WEST Control Solutions

TEMPCON

Product Catalogue

A comprehensive range of temperature and process control instrumentation

About West Control Solutions

West Control Solutions is a global specialist in the design and manufacture of process and temperature control instrumentation. Through our leading product brands - CAL, PMA and West – we have been providing first-class, reliable control solutions for almost a century.

Our easy-to-use products can meet a variety of demands from offering simple, entry-level temperature controllers through to highly sophisticated, functionally-rich solutions for even the most complex of control applications. Our comprehensive product range is routinely selected for use in a number of industrial and scientific applications including plastics and extrusion, ovens and furnaces, laboratory and test equipment, packaging, food and beverage.

As the specialists in temperature control, our products are supported by a dedicated team of experienced temperature control experts, who can provide in-depth application expertise and advice.

West Control Solutions is headquartered in the UK with offices worldwide and a global network of carefully selected distribution partners. West Control Solutions is part of the Danaher Corporation; a Fortune 500 Company with subsidiaries in over 40 countries.

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Single Loop Temperature Controllers

MAX*VU*16 & MAX*VU*8 Single Loop Controllers

The new MAX*VU* is a cost effective temperature controller which is fast-to-configure, has improved display visibility and reduces costs by minimising wiring and panel space.

Benefits and features

- 1/16 DIN (48 x 48 x 67mm) and 1/8 DIN (96 x 48 x 67mm) formats (HxWxD)
- High visibility display - MAX*VU*16: 18mm upper and 10.2mm lower digit display MAX*VU*8: 18mm upper and lower digit display
- 'Heat' only or 'heat & cool' strategy
- 2 alarms with latching or non-latching outputs
- Zero shift or 2-point calibration
- Ramp/dwell with delay time
- Front panel keys or software set up
- Integral configuration por
- Extrusion controller variant, includes non-linear cooling

Supply Voltage
M 110 to 240V AC
L 24V AC / DC

Version
0 Standard
E Extrusion

Communications
0 Not fitte
C RS485 communications

MV	16	0	M	AA0	0	2	1	U0

Format
16 1/16 DIN, 48 x 48mm
08 1/8 DIN, 96 x 48mm

Output

	Out 1	Out 2	Out 3
AA0	SSR	SSR	None
AR0	SSR	Relay	None
RR0	Relay	Relay	None
AAR	SSR	SSR	Relay
ARR	SSR	Relay	Relay
RRR	Relay	Relay	Relay

Manual Language
1 English
2 French
3 German
4 Italian
5 Spanish
6 Simplified Chines

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The CAL range provides a choice of compact, efficient temperature controllers. The easy-to-use controllers provide essential temperature control functionality including heat/cool operation and a simple ramp/dwell program. Integrated auto-tune for optimum PID settings is included and the CAL controllers also offer a unique dAC function to minimise overshoot.

Benefits and features

- 1/32 DIN (24 x 48 x 107mm) and 1/16 DIN (48 x 48 x 107mm) formats (HxWxD)
- Thermocouple, PT100 (2 wire) and mV sensor input
- Two outputs plus RS232 or RS485 MODBUS comms options
- Simple menu-driven setup
- Single ramp/soak (dwell) program
- Heat/cool operation
- IP66 protection
- CE compliant

Outputs (Reversible)
00 SSd / 2A relay
11 2A relay / 1A relay
22 SSd / SSd

Supply
0 100-24V AC
3 12-24V AC/DC (1)

33	00	00	4	3	00

Model
33 1/32 DIN (48 x 24mm)
93 1/16 DIN (48 x 48mm)
94 1/16 DIN (48 x 48mm) dual display

Comms
0 Not fitte
2 RS232 fitte
4 RS485

(1) Models 3311, 9311, 9400, 9411 and 9422 are not currently available in low voltage 12-24V option.

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9500P Programmable Controller

The CAL 9500P is ideal for applications requiring programmable temperature control 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. Alternatively, CALgrafix software is available to quickly configure a unit and easily create programs using the graphical 'drag and drop' feature. Users are able to clone settings for the configuration of multiple instruments in a single network.

Benefits and features

- 1/16 DIN (48 x 48 x 107mm) format (HxWxD)
- Thermocouple, PT100 (2 wire), mA, V and mV sensor input
- Three outputs plus RS232 or RS485 Modbus comms options
- Up to 126 segments shared in up to 31 Programs (memory dependant)
- Memory usage indication during programming
- Profiler functions include event outputs, loop, call, hold back loop, call and 3 power recovery modes
- Simple menu-driven setup
- Graphical profile setup using CALgrafix softwa
- Heat/cool operation
- IP66 protection
- CE compliant

Outputs 1 & 2
00 SSd / relay
11 relay / relay
22 SSd / SSd
B1 4-20mA / relay
B2 4-20mA / SSd
C1 0-5V / relay
C2 0-5V / SSd
D1 0-10V / relay
D2 0-10V / SSd

Inputs
A Sensor
B 4-20mA
C 0-5V
D 0-10V

95	00	1	P	B	4	00

Output 3
1 Relay

Comms
0 Not fitte
2 RS232 fitte
4 RS485 fitte

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The + series of controllers are used in a broad range of temperature and process control applications due to their built-in versatility and ease-of-use. Input and output options include relay, SSR, transmitter power supply, linear remote setpoint and digital.

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

Benefits and features

- 1/16 DIN (48 x 48 x 110mm), 1/8 DIN (96 x 48 x 100mm) and 1/4 DIN (96 x 96 x 100mm) formats (HxWxD)
- Ideal for general industrial applications
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to three outputs
- Flexible options for RS485, remote setpoint, digital inputs and transmitter power supply
- Programming port for fast configuration using FTP software

Option Slot 2
0 Not fitte
1 Relay
2 DC for SSR
7 DC linear
8 Triac

Option Slot A
0 Not fitte
1 RS485 communications
2 Digital input
3 Remote setpoint input (basic)

Display Colour
0 Red upper & lower
1 Green upper & lower
2 Red upper, green lower
3 Green upper, red lower

P6100 | 2 | 0 | 1 | 7 | 0 | 2 | 2 | 2

6100 6100+
8100 8100+
4100 4100+

Option Slot 1
0 Not fitte
1 Relay
2 DC for SSR
7 DC linear
8 Transmitter power supply

Option Slot 3
0 Not fitte
1 Relay
2 DC for SSR
7 DC linear
8 Transmitter power supply

Power Supply
0 100-240V AC
2 24-28V AC or DC

Option Slot B (not on 6100)
0 Not fitte
R Remote setpoint input (full)

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The 6170+, 8170+ and 4170+ have been designed specifically for open loop valve motor drive (VMD) applications. They feature an improved + series interface and greater field flexibili .

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 x 110mm), 1/8 DIN (96 x 48 x 100mm) and 1/4 DIN (96 x 96 x 100mm) formats (HxWxD)
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Valve position indication
- Auto or manual tuning
- Process & loop alarms
- Remote/dual setpoint
- Modbus communications - RS485

	P6170	2	1	1	2	0	2	2	0
	6170 6170+ 8170 8170+ 4170 4170+	Option Slot 1 0 Not fitte 1 Relay 2 DC for SSR 7 DC linear 8 Triac		Option Slot 2 0 Not fitte 1 Relay 2 DC for SSR 7 DC linear 8 Triac 9 Dual relay	Option Slot 3 0 Not fitte 1 Relay 2 DC for SSR 7 DC linear 8 Transmitter power supply	Option Slot A 0 Not fitte 1 RS485 communications 3 Digital input 4 Auxiliary input (Basic)	Power Supply 0 100-240V AC 2 24-28V AC or DC	Display Colour 0 Red upper & lower 1 Green upper & lower 2 Red upper, green lower 3 Green upper, red lower	Option Slot B (1) 0 Not fitte R Full remote setpoint with digital input

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N2300 Single Loop Temperature Controller

The West N2300 offers real flexibility as it can be used as a controller or an indicato . In addition to the red or green display the N2300 benefits from three additional multi-colour LEDs to indicate process, alarm and configuration statuses

The large, tactile rubberised 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. The controller version can have an additional relay or RS232 serial communications.

Benefits and features

- 1/32 DIN (25 x 49 x 110mm) format (HxWxD)
- Simple operation for easy setup
- 4 digit red/green digital display
- PID control with manual override tune capability for specialised applications
- Solid state relay output for primary control
- Optional second alarm relay (option) or RS-485 communication

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 Colour & Power Supply

- **0** Green Display/100-240V AC supply
- **1** Red Display/12-30V DC/24V AC supply
- **2** Green Display/12-30V DC/24V AC supply
- **3** Red Display/12-30V DC/24V AC supply

N2300 **00** **0** **1**

Option

- **0** Not fitte
- **1** Alarm 2 Relay output
- **2** RS485 Comms

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N6400 Programmable Process Controller

The N6400 is a powerful, single loop programmable controller for complex processes. It offers profiling capability with 4 programs each of 16 free format segments

The N6400 is an easy-to-use controller, which benefits from an informative display providing maximum process information at a glance. A dedicated configuration port allows configuration directly from a PC and allows for the development, transfer and storage of recipes by dedicated software.

Benefits and features

- 1/16 DIN (48 x 48 x 110mm) format (HxWxD)
- Fast and accurate control via raPID fuzzy logic
- 4 programs with 16 free-form segments
- Program ramps in rate or time mode
- 'Auto hold' facility, remote run hold, event output, power failure recovery and guaranteed soak
- Delayed start
- RS 485 Modbus comms

Option Slot 2

0 Not fitte
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

Input Type

1 3 wire RTD or DC mV
2 Thermocouple
3 DC mA
4 DC voltage

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

N6400 | 2 | 3 | 0 | 2 | 00 | S14

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

SSR Coda

(blank) Special variant not required
S14 10V DC SSR outputs (requires SSR output codes)

Option Slot 3

0 Not fitte
1 Relay ctrl, alarm 1, event or profile activ
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

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Pro-16 Advanced Process Controller

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 unrivalled performance such as two PID sets to ensure reliable control over a wide setpoint range and separate PID for heat and cool strategies for optimised control and stability. Extensive flexibility is o fered with 1 universal input and 1 optional, up to 4 digital inputs, 6 outputs and an inbuilt profile .

Benefits and features

- 1/16 DIN (48 x 48 x 118mm) format (HxWxD)
- 1 universal input + 1 optional
- Up to 4 digital inputs
- Heater or remote setpoint current input
- Customer specific linearisation for sensor
- Transmitter power supply
- Up to 6 outputs - relay, logic, SSR, linear DC
- 16 profiles x 16 segment

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

Option 1
- R Relay (switch over)
- A Single SSR
- Y Dual SSR
- L Linear mA/V DC output

Option 3
- 0 Not fitte
- R Relay (changeover)
- A Single SSR
- Y Dual SSR
- L Linear mA/V DC output
- C RS485

Language
- 0 No manual
- 1 German
- 2 English
- 3 French
- 4 Italian
- 5 Spanish

KS20 - 1 0 T - R 0 0 C 2 - 0 01

Model
1/16 DIN universal industrial controller

Base Option
- T TPS
- H HC / mA

Option 2
- 0 Not fitte
- R Relay (switch over)
- D Dual relay
- A Single SSR
- Y Dual SSR

Option A
- 0 Not fitte
- C RS485
- B Dual isolated digital input

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KS 40-1, KS 41-1 & KS 42-1 Single Loop Controllers

The KS 40-1 , KS 41-1 and KS 42-1 controllers are suitable for all thermal control operations which are handled by switching controllers – 2-point, 3-point or 3-point stepping characteristics. Three relay outputs are available for this purpose and the analogue universal output makes the device into a continuous controller.

Benefits and features

- 1/8 DIN (horizontal) (48 x 96 x 118mm), 1/8 DIN (96 x 48 x 118mm) and 1/4 DIN (96 x 96 x 118mm) formats (HxWxD)
- BluePort® Front interface and BlueControl© software
- Maintenance manager and error list
- Automatic/manual key
- Monitoring of heating current and input circuit
- Timer and programmer
- Extended limit signalling function with latch

Options
- 0 No option
- 1 RS422/485 + Transmitter power supply +di2,di3

Terminal Type
- 0 Flat-pin connectors
- 1 Screw terminals

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

KS40 - 1 0 1 - 0 00 9 0 - U 00

Model
- 0 KS 40-1 (1/8 DIN 48 x 96)
- 1 KS 41-1 (1/8 DIN 96 x 48)
- 2 KS 42-1 (1/4 DIN 96 x 96)

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

Configuration
- 0 Standard Configuratio
- 9 Customer Specific Configuratio

Certification
- 0 Standard (CE certified
- U cULus-certified (with screw terminals only
- D EN 14597 certified (replaces DIN 34400 certified

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KS 50-1 Single Loop Controller

The KS 50-1 is designed for use in plastics processing machinery. The KS-50-1 can be adapted to every task: from high-speed hot runners to slow mould temperature control with special functions. Extra inputs and outputs make it possible to start special functions, for example, or to monitor temperature profiles without additional PLCs. Moreove , the Modbus interface can be used to quickly integrate the KS-50-1 controller family into networks.

Benefits and features

- 1/8 DIN (96 x 48 x 118mm) format (HxWxD)
- Freely configurable analogue output, e.g. as process value outpu
- Customer-specific linearisation for all sensor
- Extended temperature range up to 60°C
  - allows mounting close to the process
- Easy 2-point or offset measurement corrections
- Emergency operation after sensor break by means of the “output hold“ function
- RS 422/485 Modbus RTU interface
- Built-in transmitter power supply
- Two switchable parameter sets
- Self-tune at setpoint without oscillation
- 3-point controller for water, fan or oil cooling
- Start-up function to dehumidify and boost function

Options
- 0 No Option
- 1 Modbus RTU + U_T + di2/3 + OUT5/6
- 8 U_T + di2/3 + OUT5/6

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

Terminal Type
- 0 Flat-pin connectors
- 1 Screw terminals

KS50 - 1 0 1 - 0 00 9 0 - U 00

Model
- 0 KS 50-1 (1/8 DIN 48 x 96)
- 2 KS 52-1 (1/4 DIN 96 x 96)

Power Supply & Control 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 (Wechsler + mA/V/logic

Configuration
- 0 Standard configuratio
- 9 Customer specific configuratio

Certification
- 0 Standard
- U cULus-certified (with screw terminals only
- D DIN EN 14597 certified (replaces DIN 34400

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KS 90-1 & KS 92-1 Single Loop Process Controllers

The industrial and process controllers of the KS 90-1 and KS 92-1 take 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.

Benefits and features

- 1/8 DIN (96 x 48 x 118mm) and 1/4 DIN (96 x 96 x 118mm) formats (HxWxD)
- BluePort® front interface and BlueControl© software
- Maintenance manager and error list
- Two universal inputs
- Day & night display shows plain text and bargraphs
- Type tested to EN 14597 (replaces DIN 3440) and cULus
- Valve controller with position feedback and DAC monitoring
- 3-point controller for water, fan and oil cooling
- Self-tuning at the setpoint without oscillation
- Manual gain scheduling
- High-impedance mV input for O2 sensors
- Two switchable parameter sets

Serial Interface & Options
- 0 No option
- 1 RS422/485 (Modbus RTU) + UT + di2, di3 + OUT5, OUT6
- 2 PROFIBUS DP + UT + di2, di3 + OUT5, OUT6

Terminal Type
- 0 Flat-pin connectors
- 1 Screw terminals

Main function
- 0 Controller
- 1 Profiler (8840) with 8 program
- 2 Profiler (8840) with 16 program

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

KS90	-	1	0	1	-	2	0	1	9	0	-	U	00

Model
- 0 KS 90-1 (1/8 DIN 48 x 96)
- 2 KS 92-1 (1/8 DIN 48 x 96)

Power Supply & Outputs
- 0 90-250V AC, 4 relays
- 1 24V AC/18-30V DC, 4 relays
- 2 90-250V AC, 3 relays + mA/logic
- 3 24V AC/18-30V DC, 3 relays + mA/logic
- 4 990-250V AC, 2 relays + 2 xmA/logic
- 5 24V AC/18-30V DC, 2 relays + 2xmA/logic

Additional analogue inputs
- 0 INP1 and INP2
- 1 INP1, INP2 and INP3

Configuration
- 0 Standard configuratio
- 9 Configuration to specificatio

Certification
- 0 Standard
- U UL certifie (1)
- D EN 14597 certifie

(1) only available with screw terminals

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KS 94 Single Loop Controller

The KS 94 single loop controller is configurable for on/o f control, PID control and motorised valve control. The output function can be configured for on/o f, position control, split-range control and numerous 3-point combinations of switching/continuous control.

Control modes are set-point, set-point/cascade and programmer, each with the possibility of setpoint offset. The effect of offset can be additive e.g. reduced standby set-point or as a factor e.g. O2 correction or split load. Offset can be triggered by an external contact, whereby the value is defined via an analogue signal or via an adjustable paramete .

Benefits and features

- 1/4 DIN (96 x 96 x 160mm) format (HxWxD)
- Ratio control
- Mean value
- Feed-forward control
- Override control
- Measurement value output and DAC®
- Simple, menu-guided operation with plain-text displays
- Universal version for switching/continuous output
- Programmer with search function and real-time clock
- PROFIBUS-DP or RS 485 interface
- Spray-water proof front with protection type IP 65
- Interface ports at front and rear

Serial Interface & Options
- 0 No interface
- 1 TTL interface + di/do
- 2 RS422 + di/do + Timer
- 3 Profibus D + di/do

Version
- 2 KS94 standard
- 3 KS94 with TPS

Configuration
- 0 No extra function
- 1 With measurement value correction
- 2 With measurement value correction + programmer

940	7	9	2	3	1	0	0	9	1

Terminal Type
- 7 Flat-pin connectors
- 8 Screw terminals

Power Supply & Outputs
- 3 230V AC, 4 relays
- 4 230V AC, 3 relays + 1 current/logic output
- 7 24V UC, 4 relays
- 8 24V UC, 3 relays + 1 current/logic output

Main function
- 0 No supplements
- 1 INP3, INP4, OUT3, di/do
- 5 OUT3

Configuration
- 0 No pre-configuratio
- 1 Pre-configuration as 2 point controller
- 2 Pre-configuration as 3 point setting controller
- 3 Pre-Configuration as continuous controlle
- 4 Pre-Configuration as 3 point controller (logic,relay
- 5 Stepping controller for 3 element control
- 6 Continuous controller for 3 element control
- 9 Customer specific configuratio

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Multi-loop Temperature Controllers

Pro-EC44 Single or Dual Loop Controller

Pro-EC44 is designed to simplify user setup, step by step configuration with a wizard saves needing to work through several menus for initial configuration of common settings. A logical menu structure for intuitive navigation allows fast changes and updates to individual settings. Alternatively Pro-EC44 can be set up through the BlueControl© PC software.

Benefits and features

- 1/4 DIN (96 x 96 x 117mm) format (HxWxD)
- Single or two loop
- Supports cascade and ratio control
- Graphical / text display (red/green backlit LCD)
- Profiler 255 segments shared by up to 64 program
- USB configuration and data acces
- Modbus RS485 or Modbus TCP Ethernet
- Up to 5 PID sets
- Gain scheduling
- Datalogger with real-time clock

EC44	0	C	0	0	1	1	0	2	0	0	0	0	1	0

Unit Type
- C Controller
- U Controller with USB port
- X Controller/ recorder
- R Controller/ recorder with USB port

Power Supply
- 0 100-240V AC
- 2 24-48V AC or DC

Base Option 1
- 1 Relay output
- M Relay output + Linear DC output

Plug in Module Slot 1
- 0 Not fitte
- 1 Relay output
- 2 DC drive output for SSR
- L Linear DC output
- 8 Triac output

Plug in Module Slot 3
- 0 Not fitte
- 1 Relay output
- 2 DC drive output for SSR
- 8 Triac output
- 9 Dual relay output
- Y Dual SSR driver output
- T 24V DC transmitter power supply

Option C
- 0 Not fitte
- 1 Multiple digital input

Profiler
- 0 Not fitte
- P Profile

Control Loops
- 1 One control loop
- A One loop + auxiliary input
- 2 Two control loops

Base Option 2
- 0 Not fitte
- M Relay output + Linear DC output

Manual & HMI Language
- 1 English
- 2 French
- 3 German
- 4 Italian
- 5 Spanish
- 6 Simplified Chines

Plug in Module Slot 2
- 0 Not fitte
- 1 Relay output
- 2 DC Drive output for SSR
- 8 Triac output
- 9 Dual relay output
- Y Dual SSR driver output
- T 24V DC transmitter power supply

Plug in Module Slot A
- 0 Not fitte
- 1 RS485 serial comms - Modbus RTU
- 3 Digital input
- 4 Linear DC output
- 5 Triac output

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MLC 9000+ Compact Multi-loop Controller

The MLC 9000+ system comprises 1 to 8 control modules. 1, 3 & 4 loop modules are available (control up to 32 loops per system), with heater break options on 1 and 3 loop modules. Communication options for connecting to a PLC, HMI, PC or SCADA include Modbus, Devicenet, PROFIBUS, Ethernet I/P and Modbus TCP.

The MLC 9000+ features a hot swap facility, a module can be replaced and back in service within 30 seconds due to automatic reconfiguration

Benefits and features

- Bus Module: 100 x 30 x 120mm format
  Loop Module: 100 x 22 x 120mm format (HxWxD)
- Quick to setpoint and fast reaction to process disturbances
- On-demand and auto-tuning – no need to manually tune loops
- Set-up 32 loops in less than 30 minutes
- Only buy the loops required – no need to buy in multiples of four

Bus Modules

MLC 9000 **BM220** - **MB**

BM220 - MB	Modbus RTU
BM230 - DN	DeviceNet
BM240 - PB	Profibus-D
BM250 - EI	Ethernet/IP
BM250 - MT	Modbus/TCP

Loop Modules

MLC 9000 **Z1200** **00**

Z1200	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 (three SSR/three relay)
Z4620	Four universal inputs, six SSR outputs

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KS 98-1 Multi-loop Controller

With its compact design and freely configurable functionalit , KS 98-1 makes it possible to create flexible solutions for complex process control tasks. And its full graphical LCD display (160 x 80 pixels) sets new standards. Individual plain text lines can be displayed with the current function states. Choose to visualise setpoint and actual values or manipulated variables either in bar graphs or trend curves.

Benefits and features

- 1/4 DIN (96 x 96 x 118mm) format (HxWxD)
- Front interface, graphical engineering tool and simulation, parameter setting via BlueControl©
- Extended and improved operator functions
- Tailor-made operating concepts in user language
- All automation functions in one unit: controlling, computing, sequencing, visualising, operating, alarming and many more ...
- Built-in analogue and digital I/O
- I/O extension via CANopen or integrated plug-in modules

Option B Serial Interface
- 0 No Interface
- 1 TTL-Interface + di/do
- 2 RS422 + di/do + clock
- 3 ProfiBus D + di/do

Basic Unit
- 0 KS98 standard
- 1 KS98 with TPS
- 2 KS98 with CANopen (1)

Configuration
- 0 Standard configuratio
- 9 Customer specific configurati

Configuration
- 0 Operating instruction

KS98	-	1	0	1	-	2	0	0	9	0	-	U	A	2

Power Supply & Control Outputs
- 0 90-250V AC, 4 relays
- 1 24V UC, 4 relays
- 4 90-250V AC, 2 relays + 2 current outputs
- 5 24V UC, 2 relays + 2 current outputs

Additional I/O [C]
- 0 No option
- 1 INP3, INP4, OUT3, di/do
- 2 INP3 (nV), INP4, OUT3, di/do
- 3 Basic card without module (2)
- 4 Basic card with ordered module (2)

Certification
- 0 Standard
- U UL / cUL certifie
- D EN 14597 certifie

Terminal Type
- A Flat pin terminals (not available with UL approval)
- 0 Screw terminals

Terminal Type
- 2 Flat pin terminals (not available with UL approval)
- 0 Screw terminals

(1) Not possible with Modular Option C
RM 200 not included in UL/cUL approval

(2) Not possible with CANopen I/O modules must be ordered separately!
Mind possible combinations and power limitations.

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KS 800 & KS 816 Multi-loop Controllers

The KS 800 multi-loop controller handles 8 zones simultaneously and can be configured as a signal device, 2-point controller, 3-point controller, cascade controller or stepping motor controller.

In the 2-point and 3-point configurations, it can also be set up as a continuous and split range controller. With functions such as “setpoint reduction” and “heating/cooling with four alarms”, it is particularly well-suited for temperature control in plastic processing machines, packaging machines and tempering equipment or for similar thermal processes.

An extensive array of special functions and a precise and autonomous algorithm takes the load off of PLCs and IPCs. As an option, the field bus can be connected via CANopen, DeviceNet or Profibus D . With the KS 816 version of the multi-loop controller, the control output signals are transmitted to the decentralised actuators via the bus. The 16-channel controller can also be used as a powerful universal transmitter.

Benefits and features

- 170 x 124 x 85mm format (HxWxD)
- 8/16-channel controller in housing for rail mounting
- Monitoring for heating current and complete control loop
- Direct connection of melt pressure sensors
- Universal inputs for thermocouple and RTDs

KS 800

Option

- **0** Without additional outputs
- **1** 8 x 20mA outputs
- **3** Constant voltage source, 2 relays for melt pressure sensors

9407- 480	0	0	0	01

8 Loop Controller

- **0** KS800 RS (ASCII)
- **3** KS800 DP (ProfiBus
- **6** KS800 CAN (CANopen)
- **7** KS800 DN (DeviceNet)

KS 816

9407 - 481	0	0001

16 Loop Controller

- **0** KS816 RS (ASCII)
- **3** KS816 DP (ProfiBus
- **6** KS816 CAN (CANopen)

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KS Vario Multi-loop Controller

The KS vario multi-loop controller system was specifically developed for temperature control. In its basic configuration it comprises a controller module and a field bus coupl . Together these two components already constitute a valuable 4, 6 or 8-channel controller.

By adding any number of I/O modules, the system can be expanded up to 30 control loops very economically and in precise increments. The number of I/O module used need not exceed the actual number of inputs or outputs required.

Benefits and features

- Compact and modular design
- Open for all major industrial field buse
- Between 4-30 temperature zones can be controlled
- Additional measurements can be integrated
- Highly modular expansion
- Detachable connectors

Buscoupler

KSVC	-	1	0	1	-	0	0	1	1	1	-	U	00

Option

1 Profibus-DP/V1
2 CANopen
3 Modbus TCP
4 DeviceNet
5 Modbus RTU
7 Profine
8 Ethernet IP

Continued over page...

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Controller

Title

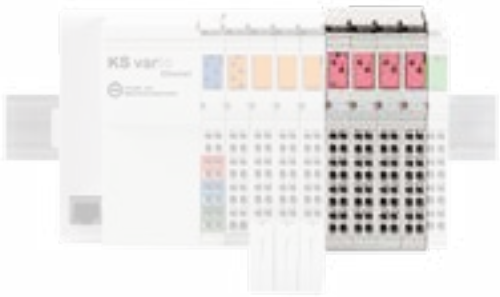
- **0** For B.C. Ethernet Mod/TCP, Ethernet IP, Profibus, Modbu
- **1** For B.C. DeviceNet
- **2** For B.C. CANopen

KSVC - 1 0 4 - 0 0 33 1 - U 00

Option

- **33** KS VARIO T4/RTD
  Vario temperature controller, 4-channel, spring-clamp connection, labeling field, 4 inputs, TD (resistance element), 3 wire connection + screening, 6 outputs 24 V DC, 1 heating current input, I/O extensible
- **43** KS VARIO T4/UTH
  Vario temperature controller, 4-channel, spring-clamp connection, labeling field, 4 inputs, TC (thermocouples), 2 wire connection + screening, 8 outputs 24 V DC, 1 heating current input, I/O extensible
- **34** KS VARIO T6/RTD
  Vario temperature controller, up to 30-channel, spring-clamp connection, labeling field, 6 inputs, TD (resistance element), 3 wire connection + screening, 6 outputs 24 V DC, 1 heating current input, I/O extensible up to 30 channels
- **44** KS VARIO T8/UTH
  Vario temperature controller, up to 30-channel, spring-clamp connection, labeling field, 8 inputs, TC (thermocouples), 2 wire connection + screening, 8 outputs 24 V DC, 1 heating current input, I/O extensible up to 30 channels

I/O Extension



KSVC - 1 0 x - 0 x x x 1

For a full list of available modules please refer to the KS Vario price list or visit **www.West-CS.co.uk** to get in contact.

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Rail-mounted Devices

RaiLine

Decentralised installations with field bus systems are finding increasing use in process an machine automation. In order to ensure reliable control in these allocations – also involving complex processes – modular components with additional functionality are required. The flexible RaiLine system, WES Control Solutions offers a comprehensive product portfolio for decentralised automation.

The combination of RL field bus couplers (for Profibus, CAN, Modbu TCP and Modbus RTU) with various I/O-modules, KS 45 universal controller, Uniflex CI 45 and SG 45 transmitters and the TB 45 temperature limiter, permits modular systems with distributed intelligence to be created.

The space-saving modules for rail mounting and other universally applicable system components help to save time and costs during system configuration, engineering and commissioning.

Benefits and features

- 96 x 22.5 x 117.5mm format (HxWxD)
- Field bus coupler for Profibus, CAN, Modbus TCP, Modbus RTU and Ethernet IP – ensures cost-effective and convenient connections to PLC, IPC and operating terminals
- Bus monitoring
- Pre-defined output states in case of communication failur
- Compact design – modules only 22.5 mm wide
- 3-key operation and multi-line LC display
- Plug-in terminals – no wiring to disconnect in case of module replacement
- Module replacement during operation (hot swap)
- BluePort® front port
- PC configuration tool BlueContro ©
- Cost advantages during projecting, implementation and maintenance
- Local operation
- Freely configurable menu structur
- Freely selectable monitoring functions

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Field bus couplers

- Profibus D
- Ethernet IP
- Modbus/TCP
- CANopen
- Modbus RTU
- And additional power supply for large systems

Certification
0 None
U UL/cUL certifie

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

RL40 - 1 1 2 - 00000 - U 00

Option
1 CANopen
2 PROFIBUS DP/DPV1
3 MODBUS RTU
4 Ethernet MODBUS/TCP
5 Ethernet/IP
9 Power supply module 24V

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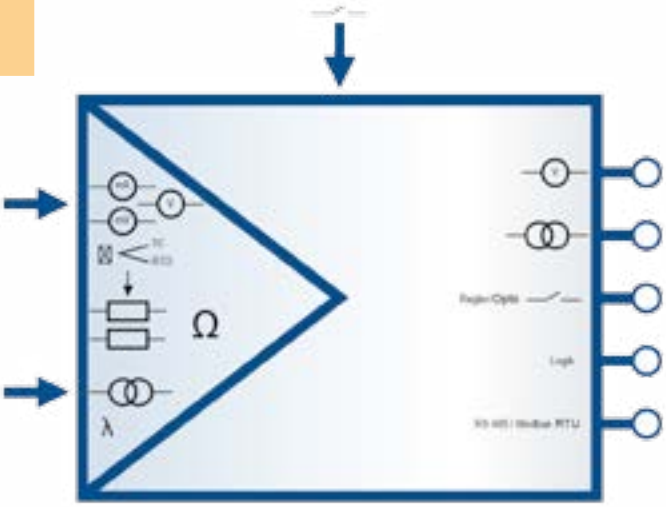
The KS 45 process controller is a stand alone version for direct connection via RS485 Modbus or system version with buscoupler and inter-module connections permit additional controllers, transmitters and limiters to be fitted without wiring

Benefits and features

- Display- and operating functions
- 2-point, 3-point, motor valve and continuous control
- Fast sampling rate
- Two universal inputs possible
- Universal output
- Timer and programmer
- Customised linearisation profil
- Auto/manual switchover



Option
- 0 No option
- 1 RS 485 / MODBUS - protocol
- 2 System interface (only for 24V versions)

Connector
- 0 Without plug-in connector terminals
- 1 With screw terminal connector

Certification
- 0 Standard (CE-certification
- D DIN 3440 / EN 14597
- U UI/cUL certifie

KS45	-	1	0	1	-	2	0	0	9	0	-	U	00

Configuration
- 0 Standard configuratio
- 9 Customer-specific configurati

Power Supply & Control 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)

Input
- 0 di1 as contact input
- 1 di1 as optocoupler input
- 2 INP2 as universal input, 0_2 -measurement, di1 as contact input (1)
- 3 INP2 as universal input, 0_2 -measurement, di1 as optocoupler input (1)

(1) Not on versions with optocoupler outputs (KS45-1x4... and KS45-1x5...)

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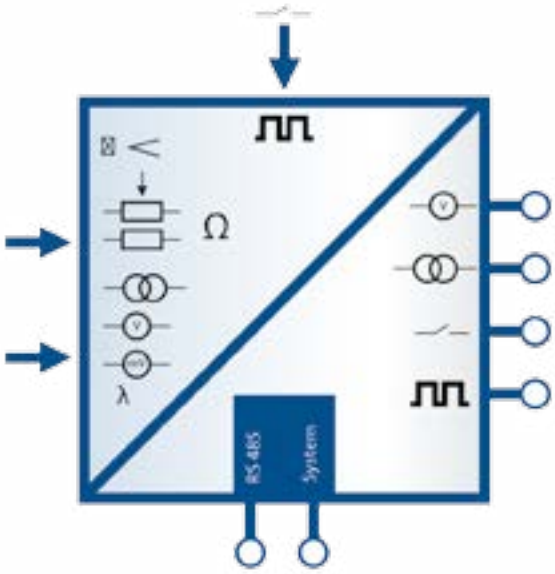
CI 45 Transmitter

A universal transmitter, 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 wiring

Benefits and features

- High resolution
- Fast sampling rate
- Two universal inputs possible
- Universal output
- Two relay outputs
- Counter/frequency input, frequency output
- Customised linearisation profil
- Correction of measurement value
- Slave pointer (min/max indicator)



Option
0 No option
1 RS 485 / Modbus - protocol
2 System interface (only for 24V versions)

Certification
0 Standard (CE-certification
U UI/cUL certifie

Connector
0 Without plug-in connector terminals
1 With screw terminal connector

CI45	-	1	0	2	-	2	0	0	9	0	-	U	00

Configuration
0 Standard configuratio
9 Customer-specific configurati

Power Supply & Control Outputs
2 90-260V AC, mA/V/logic +1 relay
3 18-30V AC/18-31V DC, mA/V/logic +1 relay
4 90-260V AC, mA/V/logic +2 relay
5 18-30V AC/18-31V DC, mA/V/logic +2 relay

Option
0 No option
1 Option package 1 (1)
2 Option package 2 (2)

(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

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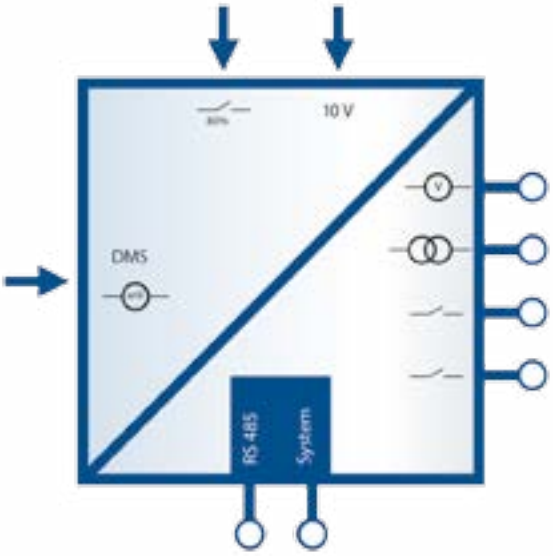
SG 45 Transmitter

Strain-gauge bridge transmitter, 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 wiring.

Benefits and features

- Special-purpose transmitter for strain gauge input
- 24-bit universal input
- Voltage supply for the strain gauge bridge
- Simple scaling during commissioning
- 4 or 6-wire connection for force measurement
- 2 relay outputs

* There is also the dedicated TB45-2 with dual input if you require a certified limite .



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

Option
0 No option
1 RS 485 / MODBUS - protocol
2 System interface (only for 24V versions)

Certification
0 Standard (CE-certification
U Ul/cUL certifie

SG45 - 1 0 2 - 2 0 0 9 0 - U 00

Power Supply & Control Outputs
4 90-260V AC, mA/V/logic +2 relay
5 18-30V AC/18.-31V DC, mA/V/logic +2 relay

Configuration
0 Standard configuratio
9 Customer-specific configurati

Option
0 No option
1 Option package 1 (1)
2 Option package 2 (2)

(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

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RL 400 I/O expansion modules

- RL400 offers a variety of sophisticated I/O modules
- High precision analogue inputs
- Output modules with fast on board signal processing
- Reinforced galvanic isolation
- Linearisation and measured value correction
- Up to 62 modules in a system
- Digital and analogue input & output modules
  - Pt 100 in 2 or 4-wire connection
  - Thermocouples
  - mA/V
  - Relays
  - Potential-free digital inputs
  - NPN/PNP inputs

Analogue Inputs

4220 **RL 422-0** Analogue inputs, 4 x I / U / TPS /potentiometer
4221 **RL 422-1** Analogue inputs 2 x I/U galv. isolated
4230 **RL 423-0** RTD 4 x Pt100 galvanic isolated
4231 **RL 423-1** RTD 4 x Pt1000 galvanic isolated
4232 **RL 423-2** RTD 4 x Pt100/Pt1000
4233 **RL 423-3** RTD 2 x Pt100 galvanic isolated
4240 **RL 424-0** 2 x TC galvanic isolated
4241 **RL 424-1** 2 x TC / O2 (mV)
4242 **RL 424-2** 4 x TC galvanic isolation 2/2
4610 **RL 461-0** Combi module, 2 x AI (±U / ±I, 16 Bit) differential inputs; 2 x AO (±U / ±I, 12 Bit)

Digital Inputs

4420 **RL 442-0** Digital inputs 2 x 4 24 V DC (pnp /contact, potential-free)
4421 **RL 442-1** Digital inputs 2 x 4 24 V DC (npn /contact, potential-free)
4422 **RL 442-2** Digital inputs 8 x 1 24 V DC (individual supply)
4430 **RL 423-0** 4 x Relay (115/230V AC)

Connector

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

Certification

0 Standard (CE-certification
U UI/cUL certifie

RL40	-	1	0	0	-	0000	0	-	U	00

Analogue Outputs

4310 **RL 431-0** 4 x I / U (±10V / ±20mA, 12 Bit)
4610 **RL 461-0** Combi module, 2 x AI (±U / ±I, 16 Bit) differential inputs; 2 x AO (±U / ±I, 12 Bit)

Digital Outputs

4510 **RL 451-0** Digital outputs 2 x 4 24 V DC/2A
4511 **RL 451-1** Digital outputs 2 x 4 24 V DC/2A (free wheeling diode)
4520 **RL 452-0** Relay outputs 4 x 230 V DC/5A

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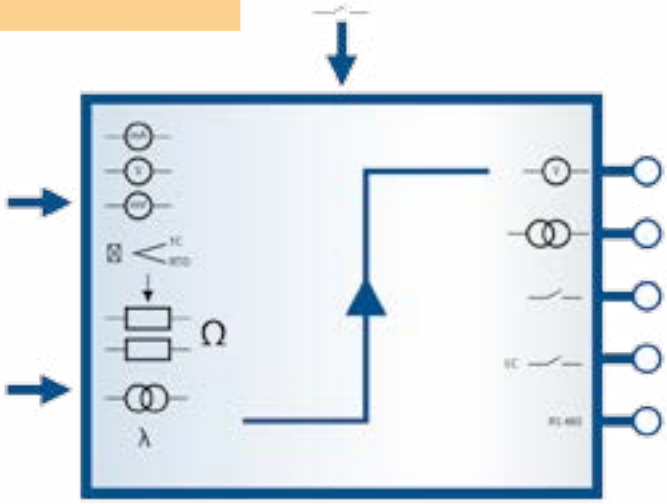
TB 45 Temperature Limiter

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 wiring

Benefits and features

- For all thermocouple types and resistive sensors
- Display and operating functions
- Two relay outputs
- Analogue output
- Two universal inputs possible
- Reset via key combination or external contact
- Direct connection of RS 485 Modbus RTU without bus coupler. Inter-module connections permit additional controllers, transmitters and limiters to be fitted without wiring
- Type-tested to EN 14597 (replaces DIN 3440)



Option
0 No option
1 RS 485 / MODBUS - protocol

Certification
0 Standard (CE-certification
U UI/cUL certifie
D DIN 3440 / EN 14597

Connector
0 Without plug-in connector terminals
1 With screw terminal connector

TB45 - 1 0 2 - 1 0 0 9 0 - U 00

Model
1 Standard
2 DIN approved limiter with dual-TC input

Power Supply & Control Outputs
0 90-260V AC, 2 relays
1 18-30V AC/18-31V DC, 2 relays
2 90-260V AC, mA/V/logic +2 relay
3 18-30V AC/18-31V DC, mA/V/logic +2 relay

Input
0 di1 as contact input
1 di1 as optocoupler input
2 INP2 as universal input, 0_2 -measurement, di1 as contact input
3 INP2 as universal input, 0_2 -measurement, di1 as optocoupler input

Configuration
0 Standard configuratio
9 Customer-specific configurati

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6010+ & 8010+ Process and Temperature Indicators

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 x 100mm) and 1/8 DIN (horizontal) (48 x 96 x 110mm) formats (HxWxD)
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Up to 4 outputs
- Output options for SSR driver, triac, relay and linear
- Optional alarms are selectable as latching or non-latching outputs
- PC Configurator with easy to use “wizard” suits both novice and experienced users
- Multi-point scaling and tare features included as standard
- Modbus and ASCII communications
- Red/green single-line 4-digit display

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

Power Supply
0 100-240V AC
2 24-48V AC or DC

Display Colour
0 Fixed red
1 Fixed green

P6010 | 2 | 0 | 2 | 0 | 1 | 2 | 0

Model
6010 6010+
8010 8010+

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

Option Slot 3
0 Not fitted
1 Relay
2 DC for SSR
7 Linear DC
8 Transmitter power supply

Option Slot A
0 Not fitte
1 RS485 communications
3 Digital input

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D280-1 Indicator

The PMA Digital 280-1 indicator ensures a fast reaction time with a scan rate of 100 ms cycle time.

The instrument offers customer-specific linearisation for all sensors (16 segments). The maximum and minimum values are always stored and may be displayed on the front for quick reference. In addition to an indicator the Digital 280-1 can also be used as a signaller, on/off controller, two-point controller or a continuous controller.

Benefits and features

- 1/8 DIN (horizontal) (48 x 96 x 118mm) format (HxWxD
- BluePort® front interface and BlueControl© software
- Maintenance manager and error list
- 5-digit, 20mm big display
- Limit signalling functions with hysteresis, discriminator time and rate of change monitor
- On/off-, 2-point- and continuous controller
- Oxygen measurement with high-impedance input

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

D280 - 1 1 0 - 0 00 9 0 - U 00

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

Configuration
0 Standard configuratio
9 Customer specific configuratio

Certification
0 Standard (CE - Certified
U cULus-certified (with screw terminals only
R GOST-R certified (incl. operating manual

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EI2410 Temperature Indicator

The CAL EI temperature indicators are ideal for use with other products from the CAL thermostat range.

The EI2410 provides temperature indication on systems with NTC sensors operating within a range of -60 to 150°C.

Benefits and features

- 35 x 77 x 71mm format (HxWxD) (29 x 71mm cutout)
- NTC Sersor 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

Voltage
230 230V AC
024 24V AC/DC
012 12V AC/DC

EI2410 **230** **F**

Units
(blank) Centigrade
F Fahrenheit

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EI2041 Process Indicator

The EI2041 indicator has linear mA and V input, rescaled for accurate display of process data.

With selectable input types, easy-to-adjust sampling time and various options for display, the EI2041 can be set up to meet a user's specific needs

Benefits and features

- 35 x 77 x 71mm format (HxWxD) (29 x 71mm cutout)
- 4 digit display
- Scale adjustable between -1999 and 4000
- Adjustable decimal point 0000, 000.0, 00.00 or 0.000
- Measurement unit display
- Four selectable input types (0-20mA, 4-20mA, 0-1V, 0-10V)
- Input calibration
- Adjustable sampling time
- Min and max values can be stored on the display
- Two relay outputs for control and alarm (optional)
- Above and below setpoint value can be set
- RS485 Modbus RTU communication protocol feature (optional)
- Selectable independent, deviation and band alarm
- Sensor supply output (optional)
- CE

Voltage
230 230V AC
024 24V AC
012 12V AC
SM 9-30V DC / 7-24V AC

Sensor Supply Output
(blank) Not fitte
12 12V DC 50mA
08 08V DC 50mA
05 05V DC 50mA

EI2041 | 230 | 2R | RTC | RS

Relay
(blank) Not fitted
2R 8A output

Modbus Selection
(blank) Not fitte
RS Modbus Communication

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6700+, 8700+ & 4700+ Limit Controllers

Limit controllers provide a latched relay output which is activated when process parameters either exceed or fall below the desired value, providing a fail safe cut-off which has to then be reset before the process can continue.

LED indication shows when limits have been exceeded and when the relay is latched out.

With a full range of universal sensor input options, the + series range provide a valuable safety control element for most systems.

Benefits and features

- 1/16 DIN (48 x 48 x 110mm), 1/8 DIN (96 x 48 x 100mm) and 1/4 DIN (96 x 96 x 100mm) formats (HxWxD)
- Universal input for thermocouple, PT100, mV, V and mA sensors
- Modbus communications across the range (as well as West ASCII)
- Configuration via P
- Up to three outputs
- Improved, easy-to-use HMI
- FM approval

Option Slot A
0 Not fitte
1 RS485 communications
3 Digital input

Option Slot 2
0 Not fitte
1 Relay
2 DC for SSR
7 DC linear
8 Triac

Display Colour
0 Red upper & lower
1 Green upper & lower
2 Red upper, green lower
3 Green upper, red lower

P6700	2	1	1	2	0	2	2

6700 6700+
8700 8700+
4700 4700+

Option Slot 3
0 Not fitte
1 Relay
2 DC for SSR
7 DC linear
8 Transmitter power supply

Power Supply
0 100-240V AC
2 24-28V AC or DC

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TB 40-1 Temperature Limit Controller

The TB40-1 can be used to protect heating and refrigeration processes. It is suitable for all thermocouple types and resistance type sensors.

Benefits and features

- 1/8 DIN (96 x 48 x 118mm) format (HxWxD)
- BluePort® front interface and BlueControl© software
- Maintenance manager and error list
- Alarm reset via RESET-key
- Alarm reset via digital input
- Type tested to EN 14597 and cULus

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)

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

TB40 - 1 0 0 - 0 00 9 0 - U 00

Connector
- 0 Flat pin connectors
- 1 Screw terminal connectors

Configuration
- 0 Standard configuratio
- 9 Customer specific configuratio

Certification
- 0 Standard (CE - Certified
- U cULus-certified (3)
- D EN14579 (DIN3440) Certifie

(1) TB (EN14597, 2009-1), not available with cULus
(3) With screw terminals only, not available as Temperature limiter TB (EN14597, 2009-1)

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ET2001 & ET2011 Digital Thermostats

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 x 71mm format (HxWxD) (29 x 71mm cutout)
- Ideal for industrial applications with thermocouple or PT100 temperature sensors
- Range -200 to 1700°C (sensor type dependant)
- Heating or cooling control
- 1 or 2 outputs for control and alarms

Single output - Relay

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

ET2001 J 230 05 F

Sensor Type
J Thermocouple

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

Units
C Centigrade
F Fahrenheit

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

ET2011 RT 230 P F

Sensor Type
RT PT100/RTC
T Thermocouple

Relay
(blank) 8A relay
P 16A relay

Units
(blank) Centigrade
F Fahrenheit

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ET2411 & ET2412 Digital Thermostats

The ET2411 and ET2412 are specifically designed for use with NTC sensors

The units are easy to configure and use, have a large clear display for good visibility and a compact design that is fast to install.

Benefits and features

- 35 x 77 x 71mm format (HxWxD) (29 x 71mm cutout)
- Ideal for industrial or commercial applications with NTC temperature sensors
- Range -0 to 150°C
- Heating or cooling control
- 1 or 2 outputs for control and alarms

Voltage
230 230V AC
110 110V AC
024 24V AC/DC
012 12V AC/DC

ET2411 | **230** | **05** | **F**

11 1 x Relay
12 2 x Relay

Relay
05 5A output
08 8A output
16 16A output

Units
(blank) Centigrade
F Fahrenheit

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EDT2411, EDT2412 & EDT2423 Defrost Thermostats

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.

Benefits and features

- 35 x 77 x 71mm format (HxWxD) (29 x 71mm cutout)
- Compressor, defrost and fan control
- Up to two NTC inputs for main and defrost temperature measurement
- Manual, timed and evaporator temperature defrost modes supported
- CAL-Key for fast configuratio
- Real-time clock option
- RS485 communications option

Voltage (1)
230 230V AC
110 110V AC
12 12V AC/DC
24 24V AC/DC

Options
(blank) Not fitte
RTC Real-time clock (2)

EDT2411 | 230 | R | RTC | RS

11 1 x NTC sensor, 1 x relay
12 1 x NTC sensor, 2 x relay
23 2 x NTC sensor, 3 x relay

Relay
R 8A output
P 20A output (3)

Modbus Selection
(blank) Not fitte
RS Modbus RTU

(1) 9-30V DC, 7-24V AC version is also available as an extra cost option
(2) only available with 8A relay devices
(3) not on EDT2423

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ETM2432 Digital Timer

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 use 's needs.

Benefits and features

- 35 x 77 x 71mm format (HxWxD) (29 x 71mm cutout)
- Dual contact timed output
- External start, reset and hold digital inputs
- 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
- Audible tones
- CE

Voltage
230 230V AC
24 24V AC/DC
12 12V AC/DC
SM 9-30V DC / 7-24V AC

ETM2432 **230**

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Solid State Relays

Panel Mount SSRs

The WP SSRs provide an economy option for users requiring devices to switch up to 75A.

Benefits and features

- 10, 25, 50 and 75A output rating
- 48 to 660V AC load voltage rating
- 4 to 32V DC control voltage
- Panel mounting (or separate heatsink)
- High thermal performance
- CE and UL / cUL
- RoSH compliant

Max Output Voltage
66 48-660V AC

Output Current
10 10 Amps
25 25 Amps
50 50 Amps
75 75 Amps

WP **66** **D** **10**

Control Voltage
D 4-32V DC

Compatible with: WEST PMA CAL

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Slimline DIN-Rail Mounted SSRs

The WS range offers slim-line products for greater space saving. These single phase solid state relays fit a standard DIN-rail in a reduced 12mm or 18mm width for a minimal panel footprint.

The WS SSR is a self-contained device with no need for an additional heat sink.

Benefits and features

- 6 & 12 Amps output rating
- 24 to 280V and 48 to 600V AC load voltage ratings
- 4 to 32V DC control voltage
- DIN rail mounting
- IP20 housing
- Zero Voltage turn-on
- CE and UL / cUL
- RoHS compliant

Max Output Voltage
28 24-280V AC
60 48-660V AC

Output Current
06 6 Amps
12 12 Amps

WS | 28 | D | 12

Control Voltage
D 4-32V DC

Compatible with: WEST PMA CAL

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DIN-Rail Mounted SSR with Integral Heatsink

The WD range of DIN-rail mounted single phase devices come in 22.5mm and 45mm width and range up to 45A. The SSRs can be direct or DIN-rail mounted.

The series also benefits from built-in heat sink with small panel footprint

Benefits and features

- 10, 20, 30 and 45 Amps output rating
- 24 to 280V and 48 to 600V AC load voltage ratings
- 4 to 32V DC control voltage
- DIN-rail or panel mounting
- Epoxy-free design
- IP20 touch-safe housing
- CE and UL / cUL
- RoHS compliant

22.5mm

Max Output Voltage
28 24-280V AC
60 48-600V AC

Output Current
10 10 Amps
20 20 Amps
30 30 Amps

WD **28** **D** **10**

Control Voltage
D 4-32V DC

45mm

Max Output Voltage
60 48-600V AC

Output Current
45 45 Amps

WD **60** **D** **45**

Control Voltage
D 4-32V DC

Compatible with: WEST PMA

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Relay CL - 1PH Thyristor Power Controller

Single-phase thyristor power controller for complex load requirements including feedback and current limit.

Benefits and features

- Load type: normal resistance, infrared long, short and medium waveform, silicon carbide and cold resistance coupled with transformer
- Inputs: 0-10V dc, 4-20mA, 10kpot, SSR, RS485
- Firing mode: burst firing, single cycle, soft start + phase angle an delayed triggering
- Operating temperature: 0 to 40°C without derating
- Control mode: voltage, VxI power and current I and I2
- RS485 port. RTU Modbus protocol
- Comply with EMC

RCL	035	4	1	V	D	O	Y	0	0	2	0

Current
- 035 35A
- 040 40A
- 060 60A
- 090 90A
- 120 120A
- 150 150A
- 180 180A
- 210 210A
- 280 280A
- 400 400A
- 500 500A
- 600 600A
- 700 700A

Max Voltage
- 4 480V
- 6 600V
- 7 690V (1)

Voltage Supply Aux.
- 1 90:130V (2)
- 2 170:265V (2)
- 3 230:345V (2)
- 5 300:530V (2)
- 6 5100:690V (2)
- 7 600:760V (2)

Input
- V 0:10V dc
- A 4:20 mA
- K 10 K Pot
- R RS 485

Control Mode
- O Open loop
- U Voltage feed back V
- W Power feed back VxI
- Q Voltage square V2
- I Current feed back I

Firing
- D Delayed triggering + burst firing DT+BF (3)
- P Phase angle PA
- E Soft start + phase angle S+PA

Fuse & Option
- Y For units =< 40A fuse + fuse holder + CT Standard
- H Fuse + fuse holder + CT + HB with screw terminal
- Y For units > 40A fixed fuse + C
- H fixed fuse + C + HB

Fan Voltage
- 0 No fan < 120A
- 1 No fan 110V > 90A
- 2 No fan 220V > 90A standard version

Approvals
- 0 CE EMC For European market

Manual
- 0 No manual
- 1 Italian
- 2 English
- 3 German
- 4 French

Version (5)
- 1 Std with fuse + fuse holder up to 40A
- 2 Second fuse normally used with phase to phase (4)
- E Second fuse with an additional safety elettromechanichal relay to open in alarm conditions (4)

(1) Available on units > 280A
(2) Load voltage must be included in selected auxiliary voltage range
(3) 8 cycles at 50% power demand
(4) This option is possible with unit up to 40A. Dimension equal relay M 2PH of same rating
(5) After final option, write current and voltage of load inside brackets Ex (190A-400V

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Relay S - 1PH, 2PH & 3PH Thyristors

Simple on/off firing with a DC logic input, time proportioned burst firing with a DC linea input (basic firing selectable between 4,8 or 16 cycles). These simple units can be connected with Relay PC to manage multi-zone system.

Benefits and features

- Load type: normal resistance, infrared long and medium waveform
- Inputs: SSR Standard, 0:10V, 4:20mA and heater break alarm are options
- Firing mode: zero crossing, burst firing available wit analogue input only
- Operating temperature: 0 to 40°C without derating
- Comply with EMC

Current
- 030 30A
- 035 35A
- 040 40A
- 060 60A
- 090 90A
- 120 120A
- 150 150A
- 180 180A
- 210 210A
- 280 280A
- 400 400A
- 500 500A
- 600 600A
- 700 700A

Input
- S SSR
- V 0:10V dc
- A 4:20 mA

Firing
- Z ZC Zero crossing (4)
- 4 Burst firing 4 cycles on at 50% power demand (5)
- 8 Burst firing 8 cycles on at 50% power demand (5)
- 6 Burst firing 6 cycles on at 50% power demand (5)

Fan Voltage
- 0 No fan < 120A
- 1 No fan 110V > 90A
- 2 No fan 220V > 90A standard version

Approvals
- 0 CE EMC for European market

Manual
- 0 No manual
- 1 Italian
- 2 English
- 3 German
- 4 French

RS1	030	4	1	V	D	0	Y	0	0	2	1

Model
- 1 1PH
- 2 2PH
- 3 3PH

Max Voltage
- 4 480V
- 6 600V
- 7 690V (1)

Voltage Supply Aux.
- 0 No aux. voltage without HB and/or analogue input up to 210A included
- 4 With HB and/or analogue input on all unit =<210A aux volt 12:24V ac-dc (2)
- 1 90:130V
- 2 170:265V(3)
- 3 230:345V(3)
- 5 300:530V(3)
- 6 510:690V(3)
- 7 600:760V(3)

Control Mode
- 0 Open Loop

Fuse & Option
- 0 No Fuse for all units =< 40A
- F Fuse + fuse holder
- Y Fuse + fuse holder + CT
- H Fuse + fuse holder + CT + HB
- X Fuse + fuse holder + CT + HB with flat cable co nection
- F Fixed fuses std for all units > 40A (6)
- Y Fixed fuses std + CT
- H Fixed fuses std + CT + HB

Version
- 1 Std with one fuse only
- 2 Units with 2 fuses + fuse holder =< 40A (7)
- E Units with 2 fuses + fuse holder + Safety relay + fuse =< 40A (8)

(1) Available on units > 280A
(2) For all units > 210A with whichever options and inputs
(3) Load voltage must be included in selected auxiliary voltage range for units >210A
(4) With 690V the firing is rando
(5) Available only with analogue input
(6) Fixed fuses over 40A
(7) If you need one relay S 1PH with 2 fuse & fuse holder. For dimensions see relay S 2PH. This solution can be used up to 40A max
(8) If you need one relay S 1PH with 2 fuse & fuse holder + safety relay. For dimensions see relay S 2PH. This solution can be used up to 40A max

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Relay M - 1PH, 2PH & 3PH Thyristors

Time proportioned burst firing with a DC linear input, front panel display & RS485 comms as standard.

Benefits and features

- Load type: normal resistance, infrared short, long and medium waveform, and silicon carbide
- Inputs: 0:10V dc, 4:20mA, 10kpot, SSR, RS485
- Firing mode: zero crossing, burst firing, single cycle, soft start + phase angle and delayed triggering
- Operating temperature: 0 to 40°C without derating
- Control mode: voltage, VxI power, I and I2
- RS485 port. RTU Modbus protocol
- Comply with EMC

Current
035 35A
040 40A
060 60A
090 90A
120 120A
150 150A
180 180A
210 210A
280 280A
400 400A
500 500A
600 600A
700 700A

Input
S SSR
V 0:10V dc
A 4:20 mA

Firing
Z ZC Zero crossing
C Single cycle SC
B Burst firing BF
J Soft start + burst firing S+B
D Delayed triggering + burst firing DT+BF
P Phase angle PA
E Soft start + phase angle S+PA

Fan Voltage
0 No fan < 120A
1 No fan 110V > 90A
2 No fan 220V > 90A Std version

Approvals
0 CE EMC For European Market

Manual
0 No manual
1 Italian
2 English
3 German
4 French

RM1	035	4	1	V	D	O	Y	0	0	2	1

Model
1 1PH
2 2PH
3 3PH

Max Voltage
4 480V
6 600V
7 690V (1)

Voltage Supply Aux.
1 90:130V (3)
2 170:265V (3)
3 230:345V (3)
5 300:530V (3)
6 510:690V (3)
7 600:760V (3)

Control Mode
O Open loop
1 Voltage feed back
2 Power feed back
3 Current feed back
4 Voltage to power feed back transfer

Fuse & Option
Y For units =< 40A fuse + fuse holder + CT
H Fuse + fuse holder + CT + HB with terminal
Y For units > 40A fixed fuse std + C (4)
H Fixed fuse std + CT + HB
A Control mode retransmission 4:20mA
V Control mode retransmission 0:10mV

Version
1 Std with one fuse only
2 Units with 2 fuses + fuse holder =< 40A (5)
E Units with 2 fuses + fuse holder + Safety relay + Fuse =< 40A (6)

(1) Available on units > 280A
(2) For all Units > 210A with whichever options and inputs
(3) Load voltage must be included in selected auxiliary voltage range for units >210A
(4) Fixed fuses over 40A
(5) If you need one relay S 1PH with 2 fuse & fuse holder. For dimensions see relay S 2PH. This solution can be used up to 40A max
(6) If you need one relay S 1PH with 2 fuse & fuse holder + safety relay. For dimensions see relay S 2PH. This solution can be used up to 40A max

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Paperless Recorders

DataVU 7 Paperless Recorder

DataVU 7 provides advanced flexibility to meet a use ’s specific requirements without the need to change a process to fit the recorde . If process requirements are subject to change at a later date then the user benefits from the ease with which modifications can be made to the recorde configuration. The recorder is fully scalable - cards can be added to the recorder, facilitating future expansion.

Reporting can be tailored to provide the exact information needed. The DataVU 7 allows reports to be created for daily, weekly, monthly and yearly periods. Furthermore if particular data needs to be evaluated then reports can be created using a custom date range to provide maximum flexibilit .

Benefits and features

- 144 x 144 x 200mm format (HxWxD)
- Enhanced security through password protections, instrument can only be configured by authorised operating personne
- Fully scalable so additional option cards can be added to the recorder at a later date facilitating future expansion
- PC Evaluation software provides option to run reports on data for a specific period (dail , weekly, monthly, annually and custom)
- Data can be annotated with individual comments via the recorder relating to process events
- Able to withstand humid conditions and meets standards for IP65 ingress protection
- Easy to clean, even with aggressive media
- DataVU 7 is a robust and durable recorder that is ideally suited to challenging and harsh environments

VU7 | **Input Slot 1** | **Input Slot 2** | **Input Slot 3** | **Power supply options** | **Option 1** | **Option 2**

Input Slot 1
- 0 None
- 3 3 Universal inputs and 8 DI/DO
- 6 6 Universal inputs

Input Slot 2
- 0 None
- 3 3 Universal inputs and 8 DI/DO
- 6 6 Universal inputs

Input Slot 3
- 0 None
- 3 3 Universal inputs and 8 DI/DO
- 6 6 Universal inputs
- R 6 Relay outputs

Power supply options
- 0 110 - 240V AC, 48-63 Hz
- 1 20 - 53V AC/DC, 48-63 Hz

Option 1
- 0 Lithium battery for memory
- 1 Lithium battery for memory + Math function module
- 2 Lithium battery for memory + PROFIBUS DP interface
- 3 Lithium battery for memory + Mathfunction module + PROFIBUS DP interface
- 4 Capacitor for memory buffering (1)
- 5 Capacitor for memory buffering + Math function module*
- 6 Capacitor for memory buffering + PROFIBUS DP interface*
- 7 Lithium battery for memory + Mathfunction module + PROFIBUS DP interface (1)

Option 2
- 0 None
- 1 Stainless steel front

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