

Smith Meter® AccuLoad® IV-QT Hardware Worksheet

Bulletin AB06213 Issue/Rev. 0.0 (4/17)

This worksheet is being provided to ensure that the AccuLoad IV-QT hardware contains enough I/O for the application. This sheet should be filled out for every application. The AccuLoad IV-QT hardware is capable of controlling up to six arms in straight arm loading applications, and up to six products per arm in sequential blending and/or ratio blending applications. When configured for ratio blending, the AccuLoad IV-QT is capable of controlling six product streams. Contact your local Smith Meter representative if you have any questions about this worksheet.

Pulse Inputs	Circle Number Required												
Product Meter Pulses (Maximum six meters)	1	2	3	4	5	6	7	8	9	10	11	12	(For dual pulse meters, 2 per meter)
Density	1	2	3	4	5	6							
Additive Meter	1	2	3	4									
Flow Controlled Additive Meter (Maximum 4 meters)	1	2	3	4	5	6	7	8					(For dual pulse meters, 2 per meter)
Total	14 or less												

Note: Boards can be added to provide additional pulse inputs for additive meters. One board adds 10 additional additive meter inputs. A second board adds 10 more additive meter inputs, for a total of 20 additional additive meters. Flow Controlled Additives must be wired to the A4M or A4B boards.

Analog Inputs	Circle Number Required					
RTD (Temperature)	1	2	3	4	5	6
4-20 mA (Temperature, Density, Pressure, General)	1	2	3	4	5	6
1-5 Vdc (Temperature, Density, Pressure, General)	1	2	3	4	5	6
Analog Outputs						
4-20 mA (Valve Control, Flow Rate, General)	1	2	3	4	5	6
1-5 Vdc (Valve Control, Flow Rate, General)	1	2	3	4	5	6
Total Analog Inputs and Outputs	6 or less					

AC Digital Inputs	Circle Number Required								
Security	1	2							
Arm Permissive (Maximum 2 per arm)	1	2	3	4	5	6	7	8	9
Second High Flow Rate (1 per arm)	1	2	3	4	5	6			
Remote Start Arm	1	2	3	4	5	6			
Remote Stop	1								
Remote Stop Arm	1	2	3	4	5	6			
Transaction Reset (1 per arm)	1	2	3	4	5	6			
General Purpose	1	2	3	4	5	6	7	8	9
Print Tray Switch	1	2	3	4	5	6			
Block Valve Feedback	1	2	3	4	5	6	7	8	9
Piston Injector Feedback	1	2	3	4	5	6	7	8	9
System Permissive	1	2	3						
Swing Arm Side A	1	2	3	4	5	6			
Swing Arm Side B	1	2	3	4	5	6			
DE Head Stop Flow	1	2	3	4	5	6			
DE Head Low Flow	1	2	3	4	5	6			
DE Head High Flow	1	2	3	4	5	6			
Bay A Permissive	1	2							
Bay B Permissive	1	2							
Meter Injector Prove	1								
Total	9 or less								

DC Digital Inputs	Circle Number Required														
Security	1	2													
Arm Permissive (Maximum 2 per arm)	1	2	3	4	5	6	7	8	9	10	11	12			
Second High Flow Rate (1 per arm)	1	2	3	4	5	6									
Remote Start Arm	1	2	3	4	5	6									
Remote Stop	1														
Remote Stop Arm	1	2	3	4	5	6									
Transaction Reset (1 per arm)	1	2	3	4	5	6									
General Purpose	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21	22	23	24			→			34
Print Tray Switch	1	2	3	4	5	6									
Block Valve Feedback	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21	22	23	24			→			34
Piston Injector Feedback	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21	22	23	24			→			34
System Permissive	1	2	3												
Swing Arm Side A	1	2	3	4	5	6									
Swing Arm Side B	1	2	3	4	5	6									
DE Head Stop Flow	1	2	3	4	5	6									
DE Head Low Flow	1	2	3	4	5	6									
DE Head High Flow	1	2	3	4	5	6									
Bay A Permissive	1	2													
Bay B Permissive	1	2													
Meter Injector Prove	1														
Total	14 or less standard 24 or less with one optional A4I board 34 or less with two optional A4I boards														

Note: Eight shared digital I/O points are programmable between DC digital inputs and DC digital outputs. The number indicated here is the maximum if all programmed as inputs or all programmed as outputs.

AC Digital Outputs	Circle Number Required														
Product Pumps (Sequential Blending, 1 per arm)	1	2	3	4	5	6									
Upstream Solenoids ²	1	2	3	4	5	6									
Downstream Solenoids ²	1	2	3	4	5	6									
Arm Relay	1	2													
General Purpose	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21	22	23	24	25	26	27	→		67
Block Valve	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21	22	23	24	25	26	27	→		36
Stop Relay (1 per arm)	1	2	3	4	5	6									
Additive Pumps ¹	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21	22	23	24						
Piston Injectors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21	22	23	24						
Metered Injectors (Solenoids) ¹	1	2	3	4	5										
Shared Additive Solenoids	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21									
Shared Additive Flush	1	2	3	4											
Flow Controlled Additive Upstream Solenoid ²	1	2	3	4											
Flow Controlled Additive Downstream Solenoid ²	1	2	3	4											
Total	27 or less standard 47 or less with one optional A4I board 67 or less with two optional A4I boards														

1 Additive pumps and solenoid outputs are fixed on the A4I when more than 4 metered additives are programmed. It is recommended that if the A4I board is required for additional metered additives, that all additives be connected to the A4I board.

2 Upstream and downstream solenoids should be programmed and wired on A4M / A4B AccuLoad board sets (must be the same board as associated meter pulse input).

DC Digital Outputs	Circle Number Required										
Product Pumps (Sequential Blending, 1 per arm)	1	2	3	4	5	6					
Upstream Solenoids ²	1	2	3	4	5	6					
Downstream Solenoids ²	1	2	3	4	5	6					
Alarm Relay	1	2									
General Purpose	1	2	3	4	5	6	7	8	9	10	11
Block Valve	1	2	3	4	5	6	7	8	9	10	11
Stop Relay (1 per arm)	1	2	3	4	5	6					
Additive Pumps ³	1	2	3	4	5	6	7	8	9	10	11
Piston Injectors	1	2	3	4	5	6	7	8	9	10	11
Metered Injectors (Solenoids)	1	2	3	4							
Shared Additive Solenoids	1	2	3	4	5	6	7	8	9	10	11
Shared Additive Flush	1	2	3	4							
Flow Controlled Additive Upstream Solenoid ²	1	2	3	4							
Flow Controlled Additive Downstream Solenoid ²	1	2	3	4							
Total	11 or less										

² Upstream and downstream solenoids should be programmed and wired on A4M / A4B AccuLoad board sets (must be the same board as associated meter pulse input).

³ Additive pumps and solenoid outputs are fixed on the A4I when more than 4 metered additives are programmed.

⁴ Eight shared digital I/O points are programmable between DC digital inputs and DC digital outputs. The number indicated here is the maximum if all programmed as inputs or all programmed as outputs.

AccuLoad IV-QT Model Number (Refer to Specification Sheet [SS06200](#))

ALIV-QT-XP	–	_____	–	A	XXXXX	–	_____
		ARM1			Digit 1: # of RTDs		Digit 1: # of A4I Boards (0-2)
		ARM2			Digit 2: # of 4-20 mA inputs		
		ARM3			Digit 3: # of 4-20 mA outputs		
		ARM4			Digit 4: # of 1-5 Vdc inputs		
		ARM5			Digit 5: # of 1-5 Vdc outputs		
		ARM6					

The AccuLoad IV-QT hardware is capable of having either local or remote A4I board(s). When using the A4I board, it is recommended that it be mounted at or near the additive injector panel to save on wiring costs. All that is needed back to the AccuLoad IV is +24 Vdc power and a communication cable. Consideration should be given to mounting the A4I in the remote housing any time the additive panel is a considerable distance away from the AccuLoad. The cost of running +24 Vdc power and one communication wire versus the remote housing and all the additive wiring should be considered.

Editorial change made to AB06213 rev 0.0 (4/17) - Page 6, Arm 3 corrected to outputs. - JP - February 2019.

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

USA Operation
 1602 Wagner Avenue
 Erie, Pennsylvania 16510 USA
 P:+1 814.898.5000

TechnipFMC
 FMC Technologies
 Measurement Solutions, Inc.
 13460 Lockwood Road
 Building S01
 Houston, Texas 77044 USA
 P:+1 281.591.4200

Germany Operation
 Smith Meter GmbH
 Regentstrasse 1
 25474 Ellerbek, Germany
 P:+49 4101 304.0