XM500 4-20mA Analog Inputs

Loop resistance = 220 Ohms 1% Tolerance A/D Converter Voltage Input = 0 – 5Vdc A/D Converter Resolution = 1024 Counts (0 – 1023) A/D Count = (Amps * 220)/5 * 1024 nominal 4ma = 180 A/D counts nominal 20mA = 901 A/D counts nominal

Note About Resolution – The 4 – 20mA input signal is spread out over a count of 901 - 180 or 721 counts. If you are using a 0-100psi pressure transmitter then your resolution will be 100/721 or about 0.14psi per A/D count. If you are using a 0-1000psi pressure transmitter then your resolution will be about 1.4 psi. Select a transmitter to achieve a balance between the maximum process value you will see and the best resolution you can achieve.

Setting up the XM500 for a 4-20mA input.



1) Set the jumper on the circuit board to 4-20mA for the desired channel.

2) In the XIVISUUC XM500 Config Tool V	Version 2.5	lect Show exte	nded Optior	is on Analog F	
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Base Job Number	2830	Spee	d Units	US STANDA	RD
Base Job Version	5	Pres	sure Units	US STANDA	RD
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PGN 65350-1 Tx Ra	te 100 ms 🔻				

- Select a SPN for the desired analog input (these instructions apply to SPN 52301-52307 as well). Important: The SPN selected must have a max value that is equal to or greater than the pressure you will be measuring. Example: SPN100 oil pressure has a maximum value of 145psi per SAE J1939 specification, you can use a pressure transmitter with a scale of 0 - 200 psi, however the actual pressure being measured must be less than 145psi.
- 4) Set the Min & Max Values these will be the measurement at 4mA and at 20mA. As an example for a 400psi pressure transmitter these will be 0 and 400. The units will be psi for pressure an degrees F for temperature.
- 5) Set the Min & Max A/D counts these represent the A/D counts at 4mA and at 20mA and they are calculated using the formula A/D Count = (Amps * 220)/5 * 1024 4mA = 180 Counts nominal; (@182 including tolerances losses) 20mA = 901 Counts nominal (@912 including tolerances losses) If using a range other than 4 – 20mA simply calculate the A/D count for the min and max current and enter those values. The limits are as follows:

0 Counts = 0 mA1024 Counts = 22.7mA

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			Setpoint (psi)	0
Parameter 2 –	(. 	1	Delay (sec)	0
Hardware	4-20 ma 🔻		FMI	
Sender	MURPHY 100 PRESS -			
Min Val (psi)	0		Fault 2	
Max Val (psi)	400		Туре	NONE
Min A/D	180 901		Condition	Input Greater Than Setpoint
Max A/D			Setpoint (psi)	0
Offset	0		Delay (sec)	0
	5		FMI	0