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

	1
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

5-1

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 alert to be generated	U16	0 to 65535	0	Read
8		BLOCK_ALARM	The block alarm can generate an alarm if a block error				
8	1	BLOCK_ALARM. UNACKNOWLEDGED	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.	The sub code which causes the block alarm	U8	Other OutOfService	Other	Read
8	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 13		COLLECTION_ DIRECTORY PRIMARY VALUE	A directory that specifies the number of the data collections in each transducer within a transducer block The measure flow value and status.	U8	0	0	Read
13	1	PRIMARY_VALUE. STATUS	The status of the primary value	U8	Bad Good NonCascade	Good Non Cascade	Read
13	2	PRIMARY_VALUE. VALUE	The value of the primary value	Float		0.0	Read
14		FLOW_RATE_UOM	Units of measurement of the flow rate given in the primary value	U16	Supported UOMs	Calibrated value	Read/ Write
15		SW_REV	Software version of the application	Visible String	x.x.x where the x		Read
16		HW_REV	Hardware revision of the transmitter	Visible	x.x.x where the x		Read
17		BROOKS_PASSWORD	Password protection for manufacture settings	Visible	Brooks password	****	Read/ Write
18		MESSAGE	Extra message field for indicating the transmitter. This	Visible	ASCII	Blank	Read/
19		TAG NAME	Extra tag name for the device. This value is not	Visible	ASCII	Calibrated	Read/
20			processed Extra descriptor field for the device. This value is not	String Visible	Max 16 chars ASCII	value	Write Read/
20		DESCRIPTOR	processed	String Visible	Max 17 chars	Calibrated	Write Read/
21		DEV_DATE	Date of calibration	String	DD/MM/YY	value	Write Read/
22		AO_FILTER	The analog filter values used for the flow calculation	Float	0.00 to 10.00	value	Write Read/
23	_	FIN_ASSY_NUM	Final assembly number	U32	0 to 4294967296	value	Write
24	0 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		DENSITY	Density uom and value used for the calculation				Bood!
27	1	DENSITY.UOM		U16	Reserved, do not use	0	Write
27	2	DENSITY.VALUE		Float	Reserved, do not use	1.0	Read/ Write
28		PRESSURE	Pressure uom and value used for the calculation				Read/
28	1	PRESSURE.UOM		U16	Reserved, do not use	0	Write
28	2	PRESSURE.VALUE		Float	Reserved. Do not use	0.0	Kead/ Write

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			Value	White
30	1	RES_TOTALIZER.UOM	The units of measurement which the totalizer will use	U16	Supported UOMs	Gallon	Read/ Write
30	2	RES_TOTALIZER.VALUE	The value of the resettable totalizer	Float		0.0	Read
31		RESET_RES_TOTALIZER	Used to reset the resettable totalizer	U8	(0) Idle (1) Reset	Idle	Read/ Write
32		RES TOT DIG DEC	Setting of max number of integer digits before automatic	U8	0 to 7	2	Read/
33		INV_TOTALIZER	A inventory totalizer which is independent of the function block				write
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	U8	0 to 7	2	Read/ Write
35		LO FLOW	The settings for the low flow alarm with a dedicated				WING
			alarm output on the transmitter		(0) Disabled		Read/
35	1	LO_FLOW.ALARM_EN	Enables or disables the low flow alarm	08	(1) Enabled	(1) Enabled	Write
35	2	LO_FLOW.ALARM_TYPE	A non latching alarm type will clear the alarm if the flow is above the low flow setting	U8	(0) Non-latched (1) Latched	(0) Non-latched	Read/ Write
35	3	LO_FLOW.ALARM_LIMIT	The value which will cause the alarm if the flow value	Float		9.99	Read/
25	4	LO_FLOW.	The time a flow needs to be below the setting before the	110	0 to 255 Secondo	0	Read/
30	4	ALARM LIMIT DELAY	alarm is triggered	08	0 to 255 Seconds	0	Write
36		HIGH_FLOW	alarm output on the transmitter				
36	1	HIGH_FLOW.ALARM_EN	Enables or disables the high flow alarm	U8	(0) Disabled (1) Enabled	(1) Enabled	Read/ Write
36	2	HIGH_FLOW. ALARM_TYPE	A non latching alarm type will clear the alarm if the flow is below the high flow setting	U8	(0) Non-latched (1) Latched	(0) Non-latched	Read/ Write
36	3	HIGH_FLOW. ALARM LIMIT	The value which will cause the alarm if the flow value rises above this value	Float		90.0	Read/ Write
36	4	HIGH_FLOW. ALARM_LIMIT_DELAY	The time a flow needs to be above the setting before the alarm is triggered	U8	0 to 255	0	Read/ Write
37		PULS_OUT_CFG	This alarm is used if the configuration for the pulse output is wrong. This alarm has no physical output on the transmitter				
37	1	PULS_OUT_CFG. ENABLE	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	(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				
38	1	PULS_OUT_OVERRUN.	Enables or disables the pulse output overrun alarm	U8	(0) Disabled (1) Enabled	(0) Disabled	Read/ Write
38	2	PULS_OUT_OVERRUN.	A non latching alarm type will clear the alarm if overrun	U8	(0) Non-latched	(0) Non-latched	Read/
39	-	DIAG	is solved This alarm is used to inform if a software error has occurred		(1) Latched		Write
39	1	DIAG.ENABLE	Enables or disables the diagnostic alarm	U8	(0) Disabled	(1) Enabled	Read/
			A non latching alarm type will clear the alarm if the		(1) Enabled (0) Non-latched	(.)	Write Read/
39	2	DIAG.TYPE	problem is solved.	08	(1) Latched	(1)Latched	Write
40	4		This alarm is reserved for future use	110	(0) Disabled	(1) Enabled	Read/
40	'	DB_INIT.ENABLE	This alarm is reserved for future use	08	(1) Enabled	(I) Enabled	Write Read/
40	2	DB_INIT.TYPE POWER	This alarm is reserved for future use This alarm is reserved for future use	U8	(1) Latched	(1)Latched	Write
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	Read/ Write
42		BROOKS SERIAL NUMBER	The serial number assigned to the device	Visible	ASCII	Calibrated	Read/
43		CURRENT_ALARM_STATUS	Bitwise representation of the alarms.	U32	Max 32 chars (0) No Alarm (1) Diag Alarm (2) Reserved (4) Reserved (8) Flow High Alarm (16) Flow Low Alarm (32) Pulse Corfig 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	current alarm status	U8	(0) lale (1) Reset	(0) Idle	Write
46	T	PULSE OUTPUT	Settings to set the pulse output on the transmitter	T		1	Γ

Table 5-1 Parameters of the Ar	nalog Input Tr	ansducer Block (continued)
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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	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	Read/ Write
49	4		The minimum temperature for this meter	Float		Calibrated	Read/ Write
49	5	INFO_METER.	The material of this meter	U8		Calibrated	Read/
49	6	INFO_METER.	The maximum pressure for this meter	Float		Calibrated	Read/
49	7	INFO_METER.	The minimum pressure for this meter	Float		Calibrated	Read/
49	8	PRESSURE LO LIMIT INFO_METER.		Float		Value Calibrated	Write Read/
19	9	PRESSURE_DROP_LIMIT INFO_METER.		118		Value Calibrated	Write Read
49	3 10	FLANG_MATL INFO_METER.		00		Value Calibrated	/Write Read/
40	11	FLANGE_TYPE INFO_METER.		119		Value Calibrated	Write Read/
49	11	FLOAT_MATL INFO METER.		Visible	ASCII	Value Calibrated	Write Read/
49	12	FLOAT_TYPE INFO_METER		String	Max 8 chars	Value Calibrated	Write Read/
49	13	ORING_MATL		U8		Value	Write Read/
49	14	SIZE		U8		Value	Write Road/
50		INFO_ACCESSORIES	Accessories attached to the meter	U8		Value	Write
51		D	adjust	Float		0.0	Read
52		E	The magnet angle of the measuring device	Float		0.0	Read
53 54		MAGNET_ANGLE_OFFSET	The offset which is used to calculate the magnet 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/
55		Calibration	This group contains information about the calibration	10.11			Durall
55	1	FLUID		String	Reserved, do not use		Read/ 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.		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 LIOM		U16	Reserved, do not use		Read/ Write
55	12	CALILB. CALIB DENSITY		Float	Reserved, do not use		Read/ Write
55	13			U16	Reserved, do not use		Read/ Write
55	14	CALIB_VISCOSITY_COM		Float	Reserved, do not use		Read/ Write

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
C:\ProgramData\S	otting\FF-CONF\Templates\DefaultProject_TEMPLATE
	<u>O</u> K <u>Cancel</u>
	Station of Souther 1995
inline Settings Help	
k Application Network Livelist	X Device Types Device Types Selected Category: All
102162177101	Selected Profile: ALL
	Selected Manufacturer: ALL

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** Ind 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:

Settings Help		
ation Network Livelist	+ X HSE Device Properties	▲ 廿 ×
	Device Identification	
	😲 💽 PD Tag	FG110_133300598
192.168.177.101	Device ID	1E6D114004000000000000133300598
	Device Settings	
•	Maximum Allowed H1 Links	4
192.168.177.101	Device Type	
	Device Type	linkingDevice
FG110-FE \/1.70	CFF Revision	0X0001
	DD Revision	0X0000
FG110 13330	Device Revision	0X0001
<u>C</u>	Dev Type	0X4004
	Manufacturer ID	0X1E6D11
1 4096	HSE Addressing	
16 🔲	Device Index	177
	IP Address	192.168.177.177
3809G	Redundant HSE Addressing	
	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	
olication Network Livelist	
192.168.177.101	Device Identification PD Tag H1_DEVICE_1 Device ID
192.168.177.101	CFF Revision 0X0001 DD Revision 0X0001 Device Revision 0X0001
FG110-FF V1.70 FG110_13330	Dev Type 0X2000 Manufacturer ID 0X000246 E H1 Addressing Node ID 20
1 4096 16	□ Link Master Settings BLM False □ User Settings
3809G Image: Constraint of the second s	Tag Name H1_DEVICE_1

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

e settings Help			
pplication Network Livelist	* X	H1 Device Properties	* û
192.168.177.101	00	Device Identification PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100A00000035
		Device Type	
192.168.177.101		CFF Revision DD Revision	0X0001 0X0001
		Device Revision Dev Type	0X0001 0X2000
192.168.177.177 FG110 13330		Manufacturer ID H1 Addressing	0X000246
		Node ID	35
		BLM	False
		Tag Name	BROOKS_3809G_F11234

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 \sim 💷 💷 🗶 🏢 🛅 🔚 🛛 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-CON	NF - Test Instruction_prj					
Project	Edit View Build Down	load Online Settings H	Help			
₽	• •					
Netwo	ork Configuration Y Funct	tionblock Application	Vetwork Livelist		* X	Blocks • 4 ×
		DefaultGroup.D	efaultApplication			Selected Profile: ALL
Defaul	Source Functionblock(s) Lis	st r	Sink Functionblock(s)	List		Selected Device: ALL
	Device Tag	FB lag	Device Tag	FB lag	200	Selected Device UserTag: ALL
då⊂ D n ⊂ 3	BROOKS_3809G_FI1234	AI_1 257	RKOOK2780AG_HT	234 11_1	288	Selected FB's State: ALL
	Source pin(s) BROOKS_38 Source BROOKS_3809G_FI1234.4	309G_FI1234.AI_1.OUT S te pin(s) AI_1.OUT (F)	ink pin(s) BROOKS_38	09G_F11234.IT_1.IN_1 (F) Sink pin(s) 09G_F11234.IT_1.IN_1 (F)	• 2	 Similar Brooks Instrument IT Integrator (IT) BROOKS_3809G_FI1234 IT_1 600 Similar Brooks Instrument Analog Input Analog Input (AI) BROOKS_3809G_FI1234 Al_1 500
App Co	Type Information Load device of	Message description for device: MANU	Erre Location NLEDE-0PC4582 0	or √ Warning √ Info Date 8.08.2017 11:47:16.857	→	111 W X To Service Place III and III and
I Irace 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

FF-CONF - Test Instruction_prj	load Oplino So	ttings Holp	holds behaved	and for Callegory	-Conv.	
	iload Online Se	attings theip				
	in the state of the state		- Cat		V H1 Davies Presentias	- 1 - 1
Network Configuration Funct	ionblock Applicatio		velist			* † A
Device Tag: BROOKS_3809G_FI12	34 Block: AI_1	l (Analog Input)	•	Rename Block P	Device Identificat	ion
					PD Tag	BROOKS_3809G_FI1234
Parameters AI View 1 AI View 2	AI View 3 AI Vi	ew 4 Organize			Device ID	0002462000MT3809xx0100
Name	Configured value	Actual value	Default value Min Value	Max Value Type F 🗠	Device Type	
SIMULATE.TRANSDUCER_STATUS		Bad::NonSpecific	a	U8	CFF Revision	0X0001
SIMULATE.TRANSDUCER_VALUE		0		F	DD Revision	0X0001
SIMULATE.ENABLE_DISABLE		Disabled (1)		U8	Device Revision	0X0001
XD SCALE.EU 100		100		F	Dev Type	0X2000
XD SCALEFU 0		0		F	Manufacturer ID	0X000246
	% (1342)	% (1347)			H1 Addressing	25
	76 (1342)	/6 (1342)		10	Node ID	30
XD_SCALE.DECIMAL	1 Contraction of the second se	0		18	Link Master Settin	Igs Falce
OUT_SCALE.EU_100		100			E User Settings	i disc
OUT_SCALE.EU_0		0		F	Tag Name	BROOKS 3809G ET1234
OUT_SCALE.UNITS_INDEX		0		U16	Tug Nume	5110 0110 5000 0 51 12 51
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	Tag Name	
<		-		>	Tag Name is used by	FF-CIT to resolve
Conney	rtad 5 🛋 Cu	ac(c) 🔽 Deriadic		t All Write all	references. The string	specified with the tag ha
Connec		ec(s) V Periodic	Teau Read All	vvnte all	Device Typ Block Type	Devices Blocks H1 Device
						😁 Online

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 Downl	oad Online Setti	ngs Help	10.7		Serve .	
Network Configuration Function	onblock Application	Network Livelist		* X	H1 Device Properties	→ ₽ ×
Device Tagy BROOKS 2800G EI122	A Block ALL	Appleg Input)	T Re	name Block	êi 2 ↓	
Parameters AI View 1 AI View 2	AI View 3 AI View	4 Organize			PD Tag	BROOKS_3809G_FI1234
Name	Configured value	Actual value	Default value	Min Val 🔨		0002402000101138093301004
ALEDT NET		0		1	CFF Revision	0X0001
MODE BLK.TARGET	OOS (1)	OOS (1)			DD Revision	0X0001
Maine					Device Revision	0X0001
		Auto (16) Map (9) 000			Dev Type	0X2000
		Auto (10) Man (6) 003			Manufacturer ID	0X000246
MODE_BLK.NORMAL		Auto (16)			H1 Addressing	
BLOCK_ERR		OutOfService (1)			Node ID	35
PV.STATUS		Bad::OutOfService:NotLimit			Link Master Setting	ngs
PV.VALUE		22.19852			BLM	False
OUT.STATUS		Bad::OutOfService:NotLimit			User Settings	
OUT.VALUE		22.19852			Tag Name	BROOKS_3809G_FI1234
SIMULATE.SIMULATE STATUS		Good NonCascade::NonSp				
SIMULATE.SIMULATE VALUE		22.19852				
CINALII ATE TRANCDUCED CTATUC		Good NonCorradouNonSe		\sim		
<				>		
Parameter Name: MODE_BLK.TARGET	-	Туре:	BStr			
ROut (128) RCas (64) Cas (32) Auto (16) Man (8)		Cle	ar Set	Write	Node ID	
▼ OOS (1)		\sim			node of the link on H	1. Usually the nodes 1619
					are used. With a redu	undant linking device, the
Connect	ed 5 🖨 Sec	s) 🗹 Periodic read Read	All Set 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.

Network Configuration Y Functio	nblock Application	Network Livelist		* X	H1 Device Properties	* # :
Device Tag: BROOKS_3809G_FI1234	4 Block: AI_1 (Analog Input)	Rena	ame Block P	Device Identificat	ION
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	
SIMULATE.TRANSDUCER_STATUS		Good_NonCascade::NonS	ip .		CFF Revision	0X0001
SIMULATE.TRANSDUCER VALUE		22.19852			DD Revision	0X0001
SIMULATE ENABLE DISABLE		Disabled (1)			Device Revision	0X0001
XD SCALE FUL 100		100			Dev Type	0X2000
XD SCALE EU 0		0			Manufacturer ID	0X000246
YD SCALE LINITS INDEX	9/ (1242)	9((1242)			H1 Addressing	25
XD_SCALE.UNITS_INDEX	% (1542)	76 (1542)			Node ID	35
XU SUBCEDICIMAL	200				Link Master Settin	Igs Faire
OUT_SCALE.EU_100	200	200			E User Settings	Taise
OUL SCALLED_0					Tag Name	BROOKS 3809G FI1234
OUT_SCALE.UNITS_INDEX	m²/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 100		Typ	e: F		N. J. 10	
Parameter Value: 200	-		lear Set	Write	node of the link on H are used. With a redu	1. Usually the nodes 1619 Indant linking device the.
						in the second seco

Step 15: After writing desired OUT_SCALE settings, set MODE_BLOCK.TARGET back to Auto.

Network Configuration V Func	tionblock Application	Network Livelist		* X	H1 Device Properties	1 û
vice Tag: BROOKS 3809G FI12	234 Block: AI 1 (Analog Input)	▼ Rena	me Block P	Denies Identifient	
rameters AI View 1 AI View 2	AI View 3 AI View	4 Organize			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		32,32,32,32,32,32,32,32,32,32,32,			DD Revision	0X0001
STRATEGY		0			Device Revision	0X0001
ALERT KEY		0		1	Dev Type	0X2000
MODE RIKTARCET	Auto (15)	Auto (15)		-	Manufacturer ID	0X000246
MODE_BER.TARGET	Auto (10)	Auto (16)			H1 Addressing	
MODE_BERACTUAL		Auto (16)			Node ID	35
MODE_BLK.PERMITTED		Auto (16) Man (8) OOS			Link Master Settir	ngs
MODE_BLK.NORMAL		Auto (16)			BLM	False
BLOCK_ERR		None (0)			User Settings	PPOOKS 2000G ET1 22/
PV.STATUS		Good_NonCascade::NonSp			Tag Name	BKOOK3_36090_FII23
PV.VALUE		44.39892				
OUT.STATUS		Good_NonCascade::Unackr				
		44 20002		×		
				>		
rameter Name: MODE_BLK.TARG	ET	Туре: Е	3Str			
rameter Value: ROut (128) RCas (64) Cas (32) Auto (16) Man (8) Man (8)		Clea	r Set	Write	Node ID node of the link on H	1. Usually the nodes 161
		*			are used. With a redu	undant linking device, th

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).

					UI Davies Presenting	- 0
Vetwork Configuration (Fur	nctionblock Applicatio	n Network Livelist		* ^	A L	* 7
Han Tana BROOKE 2000C FI		(- Rear	ma Plask D		
vice rag: brooks_sousd_ri.	1254 BIOCK: AL		Kena		Device Identificat	ion
rameters AI View 1 AI View	2 AI View 3 AI Vi	ew 4 Organize			PD Tag	BROOKS_3809G_FI1234
Name	Configured value	ie Actual value	Default value	Min Val 🔿		0002402000101300320
T REV	coninguica i an	9			CFF Revision	0X0001
AG DESC		32 32 32 32 32 32 32 32 32 32 32 32			DD Revision	0X0001
TRATEGY		0			Device Revision	0X0001
NI FRT KEV		0		1	Dev Type	0X2000
	Auto (16)	Auto (16)			Manufacturer ID	0X000246
	Auto (10)	Auto (16)			H1 Addressing	25
		Auto (16) Man (9) 000			Node ID	30
		Auto (16) Man (6) 003			BI M	False
		Auto (10)			User Settings	- disc
BLOCK_ERR		No (0)			Tag Name	BROOKS_3809G_FI123
V.STATUS		Good_NonCascade::NonSp			-	
V.VALUE		44.41856				
DUT.STATUS		Good_NonCascade::Unackr				
DUT.VALUE		44.41856				
IMULATE.SIMULATE_STATUS		Good_NonCascade::Not ap				
IMULATE.SIMULATE_VALUE		22.19923				
IMULATE.TRANSDUCER_STATU	JS	Good_NonCascade::NonSp				
IMULATE.TRANSDUCER_VALU	E	22.19923				
IMULATE.ENABLE_DISABLE		Disabled (1)			Neda ID	
D_SCALE.EU_100		100		~	node of the link on H	1. Usually the nodes 16

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 Downlo	ad Online S	ettings Help			
Network Configuration Function	nblock Applicati	on Network Livelist	▼ X	H1 Device Properties	~ ₽ ×
,,				8∎ 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 View 3 AI V	'iew 4 Organize		Device ID	0002462000MT3809xx0100A000
Name Co	onfigured 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
		None (0)		HI Addressing	25
	lone (0)	None (0)		E Link Master Settings	
	lone (0)	None (0)		BI M	False
	vone (0)			User Settings	
ALARM_HYS				Tag Name	BROOKS_3809G_FI1234
	2	2		-	
HI_HI_LIM 1	.50	150			
HI_PRI 2	2	2			
HI_UM 1	.00	100			
LO_PRI		0	\sim		
<			>		
Connected	5 🖨 Sec(s) [Periodic read Read All Set	All Write all		
Trace Log			↓ ₽ ×		
		Vari	ing 📝 Information	Node ID	
Number Type	Message	Location	Date 🗦	node of the link on H1. Us	ually the nodes 1619 are
<			>	used. With a redundant lin	nking device, the secondary s
Trace Log				Device Types Block Types	Devices Blocks H1 Device Pro
					Online

roject Edit View Build Downlo.	ad Online Sett	ngs Help			
Network Configuration Function	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	0X0001
BLOCK_ALM.ALARM_STATE		Uninitialized (0)		DD Revision	0×0001
BLOCK_ALM.TIME_STAMP		0		Device Revision	0X0001
BLOCK_ALM.SUB_CODE		Cher (0)		Dev Type Manufactures ID	0X2000
BLOCK_ALM.VALUE		0			07000240
ALARM_SUM.CURRENT		Hi Alarm (8192)		Node ID	35
ALARM_SUM.UNACKNOWLEDGED		Hi Alm Unack (8, 92)		Link Master Settings	
ALARM_SUM.UNREPORTED		History Ulasp (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			
HI_HI_PRI	2	2			
HI_HI_LIM	150	150			
HI_PRI	2	2			
HI_LIM	100	100			
		0	\geq		
Connected 5	Sec(s) 🔽 Perio	dic read Read All Set All	Write all	Node ID	
ace Log			- 4 ×	node of the link on H1. Usu	ally the nodes 1619 are used.
		V Error V Warning V	Information	With a redundant linking d	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

FF-CONF - Test Instruction_prj	- K. S. W.	5.0.0.0.00	1.1	and a state of	
Project Edit View Build Downloa	d Online Setti	ngs Help			
Network Configuration Function	block Application	Network Livelist	▼ X	H1 Device Properties	- ₽ ×
				ê 2↓ 📼	
Device Tag: BROOKS_3809G_FI1234	Block: AI_1 (/	Analog Input) 👻	Rename	Device Identification	
				PD Tag	BROOKS_3809G_FI1234
Parameters AI View 1 AI View 2 A	AI View 3 AI View	4 Organize		Device ID	0002462000MT3809xx0100A00000
Name	Configured value	Actual value	^	Device Type	
BLOCK_ALM.UNACKNOWLEDGED		Uninitialized (0)		CFF Revision	0X0001
BLOCK_ALM.ALARM_STATE		Uninitialized (0)		DD Revision	0X0001
BLOCK_ALM.TIME_STAMP		0		Device Revision	0X0001
BLOCK ALM,SUB CODE		Other (0)		Dev Type	0X2000
	-	0		Manufacturer ID	0X000246
		1015 Alarm (16294) 115 Alarm (9102)		H1 Addressing	
ALARM_SUM.CORRENT		HIHI Alarm (10364) Hi Alarm (6192)	_	Node ID	35
ALARM_SUM.UNACKNOWLEDGED		HiHi Alarm Unack (16384) Hi Alm Un	ack (8	Link Master Settings	F 1
ALARM_SUM.UNREPORTED		Inn Alm Unrep (16384) Hi Alm U	0 (819	BLM	False
ALARM_SUM.DISABLED	None (0)	None (0)		User Settings	BROOKS 2000C ET1224
ACK_OPTION	None (0)	None (0)		Tag Name	BROOK5_3809G_FII234
ALARM_HYS		0.5			
HI_HI_PRI	2	2			
HI_HI_LIM	150	150			
HIPRI	2	2			
HILIM	100	100			
		0	\geq		
Connected 5	Sec(s) 📝 Derior		Vrite all		
	occor in reno		inte un	Node ID	
Trace Log			- ₽ ×	node of the link on H1. Us	ually the nodes 1619 are used.
		🗹 Error 📝 Warning 📝 In	formation	With a redundant linking	device, the secondary should use
Trace Log				Device Types Block Types	Devices Blocks H1 Device Proper
					😁 Online

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

FF-CONF - Test Instruction_prj	- R. S. W.	5.0.0.0.00	10.00		
Project Edit View Build Downloa	d Online Setti	ngs Help			
Network Configuration Eurotion	block Application	Network Livelist	▼ X	H1 Device Properties	→ ₽ ×
	bioekrippileadoli			8≣ 4↓ □	
Device Tag: BROOKS_3809G_FI1234	Block: AI_1 (/	Analog Input) 🔹 🔻	Rename	Device Identification	
				PD Tag	BROOKS_3809G_FI1234
Parameters AI View 1 AI View 2 A	AI View 3 AI View	4 Organize		Device ID	0002462000MT3809xx0100A00000
Name	Configured value	Actual value	^	Device Type	
BLOCK_ALM.UNACKNOWLEDGED		Uninitialized (0)		CFF Revision	0X0001
BLOCK_ALM.ALARM_STATE		Uninitialized (0)		DD Revision	0X0001
BLOCK_ALM.TIME_STAMP		0		Device Revision	0X0001
BLOCK ALM.SUB CODE		Other (0)		Dev Type	0X2000
BLOCK ALM.VALUE	/	0		Manufacturer ID	0X000246
		None (0)		HI Addressing	25
		USUE Alexen User (16284), LHE Alex User	al. (0:	Node ID	35
		HIHI Alarm Unac (10304) THI Alm Una	ICK (0.		False
ALARM_SUM.UNREPORTED		HiHi Alm Unit p (10384) Hi Alm Uniter	0 (819	User Settings	Tuise
ALARM_SUM.DISABLED	None (0)	None (0)		Tag Name	BROOKS 3809G FI1234
ACK_OPTION	None (0)	None (0)			
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	\sim		
Connected 5	Sec(s) 📝 Period	dic read Read All Set All W	/rite all	Node ID	
Trace Log			→ # ×	node of the link on H1. Usu	ally the nodes 1619 are used.
		🛛 Error 📝 Warning 📝 In	formation	With a redundant linking d	levice, the secondary should use
Trace Log				Device Types Block Types	Devices Blocks H1 Device Proper
					😁 Online

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

FF-CONF - Test Instruction_prj	5.2-2-1-## L X		
Project Edit View Build Download Online Sett	ngs neip		
Network Configuration Functionblock Application	Network Livelist	H1 Device Properties	≁ ₫ X
Parameters AI View 1 AI View 2 AI View 3 AI View	Analog Input) Renami	Device Identification PD Tag	BROOKS_3809G_FI1234
Name Configured value	Actual value	Device ID	0002462000M13809xx0100A00000
LO PRI		CFF Revision	0X0001
	Infinity	DD Revision	0X0001
	0	Device Revision	0X0001
	0	Dev Type	0X2000
	-infinity	Manufacturer ID	0X000246
HI_HI_ALM.UNACKNOWLEDGED Acknowledged	(Acknowledged (1)	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 ALMWALOE	109/265	User Settings	
HI ALM.UNACKNOWLEDGED Acknowledged	Acknowledged (1)	Tag Name	BROOKS_3809G_FI1234
HI ALMALARM STATE	Active-Not Reported (4)		
Η ΔΙΜΤΙΜΕ STAMP	24697100808		
	Other (0)		
	Strier (0)		
Parameter Name: HI_ALM.UNACKNOWLEDGED	Туре: U8		
Parameter Value: Acknowledged (1)	Clear Set Write		
✓ Connected 5 Sec(s) ♥ Peric	dic read Read All Set All Write all		
aca log		Node ID	
	Error Warning Information	With a redundant linking of	ally the nodes 1619 are used. levice, the secondary should use
race Log		Device Types Block Types	Devices Blocks H1 Device Prope
			😁 Onlin

oject zait view Buila Downloo	ad Online Setti	ngs Heip				
Network Configuration Function	block Application	Network Liv	elist	* ×	H1 Device Properties	
Device Tag: BROOKS_3809G_FI1234	Block: AI_1 (/	Analog Input)	•	Renam	Device Identification	
Parameters AI View 1 AI View 2	AI View 3 AI View	4 Organize			PD Tag	BROOKS_3809G_FI1234
News	Carfornaduratur	. organize	Astrolyce		Device ID	0002462000M13809xx0100A000
	Configured value	0	Actual value		CEE Pavision	0,0001
		0			DD Revision	0X0001
UPDATE_EVT.STATIC_REVISION		0			Device Revision	0×0001
UPDATE_EVT.RELATIVE_INDEX		0			Dev Type	0X2000
BLOCK_ALM.UNACKNOWLEDGED		Uninitialized (())		Manufacturer ID	0X000246
BLOCK_ALM.ALARM_STATE		Uninitialized (())		H1 Addressing	
BLOCK_ALM.TIME_STAMP		0			Node ID	35
BLOCK_ALM.SUB_CODE		Other (0)			Link Master Settings	
BLOCK_ALM.VALUE		0			BLM	False
ALARM_SUM.CURRENT		None (0)			User Settings	
ALARM SUM.UNACKNOWLEDGED		None (0)			Tag Name	BROOKS_3809G_FI1234
ALARM SUM UNREPORTED		HiHi Alm Un	o (16384) I Hi Alm Unn	ep (819		
	None (0)	New				
	None (0)	None (0)		\sim		
ACK OPHON	None (0)	None (0)		Σ		
rameter Name: HI_ALM.UNACKNOW	/LEDGED	Туре:	U8			
arameter Value: Acknowledged (1)		▼ Cle	ear Set	Write		
Connected 5	Sec(s) 📝 Perio	dic read Read	All Set All	Write all		
ce Loa				- 4 ×	Node ID	kually the peder 16, 10 are used
		V E	rror 🔽 Warning 👿 I	nformation	With a redundant linking	g device, the secondary should use.
re log					Device Types Block Typ	es Devices Blocks H1 Device Prov
ice eog					Device Types Diock Typ	es Devices Diocks Int Device Pio

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	ad Online Setti	······································			MACK MACK	
Project Edit View Build Downid	ad Online Setti	ngs Heip				
Network Configuration Functio	nblock Application	Network Livelist		▼ X	H1 Device Properties	→ ₽ ×
	-					
Device Tag: BROOKS_3809G_FI1234	BIO 32769	_1 (Analog Input Trans	ducer Block)	Kena	Device Identification	
aitb_view_4 aitb_view_4	aitb_view	_4aitb_view_4	4 Organize		PD Tag	BROOKS_3809G_FII234
Parameters aitb	_view_1	aitb_view_2	aitb_view_3			000240200010113809000000
Name	Configured value	Actual	value	~	CFF Revision	0X0001
INV TOTALIZER.UOM	configured value	gallon (1048)	10.00		DD Revision	0X0001
		99930.45			Device Revision	0X0001
		2			Dev Type	0X2000
		2			Manufacturer ID	0X000246
LO_FLOW.ALARM_EN		Enabled (1)			H1 Addressing	
LO_FLOW.ALARM_TYPE		Non-latched (0)			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		Non-latched (0)			Tag Name	BROOKS_3809G_FI1234
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		
race Log				Ψ×	Node ID	ually the poder 16, 10 are used
		📝 Error 📝	Warning 🔽 Inform	nation	With a redundant linking	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	Functionblock Applicati	on Network Livelist	* X	H1 Device Properties	¥ 4)
evice Tag: BROOKS_38090	5_FI1234 Block: 32	769_1 (Analog Input Transduce	r Block) 🔻 Rena	Device Identification	
aitb_view_4 aitl	b_view_4 aitb_v	view_4 aitb_view_4	Organize	PD Tag Device ID	BROOKS_3809G_F11234 0002462000MT3809xx0100A000
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_TYP	PE	Latched (1)		DD Revision	0X0001
PULS_OUT_OVERRUN.ALAR	M_EN	Disabled (0)		Device Revision	0X0001
PULS_OUT_OVERRUN.ALAR	M_TYPE	Non-latched (0)		Dev Type	0X2000
DIAG.ALARM_EN		Enabled (1)		Manufacturer ID	0X000246
DIAG.ALARM_TYPE		Latched (1)		HI Addressing	25
DB INIT.ALARM EN		Enabled (1)		Link Master Settings	
DB INIT,ALARM TYPE		Latched (1)		BLM	False
POWERALARM EN		Enabled (1)		User Settings	
POWER ALARM TYPE		Latched (1)		Tag Name	BROOKS_3809G_FI1234
BROOKS SERIAL NUMBER					
CURRENT ALARM STATUS		16	0000000000		
		0			
RESET ALARM		Idle (0)			
		rate (0)			
		gallon (1046)	~		
POLSE OUTPOT.SCALER			Σ		
Connected	5 🗣 Sec(s) 🔽 Pe	eriodic read Read All Set	All Write all		
alog			- " Y	Node ID	
		🔽 Error 📝 War	ning 🔽 Information	With a redundant linking	Jsually the nodes 1619 are used. g device, the secondary should use

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Model MT3809G FOUNDATIONTM Fieldbus

PV value > 90

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

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🗄 🤹 🖡 🋊							
Network Configuration	Functionblo	ck Applicatior	Network Livelist		. ×	H1 Device Properties	▲ Å X
Device Tag: BROOKS_38	09G_FI1234	Block: 3276	9_1 (Analog Input Tran	ducer Block)	 Rena 	Device Identification	
aitb_view_4	aitb_view_4	aitb_vi	ew_4 aitb_view_	4 Org	janize	PD Tag Device ID	BROOKS_3809G_FI1234 0002462000MT3809xx0100A00000
Parameters	aitb_viev	N_1	aitb_view_2	aitb_vie	V_3	Device Type	
Name	Co	onfigured valu	e Actua	value	^	CFF Revision	0X0001
PULS_OUT_CFG.ALARM_	TYPE		Latched (1)			DD Revision	0X0001
PULS_OUT_OVERRUN.A	LARM_EN		Disabled (0)			Device Revision	000000
PULS_OUT_OVERRUN.A	LARM_TYPE		Non-latched (0)			Dev Type Manufacturor ID	0X2000
DIAG.ALARM_EN			Enabled (1)				07000240
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_NUMB	ER		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	xxxxxxxxx	XXXX		
CURRENT_ALARM_STAT	US		8				
ACTIVE_DIAG_STATUS			0		_		
RESET_ALARM			Idle (0)				
PULSE_OUTPUT.UOM			gallon (1048)				
PULSE OUTPUT.SCALER			1		>		
Connecte	d 5 🛋 s	ec(s) 🔽 Peri	odic read Read All	Set All	Write all		
U connecte	- J - J					Node ID	
Trace Log					→ ₽ ×	node of the link on H1. U	sually the nodes 1619 are used.
			Error 🗸	Warning 🔽 I	nformation	With a redundant linking	device, the secondary should use
Trace Log						Device Types Block Type	s Devices Blocks H1 Device Proper
							😁 Online

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

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Project Edit View Build Do	ownload Online Set	tings Help				
Network Configuration Fu	nctionblock Application	Network Livelist		• X	H1 Device Properties	→ ₽ ×
					8 2↓ 🖻	
Device Tag: BROOKS_3809G_F	I1234 Block: 3276	9_1 (Analog Input Trans	sducer Block) 🔻 🛛 R	ena	Device Identification	
aith uigur 4 aith u	iour 4 pith vic	au 4 aith uigu			PD Tag	BROOKS_3809G_F11234
Darameters	aitb_view_1	aith view 2	aith view 2		Device ID	0002462000MT3809xx0100A00000
Falameters	altb_view_1	alto_view_2	alto_view_5		Device Type	
Name	Configured valu	e Actua	l value	^	CFF Revision	0X0001
PULS_OUT_CFG.ALARM_TYPE		Latched (1)			DD Revision	0X0001
PULS_OUT_OVERRUN.ALARM_	EN	Disabled (0)			Device Revision	0/2000
PULS_OUT_OVERRUN.ALARM_	TYPE	Non-latched (0)			Dev Type	0X2000
DIAG.ALARM_EN		Enabled (1)				07000240
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	
		Latched (1)			Tag Name	BROOKS_3809G_F11234
BROOKS SERIAL NUMBER			(XXXXXXXXXXXXXXXXX			
CURRENT ALARM STATUS		0	000000000000000			
ACTIVE DIAG STATUS		0				
RESET ALARM		Idle (0)				
PULSE OUTPUT.UOM		gallon (1048)				
PULSE OUTPUT.SCALER		1		\sim		
			>			
Connected	5 🖨 Sec(s) 📝 Peri	odic read Read All	Set All Write al			
Trace Lon					Node ID	
		🔽 Error 🗸	Warning V Informa	tion	With a redundant linking	device, the secondary should use
Trace Log			-		Device Types Block Type	s Devices Blocks H1 Device Proper
						😁 Online

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. 2 - 2 - 1				
Project Edit View Build Downloa	ad Online Settin	gs Help				
Network Configuration Function	block Application	Network Livelist		×	H1 Device Properties	~ ₽ ×
					₽ 2↓ 📼	
Device Tag: BROOKS_3809G_FI1234	Block: 32769_	1 (Analog Input Tran	sducer Block) Re	ena	Device Identification	
sith view 4 sith view 4	aith uigur	4 aith view			PD Tag	BROOKS_3809G_FI1234
Parameters aith	view 1	aith view 2	_4 Organize	_	Device ID	0002462000MT3809xx0100A00000
	view_1	alto_view_2	alto_view_5		Device Type	01/0004
Name	Configured value	Actua	al value	^	CFF Revision	0X0001
INV_TOTALIZER.UOM		gallon (1048)			DD Revision	0X0001
INV_TOTALIZER.VALUE		100548.1			Device Revision	0X2000
INV_TOT_DIG_DEC		2			Manufacturor ID	0X000246
LO_FLOW.ALARM_EN		Enabled (1)				07000240
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
	90	90				
HI FLOW,ALARM LIMIT DELAY		U				
PULS OUT CEGALARM EN		Enabled (1)		\sim		
<			Σ			
Parameter Name: HI_FLOW.ALARM_TYP	PE	Type: U8				
Parameter Value: Latched (1)		Clear	Set Write			
	Sec(s) Deriod	ic read Read All	Set All Write all			
	see(s) is renou			· · ·	Node ID	
Trace Log			→ Ū	X	node of the link on H1. Usu	ually the nodes 1619 are used.
		🗹 Error 🗸	Warning Varning	tion	With a redundant linking of	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.

Project Edit View Build Download Online Settings Hip Image: Settings Image: Se	FF-CONF - Test Instruction_prj	187 N. 8. 8-8-1		Same and same	
Network Configuration Functionblock Application Network Livelist Image: Status	Project Edit View Build Download	d Online Settings Help			
Network Configuration Functionblock Application Network Livelist × ×					
Device Tag: BROOKS_3809G_FI1234 Block 32769_1 (Analog Input Transducer Block) Ref aitb_view_4 aitb_view_4 aitb_view_4 Organize Parameters aitb_view_1 aitb_view_2 aitb_view_3 Name Configured value Actual value PD Tag BROOKS_3809G_FI1234 DIAG_ALARM_EN Enabled (1) DD Agg BROOKS_00001 Device Type DIAG_ALARM_EN Enabled (1) DD Revision 0X0001 Device Revision 0X0001 DB_JINTALARM_EN Enabled (1) DD Revision 0X0001 Devision 0X0001 Dev Type Latched (1) DO WERALARM_TYPE Latched (1) Devision 0X0001 POWER_ALARM_TYPE Latched (1) DO WOWERALARM_TYPE Latched (1) Node ID 35 BROOKS_SERIAL_NUMBER XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Network Configuration Function	lock Application Network Livelist		H1 Device Properties	~ ₽ ×
Device Tag: BROOKS_3809G,FI1234 Block: 22769_1 (Analog Input Transducer Block) Renal aitb_view_4 aitb_view_4 aitb_view_4 aitb_view_4 Organize aitb_view_1 aitb_view_2 aitb_view_3 D'arameters BROOKS_3809G,FI1234 Parameters aitb_view_1 aitb_view_2 aitb_view_3 D'arameters BROOKS_3809G,FI1234 Name Configured value Actual value O'ganize D'arameters 0002462000MT3809xx0100A00 DIAGALARM_EN Enabled (1) Device Type Cff Revision 0X0001 DB_JINITALARM_EN Enabled (1) Device Revision 0X0001 Device Revision 0X0001 Device RAM_EN Enabled (1) Manufacturer ID 0X000246 H1 Addressing Node ID 35 POWER.ALARM_EN Enabled (1) Manufacturer ID 0X000246 H1 Addressing BROKS_SERIA_NUMBER Socox0x0x0x0x0x0x0x0x0x0x0x0x0x0x0x0x0x0x				A ↓	
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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.

BROOKS SERVICE AND SUPPORT

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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START-UP SERVICE AND IN-SITU CALIBRATION

Brooks Instrument can provide start-up service prior to operation when required.

For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

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