Making process control easy

Comprehensive display of process status
— Crystal-clear, full-color TFT display
— User-customizable
— Historical trending

Exceptionally easy to use
— Intuitive user interface and clear text prompts make installation, commissioning and operation quick and simple

Scalable to match application requirements
— Comprehensive hardware and software options

Powerful control functionality
— Cascade, feed-forward, ratio, predictive and adaptive control strategies
— Dual-loop capability

Problem-solving capability
— Flexible functionality including math, logic and totalization providing power to solve complex application requirements

Built to survive
— IP 66 and NEMA 4X environmental protection

Flexible connectivity
— Ethernet, PROFIBUS® and MODBUS® communications
ControlMaster CM30
Universal process controller, 1/4 DIN

Overview

The ControlMaster CM30 is a highly versatile, 1/4 DIN, universal PID process controller. Detailed process information is presented clearly on the CM30's full-color TFT display and an intuitive operator interface simplifies configuration and operation. Highly scalable in both hardware and software functionality, a CM30 can be specified easily to meet the needs of virtually any process control application – simple or advanced. Powerful control functions such as adaptive control, math, logic and totalization provide problem-solving flexibility and make the CM30 suitable for a wide range of process applications. Fully configurable via the easy-to-navigate front panel menus or PC configuration software, the CM30 can be commissioned rapidly and then tuned via the advanced autotune capability. MODBUS, PROFIBUS and Ethernet communication options ensure easy integration into a control system.
Highly scalable

The CM30 is highly scalable in terms of both hardware and software, to fulfill the demands of the simplest to the most complex process. The basic CM30 meets the needs of a simple control loop. Templates and control functionality can be increased by adding function keys to the basic model. Each function key added provides additional templates and functionality as shown in Fig. 1, while retaining previous templates and functionality. For I/O builds, see also Ordering information on page 23.

<table>
<thead>
<tr>
<th>Level</th>
<th>Function Keys</th>
<th>Template</th>
<th>Functionality</th>
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</thead>
<tbody>
<tr>
<td>Base</td>
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<td>Single loop</td>
<td>Process alarms</td>
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<td></td>
<td></td>
<td>Single loop with remote setpoint</td>
<td>Basic setpoint switching</td>
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<tr>
<td></td>
<td></td>
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<td>Basic control</td>
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<td></td>
<td></td>
<td></td>
<td>– Analog PID</td>
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<td></td>
<td></td>
<td></td>
<td>– On / Off or time proportioning</td>
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<td></td>
<td></td>
<td></td>
<td>– Auto tune</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>– Split output control</td>
</tr>
<tr>
<td>Standard</td>
<td>1</td>
<td>Auto / Manual station low signal selection</td>
<td>Standard setpoint switching</td>
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<td>Auto / Manual station digital signal selection</td>
<td>Standard control</td>
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<td>Analog backup station low signal selection</td>
<td>– Gain scheduling</td>
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<td>Analog backup station digital signal selection</td>
<td>– Motorized valve control</td>
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<td>Single indicator / manual loader</td>
<td>Output tracking</td>
</tr>
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<td></td>
<td>Dual indicator / manual loader</td>
<td>Logic</td>
</tr>
<tr>
<td></td>
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<td>Math</td>
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<td>Custom linearizers</td>
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<td>Delay timers</td>
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<td>Real time alarms</td>
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<td></td>
<td></td>
<td></td>
<td>Template customization</td>
</tr>
<tr>
<td>Extended</td>
<td>2</td>
<td>Single loop with feedforward</td>
<td>Totalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single loop with feedforward and remote setpoint‡</td>
<td>Advanced control</td>
</tr>
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<td>Cascade</td>
<td>– Feed forward</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cascade with remote setpoint‡</td>
<td>– Predictive control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cascade with feedforward‡</td>
<td>– Adaptive control</td>
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<td></td>
<td></td>
<td>Ratio controller (internal ratio)</td>
<td>Historical trending</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ratio controller (external ratio)‡</td>
<td>Display customization</td>
</tr>
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<td></td>
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<td>Ratio station (internal ratio)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ratio station (external ratio)‡</td>
<td></td>
</tr>
<tr>
<td>Dual Loop</td>
<td>3</td>
<td>Dual loop – local / local‡</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dual loop – remote / local‡</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dual loop – remote / remote‡</td>
<td></td>
</tr>
</tbody>
</table>

Recommended I/O Build: * Basic + option board 1, † Basic + option board 1a, ‡ Basic + option boards 1 and 2

Fig. 1: Overview of template options
Powerful operator display

The CM30 features a full-color 9 cm (3.5 in.) display for displaying detailed process information to the user. Process details such as alarm messages and diagnostic information are displayed clearly in full text without the need for difficult-to-read scrolling displays.

Example of an operator page
Automatic selection of standard display templates immediately makes best use of the CM30’s display. Extensive customization features then enable the displayed information to be tailored to suit the process requirements.

Diagnostics and alarm status display

The diagnostics and alarm status display provides detailed information on any active alarm or diagnostic condition. The operator can see, at-a-glance, the status of any alarm condition present within the process. Additionally, diagnostic messages are presented clearly to the operator, enabling rapid notification and simple diagnosis of any critical instrument status condition. Historical information of diagnostic messages can also be viewed in the controller’s diagnostic log.

Fig. 2: Cascade template display

Fig. 3: Alarm status display
**Trend display**

Any 2 analog values within the CM30 can be plotted on the trend display to give a short-term process history. This feature enables control efficiency to be monitored against setpoint and assists in tuning during commissioning.

**Exceptionally easy to use**

The CM30’s full text display and simple-to-navigate, pop-up menu makes operation exceptionally easy. A programmable soft key enables commonly used functions, such as alarm acknowledgement and display selection, to be accessed easily by the operator.

![Fig. 4: Trend display](image)

![Fig. 5: Pop-up menu](image)

![Fig. 6: Programmable soft key](image)
Advanced control functionality

The CM30 features many advanced control functions providing the power to bring even the most complex process under control.

Autotune
Once initial configuration is complete, a powerful autotune facility enables automatic calculation of the PID values required, enabling rapid commissioning of the CM30.

Gain scheduling
The CM30’s gain scheduling functionality is used for efficient control of non-linear processes. Up to 3 different sets of PID parameters are selected automatically from a reference signal ensuring optimum control response, regardless of the process status.

<table>
<thead>
<tr>
<th>P</th>
<th>I</th>
<th>D</th>
<th>Gsref</th>
<th>Limit 2</th>
<th>Limit 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.35</td>
<td>3.5</td>
<td>2.71</td>
<td></td>
<td>67</td>
<td>33</td>
</tr>
<tr>
<td>4.8</td>
<td>15</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.71</td>
<td>4</td>
<td>2.62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 7: Gain scheduling example

Predictive control (dead-time compensation)
Control of processes with long dead-times, such as pH dosing in a pipeline, is addressed easily using pPI control. Configured via only 3 parameters (gain, integral time and dead-time), pPI control can also be combined with gain scheduling for optimum control efficiency.

Adaptive control
Adaptive control enables the CM30 to adjust its control response automatically to suit changing process dynamics. This makes the CM30 particularly useful for processes with varying or uncontrolled types of load, by providing continuous tuning to maximize control efficiency. Fig. 9 shows a product used in a manufacturing process that is stored in an outside tank. The use of adaptive control within the manufacturing process compensates automatically for the change in product temperature caused by seasonal variation.

Fig. 8: Predictive control example

Fig. 9: Adaptive control example
Split output control
The CM30 can also be configured to perform split output control, for example, when both heating and cooling of a single process is required.

Remote auto / manual switching
In addition to switching via the front panel, the CM30 can be switched between automatic and manual control mode using an external signal. When switched to manual mode via a digital signal, the value of the control output can be preset, for example, to fully open a control valve automatically during a cleaning cycle.

External setpoint selection
The CM30’s control setpoint can be selected via external digital signals, for example, simplifying operation by selecting different setpoints using external push buttons.
Problem solving flexibility

Extensive functionality is available to provide flexible problem-solving capability; making the CM30 much more than just a process controller.

Process alarms

8 independent process alarms can monitor any analog signal within the CM30, enabling extensive process monitoring capability. Alarms can be used to drive physical outputs or soft-wired to other functions within the controller.

Real-time alarms

The 'alarm clock' functionality provided by the CM30’s real-time alarms enables time-of-day decisions to be introduced into the controller’s actions or specific functions to be triggered routinely at specified times.

Delay timers

Event sequencing is enabled through the use of the CM30’s delay timers. A predetermined delay and output duration can be programmed into each delay timer and timers can be linked together.

Custom linearizers

The CM30 has 2 independent 20-point custom linearizers that can be applied to any analog signal within the controller. These linearizers can be used in applications such as level-to-volume conversion of a non-linear tank level or to accommodate special input signals or output devices.

Math

8 math blocks provide arithmetic, averaging, min. / max. hold, square root and signal switching functionality. Simple equations can be performed in a single math block or multiple math blocks can be nested together to construct complex equations. Signal switching ‘multiplexer’ math blocks switch between 2 analog signals based on a trigger signal. For example, a backup sensor could be selected automatically on failure of a primary sensor.

Logic

8 comprehensive logic equations provide powerful interlock functionality. Inputs and outputs of the logic equations can be soft-wired to any digital signal within the controller to maximize flexibility.

Totalizer

2 totalizers are available on the CM30. The totalizers can configured to perform multiple functions:
— integration against an analog signal to totalize flow
— counting digital pulses
— totalization of flow based on a frequency signal from an electromagnetic flow meter
Communications

Extensive communication options enable the CM30 to be integrated into larger control systems easily or connected to other process instrumentation.

Ethernet
Optional Ethernet communications enable the CM30 to be integrated into an Ethernet network quickly. The following functionality is provided:

— **Email**
  Notification of a critical process event or status can be made by email. Multiple events can trigger an email that can be sent to multiple recipients

— **Webserver**
  ControlMaster’s integrated webserver enables the current status of the process and controller to be viewed remotely using a standard web browser

— **MODBUS TCP**
  Process values and status can be communicated to and from the CM30 in real-time using MODBUS TCP, enabling it to be integrated easily into larger control systems or connected to a data recorder

PROFIBUS
PROFIBUS DPV1 communications are available, enabling communication of real-time data values.

RS 485 MODBUS
Using RS 485 MODBUS, values and status can be communicated to and from the controller in real-time via an RS 485 connection.
PC configuration
In addition to configuration via the front panel, the CM30 can be configured offline using ABB’s Asset Vision Basic, a Device Type Manager (DTM)-based configuration package.

Configuration files can be stored locally on a PC and transferred to the controller via its front panel infrared port.

Fig. 15: PC configuration software

Fig. 16: Transferring a configuration file via the infrared port

PC configuration software for ControlMaster is available for download from www.abb.com/instrumentation.
Application templates

To minimize commissioning time, the CM30 features up to 20 preconfigured control strategy templates. By selecting the required control strategy, the template configures the CM30’s function blocks and display automatically. Customization of the preconfigured templates is also possible, providing the flexibility to create customized solutions.

Single loop
This template provides standard, single-loop process control and is available with or without a remote setpoint. In this example, the temperature of a product heated by a heat exchanger is regulated via the control of the steam feed to the heat exchanger.

Single loop with feed-forward
This template adds feed-forward functionality to the single-loop template and is available with or without a remote setpoint. Feed-forward control enables the CM30 to anticipate, and respond to, process occurrences not yet detected by the process variable signal.
In this example, the CM30 is regulating the speed of a dosing pump used to neutralize the pH of waste discharge. The flow rate of the waste discharge is monitored and fed forward to the CM30 so that, as the flow rate increases, the speed of the dosing pump increases automatically to neutralize the extra volume of waste discharge.
Cascade
The cascade template connects two PID loops together to enhance the control of a master variable (master loop) by manipulation of a slave loop.
In this example, the temperature of a furnace is regulated (master loop) by monitoring and controlling the gas flow rate to the burner (slave loop). By performing slave loop control on the gas flow rate, variations in gas supply can be accounted for and better temperature control performance achieved. This template is available with or without a remote setpoint.

Fig. 19: Cascade

Cascade with feed-forward
This template combines the benefits of the feed-forward and cascade templates.
In this example, the effect of steam demand change on the level within the boiler drum is predicted and accounted for via the feed-forward signal. Feed water supply is then controlled accurately using a ‘slave’ flow loop that accounts for any variations in water supply.

Fig. 20: Cascade with feed-forward
**Ratio controller**
The ratio controller template configures the CM30 to regulate one process variable against another based on a specified ratio. When using the ratio control template, the CM30’s display shows the required ratio (setpoint) and the actual ratio achieved (process variable).
In this example, a controlled amount of ‘Flow B’ is added to ‘Flow A’ at a ratio programmed into the CM30. This template is available with or without an external ratio.

![Fig. 21: Ratio controller](image)

**Ratio station**
The ratio station template configures the CM30 as an indicator and setpoint generator.
In this example, the CM30 is calculating and indicating the ratio of flow A and flow B. The operator is able to enter the desired ratio on the CM30; the CM30 then retransmits the setting to the slave controller. In many applications, the slave controller is a blind or remotely-located device.
This template is available with or without an external ratio.

![Fig. 22: Ratio station](image)
**Auto / Manual station and analog backup station**

These templates configure the CM30 to backup a master controller, typically a PLC or DCS. A fault condition is detected via a low output signal from the master controller or a digital signal. On detection of a fault signal, the CM30 can take control of the process (analog backup template), freeze its output or switch to a safe output (auto / manual station template). In this example, a critical control of flow is backed-up by the CM30.

![Auto / Manual station and analog backup station](image)

**Fig. 23: Auto / Manual station and analog backup station**

**Dual loop**

The dual loop template enables a CM30 to act as 2 independent controllers and is available with a remote setpoint for either, or both, control loops. In this example, the temperature and humidity of a climatic chamber are controlled independently.

![Dual loop](image)

**Fig. 24: Dual loop**
Technical specification

Operation
Display
Color, 1/4 VGA TFT, liquid crystal display (LCD) with built-in backlight

Language
English, German, French, Italian and Spanish

Operator keypad
6 tactile membrane keys

Security
Password protection
Basic / Advanced – user-assigned password protection (not set at factory)

Standard functions

Control strategies
Basic templates:
— Single loop with local setpoint
— Single loop with remote setpoint

Advanced templates:
— Auto / Manual station (low signal detection)
— Auto / Manual station (digital signal selection)
— Analog backup station (low signal detection)
— Analog backup station (digital signal detection)
— Single indicator / manual loader station
— Dual indicator / manual loader station

Extended templates:
— Single loop with feedforward
— Single loop with feedforward and remote setpoint
— Cascade
— Cascade with remote setpoint
— Cascade with feedforward
— Ratio controller with internal ratio
— Ratio controller with external ratio
— Ratio station with internal ratio
— Ratio station with external ratio

Dual loop templates:
— Dual loop with local setpoints
— Dual loop with remote setpoint on 1 and local setpoint on 2
— Dual loop with remote setpoint on both

Control output types
Current proportioning
Time proportioning
On / Off
Motorized valve with feedback
Motorized valve without feedback
Split output – with combinations of relay, digital output and current outputs

Control parameters
Proportional band: *
— 0.0 to 999.9 s

Integral: *
— 0 to 10000 s

Derivative: *
— 0.0 to 999.9 s

Manual Reset:
— 0.0 to 100.0 %

* 3 sets of PID parameters when used with Gain Scheduling facility
ControlMaster CM30
Universal process controller, 1/4 DIN

Setpoints
Local:
— 4, selectable via digital input or front panel

Remote:
— selectable via digital input or front panel keys

Auto tune
On-demand calculation of control settings

Process alarms
Number:
— 8

Types:
— High / Low process
— High / Low latch

Hysteresis:
— Level and time

Alarm enable:
— Enable / Disable individual alarms via a digital signal

Acknowledgement
Via front panel keys or digital signals

Math blocks
Number:
— 8

Operators:
— +, −, x, /
— Average, Maximum, Minimum
— High / Low / Median select
— Square root
— Multiplexer

Delay timers
Number:
— 2

Programmable:
— Delay
— Duration

Logic equations
Number:
— 8

Elements:
— 15 per equation

Operators:
— OR, AND, NOR, NAND, NOT, EXOR

Real-time alarms
Number:
— 2

Programmable:
— Time
— Day
— Duration

Custom linearizer
Number:
— 2

Elements:
— 20 breakpoints
Analog inputs

**Universal process inputs**

Number:
- 2 (1 standard, 1 optional)

Type:
- Voltage
- Current
- Resistance (ohms)
- 3-Wire RTD
- Thermocouple
- Digital volt-free
- Digital 24 V
- Frequency (Input 1)
- Pulse

**Non-universal process inputs**

Number:
- 2 (1 standard, 1 optional)

Type:
- Voltage
- Current
- Thermocouple *
- Digital volt-free
- Digital 24 V

* Only if universal process input is configured as 'Thermocouple'

**Thermocouple types**

B, E, J, K, L, N, R, S, T

**Resistance thermometer**

Pt100

**Other linearizations**

\sqrt{x}, x^n, x^2, custom linearization

**Digital filter**

Programmable 0 to 60 s

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**Display range**

-9999 to 99999

**Update rate**

125 ms

**Common mode noise rejection**

> 120 dB at 50 / 60 Hz with 300 Ω imbalance resistance

**Normal (series) mode noise rejection**

> 60 dB at 50 / 60 Hz

**CJC rejection ratio**

0.05 °C/°C change in ambient temperature

**Temperature stability**

0.02 %/°C or 2 µV/°C (1 µV/°F)

**Long term (input) drift**

< 0.1 % of reading or 10 µV annually

**Input impedance**

> 10 MΩ (mV input)

10 Ω (mA input)
**Standard analog input modules**

<table>
<thead>
<tr>
<th>Thermocouple</th>
<th>Maximum range °C (°F)</th>
<th>Accuracy (% of reading)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>–18 to 1800 (0 to 3270)</td>
<td>0.1 % or ±2 °C (3.6 °F) <em>(above 200 °C [392 °F]</em>)</td>
</tr>
<tr>
<td>E</td>
<td>–100 to 900 (–140 to 1650)</td>
<td>0.1 % or ±0.5 °C (0.9 °F)</td>
</tr>
<tr>
<td>J</td>
<td>–100 to 900 (–140 to 1650)</td>
<td>0.1 % or ±0.5 °C (0.9 °F)</td>
</tr>
<tr>
<td>K</td>
<td>–100 to 1300 (–140 to 2350)</td>
<td>0.1 % or ±0.5 °C (0.9 °F)</td>
</tr>
<tr>
<td>L</td>
<td>–100 to 900 (–140 to 1650)</td>
<td>0.1 % or ±1.5 °C (2.7 °F)</td>
</tr>
<tr>
<td>N</td>
<td>–200 to 1300 (–325 to 2350)</td>
<td>0.1 % or ±0.5 °C (0.9 °F)</td>
</tr>
<tr>
<td>R</td>
<td>–18 to 1700 (0 to 3000)</td>
<td>0.1 % or ±1 °C (1.8 °F) <em>(above 300 °C [540 °F]</em>)</td>
</tr>
<tr>
<td>S</td>
<td>–18 to 1700 (0 to 3000)</td>
<td>0.1 % or ±1 °C (1.8 °F) <em>(above 200 °C [392 °F]</em>)</td>
</tr>
<tr>
<td>T</td>
<td>–250 to 300 (–400 to 550)</td>
<td>0.1 % or ±0.5 °C (0.9 °F) <em>(above –150 °C [–238 °F]</em>)</td>
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</table>

* Accuracy is not guaranteed at temperatures below this value

<table>
<thead>
<tr>
<th>RTD</th>
<th>Maximum range °C (°F)</th>
<th>Accuracy (% of reading)</th>
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<tbody>
<tr>
<td>Pt100</td>
<td>–200 to 600 (–325 to 1100)</td>
<td>0.1 % or ±0.5 °C (0.9 °F)</td>
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**Frequency input**

<table>
<thead>
<tr>
<th>Frequency range</th>
<th>0 to 6000 Hz</th>
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<tbody>
<tr>
<td>1-signal</td>
<td>15 to 30 V</td>
</tr>
<tr>
<td>0-signal</td>
<td>–3 to 5 V</td>
</tr>
</tbody>
</table>

*For use with devices with open collector outputs

**Outputs**

**Controls / Retransmission outputs**

<table>
<thead>
<tr>
<th>Number:</th>
<th>2 (1 standard, 1 optional)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type:</th>
<th>Configurable as analog or digital pulse</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Isolation:</th>
<th>Galvanically isolated from the rest of the circuitry, 500 V for 1 minute</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Analog range:</th>
<th>0 to 20 mA programmable</th>
</tr>
</thead>
</table>

**Load:**

<table>
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<tr>
<th>Load:</th>
<th>750 Ω max.</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Accuracy:</th>
<th>0.2 % of output or ±10 µVA</th>
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</thead>
</table>

**Relays**

<table>
<thead>
<tr>
<th>Number:</th>
<th>4 (1 standard, 3 optional)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type:</th>
<th>Standard with changeover contacts</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Optional contacts selectable as NO or NC (by jumper)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Contact ratings:</th>
<th>5 A, 240 V</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Update rate:</th>
<th>125 ms</th>
</tr>
</thead>
</table>

**Digital inputs**

**Type:**

<table>
<thead>
<tr>
<th>Volt-free or 24 V</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Minimum pulse duration:</th>
<th>Analog inputs 1 and 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider analog inputs 1/2 and 3/4 independently</td>
<td></td>
</tr>
</tbody>
</table>

| Single inputs configured – 250 mS |
| Both inputs configured as analog or digital – 500 mS |

<table>
<thead>
<tr>
<th>Analog inputs 3 and 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single inputs configured – 250 mS</td>
</tr>
<tr>
<td>Both inputs configured as analog or digital – 500 mS</td>
</tr>
</tbody>
</table>

**Update rate:**

<table>
<thead>
<tr>
<th>125 ms</th>
</tr>
</thead>
</table>
Digital I/O
Number:
- 6 (2 standard, 4 optional)

Type:
- User-programmable as input or output
- Minimum input pulse duration – 125 ms

Input:
- Volt-free or 24 V DC
- 1-signal 15 to 30 V
- 0-signal –3 to 5 V
- Conforms to IEC 61131-2

Output:
- Open collector output
- 30 V, 100 mA max. switched
- Conforms to IEC 61131-2

Update rate:
- 125 ms

2-Wire transmitter power supply
Number:
- 2 (1 standard, 1 optional)

Voltage:
- 24 V DC

Drive:
- 2 Loops for each transmitter PSU, 45 mA max.

Communications
Note. Only one communications option can be fitted per controller.

IrDA service port (standard)
Baud rate:
- Up to 115 kBaud

Distance:
- Up to 1 m (3 ft)

Functions:
- Firmware upgrade
- Configuration upload / download

Ethernet (optional)
Type:
- 10BaseT

Connector:
- RJ 45

Protocols:
- TCP/IP
- HTTP
- MODBUS TCP (Slave)

Web server:
- Built-in – enables remote monitoring using standard web browsers

Email
- Can be configured to be sent on the occurrence of a specified event
- Up to 3 recipients
- Up to 4 trigger sources with configurable tag
ControlMaster CM30
Universal process controller, 1/4 DIN

MODBUS¹ RTU (optional)
Baud rate:
— Up to 115 kBaud

Isolation:
— Galvanically isolated from the rest of the circuitry,
  500 V DC for 1 minute

PROFIBUS² DPV1 (optional)
Baud rate:
— Up to 1.5 MBaud

Profile:
— V 3.1

Isolation:
— Galvanically isolated from the rest of the circuitry,
  500 V DC for 1 minute

¹ MODBUS is a registered trademark of the MODBUS-IDA organization
² PROFIBUS is a registered trademark of PROFIBUS International

EMC

Emissions & immunity
Meets requirements of IEC 61326 for an Industrial Environment

Environmental

Operating temperature range
−0 to 55 °C (32 to 131 °F)

Operating humidity range
5 to 95 % RH (non-condensing)

Storage temperature range
−20 to 70 °C (−4 to 158 °F)

Enclosure sealing
Front face:
— IP 66 & NEMA 4X

Rest of enclosure:
— IP 20

Safety

Approvals and certifications
EN 61010-1
cULus (pending)

General safety
Pollution category 2
Insulation category 2

Isolation

Analog Inputs
Transmitter Power Supply
Analog Output 1
Analog Output 2

CPU

Comms
Relays
Digital I/O
Mains Supply

Key
— = Isolation

1 MODBUS is a registered trademark of the MODBUS-IDA organization
2 PROFIBUS is a registered trademark of PROFIBUS International
Electrical
Supply ranges
100 V to 240 V AC ±10 % (90 V min. to 264 V max.) 50 / 60 Hz
10 to 36 V DC (optional)

Power consumption
10 W max.

Power interruption protection
No effect for interrupts of up to 60 ms

Physical
Size
97 x 97 x 141 mm (3.8 x 3.8 x 5.5 in.)

Weight
0.5 kg (1.1 lb) approx. (unpacked)

Panel cutout
92 x 92 mm (3.6 x 3.6 in.), 121 mm (4.8 in.) behind panel

Case material
Glass-filled polycarbonate
ControlMaster CM30
Universal process controller, 1/4 DIN

Electrical connections

Overall dimensions

Dimensions in mm (in.)

Standard accessories

Included with each controller:
- Panel mounting clamps
- Instruction manual
- Bezel release tool
- Cold junction thermistor

Optional accessories

- PC configuration kit CM30/0712
## Ordering information

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<th>ControlMaster CM30 universal process controller, 1/4 DIN</th>
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