

Process Controller BROCHURE

JUNHO 2013

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ABB Measurement Products

ABB ControlMaster universal process controllers Making process control easy

ABB ControlMaster universal process controllers

Whether you're a plant or process manager, electrical engineer, process operator or maintenance engineer, the future of process control instrumentation starts here.

ABB's new ControlMaster range elevates process monitoring and control to an altogether higher level.

ABB has used its experience in controllers and indicators to create a new generation of process control instruments that are more intuitive, easier to operate and significantly more powerful in use.



The concept at the very heart of ControlMaster is 'Control Made Easy'. Each instrument provides a comprehensive display of process status using crystal clear, full color, TFT technology. The simple to use user interface delivers clear text prompts that make installation, commissioning and operation quick and easy. And full scalability from the concise range makes ControlMaster suitable for the most basic applications through to complex, difficult to control processes.

Specify any new ControlMaster and you'll be choosing a tough, compact process partner. From IP66 and NEMA 4X environmental protection all the way through to powerful control functionality, with cascade, feed forward and ratio control, plus advanced predictive, adaptive and dual loop capabilities.

Then we put problem-solving diagnostics right at your fingertips, plus total communications flexibility - connect the way that suits you, with Ethernet and Modbus RTU protocols.

A line up of 4 new instruments with the functionality and capability you need to meet the challenges of an information hungry process control industry.



From ABB's legacy in controllers and indicators, the new ControlMaster range of distinctive, accomplished and innovative instruments not only focuses on each model being easier and more powerful in use, but with such a concise number of function-rich units, it's now so much easier to choose the right ControlMaster for your process application.

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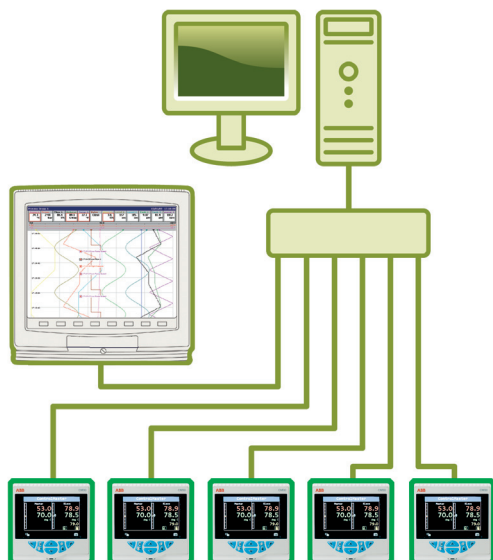
Innovative, easy to use HMI

Each ControlMaster has an innovative HMI at the heart of its operation, providing a common link with other instrumentation products from ABB. So, if you know one, you know them all. Operation is so easy that you will be impressed by the efficiency of it all.

Advanced controls and functionality

On each of the 4 new ControlMaster instruments, higher levels of functionality are right at your finger tips. Features packed in include math, totalization and a frequency input, logic, gain scheduling, split output, valve control and real time alarms.

pPI predictive control enables processes with long dead times to be easily controlled. Simple configuration needs only three parameters - proportional band, integral time and dead time. Adaptive control means automatic adjustment of control response to correct changing process dynamics. Valuable where processes have varying or uncontrolled types of load, it provides continuous tuning for optimum control efficiency 24/7. Dual loop control independently manages two separate processes. The loops operate entirely independently while ControlMaster's flexibility and functionality provides interlock and interaction between both if required. Processes can be displayed simultaneously on one screen without compromising data.



Communications protocols

Ethernet communications provide high levels of connectivity. Remote process monitoring is made easy via the integrated web server. A ControlMaster can send emails upon alarm conditions or critical process status, providing instant notification to a plant supervisor. Modbus communications (TCP or RTU) enable rapid connection to PLCs and control systems. Modbus also provides simple, fast connection of multiple ControlMasters to a ScreenMaster recorder to create a multipoint control and data logging system.

Customizable full color TFT display

Clear, comprehensive process status and history trending. Information messages and configuration menus are displayed in full text, unabbreviated or scrolled as on other commonly used process control display technologies. Custom set-up is fast and uses predefined display templates, as well as template customization with unique display values and colors.

Scalable I/O and functionality

I/O, functionality and template availability is easily expanded with additional plug-and-play input models and function keys, making a single ControlMaster unit fully scalable from basic through to complex control applications. Users can now standardize on a single product so operators have the familiarity of a single user interface regardless of application requirements.

Historical Trending

ControlMaster features short-term trending capability, providing invaluable information during commissioning or for the history of unattended processes.



Diagnostics

To quickly alert an operator to important process information, ControlMaster's diagnostic functions clearly display messages detailing fault conditions, abnormal process status and maintenance requirements. At any time the operator can also switch to an alarm and diagnostic status display to gain an overview of any active messages.

Template based configuration

ControlMaster configuration is vastly simplified by using application templates. Selecting the template best suited to your process requirements automatically configures I/O and control functionality while display templates are selected automatically.

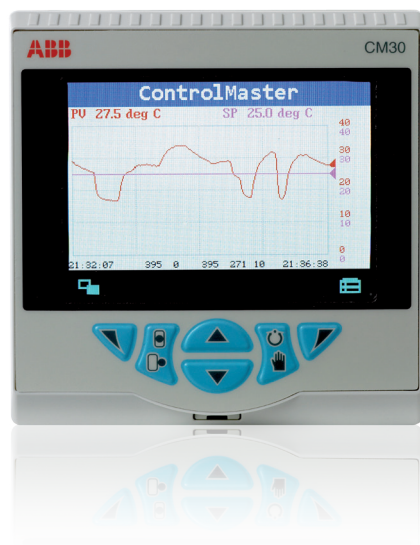
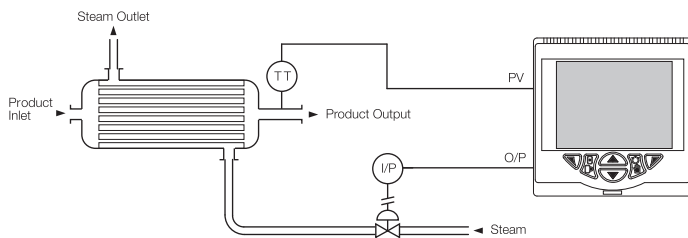


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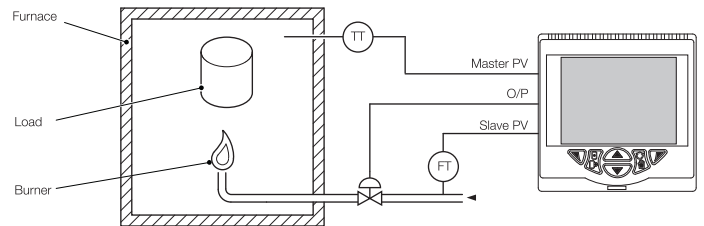
Application Scenarios

Universal by design, a ControlMaster is suitable for use in a wide range of applications. Typical configurations include:

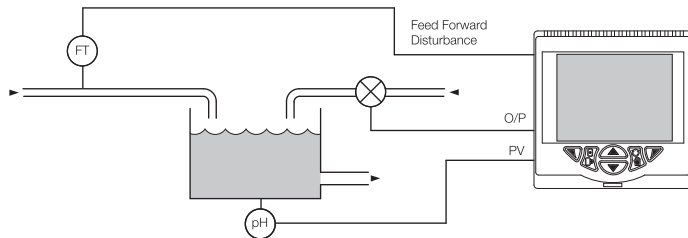
Temperature control of a steam heated product



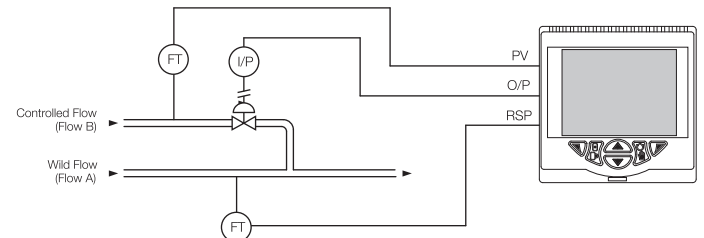
Temperature control of electrically or gas heated furnaces



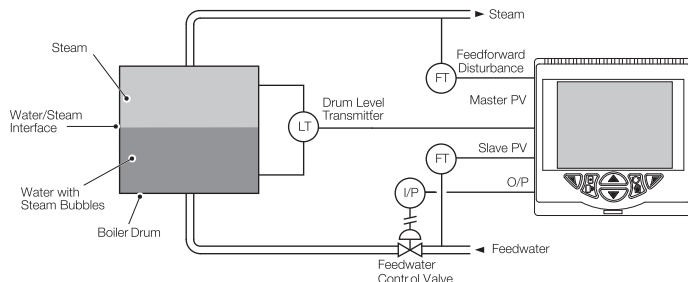
pH control of effluent flow via acid or alkaline dosing



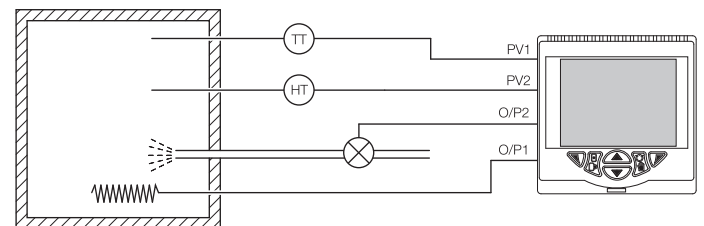
Ratio control of product blending



Boiler drum level control



Independent dual loop control of temperature and humidity in a climatic chamber



Product Selection Guide

Standard ✓ Optional ●	CM10	CM15	CM30	CM50
General				
Size	1/8 DIN (48 x 96mm)	1/8 DIN (Horizontal) (96 x 48mm)	¼ DIN (96 x 96mm)	3 x 6 DIN (76 x 144mm)
Display	5.6cm (2.2in) Color TFT	5.6cm (2.2in) Color TFT	8.9cm (3.5in) Color TFT	8.9cm (3.5in) Color TFT
Dust/Water Protection	IP66 & NEMA 4X	IP66 & NEMA 4X	IP66 & NEMA 4X	IP66 & NEMA 4X
Supply Voltage	85-265V a.c. std (24V d.c. opt.)	85-265V a.c. std (24V d.c. opt.)	85-265V a.c. std (24V d.c. opt.)	85-265V a.c. std (24V d.c. opt.)
Control Capabilities				
PID (analog/time proportioning)	✓		✓	✓
Motorized Valve	✓		✓	✓
Split Output (Heat Cool)	✓		✓	✓
Adaptive Control			●	●
pPI (predictive)			●	●
Gain Scheduling	●		●	●
Autotune	✓		✓	✓
Templates				
Single Loop	✓		✓	✓
Single Loop with Feed Forward			●	●
Auto/Manual Station	●		●	●
Analog Backup Station	●		●	●
Manual Loader	●		●	●
Cascade			●	●
Cascade with Feed Forward			●	●
Ratio Controller			●	●
Ratio Station			●	●
Dual Loop			●	●
Indicator	●	✓	●	●
Dual Indicator	●	●	●	●
Inputs				
Universal (TC, RTD, Resistance, mA, Volt, mV & Frequency)	1 std.	1 std.	1 std. (1 opt.)	1 std. (1 opt.)
Process (TC, mA, Volts, mV & Digital)	1 std.	1 std.	1 std. (1 opt.)	1 std. (1 opt.)
Digital	2 opt.	2 opt.	6 opt.	2 std. (4 opt.)
Transmitter Power Supply	2 std.	2 std.	2 std. (2 opt.)	2 std. (2 opt.)
Outputs				
Analog/Logic	1 std.	1 std.	1 std.	1 std.
Analog	1 opt.	1 opt.	1 opt.	1 opt.
Relay	1 std. (3 opt.)	1 std. (3 opt.)	1 std. (3 opt.)	2 std. (2 opt.)
Digital	2 opt.	2 opt.	6 opt.	2 std. (4 opt.)
Advanced Features				
Math	●	●	●	●
Logic	●	●	●	●
Custom Linearizers	●	●	●	●
Delay Timers	●	●	●	●
Real-time Alarms	●	●	●	●
Totalization		✓	●	●
Historical Trending			●	●
Communications				
Ethernet	●	●	●	●
RS485 MODBUS	●	●	●	●

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