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SLC4075TechNote212_BACnetAndModbus Expanded Description of DataPoints

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This table adds a column to the Table 2 found in the "SLC4075InstallationAndOperatingManual"
1. **Column 1 BACnet Analog Input are read-only values.**
2. **Column 2 items are Read/Write values.**
3. **Entries that are marked 'Reserved' in the Expanded Variable Description are for future use and not for end-user interaction.**

Table 2 Building Management Interface Variable Assignment

BACnet Analog Input Dev to G3 (Read Only)	BACnet Analog Value Dev to G3 (Read /Write)	Modbus Holding Reg Dev to G3 (Read Only) 300000	Modbus Analog Input Dev to G3 (Read/ Write) 400000	Device	Tag /Formula/Dependencies	Min Val	Max Val	Page Ref	Expanded Variable Description
AI0001		300001		S4K	S4K Qty Rlys[0]	0	8	Front	Qty of relays on the master SLC4000, addr 0
AI0002		300003		S4K	S4K Qty Rlys[1]	0	8	Front	Qty of relays on the expansion SLC4000, addr 1
AI0003		300005		S4K	S4K Qty Rlys[2]	0	8	Front	Qty of relays on the expansion SLC4000, addr 2
AI0004		300007		S4K	S4K Qty Rlys[3]	0	8	Front	Qty of relays on the expansion SLC4000, addr 3
AI0005		300009		S4K	S4K Qty Sys Rlys	0	24	Front	Total qty of relays on all SLC4000s
AI0006		300011		S4K	S4K Rly Img[0]	0	255	Front	Value representing the relays active on SLC4000 master as binary image, addr o
AI0007		300013		S4K	S4K Rly Img[1]	0	255	Front	Value representing the relays active on expansion as binary image SLC4000, addr 1
AI0008		300015		S4K	S4K Rly Img[2]	0	255	Front	Value representing the relays active on expansion as binary image SLC4000, addr 2
BACnet Analog	**BACnet Analog**	**Modbus Holding**	**Modbus Analog**	**Device**	**Tag /Formula/Dependencies**	**Min Val**	**Max Val**	**Page Ref**	

Input Dev to G3 (Read Only)	Value Dev to G3 (Read /Write)	Reg Dev to G3 (Read Only) 300000	Input Dev to G3 (Read/ Write) 400000			Min Val	Max Val		
AI0009		300017		S4K	S4K Rly Img[3]	0	255	Front	Value representing the relays active on expansion as binary image SLC4000, addr 3
AI0010		300019		S4K	S4K Input Cfg	0	32		Value of the configuration switch positions of SW1-1 through SW1-5
AI0011		300021		S4K	S4K Aux Step Cmd	0	10000	SLC4000	Value in percent of full span of the command sensed at TB2 to TB3 of the SLC4000
AI0012		300023		S4K	S4K Aux Ld Lmt	0	10000	SLC4000	Value in percent of full span of the command sensed at TB5 to TB6 of the SLC4000
AI0013		300025		S4K	S4K Lcl OnDly Secs	0	3600	SLC4000	Value in seconds of the On Delay setting between steps of the SLC4000
AI0014		300027		S4K	S4K Lcl Vernier Out	0	10000	SLC4000	Value is percent of full span of the SLC4000 Vernier output
AI0015		300029		S4K	GW Mode				Reserved, not used
AI0016		300031		S4K	S4K Fault	0	9	SLC4000	Reserved, Internal SLC4000 fault code
AI0017		300033		S4K	S4K Version	400	10000	SLC4000	Version of firmware of SLC4000 in hundredths
AI0018		300035		S4K	XDI Logical Input			SLC4000	Expansion Digital Input, Logical
AI0019		300037		TSGW	Reserved			TSGW Info	**Read only code that enables use of remote vals This value can be changed, but default is 90**
AI0020		300039		TSGW	GPA1 EU mapped to Zero Pct				Scale factor mapped to 0 Pct
AI0021		300041		TSGW	GPA1 EU mapped to 100 Pct				Scale factor mapped to 100 Pct
AI0022		300043		TSGW	GPA2 EU mapped to Zero Pct				Scale factor mapped to 0 Pct
AI0023		300045		TSGW	GPA2 EU mapped to 100 Pct				Scale factor mapped to 100 Pct
AI0024		300047		PGW	GetSPM1SetptDegF			SPM1	The value in Degree F of the Modified Setpt 1. This value is the same as the unmodified setpt 1 when the Setpt Modifier 2 is disabled
AI0025		300049		PGW	GetSPM2SetptEngr			SPM2	The value in full span percent of the Modified Setpt 2. This value is the same as the unmodified setpt 2 when the Setpt Modifier 2 is disabled.
BACnet Analog Input	**BACnet Analog Value**	**Modbus Holding Reg**	**Modbus Analog Input**	**Device**	**Tag /Formula/Dependencies**	**Min Val**	**Max Val**	**Page Ref**	

Dev to G3 (Read Only)	Dev to G3 (Read /Write)	Dev to G3 (Read Only) 300000	Dev to G3 (Read/ Write) 400000			Min Val	Max Val		
AI0026		300051		S4K	S4K PctOutput[0]	0	100	SLC4000	The output of this specific S4K is the quantity relays ON divided by the quantity relays-in-service, in percent for this specific S4K
AI0027		300053		S4K	S4K PctOutput[1]	0	100	SLC4000	The output of this specific S4K is the quantity relays ON divided by the quantity relays-in-service, in percent for this specific S4K
AI0028		300055		S4K	S4K PctOutput[2]	0	100	SLC4000	The output of this specific S4K is the quantity relays ON divided by the quantity relays-in-service, in percent for this specific S4K
AI0029		300057		S4K	S4K PctOutput[3]	0	100	SLC4000	The output of this specific S4K is the quantity relays ON divided by the quantity relays-in-service, in percent for this specific S4K
AI0030		300059		PGW	PGW.Vlt Drvr Pct			Voltage Driver	The value of the Voltage Driver in full span percent
AI0031		300061		PGW	RTD1TempDegF			RTD Sensors	The temperature in Degree F of RTD1
AI0033		300065		PGW	RTD2TempDegF			RTD Sensors	The temperature in Degree F of RTD2
AI0035		300069		PGW	GPA1A2Cfg			Aux Sensors	The configuration of the GPA1 and GPA2 DIP switches
AI0036		300071		PGW	GPA1 Span Pct	-250	1000	Aux Sensors	The value of GPA1 in full span percent Note that the TSGW is used to scale to engr units An input configured for 4-20ma with o input reads -250 for -25% of full span
AI0037		300073		PGW	GPA2 Span Pct	-250	1000	Aux Sensors	The value of GPA2 in full span percent Note that the TSGW is used to scale to engr units An input configured for 4-20ma with o input reads -250 for -25% of full span
AI0038		300075		PGW	GPDI	0	15	GPDI	A packed binary representation of the 4 GPDI inputs. See GPDI additional information *1
AI0039		300077		PGW	Pressure in PSI (typ) GPA1 in EU			GPA1 in Engr Units	Typically pressure, but may be any other scaled engineering unit
AI0040		300079		PGW	GPA2 in EU			GPA2 in Engr Units	GPA2 in scaled engineering unit
AI0041		300081		PGW	PGW IP Addr			SLC4060 Info	The fixed address is 192.168.0.100 and is only used for firmware updates
AI0043		300083		PGW	PGW NetMask			SLC4060 Info	The fixed mask is 255.255.255.0 and is only used for firmware updates
BACnet Analog	BACnet Analog	Modbus Holding	Modbus Analog	Device	Tag /Formula/Dependencies	Min Val	Max Val	Page Ref	

BACnet Analog (Input Dev to G3, Read Only)	BACnet Analog (Value Dev to G3, Read/Write)	Modbus Holding (Reg Dev to G3, Read Only) 300000	Modbus Analog (Input Dev to G3, Read/Write) 400000	Device	Tag /Formula/Dependencies	Min Val	Max Val	Page Ref	
AI0045		300087		PGW	PGW Fault	0	10	SLC4060 Info	Reserved, fault codes
AI0046		300091		PGW	PGW Version	0	10000	SLC4060 Info	Firmware version in hundredths
AI0050		300099		TSGW	TSGW Fault	0		TSGW Info	Reserved, fault codes
AI0051		300101		TSGW	TSGW Version	100	10000	TSGW Info	Firmware version
AI0053		300105		TSGW	PGW Exists	N/A		Comm Assur	Reserved, internal usage
AI0054		300107		TSGW	TSGWPolled	N/A		Comm Assur	Reserved, internal usage
	AV0001		400001	TSGW	DDC En	0	90	All	0 switches Aux/DDC to Aux 90 switches Aux/DDC to BMS-provided communication with the SLC4000 and PGW is internally confirmed
	AV0002		400003	TSGW	DDC Step Cmd	-1	10000	TSGW Info	full span percent -1 is to set the command to null 100 is full on command
	AV0003		400005	TSGW	DDC Ld Lmt	-1	10000	TSGW Info	Full span percent of full span -1 is to set the load limit to null 100 is full on load limit which causes all relays to be off
	AV0004		400007	TSGW	DDC On Dly Secs	-1	3600	TSGW Info	seconds of delay between activating the next relay of the SLC4000. Note that the range is higher than the 480 seconds that may be set using the controls on the SLC4000.
	AV0005		400009	TSGW					Reserved
	AV0008		400015	XDI	XDI Invert Mask	0	255		
	AV0009		400017	XDI	XDI Alarm Mask	0	255		
	AV0010		400019	XRLY	XRlys Image	0	255		
	AV0011		400021	XRLY	XRly Source Select	0	255		
	AV0012		400023		CLL Blr En	0	15		Classic Lead Lag Boiler Enable in packed byte
	AV0013		400025		CLL Lead Chg Hrs	0	1000		Classic Lead Lag Lead Change hours
	AV0014		400027		CLL Lead Chg Select Idx	0	3		Classic Lead Lag Lead Change Select Index
	AV0015		400029	PGW	PID1 Mode Select	0	4	PID1	See document section for definition of value
BACnet Analog	BACnet Analog	Modbus Holding	Modbus Analog	Device	Tag /Formula/Dependencies	Min Val	Max Val	Page Ref	

Input	Value	Reg	Input							
Dev to G3	Dev to G3	Dev to G3	Dev to G3							
(Read Only)	(Read /Write)	(Read Only) 300000	(Read/ Write) 400000							
	AV0016		400031	PGW	SPM1Src Select	0	4	SPM1	See document section for definition of value
	AV0017		400033	PGW	PID1 Set Unmod Setpt Deg	-600	2400	PID1	Setpt in degrees F
	AV0018		400035	PGW	PID1 Set Engr Units	1	2	PID1	1=Deg F 2=Deg C
	AV0019		400037		Spare	N/A			
	AV0020		400039	PGW	PID1 Proportion	0	10000	PID1	Value is PID1 Proportion co-efficient
	AV0021		400041	PGW	PID1 Integral	0	10000	PID1	Value is PID1 Integral co-efficient
	AV0022		400043	PGW	PID1.Derivative	0	10000	PID1	Value is PID1 Derivative co-efficient
	AV0023		400045	PGW	PID1. Min Out Pct	0	500	PID1	Value is minimum output is full span percent
	AV0024		400047	PGW	SPM1 .Engr Units	N/A		SPM1	Setpt Modifier X-axis engr unit is defined as the same PID1 engr unit
	AV0025		400049		Spare	N/A			
	AV0026		400051	PGW	SPM1 Lo Deg	-1000	10000	SPM1	Value is the low temp in Deg F for setpt modifier
	AV0027		400053	PGW	SPM1 Lo Mod Deg	-1000	10000	SPM1	Value is the +/- degree to add to the Unmod setpt using the PID1 engr units at the LoX value
	AV0028		400055	PGW	SPM1 Hi Deg	-1000	10000	SPM1	Value is the high temp in Deg F for setpt modifier
	AV0029		400057	PGW	SPM1 Hi Mod Deg	-1000	10000	SPM1	Value is the +/- degree to add to the Unmod setpt using the PID1 engr units at the HiX value
	AV0030		400059		Spare				
	AV0031		400061	PGW	PID2 Mode Select	0	4	PID2	See document section for definition of value
	AV0032		400063	PGW	PID2 Source Select	0	3	SPM2	See document section for definition of value
	AV0033		400065	PGW	PID2 Unmodified Setpt Engr Units	0	1000	PID2	Value is the setpt value in engineering units
	AV0034		400067	PGW	PID2 Engr Units	3	3	PID2	Value is for only choice of full span percent
	AV0035		400069		Spare	N/A			
	AV0036		400071	PGW	PID2 Proportion	0	10000	PID2	Value is PID2 Proportion co-efficient
	AV0037		400073	PGW	PID2 Integral	0	10000	PID2	Value is PID2 Integral co-efficient

BACnet Analog Input Dev to G3 (Read Only)	BACnet Analog Value Dev to G3 (Read /Write)	Modbus Holding Reg Dev to G3 (Read Only) 300000	Modbus Analog Input Dev to G3 (Read/ Write) 400000	Device	Tag /Formula/Dependencies	Min Val	Max Val	Page Ref	
	AV0038		400073	PGW	PID2 Derivative	0	10000	PID2	Value is PID2 Derivative co-efficient
	AV0039		400075	PGW	PID2 Min Out Pct	0	500	PID2	Value is minimum output is full span percent
	AV0040		400079		Spare	N/A			
	AV0041		400081	PGW	SPM2 Ctl Lo X	0	1000	SPM2	Value is in full span percent This value must be lower than SetCtlHiX
	AV0042		400083	PGW	SPM2 .Lo Mod	-1000	1000	SPM2	Value is in full span percent
	AV0043		400085	PGW	SPM2. Ctl Hi X	0	1000	SPM2	Value is in full span percent This value must be lower than SetCtlLoX
	AV0044		400087	PGW	SPM2. Hi Mod	-1000	1000	SPM2	Value is in full span percent
	AV0045		400089		Spare				
	AV0046				RTD1 Bias Cnts	-100	500		PGW.RTD.g_fSetRTD1BiasCnts
	AV0047				RTD2 Bias Cnts	-100	500		PGW.RTD.g_fSetRTD2BiasCnts
	AV0048				GPA1 Bias Pct	-100	500		PGW.GPA1.g_fSetBiasPct
	AV0049				GPA2 Bias Pct	-100	500		PGW.GPA2.g_fSetBiasPct
	AV0050				GPDI Alarm and Invert Mask	0	255		PGW.GPDI.g_fSetGPDIAlmAndInvMask
	AV0051				PGW Rlys Src Select [0]	0	9		PGW.Rly.g_fSetPGWRlysSrcSel[]
	AV0052				PGW Rlys Src Select [1]	0	9		
	AV0053				PGW Rlys Src Select [2]	0	9		
	AV0054				PGW Rlys Image	0	9		PGW.Rly.g_fSetPGWRlys
	AV0055				PGW Rlys, Invert Mask	0	7		PGW.Rly.g_fSetPGWRlyInvMask
	AV0056				PGW Vlt Drvr Select	0	9		PGW.VltDrvr.g_fSetVltSelect
	AV0057				PGW Vlt Drvr Pct	0	100		PGW.VltDrvr.g_fSetVltDrvrPct

*1 GPDI additional information

This datapoint is a packed byte and may be decoded by parsing the individual bits.

- Alarm Points are the General Purpose Digital Inputs (GPDI) and is to be interpreted as a packed integer at **AI38**
- The value of each bit is determined by the input modified by the inversion bit assignment

Substitute the actual GPDI assignments in the corresponding columns
Example:
GPDI1 - Bit 0 Low Water (alarm)
GPDI2 - Bit 1 is Hi Limit (alarm)
GPDI3 - Bit 2 is Status (Not an alarm)
GPDI4 - Bit 3 is Hi Water (Not an alarm)

You can build a table to interpret, as below

A shutdown alarm causes the command to go to 0, until the alarm is reset

Description	High Water GPDI4	Status GPDI3	High Limit GPDI2	Low Water GPDI1	AV Value
Causes shutdown On active	N	N	Y	Y	
Normal condition	**0**	**1**	**0**	**0**	**4**
Low Water	0	0	0	1	1
High Pressure	0	0	1	0	2
High Water	1	0	0	0	8
High Pressure & High Water	1	0	1	0	10
Low Water & High Pressure	0	0	1	1	3