

ControlMaster CM30, CM50 and CMF310

Universal and fieldmount process controllers, 1/4 and 1/2 DIN Custom configuration sheet

1 Application Template

Note. Select the template required based on the build of the instrument. For example, if the build of the instrument is Extended Functionality, the templates available to select are those displayed under Base, Standard and Extended. Only 1 template can be selected per instrument.

Base (✓ the box required)

Single Loop with Local Setpoint	
Single Loop with Remote Set point	

Standard (✓ the box required)

Auto/Manual Station with Low signal selection	
Auto/Manual Station with Digital selection	
Analog Backup with Low signal selection	
Analog Backup with Digital selection	
Single Indicator	
Dual Indicator	

Extended (✓ the box required)

Single Loop with Feedforward + Local Setpoint	
Single Loop with Feedforward + remote Setpoint	
Cascade with Local Setpoint	
Cascade with Remote Setpoint	
Cascade with Feedforward + local Setpoint	
Ratio Controller	
Ratio Controller with External Ratio	
Ratio Station	
Ratio Station with External Ratio	

Dual Loop (✓ the box required)

Dual Loop with Local Setpoint	
Dual Loop with Local/Remote Setpoint	
Dual loop with remote setpoint	

Output Type Loop 1 (✓ the box required)

Analog	
Time Proportional	
Split Output	
Motorized Valve with Feedback	
Motorized Valve without Feedback (Boundless)	

Output Type Loop 2 (✓ the box required)

Analog	
Time proportional	
Split Output	
Motorized Valve with feedback	
Motorized Valve Feedback (boundless)	

Split Output Loop 1 (If applicable) (✓ the box required)

Analog/Relay	
Analog/Digital	
Relay/relay	
Relay/Digital	
Digital/Relay	
Digital/Digital	
Analog/Analog	

Split Output Loop 2 (✓ the box required)

Analog/Relay	
Analog/Digital	
Relay/relay	
Relay/Digital	
Digital/Relay	
Digital/Digital	
Analog/Analog	

Instrument Tag:	
-----------------	--

Loop 1 Tag:	
Loop 2 Tag:	

Mains Rejection Frequency (✓ the box required)

50 Hz	
60 Hz	

2 Display**Operator Page 1** (✓ the box required)

PV	
PV, SP	
PV, SP, OP	
Chart	

Operator Page 2 (✓ the box required)

PV	
PV, SP	
PV, SP, OP	
Chart	

Operator Page 3 (✓ the box required)

PV	
PV, SP	
PV, SP, OP	
Chart	

Operator Page 4 (✓ the box required)

PV	
PV, SP	
PV, SP, OP	
Chart	

Softkey Function (✓ the box required)

Configuration	
Auto/Manual	
Local/Remote	
Scroll View	
Alarm Ack	
Toggle Signal	
Edge Signal	

Auto Manual Enable (✓ the box required)

Enable	
Disable	

Local Remote Enable (✓ the box required)

Enable	
Disable	

Alarm Ack Enable (✓ the box required)

Enable	
Disable	

Totalizer Stop/Go (✓ the box required)

Enable	
Disable	

Totalizer Reset (✓ the box required)

Enable	
Disable	

Setpoint Adjust Enable (✓ the box required)

Enable	
Disable	

Chart View**Channel 1**

Source	
Scale Low	
Scale High	
Tag	

Channel 2

Source	
Scale Low	
Scale High	
Tag	

Sample Rate	
-------------	--

3 Inputs/Outputs**Analog Input 1** (✓ the box required)

None	
Millivolts	
Milliamps	
Volts	
Ohms	
Thermocouple	
RTD	
Frequency Input	
Pulse Input	
Volt Free Digital Input	
24 V Digital Input	

Electrical Range

Low	
High	

Linearizer (✓ the box required)

Type B	
Type E	
Type J	
Type K	
Type L	
Type R	
Type S	
Type T	
PT100	
Square Root	
Root 3/2	
Root 5/2	

Engineering Units*	
--------------------	--

*See page 35

Decimal Places (✓ the box required)

0	
1	
2	
3	
4	

Engineering Range

Low	
High	

Broken Sensor Drive (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Input Filter Time (0 to 60 seconds)	
--	--

Fault Detect Level (0 to 100%)	
-----------------------------------	--

Analog Input 2 (✓ the box required)

None	
Millivolts	
Milliamps	
Volts	
Thermocouple	
Volt Free Digital Input	
24 V Digital Input	

Electrical Range

Low	
High	

Linearizer (✓ the box required)

Type B	
Type E	
Type J	
Type K	
Type L	
Type R	
Type S	
Type T	
Square Root	
Root 3/2	
Root 5/2	

Engineering Units*	
--------------------	--

*See page 35

Decimal Places (✓ the box required)

0	
1	
2	
3	
4	

Engineering Range

Low	
High	

Broken Sensor Drive (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Input Filter Time (0 to 60 seconds)	
-------------------------------------	--

Fault Detect Level (0 to 100%)	
-----------------------------------	--

Analog Input 3 (✓ the box required)

None	
Millivolts	
Milliamps	
Volts	
Ohms	
Thermocouple	
RTD	
Volt Free Digital Input	
24 V Digital Input	

Electrical Range

Low	
High	

Linearizer (✓ the box required)

Type B	
Type E	
Type J	
Type K	
Type L	
Type R	
Type S	
Type T	
PT100	
Square Root	
Root 3/2	
Root 5/2	

Engineering Units*	
--------------------	--

*See page 35

Decimal Places (✓ the box required)

0	
1	
2	
3	
4	

Engineering Range

Low	
High	

Broken Sensor Drive (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Input Filter Time (0 to 60 seconds)	
--	--

Fault Detect Level (0 to 100%)	
-----------------------------------	--

Analog Input 4 (✓ the box required)

None	
Millivolts	
Milliamps	
Volts	
Thermocouple	
Volt Free Digital Input	
24 V Digital Input	

Electrical Range

Low	
High	

Linearizer (✓ the box required)

Type B	
Type E	
Type J	
Type K	
Type L	
Type R	
Type S	
Type T	
Square Root	
Root 3/2	
Root 5/2	

Engineering Units*	
--------------------	--

*See page 35

Decimal Places (✓ the box required)

0	
1	
2	
3	
4	

Engineering Range

Low	
High	

Broken Sensor Drive (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Input Filter Time (0 to 60 seconds)	
--	--

Fault Detect Level (0 to 100%)	
-----------------------------------	--

Analog Output 1 Output Type (✓ the box required)

Analog	
Digital	

Analog Source**	
-----------------	--

**See page 34

Auto Engineering Range (✓ the box required)

On	
Off	

Engineering Range

Low	
High	

Digital Source***	
-------------------	--

***See page 33

Analog Output 2 Output Type (✓ the box required)

Analog	
Digital	

Analog Source**	
-----------------	--

**See page 34

Auto Engineering Range (✓ the box required)

On	
Off	

Engineering Range

Low	
High	

Digital Source***	
-------------------	--

***See page 33

Analog Output 3 Output Type – CMF310 ONLY

(✓ the box required)

Analog	
Digital	

Analog Source**	
-----------------	--

**See page 34

Auto Engineering Range – CMF310 ONLY

(✓ the box required)

On	
Off	

Engineering Range – CMF310 ONLY

Low	
High	

Digital Source***	
-------------------	--

***See page 33

Analog Output 4 Output Type – CMF310 ONLY

(✓ the box required)

Analog	
Digital	

Analog Source**	
-----------------	--

**See page 34

Auto Engineering Range – CMF310 ONLY

(✓ the box required)

On	
Off	

Engineering Range – CMF310 ONLY

Low	
High	

Digital Source***	
-------------------	--

***See page 33

Digital I/O 1 (✓ the box required)

Off	
Output	
Volt Free Input	
24 Volt Input	
TTL	

Output Source***	
------------------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Digital I/O 2 (✓ the box required)

Off	
Output	
Volt Free Input	
24 Volt Input	
TTL	

Output Source***	
------------------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Digital I/O 3 (✓ the box required)

Off	
Output	
Volt Free Input	
24 Volt Input	
TTL	

Output Source***	
------------------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Digital I/O 4 (✓ the box required)

Off	
Output	
Volt Free Input	
24 Volt Input	
TTL	

Output Source***	
------------------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Digital I/O 5 (✓ the box required)

Off	
Output	
Volt Free Input	
24 Volt Input	
TTL	

Output Source***	
------------------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Digital I/O 6 (✓ the box required)

Off	
Output	
Volt Free Input	
24 Volt Input	
TTL	

Output Source***	
------------------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Relay 1

Source***	
-----------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Relay 2

Source***	
-----------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Relay 3

Source***	
-----------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Relay 4

Source***	
-----------	--

***See page 33

Polarity (✓ the box required)

Positive	
Negative	

Relay 5 – CMF310 ONLY

Source***	
-----------	--

***See page 33

Polarity – CMF310 ONLY (✓ the box required)

Positive	
Negative	

Relay 6 – CMF310 ONLY

Source***	
-----------	--

***See page 33

Polarity – CMF310 ONLY (✓ the box required)

Positive	
Negative	

4 Control

Loop 1 Setpoints

High Limit	
Low Limit	
No. of Local Setpoints	
Local SP 1 Value	
Local SP 2 Value	
Local SP 3 Value	
Local SP 4 Value	

Track Mode (✓ the box required)

Off	
Local	
Remote	
Local and Remote	

Remote SP Bias	
Remote SP Ratio	

Remote Setpoint Fault Action (✓ the box required)

No Action	
Local	
Local Default	

Default Setpoint Value	
------------------------	--

Ramp Mode (✓ the box required)

On	
Off	

Ramp Rate (Eng/hr)	
--------------------	--

Select Sources

LSP 1/2 Toggle	
LSP 1 Source	
LSP 2 Source	
LSP 3 Source	
LSP 4 Source	
Local Select Source	
Remote Select Source	
Local / Remote Toggle	

Loop 1 Control

Control Type (✓ the box required)

PID	
pPI	
On/Off	

Control Action (✓ the box required)

Direct	
Reverse	
Unknown	

On/Off Hysteresis	
-------------------	--

PID

Proportional Band 1	
Integral Time 1	
Derivative Time 1	
Manual Reset	

Gain Scheduling

Mode (✓ the box required)

On	
Off	

Source	
Limit 1	
Limit 1	

Feedforward**Mode** (✓ the box required)

On	
Adaptive Gain	
Static Gain	

Source	
Gain	

Motorized Valve

Ratio	
Bias	
Deadband	
Travel Time (secs)	

Loop 1 Time Proportioning

Cycle Time 1	
Cycle Time 2	

Loop 2 Time Proportioning

Cycle Time 1	
Cycle Time 2	

Adaptive Control**Mode** (✓ the box required)

On	
Off	

Critical Gain	
Critical Period	

Misc**Remote Setpoint Action** (✓ the box required)

No P&D	
P&D	

Loop 1 Output**Limits (Split output type only)****Limit Action** (✓ the box required)

Off	
Auto + Manual	
Auto Only	

Low Limit	
High Limit	

Failure Actions**Power Recovery Action** (✓ the box required)

Last Mode	
Manual – Last	
Manual – 0%	
Manual – 100%	
Auto Mode	
Auto – Last	
Timed – Last	
Timed – Default	
Recovery Time (secs.)	

PV Failure Action (✓ the box required)

No Action	
Man – Hold OP	
Man – Default OP	

Default Output	
----------------	--

Auto/Manual Select Sources

Auto Select	
Manual Select	
Auto/Manual Toggle	

Manual Output (✓ the box required)

Last Manual OP	
Manual – 0%	
Manual – 100%	
Config Value	

Auto/Manual Output (✓ the box required)

Last Auto OP	
Manual – 0%	
Manual – 100%	
Config Value	

Slew Rate (✓ the box required)

On	
Off	

Function (✓ the box required)

Off	
Up and Down	
Up	
Down	

Rate	
Disable Source	

Tracking

Signal Source	
Disable Source	

Mode (✓ the box required)

In Auto	
Auto + OP	
When Enabled	
When Enabled + OP	

Split Output

Min Input 1	
Min Output 1	
Min Input 2	
Min Output 2	
Max Input 1	
Max Output 1	
Max Input 2	
Max Output 2	

Loop 2 Setpoints

High Limit	
Low Limit	
No. of Local Setpoints	
Local SP 1 Value	
Local SP 2 Value	
Local SP 3 Value	
Local SP 4 Value	

Track Mode (✓ the box required)

Off	
Local	
Remote	
Local and Remote	

Remote SP Bias	
Remote SP Ratio	

Remote Setpoint Fault Action (✓ the box required)

No Action	
Local	
Local Default	

Default Setpoint Value	
------------------------	--

Ramp Mode (✓ the box required)

On	
Off	

Ramp Rate (Eng/hr)	
--------------------	--

Select Sources

LSP 1/2 Toggle	
LSP 1 Source	
LSP 2 Source	
LSP 3 Source	
LSP 4 Source	
Local Select Source	
Remote Select Source	
Local / Remote Toggle	

Loop 2 Control**Control Type** (✓ the box required)

PID	
pPI	
On/Off	

Control Action (✓ the box required)

Direct	
Reverse	
Unknown	

On/Off Hysteresis	
-------------------	--

PID

Proportional Band 1	
Integral Time 1	
Derivative Time 1	
Manual Reset	

Gain Scheduling**Mode** (✓ the box required)

On	
Off	

Source	
Limit 1	
Limit 1	

Feedforward**Mode** (✓ the box required)

On	
Adaptive Gain	
Static Gain	

Source	
Gain	

Motorized Valve

Ratio	
Bias	
Deadband	
Travel Time (secs)	

Loop 1 Time Proportioning

Cycle Time 1	
Cycle Time 2	

Loop 2 Time Proportioning

Cycle Time 1	
Cycle Time 2	

Adaptive Control**Mode** (✓ the box required)

On	
Off	

Critical Gain	
Critical Period	

Misc**Remote Setpoint Action** (✓ the box required)

No P&D	
P&D	

Loop 2 Output**Limits (Split output type only)****Limit Action** (✓ the box required)

Off	
Auto + Manual	
Auto Only	

Low Limit	
High Limit	

Failure Actions**Power Recovery Action** (✓ the box required)

Last Mode	
Manual – Last	
Manual – 0%	
Manual – 100%	
Auto Mode	
Auto – Last	
Timed – Last	
Timed – Default	
Recovery Time (secs)	

PV Failure Action (✓ the box required)

No Action	
Man – Hold OP	
Man – Default OP	

Default Output	
----------------	--

Auto/Manual Select Sources

Auto Select	
Manual Select	
Auto/Manual Toggle	

Manual Output (✓ the box required)

Last Manual OP	
Manual – 0%	
Manual – 100%	
Config Value	

Auto/Manual Output (✓ the box required)

Last Auto OP	
Manual – 0%	
Manual – 100%	
Config Value	

Slew Rate (✓ the box required)

On	
Off	

Function (✓ the box required)

Off	
Up and Down	
Up	
Down	

Rate	
Disable Source	

Tracking

Signal Source	
Disable Source	

Mode (✓ the box required)

In Auto	
Auto + OP	
When Enabled	
When Enabled + OP	

Split Output

Min Input 1	
Min Output 1	
Min Input 2	
Min Output 2	
Max Input 1	
Max Output 1	
Max Input 2	
Max Output 2	

5 Alarms

Alarm 1 (✓ the box required)

Off	
High Process	
Low Process	
High Latch	
Low Latch	

Tag:	
------	--

Alarm 1 Source**	
------------------	--

**See page 34

Alarm 1 Trip	
--------------	--

Hysteresis (Eng Units)	
Time Hysteresis (seconds)	

Alarm 2 (✓ the box required)

Off	
High Process	
Low Process	
High Latch	
Low Latch	

Tag:	
------	--

Alarm 2 Source**	
------------------	--

**See page 34

Alarm 2 Trip	
--------------	--

Hysteresis (Eng Units)	
Time Hysteresis (seconds)	

Alarm 3 (✓ the box required)

Off	
High Process	
Low Process	
High Latch	
Low Latch	

Tag:	
------	--

Alarm 3 Source**	
------------------	--

**See page 34

Alarm 3 Trip	
--------------	--

Hysteresis (Eng Units)	
Time Hysteresis (seconds)	

Alarm 4 (✓ the box required)

Off	
High Process	
Low Process	
High Latch	
Low Latch	

Tag:	
------	--

Alarm 4 Source**	
------------------	--

**See page 34

Alarm 4 Trip	
--------------	--

Hysteresis (Eng Units)	
Time Hysteresis (seconds)	

Alarm 5 (✓ the box required)

Off	
High Process	
Low Process	
High Latch	
Low Latch	

Tag:	
------	--

Alarm 5 Source**	
------------------	--

**See page 34

Alarm 5 Trip	
--------------	--

Hysteresis (Eng Units)	
Time Hysteresis (seconds)	

Alarm 7 (✓ the box required)

Off	
High Process	
Low Process	
High Latch	
Low Latch	

Tag:	
------	--

Alarm 7 Source**	
------------------	--

**See page 34

Alarm 7 Trip	
--------------	--

Hysteresis (Eng Units)	
Time Hysteresis (seconds)	

Alarm 6 (✓ the box required)

Off	
High Process	
Low Process	
High Latch	
Low Latch	

Tag:	
------	--

Alarm 6 Source**	
------------------	--

**See page 34

Alarm 6 Trip	
--------------	--

Hysteresis (Eng Units)	
Time Hysteresis (seconds)	

Alarm 8 (✓ the box required)

Off	
High Process	
Low Process	
High Latch	
Low Latch	

Tag:	
------	--

Alarm 8 Source**	
------------------	--

**See page 34

Alarm 8 Trip	
--------------	--

Hysteresis (Eng Units)	
Time Hysteresis (seconds)	

6 Profile

Common Settings

Setpoint Start Condition	
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Ramp Control

Ramp Type	
Ramp Units	

Program Control

Run Source	
Hold Source	
Reset Source	
Run/Hold Toggle Source	
Stop Source	
Skip Source	
Repeat Source	
Wait Event 1	
Wait Event 2	
Next Program Select	
Previous Program Select	

Power Fail recovery

Action	
Time	

Segment Options

Guaranteed Ramp/Soak	
Event 1	
Event 2	
Event 3	
Event 4	
Event 5	
Event 6	
Event 7	
Event 8	
PV Event	
PV Event Trip	
Timed Event	
User Value	
Retort Function	

User Value Limits

Name	
Low Limit	
High Limit	

Enter Program

(Max number of programs 30 please copy this page the required number of times)

Program Number

Setpoint

Start Value	
End Value	
Jump to Program	

Holdback Hysteresis

Soak	
Ramp	

Enter Segments (Max no. of segments per program 30)
(Copy as required)

Segment Number	
Type	
Period	
Setpoint	
Ramp Rate	
Wait Event	
Wait Segment	
Guaranteed Soak	
Guaranteed Ramp	
Event 1	
Event 2	
Event 3	
Event 4	
Event 5	
Event 6	
Event 7	
Event 8	
PV Event	
Time Event Offset	
Timed Event Length	
User Value	

7 Totalizer Configuration

Totalizer 1 (✓ the box required)

Off	
Analog	
Digital	
Frequency	
Pulse	

Source**	
----------	--

**See page 34

Count Direction (✓ the box required)

Up	
Down	

Units*	
--------	--

*See page 35

Count Rate (if known)	
Cut off	
Stop/Go Source***	
Decimal Places (0, 1, 2, 3 or 4)	
Preset Count	
Predetermined Count	
Intermediate Count	
Wrap (On or Off)	
Reset Source***	

***See page 33

Totalizer 2 (✓ the box required)

Off	
Analog	
Digital	
Frequency	
Pulse	

Source**	
----------	--

**See page 34

Count Direction (✓ the box required)

Up	
Down	

Logic Equations**Logic Equation 1** (x if not inverted*)

Operand 1		Invert*
Operator 1		
Operand 2		Invert*
Operator 2		
Operand 3		Invert*
Operator 3		
Operand 4		Invert*
Operator 4		
Operand 5		Invert*
Operator 5		
Operand 6		Invert*
Operator 6		
Operand 7		Invert*
Operator 7		
Operand 8		Invert*

Logic Equation 2 (x if not inverted*)

Operand 1		Invert*
Operator 1		
Operand 2		Invert*
Operator 2		
Operand 3		Invert*
Operator 3		

Units*	
--------	--

*See page 35

Count Rate (if known)	
Cut off	
Stop/Go Source***	
Decimal Places (0, 1, 2, 3 or 4)	
Preset Count	
Predetermined Count	
Intermediate Count	
Wrap (On or Off)	
Reset Source***	

***See page 33

Operand 4		Invert*
Operator 4		
Operand 5		Invert*
Operator 5		
Operand 6		Invert*
Operator 6		
Operand 7		Invert*
Operator 7		
Operand 8		Invert*

Logic Equation 3 (x if not inverted*)

Operand 1		Invert*
Operator 1		
Operand 2		Invert*
Operator 2		
Operand 3		Invert*
Operator 3		
Operand 4		Invert*
Operator 4		
Operand 5		Invert*
Operator 5		
Operand 6		Invert*
Operator 6		
Operand 7		Invert*
Operator 7		
Operand 8		Invert*

Logic Equation 4 (x if not inverted*)

Operand 1		Invert*
Operator 1		
Operand 2		Invert*
Operator 2		
Operand 3		Invert*
Operator 3		
Operand 4		Invert*
Operator 4		
Operand 5		Invert*
Operator 5		
Operand 6		Invert*
Operator 6		
Operand 7		Invert*
Operator 7		
Operand 8		Invert*

Logic Equation 5 (x if not inverted*)

Operand 1		Invert*
Operator 1		
Operand 2		Invert*
Operator 2		
Operand 3		Invert*
Operator 3		
Operand 4		Invert*
Operator 4		
Operand 5		Invert*
Operator 5		
Operand 6		Invert*
Operator 6		
Operand 7		Invert*
Operator 7		
Operand 8		Invert*

Logic Equation 7 (x if not inverted*)

Operand 1		Invert*
Operator 1		
Operand 2		Invert*
Operator 2		
Operand 3		Invert*
Operator 3		
Operand 4		Invert*
Operator 4		
Operand 5		Invert*
Operator 5		
Operand 6		Invert*
Operator 6		
Operand 7		Invert*
Operator 7		
Operand 8		Invert*

Logic Equation 6 (x if not inverted*)

Operand 1		Invert*
Operator 1		
Operand 2		Invert*
Operator 2		
Operand 3		Invert*
Operator 3		
Operand 4		Invert*
Operator 4		
Operand 5		Invert*
Operator 5		
Operand 6		Invert*
Operator 6		
Operand 7		Invert*
Operator 7		
Operand 8		Invert*

Logic Equation 8 (x if not inverted*)

Operand 1		Invert*
Operator 1		
Operand 2		Invert*
Operator 2		
Operand 3		Invert*
Operator 3		
Operand 4		Invert*
Operator 4		
Operand 5		Invert*
Operator 5		
Operand 6		Invert*
Operator 6		
Operand 7		Invert*
Operator 7		
Operand 8		Invert*

Math Blocks

Math Block 1

Math Block Type (✓ the box required)

Equation	
Real Time Average	
Max Hold	
Min Hold	
Multiplexer	
Square Root	

For all Math Block Types

Eng. Decimal Places	
Engineering Low	
Engineering High	
Engineering Units	

Fault Action (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Equation Type Setup

Operand 1	
Operator 1	
Operand 2	
Operator 2	
Operand 3	
Operator 3	
Operand 4	

Selectable Operators

End	Subtract	Divide	High Select
Add	Multiply	Low Select	Median

Real Time Average Setup

Operand 1	
Reset Source	
Average Duration	

Max/Min Hold Setup

Operand 1	
Reset Source	

Multiplexer Setup

Operand 1 (A)	
Operand 1 Constant	
Operand 2 (B)	
Operand 2 Constant	
Mux Selector Source	

Square Root Setup

Operand 1	
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...Math Blocks (continued)

Math Block 2

Math Block Type (✓ the box required)

Equation	
Real Time Average	
Max Hold	
Min Hold	
Multiplexer	
Square Root	

For all Math Block Types

Eng. Decimal Places	
Engineering Low	
Engineering High	
Engineering Units	

Fault Action (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Equation Type Setup

Operand 1	
Operator 1	
Operand 2	
Operator 2	
Operand 3	
Operator 3	
Operand 4	

Selectable Operators

End	Subtract	Divide	High Select
Add	Multiply	Low Select	Median

Real Time Average Setup

Operand 1	
Reset Source	
Average Duration	

Max/Min Hold Setup

Operand 1	
Reset Source	

Multiplexer Setup

Operand 1 (A)	
Operand 1 Constant	
Operand 2 (B)	
Operand 2 Constant	
Mux Selector Source	

Square Root Setup

Operand 1	
-----------	--

...Math Blocks (continued)

Math Block 3

Math Block Type (✓ the box required)

Equation	
Real Time Average	
Max Hold	
Min Hold	
Multiplexer	
Square Root	

For all Math Block Types

Eng. Decimal Places	
Engineering Low	
Engineering High	
Engineering Units	

Fault Action (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Equation Type Setup

Operand 1	
Operator 1	
Operand 2	
Operator 2	
Operand 3	
Operator 3	
Operand 4	

Selectable Operators

End	Subtract	Divide	High Select
Add	Multiply	Low Select	Median

Real Time Average Setup

Operand 1	
Reset Source	
Average Duration	

Max/Min Hold Setup

Operand 1	
Reset Source	

Multiplexer Setup

Operand 1 (A)	
Operand 1 Constant	
Operand 2 (B)	
Operand 2 Constant	
Mux Selector Source	

Square Root Setup

Operand 1	
-----------	--

...Math Blocks (continued)

Math Block 4

Math Block Type (✓ the box required)

Equation	
Real Time Average	
Max Hold	
Min Hold	
Multiplexer	
Square Root	

For all Math Block Types

Eng. Decimal Places	
Engineering Low	
Engineering High	
Engineering Units	

Fault Action (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Equation Type Setup

Operand 1	
Operator 1	
Operand 2	
Operator 2	
Operand 3	
Operator 3	
Operand 4	

Selectable Operators

End	Subtract	Divide	High Select
Add	Multiply	Low Select	Median

Real Time Average Setup

Operand 1	
Reset Source	
Average Duration	

Max/Min Hold Setup

Operand 1	
Reset Source	

Multiplexer Setup

Operand 1 (A)	
Operand 1 Constant	
Operand 2 (B)	
Operand 2 Constant	
Mux Selector Source	

Square Root Setup

Operand 1	
-----------	--

...Math Blocks (continued)

Math Block 5

Math Block Type (✓ the box required)

Equation	
Real Time Average	
Max Hold	
Min Hold	
Multiplexer	
Square Root	

For all Math Block Types

Eng. Decimal Places	
Engineering Low	
Engineering High	
Engineering Units	

Fault Action (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Equation Type Setup

Operand 1	
Operator 1	
Operand 2	
Operator 2	
Operand 3	
Operator 3	
Operand 4	

Selectable Operators

End	Subtract	Divide	High Select
Add	Multiply	Low Select	Median

Real Time Average Setup

Operand 1	
Reset Source	
Average Duration	

Max/Min Hold Setup

Operand 1	
Reset Source	

Multiplexer Setup

Operand 1 (A)	
Operand 1 Constant	
Operand 2 (B)	
Operand 2 Constant	
Mux Selector Source	

Square Root Setup

Operand 1	
-----------	--

...Math Blocks (continued)

Math Block 6

Math Block Type (✓ the box required)

Equation	
Real Time Average	
Max Hold	
Min Hold	
Multiplexer	
Square Root	

For all Math Block Types

Eng. Decimal Places	
Engineering Low	
Engineering High	
Engineering Units	

Fault Action (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Equation Type Setup

Operand 1	
Operator 1	
Operand 2	
Operator 2	
Operand 3	
Operator 3	
Operand 4	

Selectable Operators

End	Subtract	Divide	High Select
Add	Multiply	Low Select	Median

Real Time Average Setup

Operand 1	
Reset Source	
Average Duration	

Max/Min Hold Setup

Operand 1	
Reset Source	

Multiplexer Setup

Operand 1 (A)	
Operand 1 Constant	
Operand 2 (B)	
Operand 2 Constant	
Mux Selector Source	

Square Root Setup

Operand 1	
-----------	--

...Math Blocks (continued)

Math Block 7

Math Block Type (✓ the box required)

Equation	
Real Time Average	
Max Hold	
Min Hold	
Multiplexer	
Square Root	

For all Math Block Types

Eng. Decimal Places	
Engineering Low	
Engineering High	
Engineering Units	

Fault Action (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Equation Type Setup

Operand 1	
Operator 1	
Operand 2	
Operator 2	
Operand 3	
Operator 3	
Operand 4	

Selectable Operators

End	Subtract	Divide	High Select
Add	Multiply	Low Select	Median

Real Time Average Setup

Operand 1	
Reset Source	
Average Duration	

Max/Min Hold Setup

Operand 1	
Reset Source	

Multiplexer Setup

Operand 1 (A)	
Operand 1 Constant	
Operand 2 (B)	
Operand 2 Constant	
Mux Selector Source	

Square Root Setup

Operand 1	
-----------	--

...Math Blocks (continued)

Math Block 8

Math Block Type (✓ the box required)

Equation	
Real Time Average	
Max Hold	
Min Hold	
Multiplexer	
Square Root	

For all Math Block Types

Eng. Decimal Places	
Engineering Low	
Engineering High	
Engineering Units	

Fault Action (✓ the box required)

None	
Automatic	
Upscale	
Downscale	

Equation Type Setup

Operand 1	
Operator 1	
Operand 2	
Operator 2	
Operand 3	
Operator 3	
Operand 4	

Selectable Operators

End	Subtract	Divide	High Select
Add	Multiply	Low Select	Median

Real Time Average Setup

Operand 1	
Reset Source	
Average Duration	

Max/Min Hold Setup

Operand 1	
Reset Source	

Multiplexer Setup

Operand 1 (A)	
Operand 1 Constant	
Operand 2 (B)	
Operand 2 Constant	
Mux Selector Source	

Square Root Setup

Operand 1	
-----------	--

Custom Linearizer

Custom Linearizer 1

Source	
--------	--

Break Points

(If % known complete. If not known, completed by factory)

Number	Eng. Range	%	Elect. Range	%
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Custom Linearizer 2

Source	
--------	--

Break Points

(If % known complete. If not known, completed by factory)

Number	Eng. Range	%	Elect. Range	%
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Delay Timers**Delay Timer 1**

Source	
Delay Time	
On Time	

Delay Timer 2

Source	
Delay Time	
On Time	

Real Time Alarms**Real Time Alarm 1**

Monday (✓)	
Tuesday (✓)	
Wednesday (✓)	
Thursday (✓)	
Friday (✓)	
Saturday (✓)	
Sunday (✓)	
Month Enable	
Every Hour	
On Hour	
On Minute	
Duration	
Display Enable	
Tag	

Real Time Alarm 2

Monday (✓)	
Tuesday (✓)	
Wednesday (✓)	
Thursday (✓)	
Friday (✓)	
Saturday (✓)	
Sunday (✓)	
Month Enable	
Every Hour	
On Hour	
On Minute	
Duration	
Display Enable	
Tag	

9 Communications

RS485

Mode (✓ the box required)

Off	
2-Wire	
4-Wire	
Baud Rate	
Parity	
Tx Delay	

Ethernet

DHCP Implementation (✓ the box required)

On	
Off	

IP Address	
Subnet Mask	
Default Gateway	

Email

SMTP Server	
Email 1	
Email 2	
Email 3	

Tag 1		
Trigger 1		Invert
Tag 2		
Trigger 2		Invert
Tag 3		
Trigger 3		Invert
Tag 4		
Trigger 4		Invert

Modbus TCP

Implementation

On	
Off	

Connections (✓ the box required)

1	
2	
3	

Client Authority (✓ the box required)

Unrestricted	
Authorised 1	
Authorised 2	
Authorised 3	

10 Digital Sources

Source Name	Description [Comment]
Alarm 1 (8) Ack. State	Acknowledged alarm = 0 Unacknowledged alarm = 1
Alarm 1 (8) State	Alarm state
Anlg IP 1 (4) Fail	Analog Input Failure (active when the signal detected at the analog input is outside the fault detect level specified during configuration).
AO1 (2) Loop Break	Analog output
Delay Timer 1 (2)	Delay timer state
IP 1 (4) Digital State	Input 1 (4) digital state
Linearizer 1 (2) Fail	Custom linearizer failure
Logic Equation 1 (8)	Logic equation result
Loop 1 SP Mode	Setpoint mode selected 0 = Local, 1 = Remote
Loop 1 Auto Mode	Automatic control mode
Loop 1 Close Relay	Motorized valve close relay state
Loop 1 LSP 1 (4) State	Local setpoint state 1 = setpoint selected
Loop 1 Manual Mode	Manual control mode 1 = Manual

Source Name	Description [Comment]
Loop 1 Open Relay	Motorized valve open relay state
Loop 1 TP OP1	Time proportioning output
Loop 1 Valve State	Motorized valve state
Loop 1 Valve Stuck	Motorized valve stuck state
Loop 1 Ctrl Track	Control track state
Math Block 1 (8) Fail	Maths failure
RTA 1 (2) State	Real time alarm state
Softkey Toggle	Front panel soft key toggles the source's state
Softkey Edge	Front panel soft key sets the source active on key press
T1 (2) Int Pulse	Totalizer intermediate pulse – active for 1 second when the intermediate count is reached
T1 (2) Run State	Totalizer run state 1 = Totalizer running
T1 (2) Wrap Pulse	Totalizer wrap pulse If <i>Wrap Enable</i> is <i>On</i> – active for 1 second when the predetermined count is reached <i>Off</i> – active when the predetermined count has been reached and remains active until the totalizer is reset

11 Analog Sources

Source Name	Description
Anlg IP 1 (4)	Analog input
Constant 1 (8)	Math block constant
Linearizer 1 (2)	Custom linearizer
Loop 1 Actual Ratio	Loop 1 (2) actual ratio. Applies to ratio application templates only
Loop 1 Control OP	Control output value
Loop 1 Deviation	Loop 1 (2) deviation
Loop 1 Feedforward	Loop 1 (2) output of feedforward block
Loop 1 LSP	Local setpoint loop
Loop 1 PV	Loop 1 (2) process variable
Loop 1 Ration	Loop 1 (2) desired ratio Loop
Loop 1 SP	Loop control setpoint
Loop 1 Split OP1	Loop 1 split output
Loop 1 Valve Pos	Motorized valve position
Loop Bias 1	Loop 1 desired bias
Math Block 1 (8)	Math block
PV1 (2) Average	Process variable average
PV1 (2) Max	Maximum value of process variable 1 (2)
PV1 (2) Min	Minimum value of process variable 1 (2)
T1 (2) Batch Total	Totalizer batch total
T1 (2) Secure Total	Totalizer secure total
User Value 1 (2)	(Profile only)
Volume 1 (2)	(Indicator only)

12 Analog Input Engineering Units

Unit	Description
%	%
% sat	% saturation
%dO2	% dissolved oxygen
%HCl	% hydrochloric acid
%N2	% nitrogen
%O2	% oxygen
%OBS	% obscuration
%RH	% relative humidity
A	amps
bar	bar
CUMEC	cubic metre per second
deg C / F	degrees Celsius / Fahrenheit
Feet	imperial feet
ft ³ /d, ft ³ /h, ft ³ /m, ft ³ /s	cubic feet per day, hour, minute, second.
FTU	formazine turbidity units
g/d, g/h, g/l	grams per day, hour, liter
gal/d (UK)	imperial gallons per day
gal/d (US)	US gallons per day
gal/h (UK) / (US)	imperial / US gallons per hour
gal/m, s (UK) / (US)	imperial / US gallons per minute, second.
Hz	hertz
Inches	imperial inches
Kelvin	degrees Kelvin
kg/d, kg/h, kg/m	kilograms per day, hr., min.
kg/s	kilograms per sec.
kHz	kilohertz
l/d, l/h, l/m, l/s	liters per day, hour, min., sec.

Unit	Description
lb/d, lb/h, lb/m, lb/s	pounds per day, hour, minute, second.
m WG	meters water gauge
m ³ /d, m ³ /h, m ³ /m, m ³ /s	cubic meters per day, hour, minute, second..
mbar	millibar
mg/kg	milligrams per kilogram
Mgal/d (UK)	imperial mega gallons per day
Mgal/d (US)	US mega gallons per day
mho	conductance
MI/d, MI/h	megaliters per day, hour.
ml/h, ml/m	millilitres per hour, minute.
MI/s	megaliters per second
mS/cm, mS/m	milliSiemens per centimeter, meter
mV	millivolts
MV	megavolts
NTU	nephelometric turbidity units
pb	parts per billion
pH	potential Hydrogen
pm	parts per million
psi	pounds per square inch
S	Siemens
SCFM	standard cubic feet per minute
T/d, T/h, T/m	metric tonnes per day, hour, minute.
T/s	metric tonnes per second
ton/d, ton/h, ton/m, ton/s	imperial tons per day, hour, minute, second.
ug/kg	micrograms per kilogram
uS/cm, uS/m	microSiemens per centimeter / meter
uV	microvolts

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