

SM3000

Multipoint videographic recorder

Custom configuration

1 Introduction

ABB can supply custom configurations for the SM3000 Multipoint Videographic Recorder on request.

Enter the required setting or place a check mark (✓) against the relevant parameters in the following tables and return this document to the Global Sales office at Stonehouse.

2 Hardware configuration

Number of Channels

(enter the number required between 1 and 36)

--

Archive Media Type (✓ the type required)

None	
SmartMedia	
Compact Flash	

Software Options (✓ the option required)

None	
Math & Logic	
Batch Recording	

Module Options (✓ the type of module required in each position)

Type	Position							
	A	B	C	D	E	F	G	H
None	N/A							
Analog Input	✓							
3 Relays	Reserved for analog inputs	Reserved for analog inputs	Reserved for analog inputs	Reserved for analog inputs	Reserved for analog inputs if 5 groups required	Reserved for analog inputs if 6 groups required		
6 Relays								
Hybrid								
Transmitter Power Supply								
RS485 Serial Communications								

3 Common configuration

3.1 Setup tab

Referring to Section 4.4.1 of the User Guide (IM/SM3000), enter the settings required for each of the parameters.

Number of Groups (✓ the box required)

1	
2	
3	
4	
5	
6	

Instrument Tag

(enter a tag used to identify the recorder)

Group Overview (✓ the box required)

Disabled	
Enabled	

Screen Saver wait time	
Screen Capture	

3.2 Security tab

Configuration Security Type (✓ the box required)

Password Protected	
Internal Switch Protected	

Set up Level security (✓ the box required)

On	
Off	

Reconfigure Preset (✓ the box required)

No	
Yes	

Password Expiry (✓ the box required)

Disabled	
7 days	
14 days	
30 days	
60 days	
90 days	
180 days	
360 days	

User inactivity Disabling (✓ the box required)

Disabled	
7 days	
14 days	
30 days	
60 days	
90 days	
180 days	
360 days	

Password Failure limit (✓ the box required)

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Infinite	

Minimum password Length (✓ the box required)

4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

User 7 Name	
User 7 Access	
User 7 Password	

User 8 Name	
User 8 Access	
User 8 Password	

User 9 Name	
User 9 Access	
User 9 Password	

User 10 Name	
User 10 Access	
User 10 Password	

User 11 Name	
User 11 Access	
User 11 Password	

User 12 Name	
User 12 Access	
User 12 Password	

User 13 Name	
User 13 Access	
User 13 Password	

User 14 Name	
User 14 Access	
User 14 Password	

User 15 Name	
User 15 Access	
User 15 Password	

3.3 User tab

User 1 Name	
User 1 Access	
User 1 Password	

User 2 Name	
User 2 Access	
User 2 Password	

User 3 Name	
User 3 Access	
User 3 Password	

User 4 Name	
User 4 Access	
User 4 Password	

User 5 Name	
User 5 Access	
User 5 Password	

User 6 Name	
User 6 Access	
User 6 Password	

3.4 Logs

Alarm log size (10-200)	
Totalizer Log size (10-200)	
Audit Log size (10-200)	

3.5 Operator messages

Operator Message 1

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 8

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 2

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 9

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 3

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 10

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 4

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 11

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 5

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 12

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 6

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 13

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 7

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 14

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 15

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 20

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 16

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 21

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 17

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 22

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 18

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 23

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 19

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

Operator Message 24

Message Tag	
Source ID	
Assign to Group 1	
Assign to Group 2	

3.6 Ethernet module configuration

Referring to Section 4.4.5 of the User Guide (IM/SM3000), enter the settings required for each of the parameters.

IP Address (enter the address required)

Subnet Mask (enter the subnet mask required)

Default Gateway (enter the default gateway required)

FTP User 1 (enter the settings required)

Name			
Password			
Access Level (✓ the box required)			
Full	<input type="checkbox"/>	Read Only	<input type="checkbox"/>
Remote Operation (✓ the box required)			
None	<input type="checkbox"/>	Operator	<input type="checkbox"/> Configuration

FTP User 2 (enter the settings required)

Name			
Password			
Access Level (✓ the box required)			
Full	<input type="checkbox"/>	Read Only	<input type="checkbox"/>
Remote Operation (✓ the box required)			
None	<input type="checkbox"/>	Operator	<input type="checkbox"/> Configuration

FTP User 3 (enter the settings required)

Name			
Password			
Access Level (✓ the box required)			
Full	<input type="checkbox"/>	Read Only	<input type="checkbox"/>
Remote Operation (✓ the box required)			
None	<input type="checkbox"/>	Operator	<input type="checkbox"/> Configuration

FTP User 4 (enter the settings required)

Name			
Password			
Access Level (✓ the box required)			
Full	<input type="checkbox"/>	Read Only	<input type="checkbox"/>
Remote Operation (✓ the box required)			
None	<input type="checkbox"/>	Operator	<input type="checkbox"/> Configuration

3.7 e-mail configuration

Referring to Section 4.4.6 of the User Guide (IM/SM3000), enter the settings required for each of the parameters.

3.7.1 e-mail 1

SMTP Server IP Address (enter the address required)

Recipients (enter the addresses of the email recipients)

Recipient 1	
Recipient 2	
Recipient 3	

Options Enabled (✓ the option(s) required)

Channels Report	<input type="checkbox"/>
Totalizers Report	<input type="checkbox"/>
External Media Report	<input type="checkbox"/>
Report in ALL emails	<input type="checkbox"/>
Trigger 6 Inverted	<input type="checkbox"/>
Trigger 7 Inverted	<input type="checkbox"/>
Trigger 8 Inverted	<input type="checkbox"/>
Trigger 9 Inverted	<input type="checkbox"/>
Trigger 10 Inverted	<input type="checkbox"/>

Event Triggers

(enter up to 10 event source types to generate an email)

Trigger 1	
Trigger 2	
Trigger 3	
Trigger 4	
Trigger 5	
Trigger 6	
Trigger 7	
Trigger 8	
Trigger 9	
Trigger 10	

3.7.2 e-mail 2

SMTP Server IP Address (enter the address required)

--

Recipients (enter the addresses of the email recipients)

Recipient 1	
Recipient 2	
Recipient 3	

Options Enabled (✓ the option(s) required)

Channels Report	
Totalizers Report	
External Media Report	
Report in ALL emails	
Trigger 6 Inverted	
Trigger 7 Inverted	
Trigger 8 Inverted	
Trigger 9 Inverted	
Trigger 10 Inverted	

Event Triggers

(enter up to 10 event source types to generate an email)

Trigger 1	
Trigger 2	
Trigger 3	
Trigger 4	
Trigger 5	
Trigger 6	
Trigger 7	
Trigger 8	
Trigger 9	
Trigger 10	

3.8 Modbus TCP configuration

Referring to Section 4.4.7 of the User Guide (IM/SM3000), enter the settings required for each of the parameters.

Implementation (✓ the implementation required)

Disabled	
Modbus TCP Server	
Modbus TCP Client	

Modbus TCP Port

(enter port number required between 0 and 65535)

--

Note. The following parameters are applicable only if **Implementation** is required to be set to Modbus TCP Server**TCP Client Access** (✓ the box required)

Unrestricted		4	
1		5	
2		6	
3			

If TCP Client Access is restricted, enter the authorized IP addresses in the following fields as required

Authorized I/P 1

--

Authorized I/P 2

--

Authorized I/P 3

--

Authorized I/P 4

--

Authorized I/P 5

--

Authorized I/P 6

--

Reverse IEEE Data (✓ the box required)

Yes	
No	

Note. The following parameters are only applicable only if **Implementation** is required to be set to Modbus TCP Client

Connections Allowed

(enter the number required between 1 and 9)

Poll Rate (ms)

(enter the poll rate required between 0 and 3600000)

Poll Fail Limit

(enter the poll fail limit required between 1 and 4)

Response Timeout (ms)

(enter the timeout required between 0 and 60000)

Comms. Analog I/P (✓ the input required)

Comms. AIN 1		Comms. AIN 19	
Comms. AIN 2		Comms. AIN 20	
Comms. AIN 3		Comms. AIN 21	
Comms. AIN 4		Comms. AIN 22	
Comms. AIN 5		Comms. AIN 23	
Comms. AIN 6		Comms. AIN 24	
Comms. AIN 7		Comms. AIN 25	
Comms. AIN 8		Comms. AIN 26	
Comms. AIN 9		Comms. AIN 27	
Comms. AIN 10		Comms. AIN 28	
Comms. AIN 11		Comms. AIN 29	
Comms. AIN 12		Comms. AIN 30	
Comms. AIN 13		Comms. AIN 31	
Comms. AIN 14		Comms. AIN 32	
Comms. AIN 15		Comms. AIN 33	
Comms. AIN 16		Comms. AIN 34	
Comms. AIN 17		Comms. AIN 35	
Comms. AIN 18		Comms. AIN 36	

Protocol (✓ the protocol required)

None	
TCP	
RTU	

IP-Address – TCP protocol only

(enter the address required)

Register Number – TCP protocol only

(enter the register number required between 0 and 65535)

Type – TCP protocol only (✓ the type required)

Input Register		Holding Register	
----------------	--	------------------	--

Format – TCP protocol only (✓ the format required)

Sint16		IEEE	
Sint32		Reverse IEEE	
Reverse Sint32			

RTU-Address – RTU protocol only

(enter the RTU address required between 1 and 247)

Gateway – RTU protocol only

(enter the gateway address required)

Register Number – RTU protocol only

(enter the register number required between 0 and 65535)

Type – RTU protocol only (✓ the type required)

Input Register		Holding Register	
----------------	--	------------------	--

Format – RTU protocol only (✓ the format required)

Sint16		IEEE	
Sint32		Reverse IEEE	
Reverse Sint32			

Comms. Digital I/P (✓ the input required)

Comms. Dig I/P 1		Comms. Dig I/P 19	
Comms. Dig I/P 2		Comms. Dig I/P 20	
Comms. Dig I/P 3		Comms. Dig I/P 21	
Comms. Dig I/P 4		Comms. Dig I/P 22	
Comms. Dig I/P 5		Comms. Dig I/P 23	
Comms. Dig I/P 6		Comms. Dig I/P 24	
Comms. Dig I/P 7		Comms. Dig I/P 25	
Comms. Dig I/P 8		Comms. Dig I/P 26	
Comms. Dig I/P 9		Comms. Dig I/P 27	
Comms. Dig I/P 10		Comms. Dig I/P 28	
Comms. Dig I/P 11		Comms. Dig I/P 29	
Comms. Dig I/P 12		Comms. Dig I/P 30	
Comms. Dig I/P 13		Comms. Dig I/P 31	
Comms. Dig I/P 14		Comms. Dig I/P 32	
Comms. Dig I/P 15		Comms. Dig I/P 33	
Comms. Dig I/P 16		Comms. Dig I/P 34	
Comms. Dig I/P 17		Comms. Dig I/P 35	
Comms. Dig I/P 18		Comms. Dig I/P 36	

Protocol (✓ the protocol required)

None	
TCP	
RTU	

IP-Address – TCP protocol only

(enter the address required)

Register Number – TCP protocol only

(enter the register number required between 0 and 65535)

Type – TCP protocol only (✓ the type required)

Input Status		Coil Status	
--------------	--	-------------	--

RTU-Address – RTU protocol only

(enter the RTU address required between 1 and 247)

Gateway – RTU protocol only

(enter the gateway address required)

Register Number – RTU protocol only

(enter the register number required between 0 and 65535)

Type – RTU protocol only (✓ the type required)

Input Status		Coil Status	
--------------	--	-------------	--

4 Group configuration

Referring to Section 4.5 of the User Guide (IM/SM3000), enter the settings required for each of the process groups.

4.1 Process group 1

4.1.1 Recording tab

Tag (enter a tag used to identify the process group)

Recording Enable Source

(enter a source to enable/disable recording)

Primary Sample Rate

(enter the primary sampling rate required)

Secondary Sample Rate

(enter the secondary sampling rate required)

Sample Rate Select Source

(enter a source to enable switching between sample rates)

4.1.2 Archive tab

Archive File Enables (✓ the data types to be archived)

Channel Data Files (*.b)	
Alarm Event Log Files (*.e)	
Totalizer Log Files (*.t)	
Audit Log Files (*.a)	

Wrap (✓ the box required)

Off	
On	

4.1.3 Chart

Chart View enable (✓ the box required)

Horizontal →	
Horizontal ←	
Vertical	
Circular	

Chart Annotation (✓ the box required)

None	
Alarms	
Alarms & operator Messages	

Major Chart Divs	
Minor Chart Divs	
Screen Interval	
Chart Duration	

Trace Width (✓ the box required)

1	
2	
3	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Scale Select	
Trace Select	
Screen Interval select	
Historical Review	
Chart annotation select	

4.1.4 Bar

Bar Graph View enable (✓ the box required)

Off	
Horizontal	
Vertical	
Horizontal & Vertical	

Bar Graph Markers (✓ the box required)

No Markers	
Max & Min	
Alarm Trips	
Max, min & Alarm trips	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Max/min Reset	

Process View (✓ the box required)

Enable	
Disable	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	

4.1.5 Digital

Digital View Enable (✓ the box required)

On	
Off	

Totalizer display enable (✓ the box required)

On	
Off	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	
Channel Select	

Channel Select Enable (✓ the box required)

Channel 1.1	
Channel 1.2	
Channel 1.3	
Channel 1.4	
Channel 1.5	
Channel 1.6	
Channel 1.7	
Channel 1.8	
Channel 1.9	
Channel 1.10	
Channel 1.11	
Channel 1.12	
All Configured Channels	

4.1.6 Batch

Batch (✓ the box required)

Enable	
Disable	

Start/Stop Source

Operator Login (✓ the box required)

Start	
Start & Stop	
Disabled	

Batch Number (✓ the box required)

Automatic	
Off	
Text	

Field 1

Field 2

Field 3

4.2 Process group 2

4.2.1 Recording tab

Tag (enter a tag used to identify the process group)

--

Recording Enable Source

(enter a source to enable/disable recording)

--

Primary Sample Rate

(enter the primary sampling rate required)

--

Secondary Sample Rate

(enter the secondary sampling rate required)

--

Sample Rate Select Source

(enter a source to enable switching between sample rates)

--

4.2.2 Archive tab

Archive File Enables (✓ the data types to be archived)

Channel Data Files (*.b)	
Alarm Event Log Files (*.e)	
Totalizer Log Files (*.t)	

Wrap (✓ the box required)

Off	
On	

4.2.3 Chart

Chart View enable (✓ the box required)

Horizontal →	
Horizontal ←	
Vertical	
Circular	

Chart Annotation (✓ the box required)

None	
Alarms	
Alarms & operator Messages	

Major Chart Divs	
Minor Chart Divs	
Screen Interval	
Chart Duration	

Trace Width (✓ the box required)

1	
2	
3	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Scale Select	
Trace Select	
Screen Interval select	
Historical Review	
Chart annotation select	

4.2.4 Bar

Bar Graph View enable (✓ the box required)

Off	
Horizontal	
Vertical	
Horizontal & Vertical	

Bar Graph Markers (✓ the box required)

No Markers	
Max & Min	
Alarm Trips	
Max, min & Alarm trips	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Max/min Reset	

Process View (✓ the box required)

Enable	
Disable	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	

4.2.5 Digital

Digital View Enable (✓ the box required)

On	
Off	

Totalizer display enable (✓ the box required)

On	
Off	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	
Channel Select	

Channel Select Enable (✓ the box required)

Channel 2.1	
Channel 2.2	
Channel 2.3	
Channel 2.4	
Channel 2.5	
Channel 2.6	
Channel 2.7	
Channel 2.8	
Channel 2.9	
Channel 2.10	
Channel 2.11	
Channel 2.12	
All Configured Channels	

4.2.6 Batch

Batch (✓ the box required)

Enable	
Disable	

Start/Stop Source

Operator Login (✓ the box required)

Start	
Start & Stop	
Disabled	

Batch Number (✓ the box required)

Automatic	
Off	
Text	

Field 1

Field 2

Field 3

4.3 Process group 3

4.3.1 Recording tab

Tag (enter a tag used to identify the process group)

--

Recording Enable Source

(enter a source to enable/disable recording)

--

Primary Sample Rate

(enter the primary sampling rate required)

--

Secondary Sample Rate

(enter the secondary sampling rate required)

--

Sample Rate Select Source

(enter a source to enable switching between sample rates)

--

4.3.2 Archive tab

Archive File Enables (✓ the data types to be archived)

Channel Data Files (*.b)	
Alarm Event Log Files (*.e)	
Totalizer Log Files (*.t)	

Wrap (✓ the box required)

Off	
On	

4.3.3 Chart

Chart View enable (✓ the box required)

Horizontal →	
Horizontal ←	
Vertical	
Circular	

Chart Annotation (✓ the box required)

None	
Alarms	
Alarms & operator Messages	

Major Chart Divs	
Minor Chart Divs	
Screen Interval	
Chart Duration	

Trace Width (✓ the box required)

1	
2	
3	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Scale Select	
Trace Select	
Screen Interval select	
Historical Review	
Chart annotation select	

4.3.4 Bar

Bar Graph View enable (✓ the box required)

Off	
Horizontal	
Vertical	
Horizontal & Vertical	

Bar Graph Markers (✓ the box required)

No Markers	
Max & Min	
Alarm Trips	
Max, min & Alarm trips	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Max/min Reset	

Process View (✓ the box required)

Enable	
Disable	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	

4.3.5 Digital

Digital View Enable (✓ the box required)

On	
Off	

Totalizer display enable (✓ the box required)

On	
Off	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	
Channel Select	

Channel Select Enable (✓ the box required)

Channel 3.1	
Channel 3.2	
Channel 3.3	
Channel 3.4	
Channel 3.5	
Channel 3.6	
Channel 3.7	
Channel 3.8	
Channel 3.9	
Channel 3.10	
Channel 3.11	
Channel 3.12	
All Configured Channels	

4.3.6 Batch

Batch (✓ the box required)

Enable	
Disable	

Start/Stop Source

Operator Login (✓ the box required)

Start	
Start & Stop	
Disabled	

Batch Number (✓ the box required)

Automatic	
Off	
Text	

Field 1

Field 2

Field 3

4.4 Process group 4

4.4.1 Recording tab

Tag (enter a tag used to identify the process group)

--

Recording Enable Source

(enter a source to enable/disable recording)

--

Primary Sample Rate

(enter the primary sampling rate required)

--

Secondary Sample Rate

(enter the secondary sampling rate required)

--

Sample Rate Select Source

(enter a source to enable switching between sample rates)

--

4.4.2 Archive tab

Archive File Enables (✓ the data types to be archived)

Channel Data Files (*.b)	
Alarm Event Log Files (*.e)	
Totalizer Log Files (*.t)	

Wrap (✓ the box required)

Off	
On	

4.4.3 Chart

Chart View enable (✓ the box required)

Horizontal →	
Horizontal ←	
Vertical	
Circular	

Chart Annotation (✓ the box required)

None	
Alarms	
Alarms & operator Messages	

Major Chart Divs	
Minor Chart Divs	
Screen Interval	
Chart Duration	

Trace Width (✓ the box required)

1	
2	
3	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Scale Select	
Trace Select	
Screen Interval select	
Historical Review	
Chart annotation select	

4.4.4 Bar

Bar Graph View enable (✓ the box required)

Off	
Horizontal	
Vertical	
Horizontal & Vertical	

Bar Graph Markers (✓ the box required)

No Markers	
Max & Min	
Alarm Trips	
Max, min & Alarm trips	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Max/min Reset	

Process View (✓ the box required)

Enable	
Disable	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	

4.4.5 Digital

Digital View Enable (✓ the box required)

On	
Off	

Totalizer display enable (✓ the box required)

On	
Off	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	
Channel Select	

Channel Select Enable (✓ the box required)

Channel 4.1	
Channel 4.2	
Channel 4.3	
Channel 4.4	
Channel 4.5	
Channel 4.6	
Channel 4.7	
Channel 4.8	
Channel 4.9	
Channel 4.10	
Channel 4.11	
Channel 4.12	
All Configured Channels	

4.4.6 Batch

Batch (✓ the box required)

Enable	
Disable	

Start/Stop Source

Operator Login (✓ the box required)

Start	
Start & Stop	
Disabled	

Batch Number (✓ the box required)

Automatic	
Off	
Text	

Field 1

Field 2

Field 3

4.5 Process group 5

4.5.1 Recording tab

Tag (enter a tag used to identify the process group)

--

Recording Enable Source

(enter a source to enable/disable recording)

--

Primary Sample Rate

(enter the primary sampling rate required)

--

Secondary Sample Rate

(enter the secondary sampling rate required)

--

Sample Rate Select Source

(enter a source to enable switching between sample rates)

--

4.5.2 Archive tab

Archive File Enables (✓ the data types to be archived)

Channel Data Files (*.b)	
Alarm Event Log Files (*.e)	
Totalizer Log Files (*.t)	

Wrap (✓ the box required)

Off	
On	

4.5.3 Chart

Chart View enable (✓ the box required)

Horizontal →	
Horizontal ←	
Vertical	
Circular	

Chart Annotation (✓ the box required)

None	
Alarms	
Alarms & operator Messages	

Major Chart Divs	
Minor Chart Divs	
Screen Interval	
Chart Duration	

Trace Width (✓ the box required)

1	
2	
3	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Scale Select	
Trace Select	
Screen Interval select	
Historical Review	
Chart annotation select	

4.5.4 Bar

Bar Graph View enable (✓ the box required)

Off	
Horizontal	
Vertical	
Horizontal & Vertical	

Bar Graph Markers (✓ the box required)

No Markers	
Max & Min	
Alarm Trips	
Max, min & Alarm trips	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Max/min Reset	

Process View (✓ the box required)

Enable	
Disable	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	

4.5.5 Digital

Digital View Enable (✓ the box required)

On	
Off	

Totalizer display enable (✓ the box required)

On	
Off	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	
Channel Select	

Channel Select Enable (✓ the box required)

Channel 5.1	
Channel 5.2	
Channel 5.3	
Channel 5.4	
Channel 5.5	
Channel 5.6	
Channel 5.7	
Channel 5.8	
Channel 5.9	
Channel 5.10	
Channel 5.11	
Channel 5.12	
All Configured Channels	

4.5.6 Batch

Batch (✓ the box required)

Enable	
Disable	

Start/Stop Source

Operator Login (✓ the box required)

Start	
Start & Stop	
Disabled	

Batch Number (✓ the box required)

Automatic	
Off	
Text	

Field 1

Field 2

Field 3

4.6 Process group 6

4.6.1 Recording tab

Tag (enter a tag used to identify the process group)

--

Recording Enable Source

(enter a source to enable/disable recording)

--

Primary Sample Rate

(enter the primary sampling rate required)

--

Secondary Sample Rate

(enter the secondary sampling rate required)

--

Sample Rate Select Source

(enter a source to enable switching between sample rates)

--

4.6.2 Archive tab

Archive File Enables (✓ the data types to be archived)

Channel Data Files (*.b)	
Alarm Event Log Files (*.e)	
Totalizer Log Files (*.t)	

Wrap (✓ the box required)

Off	
On	

4.6.3 Chart

Chart View enable (✓ the box required)

Horizontal →	
Horizontal ←	
Vertical	
Circular	

Chart Annotation (✓ the box required)

None	
Alarms	
Alarms & operator Messages	

Major Chart Divs	
Minor Chart Divs	
Screen Interval	
Chart Duration	

Trace Width (✓ the box required)

1	
2	
3	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Scale Select	
Trace Select	
Screen Interval select	
Historical Review	
Chart annotation select	

4.6.4 Bar

Bar Graph View enable (✓ the box required)

Off	
Horizontal	
Vertical	
Horizontal & Vertical	

Bar Graph Markers (✓ the box required)

No Markers	
Max & Min	
Alarm Trips	
Max, min & Alarm trips	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Max/min Reset	

Process View (✓ the box required)

Enable	
Disable	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	

4.6.5 Digital

Digital View Enable (✓ the box required)

On	
Off	

Totalizer display enable (✓ the box required)

On	
Off	

Menu Enables (✓ the box required)

Message Select	
Alarm Ack	
Totalizer Reset	
Totalizer Stop/Go	
Channel Select	

Channel Select Enable (✓ the box required)

Channel 6.1	
Channel 6.2	
Channel 6.3	
Channel 6.4	
Channel 6.5	
Channel 6.6	
Channel 6.7	
Channel 6.8	
Channel 6.9	
Channel 6.10	
Channel 6.11	
Channel 6.12	
All Configured Channels	

4.6.6 Batch

Batch (✓ the box required)

Enable	
Disable	

Start/Stop Source

Operator Login (✓ the box required)

Start	
Start & Stop	
Disabled	

Batch Number (✓ the box required)

Automatic	
Off	
Text	

Field 1

Field 2

Field 3

5 Channel configuration

This section is for channel 1 only. To submit a custom configuration for more than 1 channel, copy this section for any subsequent channels and enter the process group and channel numbers in the boxes provided.

5.1 Process group

5.1.1 Channel

Source ID (enter the input source required)

Input Type (✓ the input type required)

Millivolts		Resistance Thermometer	
Milliamps		Thermocouple	
Volts		Volt-free Digital Input	
Resistance			

Electrical Range

Low	
High	

Engineering Range and Units (enter the values required)

Low	
High	
Units	

Short Tag (enter the tag required – 8 characters max.)

Long Tag (enter the tag required – 20 characters max.)

Filter Time Constant (enter the value required)

Fault Detect Level (enter the tolerance level required [between 0 and 100% of the engineering range])

Broken Sensor Direction (✓ the drive direction required)

None	
Upscale	
Downscale	

Alarm A Type (✓ the alarm type required)

Off		High Annunciate	
High Process		Low Annunciate	
Low Process		Fast Rate	
High Latch		Slow Rate	
Low Latch		Delayed High Process	
		Delayed Low Process	

Alarm A Tag (enter the tag required – 20 characters max.)

Alarm A Trip (enter the trip point value required)

Alarm A Hysteresis (enter the hysteresis value required)

Alarm A Time Hysteresis (process and latch alarms only)
(enter the time hysteresis value required)

Alarm A Delay Time (delayed alarms only)
(enter the delay value required)

Alarm A Deviation (deviation alarms only)
(enter the deviation value required)

Alarm A Period (deviation alarms only)
(enter the time period required)

Alarm A Enable Source
(enter a source to enable/disable the alarm)

Alarm A Log Enable (✓ the box required)

On	
Off	

Alarm A Alarm Group
(✓ the group or groups to which to assign the alarm)

Group 1		Group 7	
Group 2		Group 8	
Group 3		Group 9	
Group 4		Group 10	
Group 5		Group 11	
Group 6		Group 12	

Alarm B Type (✓ the alarm type required)

Off		High Annunciate	
High Process		Low Annunciate	
Low Process		Fast Rate	
High Latch		Slow Rate	
Low Latch		Delayed High Process	
		Delayed Low Process	

Alarm B Tag (enter the tag required – 20 characters max.)
Alarm B Trip (enter the trip point value required)
Alarm B Hysteresis (enter the hysteresis value required)
Alarm B Time Hysteresis (process and latch alarms only)
(enter the time hysteresis value required)
Alarm B Delay Time (delayed alarms only)
(enter the delay value required)
Alarm B Deviation (deviation alarms only)
(enter the deviation value required)
Alarm B Period (deviation alarms only)
(enter the time period required)
Alarm B Enable Source

(enter a source to enable/disable the alarm)

Alarm B Log Enable (✓ the box required)

On	
Off	

Alarm B Alarm Group

(✓ the group or groups to which to assign the alarm)

Group 1		Group 7	
Group 2		Group 8	
Group 3		Group 9	
Group 4		Group 10	
Group 5		Group 11	
Group 6		Group 12	

Alarm C Type (✓ the alarm type required)

Off		High Annunciate	
High Process		Low Annunciate	
Low Process		Fast Rate	
High Latch		Slow Rate	
Low Latch		Delayed High Process	
		Delayed Low Process	

Alarm C Tag (enter the tag required – 20 characters max.)
Alarm C Trip (enter the trip point value required)
Alarm C Hysteresis (enter the hysteresis value required)
Alarm C Time Hysteresis (process and latch alarms only)
(enter the time hysteresis value required)
Alarm C Delay Time (delayed alarms only)
(enter the delay value required)
Alarm C Deviation (deviation alarms only)
(enter the deviation value required)
Alarm C Period (deviation alarms only)
(enter the time period required)
Alarm C Enable Source

(enter a source to enable/disable the alarm)

Alarm C Log Enable (✓ the box required)

On	
Off	

Alarm C Alarm Group

(✓ the group or groups to which to assign the alarm)

Group 1		Group 7	
Group 2		Group 8	
Group 3		Group 9	
Group 4		Group 10	
Group 5		Group 11	
Group 6		Group 12	

Alarm D Type (✓ the alarm type required)

Off		High Annunciate	
High Process		Low Annunciate	
Low Process		Fast Rate	
High Latch		Slow Rate	
Low Latch		Delayed High Process	
		Delayed Low Process	

Alarm D Tag (enter the tag required – 20 characters max.)
Alarm D Trip (enter the trip point value required)
Alarm D Hysteresis (enter the hysteresis value required)
Alarm D Time Hysteresis (process and latch alarms only)
(enter the time hysteresis value required)
Alarm D Delay Time (delayed alarms only)
(enter the delay value required)
Alarm D Deviation (deviation alarms only)
(enter the deviation value required)
Alarm D Period (deviation alarms only)
(enter the time period required)
Alarm D Enable Source

(enter a source to enable/disable the alarm)

Alarm D Log Enable (✓ the box required)

On	
Off	

Alarm D Alarm Group

(✓ the group or groups to which to assign the alarm)

Group 1		Group 7	
Group 2		Group 8	
Group 3		Group 9	
Group 4		Group 10	
Group 5		Group 11	
Group 6		Group 12	

Totalizer A Enable (✓ the box required)

Off	
Count Up	
Count Down	

Totalizer A Wrap (✓ the box required)

On	
Off	

Totalizer A Tag (enter the tag required – 20 characters max.)
Totalizer A Units (enter the units required)
Totalizer A Stop/Go Recovery (✓ the action required)

Last	
Stop	
Go	

Totalizer A Stop/Go Source (enter the source required)
Totalizer A Count Range (enter the values required)

Preset Count	
Predetermined Count	
Intermediate Count	

Totalizer A Reset Source (enter the source required)
Totalizer A Log Update Time (enter the time required)
Totalizer A Log Update Source (enter the source required)
Totalizer A Count Rate (enter the count rate value required)
Totalizer A Cut Off (enter the cut off value required)

Totalizer B Enable (✓ the box required)

Off	
Count Up	
Count Down	

Totalizer B Wrap (✓ the box required)

On	
Off	

Totalizer B Tag (enter the tag required – 20 characters max.)
Totalizer B Units (enter the units required)
Totalizer B Stop/Go Recovery (✓ the action required)

Last	
Stop	
Go	

Totalizer B Stop/Go Source (enter the source required)
Totalizer B Count Range (enter the values required)

Preset Count	
Predetermined Count	
Intermediate Count	

Totalizer B Reset Source (enter the source required)
Totalizer B Log Update Time (enter the time required)
Totalizer B Log Update Source (enter the source required)
Totalizer B Count Rate (enter the count rate value required)
Totalizer B Cut Off (enter the cut off value required)

6 Functions

6.1 Custom linearizer 1

Break points

(If % known please complete if not 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				

6.2 Custom linearizer 1

Break points

(If % known please complete if not 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				

Real Time Alarm 1

Monday (✓)	
Tuesday (✓)	
Wednesday (✓)	
Thursday (✓)	
Friday (✓)	
Saturday (✓)	
Sunday (✓)	
1st of Month (✓)	

On Time	
Duration	
Log Enable	

Real Time Alarm 3

Monday (✓)	
Tuesday (✓)	
Wednesday (✓)	
Thursday (✓)	
Friday (✓)	
Saturday (✓)	
Sunday (✓)	
1st of Month (✓)	

On Time	
Duration	
Log Enable	

Real Time Alarm 2

Monday (✓)	
Tuesday (✓)	
Wednesday (✓)	
Thursday (✓)	
Friday (✓)	
Saturday (✓)	
Sunday (✓)	
1st of Month (✓)	

On Time	
Duration	
Log Enable	

Real Time Alarm 4

Monday (✓)	
Tuesday (✓)	
Wednesday (✓)	
Thursday (✓)	
Friday (✓)	
Saturday (✓)	
Sunday (✓)	
1st of Month (✓)	

On Time	
Duration	
Log Enable	

7 Relay module configuration

Referring to Section 4.7.2 of the User Guide (IM/SM3000), enter the settings required for each of the outputs.

Relay 1 Source (enter the source required)

--	--	--	--

Relay 1 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Relay 2 Source (enter the source required)

--	--	--	--

Relay 2 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Relay 3 Source (enter the source required)

--	--	--	--

Relay 3 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Relay 4 Source (enter the source required)

--	--	--	--

Relay 4 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Relay 5 Source (enter the source required)

--	--	--	--

Relay 5 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Relay 6 Source (enter the source required)

--	--	--	--

Relay 6 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

8 Hybrid module configuration

Referring to Section 4.7.3 of the User Guide (IM/SM3000), enter the settings required for each of the outputs.

Digital Output 1 Source (enter the source required)

--	--	--	--

Digital Output 1 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Digital Output 2 Source (enter the source required)

--	--	--	--

Digital Output 2 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Digital Output 3 Source (enter the source required)

--	--	--	--

Digital Output 3 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Digital Output 4 Source (enter the source required)

--	--	--	--

Digital Output 4 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Digital Output 5 Source (enter the source required)

--	--	--	--

Digital Output 5 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Digital Output 6 Source (enter the source required)

--	--	--	--

Digital Output 6 Polarity (✓ the polarity required)

Positive		Negative	
----------	--	----------	--

Analog Output 1 Source (enter the source required)

--	--	--	--

Analog Output 1 Range (enter the values required)

Engineering Low		Electrical Low	
Engineering High		Electrical High	

Analog Output 2 Source (enter the source required)

--	--	--	--

Analog Output 2 Range (enter the values required)

Engineering Low		Electrical Low	
Engineering High		Electrical High	

9 RS485 (Modbus™) communications

Referring to Section 4.7.4 of the User Guide (IM/SM3000), enter the settings required for each of the parameters.

Protocol (✓ the protocol required)

Modbus	
Modbus Master	

Type (✓ the type required)

Four Wire	
Two Wire	

Baud Rate (✓ the baud rate required)

1200		19200	
2400		38400	
4800		115200	
9600			

Parity (✓ the parity required)

None	
Odd	
Even	

Address – Modbus protocol only

(enter the address required between 1 and 247)

Note. The remaining parameters are only applicable only if **Protocol** is required to be set to Modbus Master

Poll Rate (ms)

(enter the poll rate required between 0 and 3600000)

Poll Fail Limit

(enter the poll fail limit required between 1 and 4)

Response Timeout (ms)

(enter the timeout required between 0 and 60000)

Comms. Analog I/P (✓ the input required)

Comms. AIN 1		Comms. AIN 19	
Comms. AIN 2		Comms. AIN 20	
Comms. AIN 3		Comms. AIN 21	
Comms. AIN 4		Comms. AIN 22	
Comms. AIN 5		Comms. AIN 23	
Comms. AIN 6		Comms. AIN 24	
Comms. AIN 7		Comms. AIN 25	
Comms. AIN 8		Comms. AIN 26	
Comms. AIN 9		Comms. AIN 27	
Comms. AIN 10		Comms. AIN 28	
Comms. AIN 11		Comms. AIN 29	
Comms. AIN 12		Comms. AIN 30	
Comms. AIN 13		Comms. AIN 31	
Comms. AIN 14		Comms. AIN 32	
Comms. AIN 15		Comms. AIN 33	
Comms. AIN 16		Comms. AIN 34	
Comms. AIN 17		Comms. AIN 35	
Comms. AIN 18		Comms. AIN 36	

RTU-Address

(enter the RTU address required between 1 and 247)

Register Number

(enter the register number required between 0 and 65535)

Type (✓ the type required)

Input Register		Holding Register	
----------------	--	------------------	--

Format (✓ the format required)

Sint16		Reverse IEEE	
Sint32		Sint16 X 10	
Reverse Sint32		Sint16 X 100	
IEEE		Sint16 X 1000	

Comms. Digital I/P (✓ the input required)

Comms. Dig I/P 1		Comms. Dig I/P 19	
Comms. Dig I/P 2		Comms. Dig I/P 20	
Comms. Dig I/P 3		Comms. Dig I/P 21	
Comms. Dig I/P 4		Comms. Dig I/P 22	
Comms. Dig I/P 5		Comms. Dig I/P 23	
Comms. Dig I/P 6		Comms. Dig I/P 24	
Comms. Dig I/P 7		Comms. Dig I/P 25	
Comms. Dig I/P 8		Comms. Dig I/P 26	
Comms. Dig I/P 9		Comms. Dig I/P 27	
Comms. Dig I/P 10		Comms. Dig I/P 28	
Comms. Dig I/P 11		Comms. Dig I/P 29	
Comms. Dig I/P 12		Comms. Dig I/P 30	
Comms. Dig I/P 13		Comms. Dig I/P 31	
Comms. Dig I/P 14		Comms. Dig I/P 32	
Comms. Dig I/P 15		Comms. Dig I/P 33	
Comms. Dig I/P 16		Comms. Dig I/P 34	
Comms. Dig I/P 17		Comms. Dig I/P 35	
Comms. Dig I/P 18		Comms. Dig I/P 36	

RTU-Address

(*■▼*□ the RTU address required between 1 and 247)

Register Number

(enter the register number required between 0 and 65535)

Type (✓ the type required)

Input Status		Coil Status	
--------------	--	-------------	--

10 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	End	

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	End	

Logic Equation 2 (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	End	

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	End	

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	End	

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	End	

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	End	

Logic Equation 10 (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	End	

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	End	

Logic Equation 11 (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	End	

Logic Equation 9 (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	End	

Logic Equation 12 (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	End	

11 Math equations

11.1 Math Block 1

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.1.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.1.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.1.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.1.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.2 Math Block 2

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.2.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.2.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.2.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.2.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.3 Math Block 3

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.3.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.3.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.3.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.3.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.4 Math Block 4

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.4.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.4.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.4.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.4.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.5 Math Block 5

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.5.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.5.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.5.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.5.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.6 Math Block 6

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.6.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.6.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.6.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.6.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.7 Math Block 7

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.7.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.7.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.7.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.7.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.8 Math Block 8

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.8.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.8.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.8.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.8.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.9 Math Block 9

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.9.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.9.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.9.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.9.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.10 Math Block 10

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.10.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.10.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.10.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.10.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.11 Math Block 11

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.11.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.11.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.11.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.11.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
--------------	--

11.12 Math Block 12

Math Block Type (✓ the box required)

Standard	
Trigonometric	
Statistical	
Logarithmic	
Special	
Switch	
Power	

Standard Math Block set up (note equation here)

--

Trigonometric

Cos (variable X)	
Sin (variable X)	
Tan (Variable X)	

11.12.1 Statistical Functions

Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Rolling Average

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Standard Deviation

Source to average (X)	
Number of Samples (n)	
Sample rate (t)	

Logarithmic Functions

Log (Variable X)	
Natural Log (Variable X)	
Exponential (variable X)	

11.12.2 Special Functions

Relative humidity function

Wet Bulb source	
Dry Bulb Source	

F0 calculation

Measured temp (X)	
Target Temp (y)	
Z factor (z)	

11.12.3 Switch Functions

High Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Median Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Low Selector

Source 1 (x)	
Source 2 (y)	
Source 3 (z)	

Multiplexer

Source 1 (x)	
Digital Source	
Source 2 (y)	

11.12.4 Power Functions

Power

Variable (x)	
Power (a)	

Square Root

Variable (x)	
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Notes

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