30V AC/18-31V DC, 2 optocoupler outputs, 1 relay, INP2 as current input (0-20mA DC and 0-50 mA AC)

### Option

- 0: No option
- 1: RS485 / Modbus - protocol
- 2: System interface (only for 24V versions)

### Certification

- 0: Standard (CE-certification)
- D: DIN 3440 / EN 14597
- U: UL/cUL certified

### Configuration

- 0: Standard configuration
- 9: Customer-specific configuration

### Input

- 0: di1 as contact input
- 1: di1 as optocoupler input
- 2: INP2 as universal input, O₂ -measurement, di1 as contact input (1)
- 3: INP2 as universal input, O₂ -measurement, di1 as optocoupler input (1)

(1) Not on versions with optocoupler outputs (KS45-1x4... and KS45-1x5...)
High accuracy transmitters, stand alone version for direct connection via RS485 Modbus or system version with bus coupler and inter-module connections permit additional controllers, transmitters and limiters to be fitted without additional power or communications wiring.

**CI 45 Universal Transmitter**

**Benefits and features**
- DIN-Rail Mounted 99mm x 22.5mm x 117.5mm (HxWxD),
- LCD configuration and status display
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Optional second universal input
- 3 outputs including one universal output
- Counter/frequency input, frequency output
- RS485 Modbus RTU or system fieldbus communications
- User input calibration
- Slave pointer (min/max indicator)
- Fast sampling rate
- Customer-specific linearization for non-standard sensors
- CE, UL and cUL

**Power Supply & Control Outputs**
- 290-260V AC, mA/V/logic +1 relay
- 18-30V AC/18-31V DC, mA/V/logic +1 relay
- 90-260V AC, mA/V/logic +2 relay
- 18-30V AC/18-31V DC, mA/V/logic +2 relay

**Configuration**
- Standard configuration
- Customer-specific configuration

**SG 45 Strain Gauge Transmitter**

**Benefits and features**
- Special-purpose transmitter for strain gauge input
- Mechanics, user interface and communications as KS 45
- 24 bit measuring bridge input
- 2 relay outputs
- Voltage supply for the strain gauge bridge
- Simple scaling during commissioning
- 4 or 6-wire connection for force measurement
- CE, UL and cUL

**Power Supply & Control Outputs**
- 90-260V AC, mA/V/logic +1 relay
- 18-30V AC/18-31V DC, mA/V/logic +1 relay
- 90-260V AC, mA/V/logic +2 relay
- 18-30V AC/18-31V DC, mA/V/logic +2 relay

**Configuration**
- Standard configuration
- Customer-specific configuration

(1) Option package 1: additional universal input INP2, plus: O2-measuring; counter input; functions tare, sample & hold and integrator
(2) Option package 2: additional to option package 1: digital input as optocoupler and frequency input / output
Rail Line offers a variety of sophisticated I/O modules for data acquisition and monitoring. They can be used in combination with the specialized function modules or just as remote I/O.

**Benefits and features**

- DIN-rail mounted 99mm x 22.5mm x 117.5mm (HxWxD)
- LED indicators for status
- Digital and analog input & output modules
  - Pt 100 in 2 or 4-wire connection
  - Thermocouples
  - mA/V
  - Relays
  - Potential-free digital inputs
  - NPN/PNP inputs
- Fits with system fieldbus communications
- High precision analog signals
- Reinforced galvanic isolation
- Linearization and measured value correction
- CE, UL and cUL

### Analog Inputs

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4220</td>
<td>RL 422-0 Analog inputs, 4 x I/U / TPS / potentiometer</td>
</tr>
<tr>
<td>4221</td>
<td>RL 422-1 Analog inputs 2 x I/U galv. isolated</td>
</tr>
<tr>
<td>4230</td>
<td>RL 423-0 RTD 4 x Pt100 galvanic isolated</td>
</tr>
<tr>
<td>4231</td>
<td>RL 423-1 RTD 4 x Pt1000 galvanic isolated</td>
</tr>
<tr>
<td>4232</td>
<td>RL 423-2 RTD 4 x Pt100/PI1000</td>
</tr>
<tr>
<td>4233</td>
<td>RL 423-3 RTD 2 x Pt100 galvanic isolated</td>
</tr>
<tr>
<td>4240</td>
<td>RL 424-0 2 x TC galvanic isolated</td>
</tr>
<tr>
<td>4241</td>
<td>RL 424-1 2 x TC / O2 (mV)</td>
</tr>
<tr>
<td>4242</td>
<td>RL 424-2 4 x TC galvanic isolation 2/2</td>
</tr>
<tr>
<td>4610</td>
<td>RL 461-0 Combi module, 2 x AI (±U / ±I, 16 Bit) differential inputs; 2 x AO (±U / ±I, 12 Bit)</td>
</tr>
</tbody>
</table>

### Digital Inputs

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4420</td>
<td>RL 442-0 Digital inputs 2 x 4 24 V DC (npn / contact, potential-free)</td>
</tr>
<tr>
<td>4421</td>
<td>RL 442-1 Digital inputs 2 x 4 24 V DC (npn / contact, potential-free)</td>
</tr>
<tr>
<td>4422</td>
<td>RL 442-2 Digital inputs 8 x 1 24 V DC (individual supply)</td>
</tr>
<tr>
<td>4430</td>
<td>RL 443-0 4 x Digital inputs (115/230V AC)</td>
</tr>
</tbody>
</table>

### Analog Outputs

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4310</td>
<td>RL 431-0 4 x I / U (±10V / ±20mA, 12 Bit)</td>
</tr>
<tr>
<td>4610</td>
<td>RL 461-0 Combi module, 2 x AI (±U / ±I, 16 Bit) differential inputs; 2 x AO (±U / ±I, 12 Bit)</td>
</tr>
</tbody>
</table>

### Digital Output

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4510</td>
<td>RL 451-0 Digital outputs 2 x 4 24 V DC/2A</td>
</tr>
<tr>
<td>4511</td>
<td>RL 451-1 Digital outputs 2 x 4 24 V DC/2A (free wheeling diode)</td>
</tr>
<tr>
<td>4520</td>
<td>RL 452-0 Relay outputs 4 x 230 V DC/5A</td>
</tr>
</tbody>
</table>

---

**Certification**

- Standard (CE-certification)
- UL/cUL certified

---

**Connector**

- 0: Without terminal blocks
- 1: Screw terminal
- 2: Spring-clamp terminal

---

**Contents**

- Rail line data acquisition modules
- Rail Line offers a variety of sophisticated I/O modules for data acquisition and monitoring. They can be used in combination with the specialized function modules or just as remote I/O.
- Benefits and features
  - DIN-rail mounted 99mm x 22.5mm x 117.5mm (HxWxD)
  - LED indicators for status
  - Digital and analog input & output modules
    - Pt 100 in 2 or 4-wire connection
    - Thermocouples
    - mA/V
    - Relays
    - Potential-free digital inputs
    - NPN/PNP inputs
  - Fits with system fieldbus communications
  - High precision analog signals
  - Reinforced galvanic isolation
  - Linearization and measured value correction
  - CE, UL and cUL
- Analog Inputs
- Digital Inputs
- Analog Outputs
- Digital Output
## Panel Mounted Indicators

### Model

<table>
<thead>
<tr>
<th>Family</th>
<th>6010+ &amp; 8010+</th>
<th>D280-1</th>
<th>EI2410</th>
<th>EI2041</th>
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<tbody>
<tr>
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<td>29</td>
<td>30</td>
<td>31</td>
<td>31</td>
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<tr>
<td>Front Format</td>
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<tr>
<td>Thermostat format (29 x 71mm)</td>
<td>●</td>
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</tr>
<tr>
<td>1/32 DIN (24 x 48mm)</td>
<td>○</td>
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<tr>
<td>1/16 DIN (48 x 48mm)</td>
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<tr>
<td>1/8 DIN horizontal (48 x 96mm)</td>
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<tr>
<td>Depth</td>
<td>110mm / 100mm</td>
<td>118mm</td>
<td>71mm</td>
<td>71mm</td>
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<tr>
<td>Display</td>
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<tr>
<td>Display type</td>
<td>4 digit LED</td>
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<td>4 digit LED</td>
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<tr>
<td>Connectors</td>
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<tr>
<td>Screw terminal</td>
<td>●</td>
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<td>Spade terminals</td>
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<tr>
<td>Inputs</td>
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</tr>
<tr>
<td>Thermocouple/RTD</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>DC linear V/mA</td>
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<td>●</td>
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<tr>
<td>NTC</td>
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<td>Outputs</td>
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<td>Max. number of outputs</td>
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<td>2</td>
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<td>Relay</td>
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<td>○</td>
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<tr>
<td>SSR driver</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>DC linear</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Triac</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Transmitter PSU</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Features &amp; Functions</td>
<td>●</td>
<td>●</td>
<td>Visual display only</td>
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<tr>
<td>Alarm</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Retransmission output</td>
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<td>○</td>
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<td>RS485 communications</td>
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<td>○</td>
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<tr>
<td>Software</td>
<td>Plus Series configurator</td>
<td>BlueControl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
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<tr>
<td>110 VAC</td>
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</tbody>
</table>

● = Fitted  ○ = Option
The 6010+ and 8010+ digital panel process indicators are designed for optimal ease of use in a wide variety of temperature and related process applications.

Output options allow for PV retransmission or transmitter power supply and up to 4 alarm relays (latching or non-latching).

**Benefits and features**

- 1/16 DIN (48 x 48 mm), depth 110mm and 1/8 DIN horizontal (48 x 96 mm), depth 100 mm
- Membrane fascia with common + series design
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 4 outputs
- RS485 Modbus RTU communications
- Latching or non-latching alarm outputs
- Programming port for fast configuration using FTP software
- Multi-point scaling and tare features
- CE, UL, cUL and CSA

**Option Slot 1**

- 0 Not fitted
- 1 Relay
- 2 DC for SSR
- 7 Linear DC
- 8 Triac

**Option Slot 2**

- 0 Not fitted
- 1 Relay
- 2 DC for SSR
- 7 Linear DC
- 8 Triac
- 9 Dual Relay

**Option Slot 3**

- 0 Not fitted
- 1 Relay
- 2 DC for SSR
- 7 Linear DC
- 8 Transmitter power supply
- 9 Dual relay (8010+ only)

**Option Slot A**

- 0 Not fitted
- 1 RS485 communications
- 3 Digital input

**Display Color**

- 0 Fixed red
- 1 Fixed green
- 4 Red/green color change (8010+ only)

**Power Supply**

- 0 100-240V AC
- 2 24-48V AC or DC
The PMA Digital 280-1 indicator ensures a fast reaction time with a scan rate of 100 ms. The instrument offers customer-specific linearization for special sensors (16 segments). The maximum and minimum values are stored and can be displayed when needed. In addition to an indicator the Digital 280-1 can also be used as a controller.

Benefits and features
• 1/8 DIN (horizontal - 48 x 96 mm), 118mm depth
• 5-digit, 20mm large display
• Common BluePort family styling
• Universal input for thermocouple, PT100, mV, V and mA sensors
• Up to 3 outputs
• RS485 Modbus RTU communications
• BluePort® front interface and BlueControl© software
• Maintenance manager and error list
• Widely configurable alarms
• CE, UL and cUL

Options
0 No option
1 Modbus RTU + transmitter power supply + digital input di2, di3 (optical coupler)

Manual Language
0 No manual
D German
E English
F French
R Russian

Configuration
0 Standard configuration
9 Customer specific configuration

Power Supply
0 90-250V AC
1 24V AC / 18-30V DC
2 90-250V AC, 2 relays +mA/V/logic
3 24V AC / 18..30V DC, 2 relays +mA/V/logic

Certification
0 Standard (CE - Certified)
U cULus-certified (with screw terminals only)
EI2410 & EI2041 Basic Indicators

Compact digital indicators for temperature and process measurement.

EI2410 offers temperature indication within a range of -60 to 150°C using a NTC sensor. EI2041 rescales linear DC signals to display process data in the required units.

**EI2410**

**Benefits and features**
- 35 x 77 mm format, 71mm depth (29 x 71 mm cutout)
- NTC sensor input
- Zero point shift input calibration
- Temperature units selection °F or °C
- Min and max values can be stored
- Upper and lower adjustable alarm limits
- CE

**EI2041**

**Benefits and features**
- 35 x 77 mm format, 71mm depth (29 x 71 mm cutout)
- Input types (0-20mA, 4-20mA, 0-1V, 0-10V)
- Up to 2 relay outputs
- Scale adjustable between -1999 and 4000
- Adjustable decimal point with process units
- Min and max values can be stored on the display
- RS485 Modbus RTU communications
- Alarm function
- TPS output
- CE
# Limit and Monitor Devices

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<thead>
<tr>
<th>Model</th>
<th>MAXVU Rail Limiter</th>
<th>6700+, 8700+ &amp; 4700+</th>
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<th>TB 40-1</th>
<th>STB 50</th>
<th>STB 55</th>
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</tr>
</tbody>
</table>

• = Fitted  
○ = Option
**MAXVU Rail Behind Panel Temperature Limiter**

MAXVU Rail is a compact DIN-rail mount temperature limiter for equipment requiring a reduced back panel footprint, centralized control or minimal front panel components.

**Benefits and features**
- DIN rail mounted, 107 x 22 x 103mm (HxWxD)
- OLED Text / Icon matrix display
- Thermocouple, PT100 or linear DC sensor input
- Isolated digital input
- Up to 3 outputs
- RS485 Modbus RTU communications
- Limit alarm plus separate warning
- Quick setup menu
- Front configuration port
- CE, UL & cUL & FM

**Limit Device Approval: FM**

**MAXVU Rail Limiter**

<table>
<thead>
<tr>
<th>Digital Input</th>
<th>Supply Voltage</th>
<th>Output</th>
<th>Option Slot 2</th>
<th>Terminal Type</th>
<th>Manual Language</th>
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<tbody>
<tr>
<td>1 Isolated</td>
<td>M 110 to 240V AC L 24V AC / DC</td>
<td>Out 1</td>
<td>0 Not fitted</td>
<td>U0 Screw terminals</td>
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<td>C/O Relay</td>
<td>Out 2</td>
<td>C RS485 communications</td>
<td>2 French</td>
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<td>Z R 0 Relay</td>
<td>Out 3</td>
<td>00 - S419 Spring terminals</td>
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<td>Z A 0 C/O Relay</td>
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<td>Z A R C/O Relay</td>
<td>SSR</td>
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</tbody>
</table>
The + series of limiter are used in a broad range of temperature control applications where independent protection is required.

The devices have commonality with the + series controllers in both styling and operation so can both easily be integrated within the same equipment.

**Benefits and features**

- 1/16 DIN (48 x 48 mm), 110mm depth, 1/8 DIN (96 x 48 mm), 100 mm depth and 1/4 DIN (96 x 96 mm), 100mm depth
- Membrane fascia with common + series design
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 3 outputs
- Wide range of options available
- RS485 Modbus RTU communications
- Limit alarm plus separate warning
- Programming port for fast configuration using FTP software
- CE, UL, cUL, CSA and FM

**Limit Device Approval: FM**
The TB 45 temperature monitor/limiter offers a stand alone version for direct connection via RS485 Modbus or system version with buscoupler and inter-module connections which permit additional controllers, transmitters and limiters to be fitted without additional power or communications wiring.

**Benefits and features**
- DIN-Rail Mounted 99mm x 22.5mm x 117.5mm (HxWxD),
- LCD configuration and status display
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Optional second input
- 2 alarm outputs and retransmission output
- RS485 Modbus RTU or system fieldbus communications
- Limit alarm plus separate warning
- Meets requirement of TB and TW to EN14597
- CE, UL and cUL

See other Rail Line products on page 24.
The TB40-1 limiter is used in a broad range of temperature control applications including furnaces and steam equipment where independent protection is required.

The devices have commonality with the BluePort controllers in both styling and operation so can easily be integrated within the same equipment.

**Benefits and features**
- 1/8 DIN (horizontal - 48 x 96 mm), 1/8 DIN (96 x 48 mm) and 1/4 DIN (96 x 96 mm), 118 mm depth
- Common BluePort family styling
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 3 outputs
- RS 422/485 Modbus communications
- BluePort® Front interface and BlueControl© software
- Limit alarm plus separate warning
- Meets requirement of TB and TW to EN14597
- CE, UL and cUL

**Limit Device Approval:**
EN14597 TB & TW

---

**Connector**
- 0 Flat pin connectors
- 1 Screw terminal connectors

**Power Supply**
- 0 90-250V AC, 3 relays, temperature monitor
- 1 24V AC / 18-30V DC, 3 relays, temperature monitor
- 2 90-250V AC, 2 relays, temperature limiter (1)
- 3 24V AC / 18-30V DC, 2 relays, temperature limiter (1)

**Configuration**
- 0 Standard configuration
- 9 Customer specific configuration

**Manual Language**
- 0 No manual
- D German
- E English
- F French

**Certification**
- 0 Standard (CE - Certified)
- U cULus-certified (2)
- D EN14579 replaces (DIN3440) Certified

---

(1) TB (EN14597, 2009-1), not available with cULus
(2) With screw terminals only, not available as Temperature limiter TB (EN14597, 2009-1)
The STB50 safety temperature limiter is used as a panel mounted device when thermal processes must be monitored and the system must be transferred into a safe operational state in case of fault.

Benefits and features
- 1/8 DIN (96 x 48 mm), 119 mm depth
- Graphic-LCD-display, with white LCD-backlight
- Inputs RTD Pt100 or double-thermocouple
- 2 alarm outputs and retransmission output
- Useable as limiter and exhaust gas limiter
- Safety limit alarm plus separate warning
- Memory function for error message
- Certified according to DIN EN 14597 SIL2

Limit Device Approval:
SIL2, EN14597

Supply Voltage
- 0 230 V AC, ± 10% 50-60 Hz
- 1 115 V AC, ± 10 % 50-60 Hz
- 4 24 V AC, ± 10 % 50-60 Hz
- 5 24 V DC, ± 15 %

Device Type/Input
- 1 Pt100, 3-wire, -100.0…+600.0 °C
- 5 Thermocouple
  - J (Fe-CuNi), -100.0…800.0 °C
  - K (NiCr-Ni), -150…1200 °C
  - N (NiCrSi-NiSi), -150…1200 °C
  - S (Pt10Rh-Pt), 0…1600 °C

Output
- 2 relays and 1 analogue output
The STB55 safety temperature limiter is used as a behind panel device when thermal processes must be monitored and the system must be transferred into a safe operational state in case of fault.

Benefits and features
- Rail Mounted (100 x 50 mm), 110 mm depth
- Graphic-LCD-display, with white LCD-backlight
- Inputs RTD Pt100 or double-thermocouple
- 2 alarm outputs and retransmission output
- Useable as limiter and exhaust gas limiter
- Safety limit alarm plus separate warning
- Memory function for error message
- Certified according to DIN EN 14597 SIL2

Limit Device Approval:
SIL2, EN14597
# Digital Thermostats

<table>
<thead>
<tr>
<th>Model</th>
<th>ET2001 &amp; ET2011</th>
<th>ET2411 &amp; ET2412</th>
<th>EDT2411, EDT2412 &amp; EDT2423</th>
<th>ETM2432 Timer</th>
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</table>

● = Fitted
○ = Option
The CAL thermostat range is a complete family of small format devices for basic heating or cooling applications.

The ET thermostats are cost-effective thermostat devices for both industrial heating or cooling applications, two output version also includes alarm function.

### Benefits and features
- 35 x 77 mm format, 71mm depth (29 x 71 mm cutout)
- J Thermocouple, PT100 (ET2011 only)
- Up to 2 outputs
- High current relay output available
- Heating or cooling control strategy
- On/Off or PID (ET2011) Control
- CE

### Single output - Relay

**Voltage**
- 230 230 V AC
- 110 110 V AC
- 024 024 V AC
- SM 9-30V DC / 7-24V AC

**Contact Current Selection**
- 05 5A contact output
- 08 8A contact output
- 16 16A contact output

**Sensor Type**
- J Thermocouple

### Two output - Relay & SSR Drive

**Voltage**
- 230 230 V AC
- 110 110 V AC
- 024 024 V AC
- SM 9-30V DC / 7-24V AC

**Sensor Type**
- RT PT100/RTD
- T Thermocouple

**Units**
- C Centigrade
- F Fahrenheit

**Contact Current Selection**
- Relay (blank) 8A relay
- P 16A relay

**Units**
- (blank) Centigrade
- F Fahrenheit
The ET2411 and ET2412 are specifically designed for use with NTC sensors. They are easy to configure, have a large clear display for good visibility and a compact design that is fast to install.

The EDT defrost thermostats have additional features to ensure optimum control and performance of a refrigeration system such as compressor protection, defrost control, real-time clock, communications and fast CAL-Key memory programming.

**ET2411 & ET2412 Digital Thermostats**

**Benefits and features**
- 35 x 77 mm format, 71mm depth (29 x 71 mm cutout)
- NTC Sensor input -60 to 150°C
- Up to 2 outputs
- High current relay output available
- Heating or cooling On/Off control strategy
- CE

**EDT2411, EDT2412 & EDT2423 Digital Thermostats**

**Benefits and features**
- 35 x 77 mm format, 71mm depth (29 x 71 mm cutout)
- Up to Two NTC Sensor input -60 to 150°C
- Up to 3 outputs
- High current relay output available
- RS485 Modbus communications
- Compressor, defrost and fan control
- Real-time clock option
- CAL-key configuration
- CE

---

**ET2411 & ET2412**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Relay (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>230</td>
<td>1 x NTC sensor, 1 x relay</td>
</tr>
<tr>
<td>110</td>
<td>1 x NTC sensor, 2 x relay</td>
</tr>
<tr>
<td>024</td>
<td>2 x NTC sensor, 3 x relay</td>
</tr>
<tr>
<td>012</td>
<td>2 x NTC sensor, 4 x relay</td>
</tr>
</tbody>
</table>

**Options**
- (blank) Not fitted
- RTC Real-time clock (2)

---

**EDT2411, EDT2412 & EDT2423**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Options (blank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>230</td>
<td>Not fitted</td>
</tr>
<tr>
<td>110</td>
<td>Modbus RTU</td>
</tr>
<tr>
<td>12</td>
<td>20A output (3)</td>
</tr>
<tr>
<td>24</td>
<td>24V AC/DC</td>
</tr>
</tbody>
</table>

---

**Units**
- (blank) Centigrade
- F Fahrenheit
In the same style as the thermostat range, a digital timer is available for associated monitoring and time-based control.

The ETM2432 is fully adjustable with nine timer modes and designed for easy integration within a control installation to fit the user’s needs.

**Benefits and features**
- 35 x 77 mm format, 71mm depth (29 x 71 mm cutout)
- External start, reset and hold digital inputs
- Dual contact timed output
- HH:MM or MM:SS
- Scale 0:01 to 99:59 minutes
  0:01 to 99:59 hours
- Adjustable increasing and decreasing steps
- Time remaining displayed
- Start/stop control from front panel
- Upper and lower adjustable timer limits
- CE

<table>
<thead>
<tr>
<th>Voltage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>230</td>
<td>230V AC</td>
</tr>
<tr>
<td>110</td>
<td>110V AC</td>
</tr>
<tr>
<td>24</td>
<td>24V AC/DC</td>
</tr>
<tr>
<td>12</td>
<td>12V AC/DC</td>
</tr>
<tr>
<td>SM</td>
<td>9-30V DC / 7-24V AC</td>
</tr>
</tbody>
</table>
The DataVU 6 paperless recorder features a resistive touchscreen and an intuitive, icon-based operation and visualisation concept that makes it very easy to use. DataVU 6 supports up to 6 internal channels and up to 24 total by adding external I/O.

**Benefits and features**

- 144 x 144 x 119 mm (H x W x D)
- TFT display with touch operation
- Up to 6 internal analog inputs
- Up to 2 analog outputs
- RS485 Modbus and Modbus TCP communications
- Modbus master function
- 18 external analog and digital channels
- 1 GByte internal data memory
- Horizontal and vertical line graph
- CE, UL and cUL
The DataVU 7 paperless recorder features a high contrast TFT display and an intuitive dial operation. The unit supports up to 18 internal channels and up to 72 total by adding external I/O. The evaluation software toolkit allows easy creation of reports and simplifies configuration.

**Benefits and features**
- 144 x 144 x 200 mm (H x W x D)
- Large TFT color display (5.7”)
- Up to 18 internal analog inputs
- Up to 7 relay outputs and/or up to 24 digital I/O
- RS485 Modbus, Profibus and Modbus TCP communications
- Modbus master function
- RS232 barcode interface
- Password security protection
- Supports 54 external analog channels
- Horizontal and vertical line graph
- CE, UL and cUL

### In- / Outputs Slot 1
- **Option 1**: None
- **Option 2**: Stainless steel front

<table>
<thead>
<tr>
<th>Slot</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>3 Universal inputs and 8 DI/DO</td>
</tr>
<tr>
<td>6</td>
<td>6 Universal inputs</td>
</tr>
</tbody>
</table>

### In- / Outputs Slot 2
- **Option 1**: None
- **Option 2**: Stainless steel front

<table>
<thead>
<tr>
<th>Slot</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>3 Universal inputs and 8 DI/DO</td>
</tr>
<tr>
<td>6</td>
<td>6 Universal inputs</td>
</tr>
</tbody>
</table>

### In- / Outputs Slot 3
- **Option 1**: None
- **Option 2**: Stainless steel front

<table>
<thead>
<tr>
<th>Slot</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>3 Universal inputs and 8 DI/DO</td>
</tr>
<tr>
<td>6</td>
<td>6 Universal inputs</td>
</tr>
</tbody>
</table>

### Power Supply Options
- **Option 1**: 110 - 240V AC, 48-63 Hz
- **Option 2**: 20 - 30V AC/DC, 48-63 Hz

<table>
<thead>
<tr>
<th>Slot</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>Lithium battery for memory</td>
</tr>
<tr>
<td>2</td>
<td>Lithium battery for memory + Profibus DP interface</td>
</tr>
<tr>
<td>3</td>
<td>Lithium battery for memory + math function module + Profibus DP interface</td>
</tr>
<tr>
<td>4</td>
<td>Capacitor for memory buffering (1)</td>
</tr>
<tr>
<td>5</td>
<td>Capacitor for memory buffering + math function module</td>
</tr>
<tr>
<td>6</td>
<td>Capacitor for memory buffering + Profibus DP interface</td>
</tr>
<tr>
<td>7</td>
<td>Capacitor for memory + math function module + Profibus DP interface (1)</td>
</tr>
</tbody>
</table>

(1) Only available in option 3.
Industrial pressure transmitters for safe measurement and monitoring of many applications including gases, vapors and liquids. Designed to withstand harsh environments in the process industry.

P30-2 is suitable for applications up to 40 bar gauge pressure.

**Benefits and features**
- Premium pressure transmitter for gauge pressure measurement with 3 years warranty
- High repeatability and long-term stability
- High overload resistance
- Measuring ranges up to 40 bar (600psi)
- Customer specific measuring ranges available
- Flush mounted or manometer connection
- Housing and connection made from 316L

---

**Process Connection (Internal diaphragm)**
1. G ¼" A, EN 837, ISO 228
2. G ½" A, EN 837, ISO 228
3. M20 x 1.5, EN 837, DIN 13
4. G ¾" A, with M5 inner thread
5. G ½" A, with mechanical damping

**Process Connection (Flush mounting)**
7. G ½" A, DIN3852, ISO 228
8. G ½" A with O-Ring

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**Output Signal**
1. 4..20mA, two-wire connection
2. 0..10V, three-wire connection

**Configuration**
03. 0-400 mbar
04. 0-600 mbar
05. 0-1.0 bar
06. 0-1.6 bar
07. 0-2.5 bar
08. 0-4 bar
09. 0-6 bar
10. 0-10 bar
11. 0-16 bar
12. 0-25 bar
13. 0-40 bar
99. Special Ranges (from -1bar)

---

**Test and Calibration**
0. Manufacturing test report
1. Calibration certificate

---

**Output Filter (Electronic damping)**
0. No Filter
1. 100ms
2. 200ms
3. 300ms
4. 400ms
5. 500ms
Industrial pressure transmitters for safe measurement and monitoring of many applications including gases, vapors and liquids. Designed to withstand harsh environments in the process industry.

P40-2 is suitable for applications up to 400 bar gauge and absolute pressure with excellent accuracy and repeatability.

**Benefits and features**
- Premium pressure transmitter for gauge and absolute pressure measurement with 3 years warranty
- High repeatability and long-term stability
- High overload resistance
- Measuring ranges up to 400 bar (6000psi)
- Customer specific measuring ranges available
- Flush mounted or manometer connection
- Housing and connection made from 316L