Installation and Operation Manual X-DPT-FF-MT3809G-Alarms-eng Part Number: 541B218AAG December, 2017

Supplemental Manual for Brooks[®] Model MT3809G Metal Tube, Variable Area Flowmeter with Foundation[™] Fieldbus Communications





Essential Instructions Read before proceeding!

Brooks Instrument designs, manufactures and tests its products to meet many national and international standards. These products must be properly installed, operated and maintained to ensure they continue to operate within their normal specifications. The following instructions must be adhered to and integrated into your safety program when installing, operating and maintaining Brooks Instrument products.

- · To ensure proper performance, use qualified personnel to install, operate, update, program and maintain the product.
- Read all instructions prior to installing, operating and servicing the product. If this instruction manual is not the correct manual, please see back cover for local sales office contact information. Save this instruction manual for future reference.
- A WARNING: Do not operate this instrument in excess of the specifications listed in the Instruction and Operation Manual. Failure to heed this warning can result in serious personal injury and / or damage to the equipment.
- If you do not understand any of the instructions, contact your Brooks Instrument representative for clarification.
- · Follow all warnings, cautions and instructions marked on and supplied with the product.
- A WARNING: Prior to installation ensure this instrument has the required approval ratings to meet local and national codes. Failure to heed this warning can result in serious personal injury and / or damage to the equipment.
- Install your equipment as specified in the installation instructions of the appropriate instruction manual and per applicable local and national codes. Connect all products to the proper electrical and pressure sources.
- Operation: (1) Slowly initiate flow into the system. Open process valves slowly to avoid flow surges. (2) Check for leaks around the flow meter inlet and outlet connections. If no leaks are present, bring the system up to the operating pressure.
- Please make sure that the process line pressure is removed prior to service. When replacement parts are required, ensure that qualified people use
 replacement parts specified by Brooks Instrument. Unauthorized parts and procedures can affect the product's performance and place the safe
 operation of your process at risk. Look-alike substitutions may result in fire, electrical hazards or improper operation.
- Ensure that all equipment doors are closed and protective covers are in place to prevent electrical shock and personal injury, except when maintenance is being performed by qualified persons.
- A WARNING: For liquid flow devices, if the inlet and outlet valves adjacent to the devices are to be closed for any reason, the devices must be completely drained. Failure to do so may result in thermal expansion of the liquid that can rupture the device and may cause personal injury.

European Pressure Equipment Directive (PED)

All pressure equipment with an internal pressure greater than 0.5 bar (g) and a size larger than 25mm or 1" (inch) falls under the Pressure Equipment Directive (PED).

- The Specifications Section of this manual contains instructions related to the PED directive.
- Products described in this manual are in compliance with EN directive 2014/34/EU.
- All Brooks Instrument Flowmeters fall under fluid group 1.
- Products larger than 25mm or 1" (inch) are in compliance with PED category I, II or III.
- Products of 25mm or 1" (inch) or smaller are Sound Engineering Practice (SEP).

European Electromagnetic Compatibility (EMC)

The Brooks Instrument (electric/electronic) equipment bearing the CE mark has been successfully tested to the regulations of the Electro Magnetic Compatibility (EMC directive 2014/30/EU).

Special attention however is required when selecting the signal cable to be used with CE marked equipment.

Quality of the signal cable, cable glands and connectors:

Brooks Instrument supplies high quality cable(s) which meets the specifications for CE certification.

If you provide your own signal cable you should use a cable which is overall completely screened with a 100% shield.

"D" or "Circular" type connectors used should be shielded with a metal shield. If applicable, metal cable glands must be used providing cable screen clamping. The cable screen should be connected to the metal shell or gland and shielded at both ends over 360 Degrees.

The shield should be terminated to an earth ground.

Card Edge Connectors are standard non-metallic. The cables used must be screened with 100% shield to comply with CE certification.

The shield should be terminated to an earth ground.

For pin configuration : Please refer to the enclosed Instruction Manual.

ESD (Electrostatic Discharge)

A CAUTION: This instrument contains electronic components that are susceptible to damage by static electricity. Proper handling procedures must be observed during the removal, installation or other handling of internal circuit boards or devices.

Handling Procedure:

- 1. Power to unit must be removed.
- 2. Personnel must be grounded, via a wrist strap or other safe, suitable means before any printed circuit card or other internal device is installed, removed or adjusted.
- 3. Printed circuit cards must be transported in a conductive container. Boards must not be removed from protective enclosure until immediately before installation. Removed boards must immediately be placed in protective container for transport, storage or return to factory.

Comments

This instrument is not unique in its content of ESD (electrostatic discharge) sensitive components. Most modern electronic designs contain components that utilize metal oxide technology (NMOS, SMOS, etc.). Experience has proven that even small amounts of static electricity can damage or destroy these devices. Damaged components, even though they appear to function properly, exhibit early failure.

Dear Customer,

We appreciate this opportunity to service your flow measurement and control requirements with an integrated system from Brooks Instrument. Every day, flow customers all over the world turn to Brooks Instrument for solutions to their gas and liquid low-flow applications. Brooks provides an array of flow measurement and control products for various industries from biopharmaceuticals, oil and gas, fuel cell research and chemicals, to medical devices, analytical instrumentation, semiconductor manufacturing, and more.

The Brooks product you have just received is of the highest quality available, offering superior performance, reliability and value to the user. It is designed with the ever changing process conditions, accuracy requirements and hostile process environments in mind to provide you with a lifetime of dependable service.

We recommend that you read this manual in its entirety. Should you require any additional information concerning Brooks products and services, please contact your local Brooks Sales and Service Office listed on the back cover of this manual or visit www.BrooksInstrument.com

Yours sincerely,

Brooks Instrument

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Model MT3809G FOUNDATIONTM Fieldbus

1.1 Introduction

This document will provide an overview of FOUNDATION[™] Fieldbus software interface for Brooks Instrument Variable Area Flowmeters model MT3809G with FOUNDATION[™] Fieldbus transmitter. This document describes the function and transducer blocks along with grids that show the available parameters.

This document is a supplement to the Metal Tube Variable Area Flowmeters Installation and Operation Manual X-VA-MT3809G-MT3810G-eng.

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Model MT3809G FOUNDATIONTM Fieldbus

2.1 Installation

Carefully read and follow the instructions for installation and operation given in the Metal Tube Variable Area Flowmeters Installation and Operation Manual X-VA-MT3809G-MT3810G-eng.

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Model MT3809G FOUNDATIONTM Fieldbus

3.1 FOUNDATION Fieldbus Data

Hardware Identification	
Manufacturer	Brooks Instrument
Model (Device Name)	MT38xx
Type of Device	Metal Tube Variable Area Flowmeter
Manufacturer ID	0x000246
Device Type ID	0x2000
Device Revision	041
Physical layer	H1
Quiescent Current Draw (mA)	12 mA
Data Blocks	
	1x Analog Input Function Block (1-AI)
	1x Integrator Function Block (1-IT)
	1x Analog Input Transducer Block (1-AITB)
	1x Resource Block (1-RB2)
	1x Diagnostics Transducer Block (1-DiagTB)
VCRs	Support up 24
ITK	ITK6
Registration	Registered by FieldComm

The 38xx flow meter contains two function blocks and three transducer blocks. The two function blocks are the analog input (AI) and the integrator block (IT). The three supported transducer blocks are the resource block, diagnostic block and the analog input transducer block.



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Model MT3809G FOUNDATIONTM Fieldbus

4.1 Getting Started

DD files are needed to operate the FOUNDATION Fieldbus.

The DD files for the MT38xx FF can be found on website www.fieldbus.org

Find the files under <End User Resources>, then <Registered Products>, choose for manufacturer <Brooks Instrument> and for Category <Flow>, then <Search>.

From here you can open either SLA Series, or MT38xx, and download the DD files.

The Analog Input (AI) and Intergrator (IT) blocks are standard FOUNDATION Fieldbus blocks and can be configured with any FOUNDATION Fieldbus configuration tool. Each of those blocks contain an output parameter that contains the output value of the block.

Configure Analog Input (AI) block for live measurement

In case of the AI block the output can be configured to use the primary value of the analog transducer block. The primary value is the default and used output for the flow value. To configure the output of the analog input such that the actual calculated flow is directly set to the output without any scaling, a minimum configuration of the following three parameters is necessary:

Parameter	Value	Remark
XD_SCALE.UNITS_INDEX	% (1342)	This is the only possible value for this parameter
CHANNEL	Flow Channel	This is the only possible value for this parameter
L_TYPE	Indirect	This is the only supported value, other values which can be chosen will return a write error condition

Once the configuration above is completed, the flow value will be written to the out parameter when the AI block is given an execution time on the bus. When an execution time is assigned for the AI block it is possible to set the mode of the AI block to AUTO and will the flow be written to the out parameter.

Integrator (IT) block

The IT block can be configured with a foundation fieldbus configuration application to connect the out parameter of the AI block to the in parameter of the IT block.

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Model MT3809G FOUNDATION[™] Fieldbus

5 Transducer Blocks

5.1 Overview

The 38xx flow meter contains three transducer blocks which contain configuration and status information of the device:

• **Resource block**: The resource block is used for foundation fieldbus standard parameters. In this block it is possible to do a reset of the device, read status of the none-volatile memory, field diagnostics etc.

A CAUTION

Do not reset device, unless a factory calibration is required. A reset of the device will result in a calibration data clear. Reset shall only be performed by authorized service personnel.

• **Diagnosis block:** The diagnosis block is an extra transducer block to monitor the fieldbus controller and the fieldbus itself. The diagnosis block can return information about bus errors, fatal errors etc.

• Analog Input Transducer block: The analog input transducer block is the transducer block which contains every parameter necessary to configure and control the flow meter. The parameters are divided in views for an organized list of the parameters. With those parameters the calibration, the totalizer, the output alarms and the other functions can be set and viewed.

The parameter structure of the Analog Input Transducer block is specifically defined for the Brooks Instrument VA Flowmeter. A detailed decription of the block follows in the next section.

5.2 Analog Input Transducer Block

The following table lists and describes the parameters of the Analog Input Transducer Block.

Index	Sub Index	Parameter Name	Description	Data Type	Valid Values	Initialized Value	Read only or Read/Write
1		ST_REV	Revision number. This number will be incremented when a static parameter is changed	U16	0 to 65535	0	Read only
2		TAG_DESC	User description tag of this block	Oct	0 to 255 Max 32 digits	blanks	Read/ Write
3		STRATEGY	Can be used to indentify grouping of blocks. This value is not used by the block itself	U16	0 to 65535	0	Read/ Write
4		ALERT_KEY	Identification number of the plant unit. This information may be used in the host for sorting alarms etc.	U8	0 to 255	0	Read/ Write
5		MODE_BLK	The actual, target, permitted and normal modes for this block				
5	1	MODE_BLK.TARGET	The target mode for this block	Bit String	None OOS Auto Cas RCas ROut	Auto	Read/ Write
5	2	MODE_BLK.ACTUAL	This is the current mode of this block	Bit String	None OOS Auto	Auto	Read
5	3	MODE_BLK.PERMITTED	Contains the modes which are allowed for this block	Bit String	•OOS •Auto	Auto OOS	Read/ Write

Table 5-1 Parameters of the Analog Input Transducer Block

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Table 5-1 Parameters of the Analog Input Transducer Block (continued)

Index	Sub Index	Parameter Name	Description	Data Type	Valid Values	Initialized Value	Read only or Read/Write
5	4	MODE_BLK.NORMAL	Setting for which mode should be used when operated with normal conditions	Bit String	None OOS Auto	Auto	Read/ Write
6		BLOCK_ERR	Error status of this block	Bit String	None Out of Service	None	Read
7		UPDATE_EVT	On a change in the static data this alert is generated				
7	1	UPDATE_EVT. UNACKNOWLEDGED	Interface to acknowledge this update alert	U8	(0) Uninitialized (1) Acknowledged (2) Unacknowledged	(0) Uninitialized	Read/ Write
7	2	UPDATE_EVT. UPDATE_STATE	Indication if the alert has been reported	U8	(0) Uninitialized (1) Reported (2) Not Reported	(0) Uninitialized	Read
7	3	UPDATE_EVT. TIMESTAMP	The time stamp when the alert is generated	ТМ	MM/DD/YY HH:MM:SS	0	Read
7	4	UPDATE_EVT. STATIC REVISION	The static revision when the alert was generated.	U16	0 to 65535	0	Read
7	5	UPDATE_EVT. RELATIVE INDEX	The index of the static parameter whose causes this	U16	0 to 65535	0	Read
8		BLOCK_ALARM	alert to be generated The block alarm can generate an alarm if a block error				
8	1	BLOCK_ALARM. UNACKNOWLEDGED	occurs Interface to acknowledge this block alarm	U8	(0) Uninitialized (1) Acknowledged (2) Unacknowledged	(0) Uninitialized	Read/ Write
8	2	BLOCK_ALARM. ALARM_STATE	Indication if alarm is active or cleared and reported	U8	Uninitialized Clear-Reported Clear-Not Reported Active-Reported Active-Not Reported	Uninitialized	Read
8	3	BLOCK_ALARM. TIMESTAMP	The time stamp when the alarm is generated	ТМ	MM/DD/YY HH:MM:SS	0	Read
8	4	BLOCK_ALARM. SUBCODE	The sub code which causes the block alarm	U8	Other OutOfService	Other	Read
3	5	BLOCK_ALARM.VALUE	The value of the parameter associated with this alarm	U8	0 to 255	0	Read
9		TRANSDUCER_ DIRECTORY	A directory that specifies the number of the data collections in the transducer block	U16	0	0	Read
10		TRANSDUCER_ TYPE	Identifies the transducer error that follows	U16	Other (65535)	Other	Read
11		XD_ERROR	Transducer error code	U8	Unspecified error General error (0) No error	0	Read
12		COLLECTION_ DIRECTORY	A directory that specifies the number of the data collections in each transducer within a transducer block	U8	0	0	Read
13		PRIMARY_VALUE PRIMARY_VALUE.	The measure flow value and status.		Bad	Good Non	
13	1	STATUS PRIMARY_VALUE.	The status of the primary value	U8	Good_NonCascade	Cascade	Read
13	2	VALUE	The value of the primary value Units of measurement of the flow rate given in the	Float		0.0 Calibrated	Read Read/
14		FLOW_RATE_UOM	primary value	U16	Supported UOMs	value	Write
15		SW_REV	Software version of the application	Visible String	x.x.x where the x represents the version		Read
16		HW_REV	Hardware revision of the transmitter	Visible String	x.x.x where the x represents the version		Read
7		BROOKS_PASSWORD	Password protection for manufacture settings	Visible string	Brooks password	****	Read/ Write
18		MESSAGE	Extra message field for indicating the transmitter. This value is not processed	Visible	ASCII	Blank	Read/ Write
19		TAG NAME	Extra tag name for the device. This value is not	String Visible	Max 24 chars ASCII	Calibrated	Read/
20		DESCRIPTOR	Extra descriptor field for the device. This value is not	String Visible	Max 16 chars ASCII	value Blank	Write Read/
21		DEV DATE	processed Date of calibration	String Visible	Max 17 chars DD/MM/YY	Calibrated	Write Read/
22			The analog filter values used for the flow calculation	String Float		value Calibrated	Write Read/
		AO_FILTER			0.00 to 10.00	value Calibrated	Write Read/
23	0	FIN_ASSY_NUM	Final assembly number	U32	0 to 4294967296	value	Write Read/
24	9	CALIB_POSITION	10 position array with calibrated float positions.	Float		values	Write
25	0 9	CALIB_FLOW_RATE	10 position array with calibrated flow rates according to the scale	Float		Calibrated values	Read/ Write
26		LFCUTOFF	Low flow cut off value. Every value below this flow will be cut off to zero	Float	0.00 to 99999.9	0	Read/ Write
27	1	DENSITY	Density uom and value used for the calculation	1116	Beconved de activité	-	Read/
27	1	DENSITY.UOM		U16	Reserved, do not use	0	Write Read/
27 28	2	DENSITY.VALUE PRESSURE	Pressure uom and value used for the calculation	Float	Reserved, do not use	1.0	Write
28	1	PRESSURE.UOM		U16	Reserved, do not use	0	Read/ Write
28	2	PRESSURE.VALUE		Float	Reserved. Do not use	0.0	Write Read/

Table 5-1 Parameters of the Analog Input Transducer Block (continued)

Index	Sub Index	Parameter Name	Description	Data Type	Valid Values	Initialized Value	Read only or Read/Write
29		MODEL_NUMBER	Model number of the assembled device		ASCII Max 20 chars	Calibrated Value	Read/ Write
30		RES_TOTALIZER	A resettable totalizer independent of the function block				Read/
30	1	RES_TOTALIZER.UOM	The units of measurement which the totalizer will use	U16	Supported UOMs	Gallon	Write
30	2	RES_TOTALIZER.VALUE	The value of the resettable totalizer	Float	(0) Idle	0.0	Read Read/
31		RESET_RES_TOTALIZER	Used to reset the resettable totalizer	U8	(1) Reset	Idle	Write
32		RES_TOT_DIG_DEC	Setting of max number of integer digits before automatic reset	U8	0 to 7	2	Read/ Write
33		INV_TOTALIZER	A inventory totalizer which is independent of the function block				
33	1	INV_TOTALIZER.UOM	The units of measurement used for the totalizer	U16	Supported UOMs	Gallon	Read/ Write
33	2	INV_TOTALIZER.VALUE	The value of the inventory totalizer	Float		0.0	Read
34		INV_TOT_DIG_DEC	Setting of max number of integer digits before automatic reset	U8	0 to 7	2	Read/ Write
35		LO_FLOW	The settings for the low flow alarm with a dedicated alarm output on the transmitter				
35	1	LO FLOW.ALARM EN	Enables or disables the low flow alarm	U8	(0) Disabled	(1) Enabled	Read/
			A non latching alarm type will clear the alarm if the flow		(1) Enabled (0) Non-latched	.,	Write Read/
35	2	LO_FLOW.ALARM_TYPE	is above the low flow setting	U8	(1) Latched	(0) Non-latched	Write
35	3	LO_FLOW.ALARM_LIMIT	The value which will cause the alarm if the flow value falls below this value	Float		9.99	Read/ Write
35	4	LO_FLOW. ALARM LIMIT DELAY	The time a flow needs to be below the setting before the alarm is triggered	U8	0 to 255 Seconds	0	Read/ Write
36		HIGH_FLOW	The settings for the high flow alarm with a dedicated				Willo
36	1	HIGH FLOW.ALARM EN	alarm output on the transmitter Enables or disables the high flow alarm	U8	(0) Disabled	(1) Enabled	Read/
36	2	HIGH_FLOW.	A non latching alarm type will clear the alarm if the flow	U8	(1) Enabled (0) Non-latched	(0) Non-latched	Write Read/
36	3	ALARM_TYPE HIGH_FLOW.	is below the high flow setting The value which will cause the alarm if the flow value	Float	(1) Latched	90.0	Write Read/
36	4	ALARM_LIMIT HIGH_FLOW.	rises above this value The time a flow needs to be above the setting before the	U8	0 to 255	0	Write Read/
37	-	ALARM_LIMIT_DELAY PULS_OUT_CFG	alarm is triggered This alarm is used if the configuration for the pulse output is wrong. This alarm has no physical output on the tensor iteration.	00	0.0255		Write
37	1	PULS_OUT_CFG. ENABLE	the transmitter Enables or disables the pulse output configuration alarm	U8	(0) Disabled (1) Enabled	(1) Enabled	Read/ Write
37	2	PULS_OUT_CFG.TYPE	A non latching alarm type will clear the alarm if configuration is corrected.	U8	(1) Enabled (0) Non-latched (1) Latched	(1)Latched	Read/ Write
38		PULS_OUT_OVERRUN	This alarm is used if the pulse output cannot keep up with the pulse algorithm				write
38	1	PULS_OUT_OVERRUN.	Enables or disables the pulse output overrun alarm	U8	(0) Disabled	(0) Disabled	Read/
38	2	ENABLE PULS_OUT_OVERRUN.	A non latching alarm type will clear the alarm if overrun	U8	(1) Enabled (0) Non-latched	(0) Non-latched	Write Read/
	2	TYPE	is solved This alarm is used to inform if a software error has	08	(1) Latched	(0) Non-latched	Write
39		DIAG	occurred		(a) =	-	
39	1	DIAG.ENABLE	Enables or disables the diagnostic alarm	U8	(0) Disabled (1) Enabled	(1) Enabled	Read/ Write
39	2	DIAG.TYPE	A non latching alarm type will clear the alarm if the problem is solved.	U8	(0) Non-latched (1) Latched	(1)Latched	Read/ Write
40		DB INIT	This alarm is reserved for future use				
40	1	DB_INIT.ENABLE	This alarm is reserved for future use	U8	(0) Disabled (1) Enabled	(1) Enabled	Read/ Write
40	2	DB_INIT.TYPE	This alarm is reserved for future use	U8	(0) Non-latched (1) Latched	(1)Latched	Read/ Write
41		POWER	This alarm is reserved for future use				
41	1	POWER.ENABLE	This alarm is reserved for future use	U8	(0) Disabled (1) Enabled	(1) Enabled	Read/ Write
41	2	POWER.TYPE	This alarm is reserved for future use	U8	(0) Non-latched (1) Latched	(1)Latched	Read/ Write
42		BROOKS_SERIAL_NUMBER	The serial number assigned to the device	Visible String	ASCII Max 32 chars	Calibrated value	Read/ Write
43		CURRENT_ALARM_STATUS	Bitwise representation of the alarms.	U32	(0) No Alarm (1) Diag_Alarm (2) Reserved (4) Reserved (8) Flow_High_Alarm (16) Flow_Low_Alarm (32) Pulse_Config_Alarm (64)Pulse_Overrun_Alarm	0	Read
44		ACTIVE_DIAG_STATUS	Bitwise representation of the cause of the diagnostic alarm	U32	 (0) Good (1) Ram fail (2) Flash fail (4) Database fail (8) Float position fail (16) Calibration fail 	0	Read
45		RESET_ALARM	Function to reset the alarms which are shown active in current alarm status	U8	(0) Idle (1) Reset	(0) Idle	Read/ Write
46	t	PULSE_OUTPUT	Settings to set the pulse output on the transmitter				

Index	Sub Index	Parameter Name	Description	Data Type	Valid Values	Initialized Value	Read only or Read/Write
46	1	PULSE_OUTPUT.UOM	Unit of measurement used to generate the pulses	U16	Supported UOMS	Gallon	Read/ Write
46	2	PULSE_OUTPUT.SCALER	The scale value scales the number of pulses according to het flow	Float	0.1 to 10.0	1.0	Read/ Write
46	3	PULSE_OUTPUT. PULSE WIDTH	The pulse width of each pulse on the pulse output	Float	0.00 to 50.0	50.0	Read/ Write
47		WEIGHTS_MEASURES_CALI B	Information about the calibration	U32		0	Read
48		WEIGHTS_MEASURES_CON FIG	Information about the calibration	U32		0	Read
49		INFO_METER	The info meter contains information about the meter. The values which are a member of info_meter are not used in the process				
49	1	INFO_METER. FLOW_HI_LIMIT	The maximum limit of flow for this meter	Float		Calibrated Value	Read/ Write
49	2	INFO_METER. FLOW LO LIMIT	The minimum of flow for this meter	Float		Calibrated Value	Read/ Write
49	3	INFO_METER. TEMP HI LIMIT	The maximum temperature for this meter	Float		Calibrated Value	Read/ Write
49	4	INFO_METER.	The minimum temperature for this meter	Float		Calibrated	Read/
49	5	TEMP_LO_LIMIT INFO_METER.	The material of this meter	U8		Value Calibrated	Write Read/
49	6	MATL INFO_METER.	The maximum pressure for this meter	Float		Value Calibrated	Write Read/
	-	PRESSURE_HI_LIMIT INFO METER.		1		Value Calibrated	Write Read/
49	7	PRESSURE LO LIMIT	The minimum pressure for this meter	Float		Value Calibrated	Write Read/
49	8	PRESSURE_DROP_LIMIT INFO_METER.		Float		Value Calibrated	Write
49	9	FLANG_MATL		U8		Value	/Write
49	10	INFO_METER. FLANGE_TYPE		U8		Calibrated Value	Read/ Write
49	11	INFO_METER. FLOAT_MATL		U8		Calibrated Value	Read/ Write
49	12	INFO_METER. FLOAT TYPE		Visible String	ASCII Max 8 chars	Calibrated Value	Read/ Write
49	13	INFO_METER. ORING MATL		U8		Calibrated Value	Read/ Write
49	14	INFO_METER.		U8		Calibrated	Read/
50		SIZE INFO ACCESSORIES	Accessories attached to the meter	U8		Value Calibrated	Write Read/
51		MAGNET_ANGLE_ADJUSTE	The magnet angle of the measuring device after a zero	Float		Value 0.0	Write Read
52		D MAGNET_ANGLE_ABSOLUT	adjust The magnet angle of the measuring device	Float		0.0	Read
			The offset which is used to calculate the magnet				-
53 54		MAGNET_ANGLE_OFFSET VISCOSITY	adjusted angle from the absolute angle	Float		0.0	Read
54	1	VISCOSITY.UOM	Units of measurements for the viscosity	U16	Supported UOMs	cP	Read/ Write
54	2	VISCOSITY.VALUE		Float		1	Read/ Write
55		Calibration CALIB.	This group contains information about the calibration	Visible	Reserved, do not use		Read/
55	1	FLUID		String	Reserved, do not use		Write
55	2	CALIB. TOOL		Visible String	Reserved, do not use		Read/ Write
55	3	CALIB. ACC_CLASS		Visible String	Reserved, do not use		Read/ Write
55	4	CALIB. NAME		Visible String	Reserved, do not use		Read/ Write
55	5	CALIB. CALIB_DATA		Visible String	Reserved, do not use		Read/ Write
55	6	CALIB. CALIB FLOW RATE UOM		U16	Supported UOMs	Calibrated Value	Read/ Write
55	7	CALIB. CALIB_TEMPERATURE_UOM		U16	Reserved, do not use		Read/ Write
55	8	CALIB. CALIB TEMPERATURE		Float	Reserved, do not use		Read/ Write
55	9	CALIB. CALIB_PRESSURE_UOM		U16	Reserved, do not use		Read/ Write
55	10	CALIB. CALIB_PRESSURE		Float	Reserved, do not use		Read/ Write
55	11	CALIB. CALIB_DENS_UOM		U16	Reserved, do not use		Read/ Write
55	12	CALILB. CALIB_DENSITY		Float	Reserved, do not use		Read/ Write
55	13	CALIB. CALIB VISCOSITY UOM		U16	Reserved, do not use		Read/ Write
55							

Table continued on next page.

Index	Sub Index	Parameter Name	Description	Data Type	Valid Values	Initialized Value	Read only or Read/Write
56		TEST	Test interface to test the alarm and pulse outputs. Testing is only possible when in testing mode				
56	1	TEST.CONTACT_OUTPUT	Select the first or second alarm output to test	U8	1 to 2	0	Read/ Write
56	2	TEST.ACTION_STATUS	Set the output high or low	U8	0 to 1	0	Read/ Write
56	3	TEST.TEST_PULSE_OUTPUT	Enable the pulse output test	U8	0 to 1	0	Read/ Write
56	4	TEST. TEST_PULSE_FREQUENCY	Frequency which is used to test the pulse output	Float	0.00 to 100.0	0	Read/ Write
56	5	TEST.TEST_PULSES_COUN T	Number of pulses before the test sequence is stopped	U32	1 to 100	0	Read/ Write
56	6	TEST.ENTER_LEAVE	This parameter is used to enter or leave the test mode	U8	(0) Leave (1) Enter	(0) Leave	Read/ Write
57		DISPLAY_SETTINGS	Change the settings to the attached display				
57	1	DISPLAY_SETTINGS. SCREEN_MODE	Enables the view of the flow and the two totalizers	Bit String	(0) None(1) Flow rate(2) Resettable totalizer(4) Inventory totalizer	(1) Flow Rate	Read/ Write
57	2	DISPLAY_SETTINGS. FLOW_CYCLE_TIME	Time between the screen modes	U32		5	Read/ Write
57	3	DISPLAY_SETTINGS. UOM_FULLSCALE	The unit of measurement full scale is use to get the best representation on the display	Float		100.0	Read/ Write
58		SENSOR_ZERO	Sets the magnet sensor to zero for the calibration	U8	(0) Idle (1) Zero	(0) Idle	Read/ Write

Table 5-1 Parameters of the Analog Input Transducer Block (continued)

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6 FOUNDATION[™] Fieldbus Guidelines

Source: $FOUNDATION^{TM}$ Fieldbus Application Guide - 31.25 kbit/s Wiring and Installation. Refer to the $FOUNDATION^{TM}$ Fieldbus fieldComm website in the end-user resources section for the complete set of application guides.

6.1 General Network Installation Guidelines

Building the network

Figure 6-1 shows how to make a fieldbus network from a wire pair. A terminator is added at the FFI end of the wire pair. Another terminator is added at the field device end of the wire pair. The FFI may have a built-in terminator so that you don't have to add one. Check the manufacturer's specifications to be sure.

Notice that neither wire is grounded. This is one of the absolute rules of fieldbus.



Figure 6-1 Simple Fieldbus Network



Figure 6-2 Fieldbus Network with Additional Devices Added



Figure 6-3 Fieldbus Network with Chained Devices

In Figure 6-2 more field devices have been added to the network of Figure 6-1. These new devices are simply connected in parallel with the first field device. The new devices are shown connected in a "star" fashion. However, they could also be chained from the first device as in Figure 6-3. All of the field devices and the FFI in Figures 6-2 and 6-3 are said to be "on the same network". A detailed figure showing the wiring of the junction of Figure 6-3 is given later.

You can see that new devices are always added in parallel to existing ones. Notice that the number of terminators in Figures 6-2 and 6-3 stays at two, regardless of what else we add to the network.

Speaking of terminators, how did we know where to put them?

To answer this we need to define a trunk. A trunk is the longest cable path between any two devices on the network. Once we've identified this stretch of cable, all other connections to it are called spurs.

The terminators should be placed at the ends of the trunk. We've assumed in Figures 6-2 and 6-3 that the FFI is further from the group of field devices (in cable length) than they are from each other.

This rull on location of terminators is one that can be bent. In Figure 6-2, for example, we haven't bothered to find the longest cable path. Instead, the terminator was placed at the junction of the group of field devices. We've assumed that all of the field devices were about the same distance (in cable length) from the junction. Had one of them been a lot longer than the others, then we would move the terminator out to that device. In Figure 6-3 we kept moving the terminator out to the farthest field device each time we added a device. However, if we are adding to an existing network and all of the field devices to be added are located on one short stretch of cable (100 m (328 ft.) or less), then the terminator could have been left in its original position at the first device.

Spurs: Shorter is Better!

Repeaters

What if you need a lot more than 1900 m (6232 ft.) of cable? You can do it by using a repeater. The repeater takes the place of one of the field devices. But it means you get to start fresh. You can add another 1900 m (6232 ft.) of cable, as illustrated in Figure 6-4. Notice that a new trunk has been created so that we have to add more terminators. The first trunk has X-DPT-FF-MT3809G-Alarms-eng Part Number: 541B218AAG December, 2017

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Figure 6-4 Adding a Repeater to the Fieldbus Network

four devices, one of them being the repeater. The second trunk has two devices, one of them being the repeater. You can use up to four repeaters in series between any two devices to get a total length of 9500 (31167.98 ft.) In addition to increasing the length of a network, repeaters can be used to increase the number of devices in a network beyond the limit of 32 on one segment. Using repeaters, the maximum number of devices in a network could be increased to 240.

Shielding (screening)

A fieldbus network can bu built using only unshielded wire pairs. If these are placed in conduit or laid against a metal surface, there may be sufficient shielding that nothing further need be done.

However, for best performance, fildbus cables should be shielded. Common multi-conductor (multi-core) "instrument" cable can be used. This has one or more twisted pairs, an overall, metalized shield, and a shield wire.





Figure 6-6 Adding a Power Supply to the Fieldbus Network

For new installations, ask cable vendors for "fieldbus cable". When using shielded cable, connect each spur's shield to the trunk shield and connect the overall shield to ground at one point.

The grounding point has been chosen as the junction of the field instruments. For intrinsically safe (I.S.) installations, a specific location may be required for the ground.

DC Power for Two-Wire Field Devices

Some field devices draw operating power fromthe fielbus network in much the same way as 2-wire analog field devices. The power supply is connected to the network in the same way as a field device)or other communicating device). All of the same rules apply, except that you don't have to count the power supply as one of the 32 field devices. If we add a power supply to the network of Figure 6-3, it might look something like that of Figure 6-6. Another spur near the FFI has been created to add the power supply. Of course we could have put it toward the field end of the trunk.

We can't use just any off-the-shelf power supply, because it would short circuit the (digital) fieldbus signals.

The power supply is specially designed for fieldbus. Some fieldbus equipment will have a built-in power supply so that you don't need to add one. You should consult manufacturers' specifications.

If you have 2-wire field devices in your network, you have to make sure they have enough voltage to operate. Each device should have at least 9 volts.

You need to know:

- 1. The current consumption of each device.
- 2. Its location on the network.
- 3. The location of the power supply on the network.
- 4. The resistance of each cable section.
- 5. The power supply voltage.

The voltage at each field device is determined through straightforward DC circuit analysis.

Refer to FOUNDATION[™] Fieldbus installtion guides for details on determining power requirements.

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6.2 FOUNDATION[™] Fieldbus Interface Setup-Reference

Note: This interface setup is showing an example of how a device connection is made to a Softing FG-110 FF linking device using the Softing FF-CONF configuration tool.

In general, other types of FF interfaces will be operated in industrial processes, showing a different screen lay-out compared to the screens shown in this example.



Relcom Power Hub/Segment Network



Step 1: The 3809G FF device and the FG-110 FF Linking Device are both connected to the same Fieldbus Power Hub/FF segment network (Relcom F11). Launch FF-CONF tool, and open View <Network Livelist> (showing FF devices on the segment, currently only 1 H1 device).



Step 2: Load device description files (DD/CFF files can be downloaded from <u>www.fieldbus.org</u>).

mport Device		×
Cff file location	C:\Users\keesbre\Desktop\2000\010101.cff	
Manufacturer ID	000246	
Device Type		
	ОК	Cancel

Step 3: Assign appropriate PD Tag and Node ID as desired. *Default Assignment*

H1 Device a	assignment 🛛 🛛
PD Tag	BROOKS_3809G_MTFxx0100A00000035
Node ID	20 🗬
	Assign Cancel

Assignment to be chosen (example)

H1 Device	assignment		
PD Tag	BROOKS_3809G_FI1234		
Node ID	35 🚔		
		Assign	Cancel

Result of assignment configuration.



New Project	
Select name and p	path to create the project
Project Name	Test Instruction
Project Location	C:\ProgramData\Softing\FF-CONF\Generated
Project Description	
Project file templat	es l
C:\ProgramData\S	ofting\FF-CONF\Templates\DefaultProject_TEMPLATE
	<u>O</u> K <u>Cancel</u>
	and the second day with the second day of the se
Inline Settings Help	
k Application Network Livelist	Device Types Device Types Selected Category: ALL
192.168.177.101	Selected Profile: ALL
	0

Step 4: Create New Project for Network Configuration



Help Settings × HSE Device Properties - 7 × lication Network Livelist 8 2↓ 🖾 Device Identification 00 PD Tag HSE_DEVICE 1 192.168.177.101 Device ID Device Settings 4 Maximum Allowed H1 Links 192.168.177.101 Device Type Device Type linkingDevice 0X0001 CFF Revision DD Revision 0X0000 HSE_DEVICE_1 Device Revision 0X0001 Dev Type 0X4004 0X1E6D11 Manufacturer ID HSE Addressing 4096 0 Device Inde 16 IP Address 1 Redundant HSE Addressing 20 IN 120 IN 120 0 Device Index2 IP Address2 Time Settings HSE Repeat Time 15000 User Settings HSE_DEVICE_1 Tag Name

Step 5: Add FG-110 Linking Device and MT3809G device to Network Configuration

Step 6: In Network Configuration, configure HSE device (FG-110 Linking Device) for appropriate Device ID, PD Tag and IP address

Configuration FG-110 Linking device:

ings Help			
n Network Livelist	* X	HSE Device Properties	v
		2↓ 📼	
		Device Identification	
	00	PD Tag	FG110_133300598
192.168.177.101		Device ID	1E6D114004000000000000133300598
		Device Settings	
C		Maximum Allowed H1 Links	4
192.168.177.101		Device Type	
		Device Type	linkingDevice
e		CFF Revision	0X0001
FG110-FF V1.70		DD Revision	0X0000
192.168.177.177 FG110_13330		Device Revision	0X0001
		Dev Type	0X4004
		Manufacturer ID	0X1E6D11
4096		HSE Addressing	
16		Device Index	177
		IP Address	192.168.177.177
3809G		Redundant HSE Addressing	
20		Device Index2	0
HI_DEVICE_I		IP Address2	
		Time Settings	
		HSE Repeat Time	15000
		User Settings	
		Tag Name	FG110_133300598

Default settings of MT3809G H1 device

Settings Help	ALC: MARKED AND	
lication Network Livelist	★ × H1 Device Properties	- <i>1</i>
192.168.177.101	Device Identification PD Tag Device ID	H1_DEVICE_1
E 192.168.177.101	CFF Revision DD Revision	0X0001 0X0001
FG110-FF V1.70	Device Revision Dev Type Manufacturer ID	0X0001 0X2000 0X000246
FG110_13330 C	 H1 Addressing Node ID Link Master Settings 	20
4096 16	BLM	False H1_DEVICE_1
3809G	Tag Name	

Step 7: Configure MT3809G device for appropriate Device ID, PD Tag and Node ID

ne Settings Help			
Application Network Livelist	▼ X	H1 Device Properties	* [‡]
		Device Identification	
	0	PD Tag	BROOKS_3809G_F11234
192.168.177.101		Device ID	0002462000MT3809xx0100A00000035
		Device Type	
		CFF Revision	0X0001
192.168.177.101		DD Revision	0X0001
-		Device Revision	0X0001
		Dev Type	0X2000
FG110-FF V1.70		Manufacturer ID	0X000246
192.168.177.177 FG110_13330 ()		H1 Addressing	
-		Node ID	35
		□ Link Master Settings	
		BLM	False
16		User Settings	
		Tag Name	BROOKS_3809G_F11234
3809G			

Step 8: To operate the AI function block, a link must be created between AI block and IT block.

For this purpose, go to Functionblock Application tab.



Step 9: Add AI block to Source Functionblock(s) List, and add IT block to Sink Functionblock(s) List



__ O _X FF-CONF - Test Instruction_prj Project Edit View Build Download Online Settings Help 🖶 🕸 🖡 - 4 × Network Configuration Functionblock Application Network Livelist × Blocks Selected Manufacturer: ALL + × 1 DefaultGroup.DefaultApplication Selected Profile: ALL \land Grou Source Functionblock(s) List Sink Functionblock(s) List Selected Device: ALL \mathbf{v} Defau Device Tag FB Tag Device Tag FB Tag \mathbf{v} Selected Device UserTag: ALL BROOKS_3809G_FI1234 AI_1 BROOKS_3809G_FI1234 IT_1 257 288 Selected FB's State: ALL $\overline{\mathbf{v}}$ **å**⊟ BROOKS_3809G_FI1234 IT_1 288 0 5 🕌 Brooks Instrument 🚯 IT 🚺 Integrator (IT) A BROOKS_3809G_FI1234 🎡 🗆 IT_1 < > < > <u>§</u> 600 Sink pin(Source pin BROOKS_3809G_FI1234.AI_1.OUT BROOKS_3809G_FI1234.IT_1.IN_1 (F) * s, Brooks Instrument Source pin(s) Sink pin(s) 💑 Analog Input 🕕 Analog Input (AI) BROOKS_3809G_FI1234 🎡 🗆 AI_1 <u>§</u> 500 App Co 1 Z J Z J **-** ₽ × Trace Log Û Verror Verning Verning Number Message Location Date Туре ^ 2308 Information Load device description for device: MANUF NLEDE-0PC4582 08.08.2017 11:47:16.857 ~ 💷 💷 🗶 🏢 🛅 🔚 🛛 Functionblock tag list co Device Typ Block Type Devices Blocks IT_1 tag na Trace Log 🖱 Online

Step 10: Add AI output to Source pin(s), and IT input to Sink pin(s):

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Step 11: Click connect icon button, choose Project <Save>, choose Download <Download project> , and AI output is now connected to IT input

FF-CONF - Test	Instruction_prj					
Project Edit Vi	ew Build Dowr	load Online Settings	Help			
🗄 🗢 🕇 厳						
Network Confi	guration Func	tionblock Application 🔨	Network Livelist		▼ X	Blocks 👻 👎 🗙
+ × 1		DefaultGroup.I	DefaultApplication			Selected Manufacturer: ALL
	Functionblock(s) Lis	it	Sink Functionblock	(s) List		Selected Profile: ALL Selected Device: ALL
Defaul	Device Tag	FB Tag	Device Tag	FB Tag		Selected Device: ALL
BROC	KS_3809G_FI1234	AI_1 257	BROOKS_3809G_	FI1234 IT_1	288	Selected Device Oschlag: ALL Selected FB's State: ALL
BROC	KS_3809G_FI1234	IT_1 284	<	3809G_FI1234.IT_1.IN_1	(F) • 2	Brooks Instrument TI Integrator (IT) BROOKS_3809G_FI1234 CIT_1 600
App Co	Sourc	e pin(s) VI_1.OUT (F)	> BROOKS	Sink pin(s) _3809G_FI1234.IT_1.IN_1	. (F)	 Brooks Instrument Analog Input Analog Input (AI) BROOKS_3809G_FI1234 AI_1 500
					>	
Trace Log					→ I ×	
Number Type		Message	Location	rror 🔽 Warning 🔽 In Date	nformation	
21	tion Load device	description for device: MAN				21 31 @ 🗙 🏢 隋 隋 Functionblock tag list co
Trace Log						Device Typ Block Type Devices Blocks IT_1 tag na
						• Online



Step 12: To operate AI function block, go to AI block in Network Configuration and set following parameters:

Parameter	Value
XD_SCALE.UNITS_INDEX	% (1342)
CHANNEL	Flow Channel
L_TYPE	Indirect

Network Configuration Funct	ionblock Applicatio	n 🔨 Network Liv	velist		* 3	× H1 Device Properties	* Ū
						2↓ 🖾	
evice Tag: BROOKS_3809G_FI12	34 Block: AI_1	(Analog Input)		•	Rename Block	Device Identificati	
arameters AI View 1 AI View 2	AI View 3 AI Vie	ew 4 Organize				PD Tag	BROOKS_3809G_FI1234
Name	Configured value		Default value N	lin Value I	Max Value Type F	Device ID	0002462000MT3809xx03
SIMULATE.TRANSDUCER STATUS	Conligured value	Bad::NonSpecific		in value i	U8	CFF Revision	0X0001
SIMULATE.TRANSDUCER_VALUE		0	• I		F	DD Revision	0X0001
-		Disabled (1)			LIS US	Device Revision	0X0001
SIMULATE.ENABLE_DISABLE						Dev Type	0X2000
XD_SCALE.EU_100		100			F	Manufacturer ID	0X000246
XD_SCALE.EU_0		*			F	H1 Addressing	
XD_SCALE.UNITS_INDEX	% (1342)	% (1342)			U16	Node ID	35
XD_SCALE.DECIMAL		0			18	Link Master Settin	2
OUT_SCALE.EU_100		100			F	BLM	False
OUT_SCALE.EU_0		0			F	User Settings Tag Name	BROOKS 3809G FI1234
OUT_SCALE.UNITS_INDEX		0			U16	Tag Name	BKOOK3_30090_FII234
OUT_SCALE.DECIMAL		0			18		
GRANT_DENY.GRANT		None (0)			BStr		
GRANT_DENY.DENY		None (0)			BStr		
IO_OPTS		None (0)			BStr		
STATUS_OPTS		None (0)			BStr		
CHANNEL	Flow Channel (1)	Flow Channel (1)			U16		
L_TYPE	Indirect (2)	Indirect (2)			U8		
LOW_CUT		0		0.000000	F		
PV_FTIME		0		0.000000	F V	Tag Name Tag Name is used by F	F-CIT to resolve specified with the tag na

Step 13: First set MODE_BLK.TARGET to OOS (out of service), to be able to set desired OUT_SCALE UOM and OUT_SCALE value of AI function block.

FF-CONF - Test Instruction_prj Project Edit View Build Downloa	d Online Setti	ngs Help		-		Sec. 1	
	block Application	Network Livelist			▼ ×	H1 Device Properties	~ ₽ ×
Device Tag: BROOKS_3809G_FI1234	Block: AI_1 (Analog Input)	•	Renan	ne Block P	Device Identificat	ion
Parameters AI View 1 AI View 2 A	I View 3 AI View	4 Organize				PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100A
Name	Configured value	Actual value	Default v	value	Min Val 🛆	Device Type	
ALERT_KEY		U			1	CFF Revision	0X0001
MODE BLK.TARGET	OOS (1)	OOS (1)				DD Revision	0X0001
MODE_BERACTUAL		005(1)				Device Revision	0X0001
MODE BLK.PERMITTED		Auto (16) Man (8) OOS				Dev Type	0X2000
MODE_BLK.NORMAL		Auto (16)				Manufacturer ID	0X000246
-						H1 Addressing	
BLOCK_ERR		OutOfService (1)				Node ID	35
PV.STATUS		Bad::OutOfService:NotLimit				Link Master Settin	-
PV.VALUE		22.19852				BLM	False
OUT.STATUS		Bad::OutOfService:NotLimit				User Settings	BBOOKE 2800C ET1224
OUT.VALUE		22.19852				Tag Name	BROOKS_3809G_FI1234
SIMULATE.SIMULATE_STATUS		Good_NonCascade::NonSp					
SIMULATE.SIMULATE_VALUE		22.19852					
		Good NonCorrectorNonSe			\sim		
<					>		
Parameter Name: MODE_BLK.TARGET		Туре:	BStr				
ROut (128) RCas (64) Cas (32) Auto (16)		Cle	ar S	Set	Write	Node ID	
Man (8) OOS (1)						node of the link on H	1. Usually the nodes 1619
003(1)						are used. With a redu	undant linking device, the
Connected	5 Sec(s) 🔽 Periodic read 🛛 Read	All Se	t All	Write all	Device Typ Block Typ	e Devices Blocks H1 Device
							😁 Online

Step 14: Write desired OUT_SCALE UOM and OUT_SCALE value settings, for example 200 m3/h.

3 ~ + +						
Network Configuration Funct	ionblock Application	Network Livelist		* X	H1 Device Properties	* # >
Device Tag: BROOKS_3809G_FI12	34 Block: AI_1 (Analog Input)	Rena	me Block P	Device Identificat	ion
Parameters AI View 1 AI View 2	AI View 3 AI View	4 Organize			PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100
Name	Configured value	Actual value	Default value	Min Val	Device Type	
SIMULATE.TRANSDUCER_STATUS		Good_NonCascade::N	lonSp		CFF Revision	0X0001
SIMULATE.TRANSDUCER_VALUE		22.19852			DD Revision	0X0001
SIMULATE.ENABLE_DISABLE		Disabled (1)			Device Revision	0X0001
XD_SCALE.EU_100		100			Dev Type	0X2000
XD_SCALE.EU_0		0			Manufacturer ID	0X000246
XD_SCALE.UNITS_INDEX	% (1342)	% (1342)			H1 Addressing	35
	70 (1342)	78 (1342)			Node ID	
XD. SCALE, DECIMAL	200	200		- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	BLM	False
OUT_SCALE.EU_100	200	200			User Settings	Tube
OUT SCALLED_0	i lora potero core	0			Tag Name	BROOKS_3809G_FI1234
OUT_SCALE.UNITS_INDEX	m ⁸ /h (1349)	m³/h (1349)				
OUT_SCALE.DECIMAL		0				
GRANT_DENY.GRANT		None (0)				
GRANT_DENY.DENY		None (0)				
IO_OPTS		None (0)				
STATUS_OPTS		None (0)				
CHANNEL	Flow Channel (1)	Flow Channel (1)		\sim		
<				>		
Parameter Name: OUT_SCALE.EU_10	0		Type: F		Node ID	
Parameter Value: 200			Clear Set	Write		 Usually the nodes 1619 indant linking device, the
✓ Connec	cted 5 Sec	s) 🔽 Periodic read	Read All Set All	Write all	Device Typ Block Type	Devices Blocks H1 Devic
Step 15: After writing desired OUT_SCALE settings, set MODE_BLOCK.TARGET back to Auto.

🕸 🖡 🍸 Network Configuration 💦 Fun	ctionblock Application	Network Livelist		▼ ×	H1 Device Properties	→ Ū
vice Taq: BROOKS_3809G_FI1	1234 Block: AI_1 (Analog Input)	▼ Rena	me Block P	 ⊇ Ž↓ □ □ Device Identificat 	•
rameters AI View 1 AI View					PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx01
Name	Configured value	Actual value	Default value	Min Val 🔼	Device Type	
ST_REV		9			CFF Revision	0X0001
TAG_DESC		32,32,32,32,32,32,32,32,32,32,			DD Revision	0X0001
STRATEGY		0			Device Revision	0X0001
ALERT KEY		0		1	Dev Type	0X2000
MODE BLK.TARGET	Auto (16)	Auto (16)		-	Manufacturer ID	0X000246
	Auto (10)				H1 Addressing	
MODE_BERACTUAL		Auto (16)			Node ID	35
MODE_BLK.PERMITTED		Auto (16) Man (8) OOS			Link Master Settin	2 · · · · · · · · · · · · · · · · · · ·
MODE_BLK.NORMAL		Auto (16)			BLM	False
BLOCK_ERR		None (0)			User Settings Tag Name	BROOKS 3809G FI123
PV.STATUS		Good_NonCascade::NonSp			rag Name	BROOKS_50050_11125-
PV.VALUE		44.39892				
DUT.STATUS		Good_NonCascade::Unackr				
		44 20002		\geq		
ameter Name: MODE_BLK.TAR	3FT	Type: E	Str			
ameter Value: ROut (128) RCas (64) Cas (32) ✓ Auto (16) Man (8) ○ OOS (1) ✓ Conr		S) V Periodic read Read	r Set	Write		1. Usually the nodes 161 Indant linking device, the

Step 16: OUT.VALUE and PV.VALUE are now indicated as per 200 m3/h FS. (In the example indicated as 44.4, so currently flowing at 22.2% FS).

oject Edit View Build Downl] 👒 🤳 🍞	oad Online Setti	ngs Heip				
	onblock Application	Network Livelist		* X	H1 Device Properties	
					2↓ 📼	
Device Tag: BROOKS_3809G_FI123	4 Block: AI_1 (Analog Input)	 Rena 	me Block P	Device Identificat	ion
					PD Tag	BROOKS_3809G_FI1234
Parameters AI View 1 AI View 2	AI View 3 AI View	4 Organize			Device ID	0002462000MT3809xx010
Name	Configured value	Actual value	Default value	Min Val 🛆	Device Type	
ST_REV		9			CFF Revision	0X0001
TAG_DESC		32,32,32,32,32,32,32,32,32,32,			DD Revision	0X0001
STRATEGY		0			Device Revision	0X0001
ALERT KEY		0		1	Dev Type	0X2000
MODE_BLK.TARGET	Auto (16)	Auto (16)			Manufacturer ID	0X000246
MODE BLK.ACTUAL	/ 1010 (20)	Auto (16)			H1 Addressing	35
MODE_BLK.PERMITTED		Auto (16) Man (8) OOS			Node ID	
					BLM	Igs False
MODE_BLK.NORMAL		Auto (16)			User Settings	Taise
BLOCK_ERR		No (V)			Tag Name	BROOKS_3809G_FI1234
PV.STATUS	/	Good_NonCascade::NonSp				
PV.VALUE		44.41856				
OUT.STATUS		Good_NonCascade::Unackr				
OUT.VALUE		44.41856				
SIMULATE.SIMULATE_STATUS		Good_NonCascade::Noop				
SIMULATE.SIMULATE_VALUE		22.19923				
SIMULATE.TRANSDUCER_STATUS		Good_NonCascade::NonSp				
SIMULATE.TRANSDUCER_VALUE		22.19923				
SIMULATE.ENABLE_DISABLE		Disabled (1)				
XD_SCALE.EU_100		100		~	Node ID	
<				> ·		1. Usually the nodes 1619 Indant linking device, the
Connect	ted 5 🔿 Sec(s) 📝 Periodic read 🛛 Read	All Set All	Write all		Devices Blocks H1 Devi

Step 17: Alarm settings in AI function block. For this example, only HI_FLOW and HI_HI_FLOW alarms are set. Alarm limit example values (100 and 150) are referenced to 100% OUT.SCALE value (i.e. FS = 200 m3/h).

Make following settings:

- HI_HI_LIM: 150
- HI_LIM: 100
- Priorities: 2

FF-CONF - Test Instruction_prj					
Project Edit View Build Download	d Online S	ettings Help			
🗄 👒 🖡 🋊					
Network Configuration Functionb	block Applicatio	on Network Livelist	▼ X	H1 Device Properties	~ ₽ ×
				2↓ 📼	
Device Tag: BROOKS_3809G_FI1234	Block: AI_	1 (Analog Input)	 Rename Blo 	Device Identification	
				PD Tag	BROOKS_3809G_FI1234
Parameters AI View 1 AI View 2 AI	I View 3 AI V	iew 4 Organize		Device ID	0002462000MT3809xx0100A000
Name Cont	figured value	Actual value	Default valu	Device Type	
BLOCK_ALM.TIME_STAMP		0		CFF Revision	0X0001
BLOCK_ALM.SUB_CODE		Other (0)		DD Revision	0X0001
BLOCK_ALM.VALUE		0		Device Revision	0X0001
ALARM_SUM.CURRENT		None (0)		Dev Type	0X2000
ALARM SUM.UNACKNOWLEDGE		None (0)		Manufacturer ID	0X000246
ALARM SUM.UNREPORTED		None (0)		H1 Addressing Node ID	35
-	one (0)	None (0)		Link Master Settings	
_	one (0)	None (0)		BLM	False
	one (0)	None (0)		User Settings	
ALARM_HYS	-			Tag Name	BROOKS_3809G_FI1234
HI_HI_PRI 2		2		-	
HI_HI_LIM 150	0	150			
HI_PRI 2		2			
HI_LIM 100	0	100			
LO_PRI		0	\sim		
<			>		
Connected 5	🔹 Sec(s) 🛽	Periodic read Read All Set	All Write all		
Trace Log			~ ₽ ×		
		🔽 Error 📝 Warn	ing 🔽 Information	Node ID	
Number Type	Message	Location	Date 🗦	node of the link on H1. Usu	
<			>	used. With a redundant lin	king device, the secondary s
Trace Log				Device Types Block Types	Devices Blocks H1 Device Pro
					🖱 Online

roject Edit View Build Downloo	ad Online Sett	ngs Help			
-	block Application	Network Livelist	* X	H1 Device Properties	≁ ₫ X
Device Tag: BROOKS_3809G_FI1234 Parameters AI View 1 AI View 2	AI View 3 AI View	Analog Input) • 4 Organize	Renam	Device Identification PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100A00000
Name	Configured value	Actual value	^	Device Type	
BLOCK_ALM.UNACKNOWLEDGED		Uninitialized (0)		CFF Revision	0×0001
BLOCK_ALM.ALARM_STATE		Uninitialized (0)		DD Revision	0×0001
BLOCK_ALM.TIME_STAMP		0		Device Revision	0X0001
BLOCK_ALM.SUB_CODE		Coner (0)		Dev Type Manufacturer ID	0X2000 0X000246
BLOCK_ALM.VALUE		0		H1 Addressing	07000240
ALARM_SUM.CURRENT		Hi Alarm (8192)		Node ID	35
ALARM_SUM.UNACKNOWLEDGED		Hi Alm Unack (9,92)		Link Master Settings	
ALARM_SUM.UNREPORTED		Hinhlim Lingp (8192)		BLM	False
ALARM_SUM.DISABLED	None (0)	None (0)		User Settings	
ACK_OPTION	None (0)	None (0)		Tag Name	BROOKS_3809G_FI1234
ALARM_HYS		0.5			
HIHIPRI	2	2			
HI_HI_LIM	150	150			
HI_PRI	2	2			
HI_LIM	100	100			
		0	>		
Connected 5	Sec(s) 🔽 Perio	dic read Read All Set All	Write all	Node ID	
ace Log			- 4 ×		ally the nodes 1619 are used.
		🔽 Error 📝 Warning 🔽	Information		levice, the secondary should use
race Log				Device Types Block Types	Devices Blocks H1 Device Prope

Step 18: When OUT.VALUE > 100, Hi Alarm is presented

Step 19: When OUT.VALUE > 150, Hi Hi Alarm (and Hi Alarm) are presented

oject Edit View Build Downlo	ad Online Setti			
Network Configuration V Function	nblock Application	Network Livelist 🗸 🗸 🗸	H1 Device Properties	↓ ↓ >
			2 ↓	
evice Tag: BROOKS_3809G_FI1234	Block: AI_1 (Analog Input) Renami	Device Identification	
arameters AI View 1 AI View 2		4 Organize	PD Tag	BROOKS_3809G_FI1234
			Device ID	0002462000MT3809xx0100A0000
Name	Configured value		Device Type	0X0001
BLOCK_ALM.UNACKNOWLEDGED		Uninitialized (0)	CFF Revision DD Revision	0X0001
BLOCK_ALM.ALARM_STATE		Uninitialized (0)	Device Revision	0X0001
BLOCK_ALM.TIME_STAMP		0	Dev Type	0X2000
BLOCK_ALM.SUB_CODE		Other (0)	Manufacturer ID	0X000246
BLOCK_ALM.VALUE		0	□ H1 Addressing	
ALARM_SUM.CURRENT		HiHi Alarm (16384) Hi Alarm (8192)	Node ID	35
ALARM_SUM.UNACKNOWLEDGED		HiHi Alarm Unack (16384) Hi Alm Unack (8	Link Master Settings	
ALARM_SUM.UNREPORTED		Inte Alm Unrep (16384) Hi Alm U	BLM	False
ALARM_SUM.DISABLED	None (0)	None (0)	User Settings	
ACK_OPTION	None (0)	None (0)	Tag Name	BROOKS_3809G_FI1234
ALARM_HYS		0.5		
HI_HI_PRI	2	2		
HI_HI_LIM	150	150		
HI_PRI	2	2		
	100	100		
-	100	0		
IO PRI				
Connected 5	Sec(s) 📝 Perio	dic read Read All Set All Write all		
	Jec(s) V Peno		Node ID	
ce Log		~ ┦ ×	node of the link on H1. Us	sually the nodes 1619 are used.
		Vertical Error Vertical Warning Vertical Information	With a redundant linking	device, the secondary should use
ce Log			Device Types Block Type	s Devices Blocks H1 Device Prop

Step 20: When OUT.VALUE < 100, Current Alarm is not indicated anymore.

					-	
Network Configuration Function	block Application	Network Liv	relist	* X	H1 Device Properties	₩ ₽ 3
evice Tag: BROOKS_3809G_FI1234	Block: AI_1 (/	Apples Input)		• Rename	2↓ □	
evice Tag: BROOKS_3809G_FI1234	BIOCK: AI_I (Analog Input)		Kenami	Device Identificatio	
arameters AI View 1 AI View 2 A	AI View 3 AI View	4 Organize			PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100A0000
Name	Configured value		Actual value	~		00024020000013809201004000
BLOCK ALM.UNACKNOWLEDGED	comgarca value	Uninitialized (CFF Revision	0X0001
BLOCK_ALM.ALARM_STATE		Uninitialized (DD Revision	0X0001
BLOCK ALM.TIME STAMP		0	,		Device Revision	0X0001
		Other (0)			Dev Type	0X2000
BLOCK_ALM.SUB_CODE					Manufacturer ID	0X000246
BLOCK_ALM.VALUE	1	0			H1 Addressing	
ALARM_SUM.CURRENT		None (0)			Node ID	35
ALARM_SUM.UNACKNOWLEDGED		HiHi Alarm Ur	a (16384) Hi A	Alm Unack (8:	Link Master Setting	
ALARM_SUM.UNREPORTED		HiHi Alm Unr	🗛 (16384) Hi Alr	n Unrep (819	BLM	False
ALARM_SUM.DISABLED	None (0)	None (0)			User Settings	BBOOKS 2800C E11224
ACK_OPTION	None (0)	None (0)			Tag Name	BROOKS_3809G_FI1234
ALARM_HYS		0.5				
HI_HI_PRI	2	2				
HI_HI_LIM	150	150				
HI PRI	2	2				
HI LIM	100	100				
LO PRI		0		\checkmark		
				×		
Connected 5	Sec(s) 🔽 Perio	dic read Read	d All Set All	Write all		
				 ⊸ ₽ ×	Node ID	
te Log					node of the link on H1.	Usually the nodes 1619 are used.
		✓ E	rror 📝 Warning	Information	With a redundant linki	ng device, the secondary should use

Step 21: To reset unacknowledged alarms, acknowledge HI_HI_ALARM and HI_ALARM.

FF-CONF - Test Instruction_prj	5.2-2-1-89.1.8	and all the second	
Project Edit View Build Download Online Setti F 👒 퇒 🍞	ngs Help		
Network Configuration Functionblock Application		H1 Device Properties	≁ û ×
Device Tag: BROOKS_3809G_F11234 Block: Al 1 (Parameters AI View 1 AI View 2 AI View 3 AI View		Device Identification PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100A00000
Name Configured value	Actual value	Device Type	0002102000111000000000
LO_PRI	0	CFF Revision	0X0001
LO_LIM	-Infinity	DD Revision	0X0001
LO_LO_PRI	0	Device Revision	0X0001
10.10.10	-Intinuty	Dev Type	0X2000
	Acknowledged (1)	Manufacturer ID	0X000246
		H1 Addressing	
HI_HI_ALM.ALARM_STATE	Active-Not Reported (4)	Node ID	35
HI_HI_ALM.TIME_STAMP	24702412800	Link Master Settings	
HI_HI_ALM.SUB_CODE	Other (0)	BLM	False
HI HI ALMWALDE	109.265	User Settings	RROOKS 2800C EN 224
HI_ALM.UNACKNOWLEDGED Acknowledged (Acknowledged (1)	Tag Name	BROOKS_3809G_FI1234
HI_ALM.ALARM_STATE	Active-Not Reported (4)		
HI ALM.TIME STAMP	24697100808		
HI ALM.SUB CODE	Other (0)		
<	>		
Parameter Name: HI_ALM.UNACKNOWLEDGED	Type: U8		
Parameter Value: Acknowledged (1)	Clear Set Write		
Connected 5 Sec(s) Verio	dic read Read All Set All Write all		
race Log	→ # ×	Node ID	ally the nodes 1619 are used.
	Error Varning Information		any the hodes 1019 are used. levice, the secondary should use
race Log		Device Types Block Types	Devices Blocks H1 Device Prope
			😁 Onlin

oject Edit View Build Downloa	d Online Setti	ngs Help				
	block Application	Network Liv	elist	▼ X	H1 Device Properties	→ ‡ :
Device Tag: BROOKS_3809G_FI1234	Block: AI_1 (/	Analog Input)		Renam	2↓ □ □ Device Identification	
,		2 1 1			PD Tag	BROOKS_3809G_FI1234
Parameters AI View 1 AI View 2 A	I View 3 AI View	4 Organize			Device ID	0002462000MT3809xx0100A000
Name	Configured value		Actual value	~	Device Type	
UPDATE_EVT.TIME_STAMP		0			CFF Revision	0X0001
UPDATE_EVT.STATIC_REVISION		0			DD Revision	0X0001
UPDATE_EVT.RELATIVE_INDEX		0			Device Revision	0X0001
BLOCK_ALM.UNACKNOWLEDGED		- Uninitialized ((າ		Dev Type	0X2000
BLOCK_ALM.ALARM_STATE		Uninitialized (Manufacturer ID	0X000246
		0	<i>ŋ</i>		H1 Addressing	
BLOCK_ALM.TIME_STAMP		-			Node ID	35
BLOCK_ALM.SUB_CODE		Other (0)			Link Master Settings	False
BLOCK_ALM.VALUE					BLM	Faise
ALARM_SUM.CURRENT		None (0)			User Settings Tag Name	BROOKS_3809G_FI1234
ALARM_SUM.UNACKNOWLEDGED		None (0)			Tag Name	BROOK3_30030_11234
ALARM_SUM.UNREPORTED		HiHi Alm Un	p (16384) Hi Alm Ur	rep (819		
ALARM_SUM.DISABLED	None (0)	None (0)				
ACK OPTION	None (0)	None (0)		\sim		
				>		
arameter Name: HI_ALM.UNACKNOW	LEDGED	Туре:	U8			
arameter Value: Acknowledged (1)		▼ Cle	ar Set	Write		
Connected 5	Sec(s) 🔽 Perio	dic read Read	All Set All	Write all		
					Node ID	
ce Log				₩ ₽ X		Isually the nodes 1619 are used.
		V E	rror 📝 Warning 📝	Information	With a redundant linking	g device, the secondary should use.
ace Log					Device Types Block Type	es Devices Blocks H1 Device Pro

Step 22: Unacknowledged alarms have been reset.

Step 23: Setting transmitter's physical alarm output contacts. Go to AI transducer block, and set Hi-Flow and Lo-Flow limits as per desired values (in this example 90 and 10 respectively for a 0 - 100 UOM Primary Value scale).

FF-CONF - Test Instruction_prj Project Edit View Build Downlow	ad Online Setti	ngs Help			March March	
	block Application	Network Livelist		▼ ×	H1 Device Properties	~ ∄ ×
Device Tag: BROOKS_3809G_FI1234	Blo 32769	1 (Analog Input Trans	ducer Block)	Rena	Device Identification	
aitb_view_4aitb_view_4	aitb_view	/_4 aitb_view_4	0rganize		PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100A00000
Parameters aitb	view_1	aitb_view_2	aitb_view_3			000240200000100000000000000000000000000
Name	Configured value	Actual	value	^	CFF Revision	0X0001
INV_TOTALIZER.UOM		gallon (1048)			DD Revision	0X0001
INV TOTALIZER.VALUE		99930.45			Device Revision	0X0001
INV_TOT_DIG_DEC		2			Dev Type	0X2000
LO_FLOW.ALARM_EN		Enabled (1)			Manufacturer ID	0X000246
LO FLOW.ALARM TYPE		Non-latched (0)			H1 Addressing	
	10				Node ID	35
LO_FLOW.ALARM_LIMIT	10	10			Link Master Settings	5 1
LO_FLOW.ALARM_LIMIT_DELAY		υ υ		-	BLM	False
HI_FLOW.ALARM_EN		Enabled (1)			User Settings Tag Name	BROOKS_3809G_FI1234
HI_FLOW.ALARM_TYPE		Non-latched (0)			Tag Name	BK00K3_38090_FII234
HI_FLOW.ALARM_LIMIT	90	90				
HI_FLOW.ALARM_LIMIT_DELAY		σ				
PULS_OUT_CFG.ALARM_EN		Enabled (1)				
PULS_OUT_CFG.ALARM_TYPE		Latched (1)				
PULS_OUT_OVERRUN.ALARM_EN		Disabled (0)				
PULS OUT OVERRUN.ALARM TYPE		Non-latched (0)	0			
Connected 5	Sec(s) 📝 Perio	dic read Read All	Set All Write	all	Node ID	
Trace Log			Ŧ	Ψ×		ually the nodes 1619 are used.
		Error 📝	Warning V Inform	nation		device, the secondary should use
Trace Log					Device Types Block Types	Devices Blocks H1 Device Prope
						😁 Online

Step 24: Observing flow alarm conditions

PV value < 10

- Lo Flow Alarm
- Transmitter Contact Output B closed
- Alarm Status Al transducer block: 16

Network Configuration Fur	nctionblock Applicati	on Network Livelist	* X	H1 Device Properties	, 4 ×
evice Tag: BROOKS_3809G_FI	1234 Block: 32	769_1 (Analog Input Transduce	r Block) 🔻 Rena	2↓ □ □ Device Identification	
				PD Tag	BROOKS_3809G_FI1234
aitb_view_4 aitb_vi		view_4 aitb_view_4	Organize	Device ID	0002462000MT3809xx0100A0000
Parameters	aitb_view_1	aitb_view_2	aitb_view_3	Device Type	
Name	Configured va	lue Actual value	· ·	CFF Revision	0X0001
PULS_OUT_CFG.ALARM_TYPE		Latched (1)		DD Revision	0X0001
PULS_OUT_OVERRUN.ALARM_E	N	Disabled (0)		Device Revision	0X0001
PULS_OUT_OVERRUN.ALARM_T	YPE	Non-latched (0)		Dev Type	0X2000
DIAG.ALARM EN		Enabled (1)		Manufacturer ID	0X000246
DIAG.ALARM_TYPE		Latched (1)		H1 Addressing	25
DB_INIT.ALARM_EN		Enabled (1)		Node ID	35
				Link Master Settings BLM	False
DB_INIT.ALARM_TYPE		Latched (1)		User Settings	Taise
POWER.ALARM_EN		Enabled (1)		Tag Name	BROOKS_3809G_FI1234
POWER.ALARM_TYPE		Latched (1)		- ag rianc	
BROOKS_SERIAL_NUMBER		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX		
CURRENT_ALARM_STATUS		16			
ACTIVE_DIAG_STATUS		0			
RESET_ALARM		Idle (0)			
PULSE_OUTPUT.UOM		gallon (1048)			
PULSE OUTPUT.SCALER		1	×		
Connected	5 🗣 Sec(s) 🔽 Pe	eriodic read Read All Set	All Write all		
e Log			- ₽ ×	Node ID	lovelle the sector 10, 10 are used.
		🔽 Error 📝 Warr	ning 🔽 Information		Jsually the nodes 1619 are used. g device, the secondary should use
ce Log				Device Types Block Typ	es Devices Blocks H1 Device Prop
				()	

December, 2017

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PV value > 90

- Hi Flow Alarm
- Transmitter Contact Output A closed
- Alarm Status AI transducer block: 8

Network Configuration Functionblock Application Network Livelist Device Tag: BROOKS_3809G_FI1234 Block: 32769_1 (Analog Input Transducer Block) aitb_view_4 aitb_view_4 aitb_view_4 aitb_view_4 Parameters aitb_view_1 aitb_view_2 aitb		H1 Device Properties	~ ₽ ×
aitb_view_4 aitb_view_4 aitb_view_4	ock) 🔻 Rena		
		Device Identification	
Parameters aitb_view_1 aitb_view_2 aitb	Organize	PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100A0000
	b_view_3	Device Type	
Name Configured value Actual value	^	CFF Revision	0X0001
PULS_OUT_CFG.ALARM_TYPE Latched (1)		DD Revision	0X0001
PULS_OUT_OVERRUN.ALARM_EN Disabled (0)		Device Revision	0X0001
PULS_OUT_OVERRUN.ALARM_TYPE Non-latched (0)		Dev Type Manufacturer ID	0X2000
DIAG.ALARM_EN Enabled (1)		H1 Addressing	0X000246
DIAG.ALARM_TYPE Latched (1)		Node ID	35
DB_INIT.ALARM_EN Enabled (1)		Link Master Settings	
DB_INIT.ALARM_TYPE Latched (1)		BLM	False
POWER.ALARM EN Enabled (1)		User Settings	
POWER.ALARM_TYPE Latched (1)		Tag Name	BROOKS_3809G_FI1234
BROOKS SERIAL NUMBER XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX		
CURRENT_ALARM_STATUS 8			
ACTIVE DIAG STATUS 0			
RESET_ALARM Idle (0)			
PULSE_OUTPUT.UOM gallon (1048)			
PULSE OUTPUT.SCALER 1	\sim		
	>		
✓ Connected 5 Sec(s) ♥ Periodic read Read All Set All	Write all		
Frace Log	▼ ₽ X	Node ID	
Error V Warning		node of the link on H1. 0	sually the nodes 1619 are used. device, the secondary should use
Trace Log		·	es Devices Blocks H1 Device Prope

- 90 > PV value > 10
- No Flow Alarm
- Transmitter Contact Output A and B both open
- Alarm Status Al transducer block: 0

Network Configuration		block Application	Network Liv		r Block)	▼ XRena	H1 Device Properties	* ù
aitb view 4	aitb view 4	aitb vie	w 4 air	tb view 4	Ord	anize	PD Tag	BROOKS_3809G_FI1234
Parameters		riew_1	aitb_view_2		aitb_vie		Device ID	0002462000MT3809xx0100A000
Name		Configured value		Actual value	, ,	~	CFF Revision	0X0001
PULS_OUT_CFG.ALARN	A TYPE	congoreo roioi	Latched (1)		•		DD Revision	0X0001
PULS_OUT_OVERRUN.	-		Disabled (0)				Device Revision	0X0001
PULS_OUT_OVERRUN.	_		Non-latched (0)			Dev Type	0X2000
DIAG.ALARM EN	ALANM_TTPL		Enabled (1)	0)			Manufacturer ID	0X000246
-							H1 Addressing	
DIAG.ALARM_TYPE			Latched (1)				Node ID	35
DB_INIT.ALARM_EN			Enabled (1)				Link Master Settings	
DB_INIT.ALARM_TYPE			Latched (1)				BLM	False
POWER.ALARM_EN			Enabled (1)				User Settings	BROOKS_3809G_FI1234
POWER.ALARM_TYPE			Latched (1)				Tag Name	BKOOK3_30090_FII234
BROOKS_SERIAL_NUM	IBER		XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXX	XXXX		
CURRENT_ALARM_STA	ATUS		0					
ACTIVE_DIAG_STATUS			0					
RESET_ALARM			Idle (0)					
PULSE_OUTPUT.UOM			gallon (1048)					
PULSE OUTPUT.SCALE	R		1			>		
Connec	ted 5	Sec(s) 🔽 Perio	odic read Read	d All Set	All	Write all	Node ID	
te Log						- ₽ ×		Jsually the nodes 1619 are used.
				rror 🔽 Warr	_			q device, the secondary should use.

Alarm contact output location on transmitter terminal strip



Step 25: Switch alarm output contacts to latching type.

FF-CONF - Test Instruction_prj	181 W	B									
Project Edit View Build Download Online Settings Help											
Network Configuration Functionblock Application Network Livelist - X H1 Device Properties - 4 X											
					<u>₽</u> 2↓ 📼						
Device Tag: BROOKS_3809G_FI1234 Block: 32769_1 (Analog Input Transducer Block) Rena Device Identification											
aitb_view_4 aitb_view_4	aitb_view	4 aitb_view	4 Organize		PD Tag	BROOKS_3809G_FI1234					
	view_1	aitb_view_2	_4 Organize aitb_view_3		Device ID	0002462000MT3809xx0100A00000					
					Device Type	0/0001					
Name	Configured value		al value	^	CFF Revision DD Revision	0X0001 0X0001					
INV_TOTALIZER.UOM		gallon (1048)			DD Revision Device Revision	0X0001					
INV_TOTALIZER.VALUE		100548.1			Dev Type	0X2000					
INV_TOT_DIG_DEC		2			Manufacturer ID	0X000246					
LO_FLOW.ALARM_EN		Enabled (1)			H1 Addressing	0/10/02/10					
LO_FLOW.ALARM_TYPE	Latched (1)	Latched (1)			Node ID	35					
LO_FLOW.ALARM_LIMIT	10	10			Link Master Settings						
LO_FLOW.ALARM_LIMIT_DELAY		0			BLM	False					
HI_FLOW.ALARM_EN		Enabled (1)			User Settings						
HI_FLOW.ALARM_TYPE	Latched (1)	Latched (1)			Tag Name	BROOKS_3809G_FI1234					
HI FLOW.ALARM LIMIT	90	90									
HI_FLOW.ALARM_LIMIT_DELAY		U									
PULS OUT CFG.ALARM EN		Enabled (1)		\sim							
<			>								
Parameter Name: HI_FLOW.ALARM_TYPE Type: U8											
Parameter Value: Latched (1)											
✓ Connected 5 Sec(s) ♥ Periodic read Read All Set All Write all											
		Node ID									
Trace Log		¤ × ation		ally the nodes 1619 are used.							
			device, the secondary should use								
Trace Log					Device Types Block Types	Devices Blocks H1 Device Proper					
						😁 Online					

Note: The latching mode of the flow alarms is only reflecting to the alarm output contacts, and NOT to the Alarm Status in the Al transducer block.

Once PV value has reached either > 90 or/and < 10, alarm output contacts A and B remain closed after reaching no alarm condition. To open alarm output contacts A and B again, an alarm reset is needed.

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Step 26: Alarm output contacts reset.

FF-CONF - Test Instruction		E. W	5.0.0.		10 M		
Project Edit View Bui	ild Download	Online Settin	gs Help				
Network Configuration	Functionbloc	k Application	Network Livelist		▼ ×	H1 Device Properties	<u>⊸</u> ↓ ×
						2 ↓	
Device Tag: BROOKS_38	809G_FI1234 E	lock: 32769_3	l (Analog Input Tra	nsducer Block)	Rena	Device Identification	1
		54 - 1				PD Tag	BROOKS_3809G_FI1234
aitb_view_4	aitb_view_4	aitb_view_		7 1 2	anize	Device ID	0002462000MT3809xx0100A00000
Parameters	aitb_view	1	aitb_view_2	aitb_view		Device Type	
Name	Cor	figured value	Actu	al value	~	CFF Revision	0X0001
DIAG.ALARM_EN			Enabled (1)			DD Revision	0X0001
DIAG.ALARM_TYPE			Latched (1)			Device Revision	0X0001
DB_INIT.ALARM_EN			Enabled (1)			Dev Type	0X2000
DB_INIT.ALARM_TYPE			Latched (1)			Manufacturer ID	0X000246
POWER.ALARM EN			Enabled (1)			H1 Addressing	
						Node ID	35
POWER.ALARM_TYPE			Latched (1)			Link Master Settings	
BROOKS_SERIAL_NUMBER			XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			BLM	False
CURRENT_ALARM_STAT	rus		0			User Settings	
ACTIVE_DIAG_STATUS			U			Tag Name	BROOKS_3809G_FI1234
RESET_ALARM	Re	set (1)	Idle (0)				
PULSE_OUTPUT.UOM			gellen (1048)		_		
PULSE OUTPUT.SCALER	1		1		\sim		
<			-		>		
Parameter Name: RESET_A	ALARM		Type: U8				
Parameter Value: Reset (1)		▼ Clear	Set	Write		
		() D D · · ·					
Connecte	ed 5 🖨 Se	c(s) 📝 Period	c read Read All	Set All V	Vrite all	Node ID	
Trace Log					- ₽ ×		Jsually the nodes 1619 are used.
			Error	🛛 Warning 👿 In	formation		g device, the secondary should use
Trace Log					_	Device Types Block Typ	es Devices Blocks H1 Device Proper
							😁 Online

After Alarm Reset, alarm output contacts are switched to open condition.

Installation and Operation Manual X-DPT-FF-MT3809G-Alarms-eng Part Number: 541B218AAG December, 2017

Model MT3809G FOUNDATIONTM Fieldbus

FF-CONF - Test Instruction_prj -20 - 20 - Tak × . -Project Edit View Build Download Online Settings Help 🗄 🤏 🖡 🀐 - 4 × ▼ × H1 Device Properties Network Configuration Functionblock Application Network Livelist 8∎ **2**↓ 🖾 Device Tag: BROOKS_3809G_FI1234 Block: 32769_1 (Analog Input Transducer Block) 🔻 Rena Device Identification PD Tag BROOKS_3809G_FI1234 aitb_view_4 aitb_view_4 aitb_view_4 aitb_view_4 Organize 0002462000MT3809xx0100A00000 Device ID Parameters aitb_view_1 aitb_view_2 aitb_view_3 Device Type 0X0001 ~ CFF Revision Name Configured value Actual value DD Revision 0X0001 INV_TOTALIZER.UOM gallon (1048) Device Revision 0X0001 INV_TOTALIZER.VALUE 102258.6 0X2000 Dev Type INV_TOT_DIG_DEC 0X000246 Manufacturer ID LO_FLOW.ALARM_EN Disabled (0) Disabled (0) H1 Addressing LO_FLOW.ALARM_TYPE - (1) Late Node ID 35 LO_FLOW.ALARM_LIMIT 10 10 Link Master Settings LO FLOW.ALARM LIMIT DELAY BLM False User Settings HI_FLOW.ALARM_EN Disabled (0) Disabled (0) BROOKS_3809G_FI1234 Tag Name HI_FLOW.ALARM_TYPE Lat HI_FLOW.ALARM_LIMIT 90 90 HI_FLOW.ALARM_LIMIT_DELAY 0 PULS_OUT_CFG.ALARM_EN ~ Enabled (1) > < Parameter Name: HI_FLOW.ALARM_EN Type: U8 Parameter Value: Disabled (0) • Clear Set Write Connected 5 Sec(s) Veriodic read Read All Set All Write all Node ID - 4 × Trace Log node of the link on H1. Usually the nodes 16..19 are used. Vertical Error Vertical Warning Vertical Information With a redundant linking device, the secondary should use ... Trace Log Device Types Block Types Devices Blocks H1 Device Proper Online

Step 27: Alarm output contacts disabling.

To discontinue alarm output contacts operation, set Hi Flow Alarm and Lo Flow Alarms to disabled.

Alarm output contacts remain in open condition, regardless of any PV value.

LIMITED WARRANTY

Visit www.BrooksInstrument.com for the terms and conditions of our limited warranty.

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Brooks is committed to assuring all of our customers receive the ideal flow solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration and is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

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