General			
Vendor:	Allen-Bradley	Mode:	Offline
Revision:	16.2	Key Switch Position:	Offline
Chassis Type:	1756-A7 7-Slot ControlLogix Chassis	Created:	9/12/2008 2:05:05 PM
Slot:	0	Edited:	1/20/2009 1:55:55 PM
Serial Port			
Mode:	System	Control Line:	No Handshake
Baud Rate:	19200	RTS Send Delay:	0 (x20 ms)
Date Bits:	8	RTS Off Delay:	0 (x20 ms)
Parity:	None	DCD Wait Delay:	0 (x1 sec)
Stop Bits:	1		
System Protocol - DF1 Master			
Station Address:	0	Polling Mode:	Message Based (slave can initiate messages)
Transmit Retries:	3	Error Detection:	BCC
ACK Timeout:	50 (x20 ms)	Enable Duplicate Detection:	Yes
Relay Message Wait:	5 (x20 ms)		
System Protocol - DF1 Point to Point (Current)			
Station Address:	0	Embedded Responses:	Autodetect
NAK Receive Limit:	3	Error Detection:	BCC
ENQ Transmit Limit:	3	Enable Duplicate Detection:	Yes
ACK Timeout:	50 (x20 ms)		
System Protocol - DF1 Radio Modem			
Station Address:	0	Error Detection:	BCC
Store and Foward:	No		
System Protocol - DF1 Slave			
Station Address:	0	EOT Suppression:	No
Transmit Retries:	3	Error Detection:	BCC
Slave Poll Timeout:	3000 (x20 ms)	Enable Duplicate Detection:	Yes
System Protocol - DH485			
Station Address:	0	Token Hold Factor:	1
Max Station Address:	31	Error Detection:	CRC
User Protocol - ASCII			
Read/Write Buffer Size:	82 bytes	Append Character 2:	'$l'
Termination Character 1:	'$r'	XON/XOFF:	No
Termination Character 2:	'$FF'	Echo Mode:	No
Append Character 1:	'$r'	Delete Mode:	Ignore
Date/Time			
Date and Time:	<offline>		
Time Zone:	<offline>		
Daylight Saving (+00:00):	<offline>		
CST Master:	No		
Is Master:	<offline>	Duplicate Master Detected:	<offline>
Synchronized with Master:	<offline>	Timer Hardware Faulted:	<offline>
Advanced			
Controller Fault Handler:	<none>	Security:	No Protection
Power-Up Handler:	<none>	Match Project To Controller:	No
System Overhead Time Slice:	20 %	Serial Number:	0
During unused System Overhead Time Slice:	Run Continuous Task		
SFC Execution			
Execution Control:	Execute current active steps only	Last Scan of Active Step:	Don't scan
Restart Position:	Restart at most recently executed step		
Redundancy			
Redundancy Enabled:	No		
Nonvolatile Memory			
<offline>			

Memory (Estimate)

Memory Option:	1756-L55 M12		
Estimated I/O Memory			
Total Memory:	229,376 bytes	Max Used:	17,508 bytes
Free Memory:	211,868 bytes	Largest Block Free:	211,868 bytes
Used Memory:	17,508 bytes		
Estimated Data and Logic Memory			
Total Memory:	769,200 bytes	Max Used:	31,880 bytes
Free Memory:	737,320 bytes	Largest Block Free:	737,320 bytes
Used Memory:	31,880 bytes		
Memory Option:	1756-L55 M22		
Estimated I/O Memory			
Total Memory:	229,376 bytes	Max Used:	17,508 bytes
Free Memory:	211,868 bytes	Largest Block Free:	211,868 bytes
Used Memory:	17,508 bytes		
Estimated Data and Logic Memory			
Total Memory:	769,200 bytes	Max Used:	31,880 bytes
Free Memory:	737,320 bytes	Largest Block Free:	737,320 bytes
Used Memory:	31,880 bytes		
Memory Option:	1756-L55 M13		
Estimated I/O Memory			
Total Memory:	229,376 bytes	Max Used:	17,508 bytes
Free Memory:	211,868 bytes	Largest Block Free:	211,868 bytes
Used Memory:	17,508 bytes		
Estimated Data and Logic Memory			
Total Memory:	1,605,632 bytes	Max Used:	31,880 bytes
Free Memory:	1,573,752 bytes	Largest Block Free:	737,320 bytes
Used Memory:	31,880 bytes		
Memory Option:	1756-L55 M23		
Estimated I/O Memory			
Total Memory:	229,376 bytes	Max Used:	17,508 bytes
Free Memory:	211,868 bytes	Largest Block Free:	211,868 bytes
Used Memory:	17,508 bytes		
Estimated Data and Logic Memory			
Total Memory:	1,605,632 bytes	Max Used:	31,880 bytes
Free Memory:	1,573,752 bytes	Largest Block Free:	737,320 bytes
Used Memory:	31,880 bytes		
Memory Option:	1756-L55 M14		
Estimated I/O Memory			
Total Memory:	229,376 bytes	Max Used:	17,508 bytes
Free Memory:	211,868 bytes	Largest Block Free:	211,868 bytes
Used Memory:	17,508 bytes		
Estimated Data and Logic Memory			
Total Memory:	3,702,784 bytes	Max Used:	31,880 bytes
Free Memory:	3,670,904 bytes	Largest Block Free:	737,320 bytes
Used Memory:	31,880 bytes		
Memory Option:	1756-L55 M24		
Estimated I/O Memory			
Total Memory:	229,376 bytes	Max Used:	17,508 bytes
Free Memory:	211,868 bytes	Largest Block Free:	211,868 bytes
Used Memory:	17,508 bytes		
Estimated Data and Logic Memory			
Total Memory:	3,702,784 bytes	Max Used:	31,880 bytes
Free Memory:	3,670,904 bytes	Largest Block Free:	737,320 bytes
Used Memory:	31,880 bytes		
Memory Option:	1756-L55 M16		
Estimated I/O Memory			
Total Memory:	229,376 bytes	Max Used:	17,508 bytes
Free Memory:	211,868 bytes	Largest Block Free:	211,868 bytes
Used Memory:	17,508 bytes		
Estimated Data and Logic Memory			

Total Memory:	3,702,784 bytes	Max Used:	31,880 bytes
Free Memory:	3,670,904 bytes	Largest Block Free:	737,320 bytes
Used Memory:	31,880 bytes		
Estimated Logic Memory			
Total Memory:	4,194,304 bytes	Max Used:	0 bytes
Free Memory:	4,194,304 bytes	Largest Block Free:	0 bytes
Used Memory:	0 bytes		

Name	Value	Data Type	Scope
AgitatorRunTime		TIMER	MainProgram
*AgitatorRunTime - MainProgram/MainRoutine - *12(TON)*			
AgitatorRunTime.DN - MainProgram/MainRoutine - 14(XIC)			
AgitatorRunTime.EN - MainProgram/MainRoutine - 13(XIC)			
BatchComplete	0	BOOL	MainProgram
*BatchComplete - MainProgram/MainRoutine - *17(OTE), 1(XIO)*			
BatchStep1	1	BOOL	MainProgram
Adding City Water			
*BatchStep1 - MainProgram/MainRoutine - *3(OTL), *5(OTU), 4(XIC), 5(XIC)*			
BatchStep2	0	BOOL	MainProgram
Adding chemical QR			
*BatchStep2 - MainProgram/MainRoutine - *5(OTL), *8(OTU), 3(XIO), 6(XIC)*			
BatchStep3	0	BOOL	MainProgram
Adding chemical KM			
*BatchStep3 - MainProgram/MainRoutine - *11(OTU), *17(OTU), *8(OTL), 11(XIC), 3(XIO), 9(XIC)*			
BatchStep4	0	BOOL	MainProgram
Blending the mixture with the agitator			
*BatchStep4 - MainProgram/MainRoutine - *11(OTL), *14(OTU), 12(XIC), 3(XIO)*			
BatchStep5	0	BOOL	MainProgram
Pumping the finished product to the filling lines			
*BatchStep5 - MainProgram/MainRoutine - *14(OTL), 15(XIC), 17(XIC), 3(XIO)*			
Local:1:I		AB:1756_IF4_Float:I:0	BATCHING
Local:1:I.Ch0Data - MainProgram/MainRoutine - 11(GEQ), 4(LEQ), 5(GEQ), 6(LEQ), 8(GEQ), 9(LEQ)			
Local:1:I.Ch1Data - MainProgram/MainRoutine - 15(GEQ), 17(LEQ), 22(GRT)			
Local:2:I		AB:1756_DI:I:0	BATCHING
Local:2:I.Data.0 - MainProgram/MainRoutine - 1(XIC), 3(XIC)			
Local:2:I.Data.1 - MainProgram/MainRoutine - 1(XIO), 23(XIO)			
Local:2:I.Data.15 - MainProgram/MainRoutine - 0(XIC)			
Local:2:I.Data.2 - MainProgram/MainRoutine - 18(XIO)			
Local:2:I.Data.3 - MainProgram/MainRoutine - 18(XIO)			
Local:2:I.Data.4 - MainProgram/MainRoutine - 19(XIO), 7(XIO)			
Local:2:I.Data.5 - MainProgram/MainRoutine - 19(XIO), 7(XIC)			
Local:2:I.Data.6 - MainProgram/MainRoutine - 10(XIO), 20(XIO)			
Local:2:I.Data.7 - MainProgram/MainRoutine - 10(XIC), 20(XIO)			
Local:2:I.Data.8 - MainProgram/MainRoutine - 16(XIO), 21(XIO)			
Local:2:I.Data.9 - MainProgram/MainRoutine - 16(XIC), 21(XIO)			
Local:3:O		AB:1756_DO:O:0	BATCHING
*Local:3:O.Data.0 - MainProgram/MainRoutine - *2(OTE)*			
*Local:3:O.Data.1 - MainProgram/MainRoutine - *4(OTE), 18(XIC), 18(XIO)*			
*Local:3:O.Data.10 - MainProgram/MainRoutine - *13(OTE)*			
*Local:3:O.Data.11 - MainProgram/MainRoutine - *16(OTE)*			
*Local:3:O.Data.12 - MainProgram/MainRoutine - *16(OTE)*			
*Local:3:O.Data.13 - MainProgram/MainRoutine - *15(OTE), 16(XIC), 21(XIC), 21(XIO)*			
*Local:3:O.Data.15 - MainProgram/MainRoutine - *23(OTE), 23(XIC)*			
*Local:3:O.Data.2 - MainProgram/MainRoutine - *4(OTE)*			
*Local:3:O.Data.3 - MainProgram/MainRoutine - *6(OTE), 19(XIC), 19(XIO), 7(XIC)*			
*Local:3:O.Data.4 - MainProgram/MainRoutine - *7(OTE)*			
*Local:3:O.Data.5 - MainProgram/MainRoutine - *7(OTE)*			
*Local:3:O.Data.6 - MainProgram/MainRoutine - *9(OTE), 10(XIC), 20(XIC), 20(XIO)*			
*Local:3:O.Data.7 - MainProgram/MainRoutine - *10(OTE)*			
*Local:3:O.Data.8 - MainProgram/MainRoutine - *10(OTE)*			

Local:3:O (Continued)
*Local:3:O.Data.9 - MainProgram/MainRoutine - *13(OTE)*

SystemBatching 1 BOOL MainProgram
*SystemBatching - MainProgram/MainRoutine - *1(OTE), 1(XIC), 12(XIC), 15(XIC), 2(XIO), 3(XIC), 4(XIC), 6(XIC), 9(XIC)*

SystemEnable 1 BOOL MainProgram
*SystemEnable - MainProgram/MainRoutine - *0(OTE), 1(XIC), 2(XIC)*

SystemFault 0 BOOL MainProgram
*SystemFault - MainProgram/MainRoutine - *22(OTE), 0(XIO), 23(XIC)*

SystemReady 1 BOOL MainProgram
*SystemReady - MainProgram/MainRoutine - *2(OTE)*

ValveAVCWFault TIMER MainProgram
*ValveAVCWFault - MainProgram/MainRoutine - *18(TON)*
ValveAVCWFault.DN - MainProgram/MainRoutine - 22(XIC)

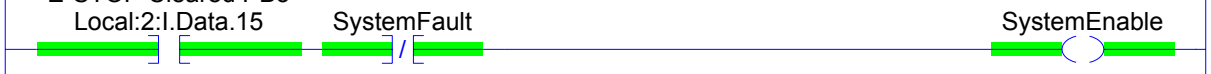
ValveAVKMFault TIMER MainProgram
*ValveAVKMFault - MainProgram/MainRoutine - *20(TON)*
ValveAVKMFault.DN - MainProgram/MainRoutine - 22(XIC)

ValveAVMTFault TIMER MainProgram
*ValveAVMTFault - MainProgram/MainRoutine - *21(TON)*
ValveAVMTFault.DN - MainProgram/MainRoutine - 22(XIC)

ValveAVQRFault TIMER MainProgram
*ValveAVQRFault - MainProgram/MainRoutine - *19(TON)*
ValveAVQRFault.DN - MainProgram/MainRoutine - 22(XIC)

When the E-Stop is cleared and there is no System Fault, System Enable bit is set.

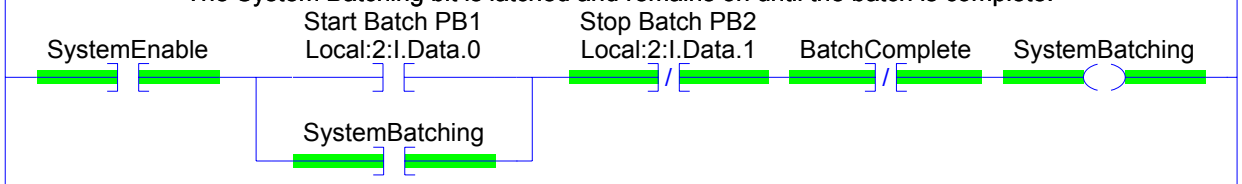
0



When the System Enable bit is on, the operator starts a batch by pressing the Start Batch pushbutton. He may stop the batching process by pushing the Stop Batch pushbutton.

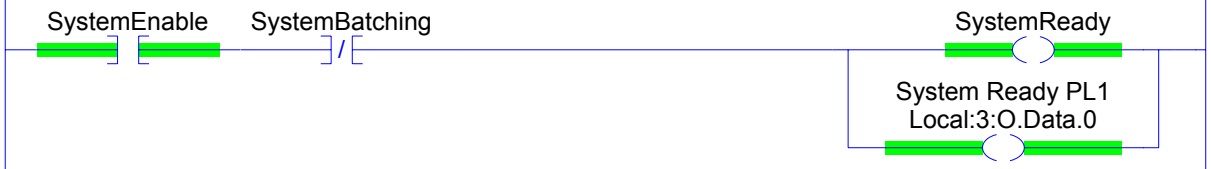
The System Batching bit is latched and remains on until the batch is complete.

1



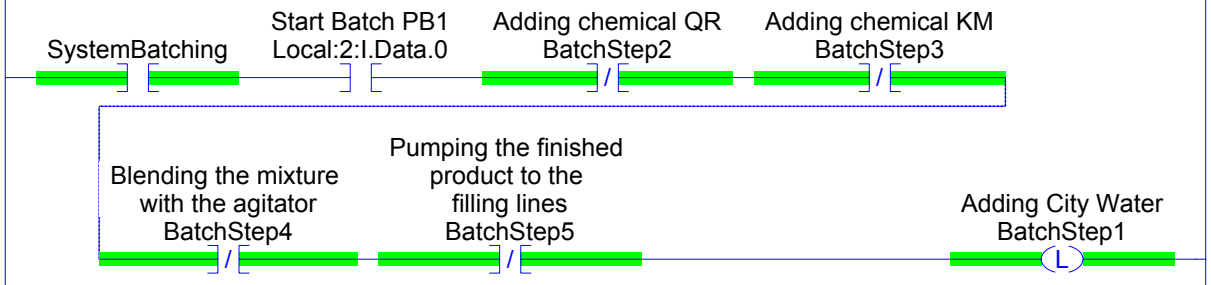
When the system is enabled but not batching, the System Ready pilot light is turned on.

2



When the system is ready, the batch is initiated by pressing the Start Batch pushbutton. If the system is not in another step (a result of the system stopping mid-batch because of a fault or operator input) the system is latched in Step 1.

3

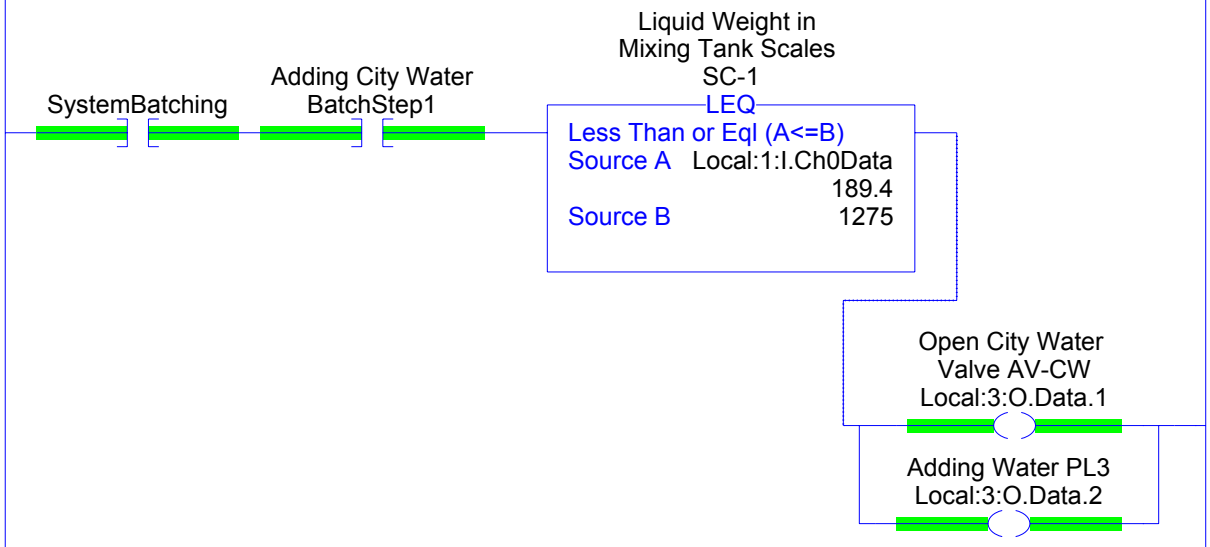


The System Batching bit is used in all rungs with an output. It turns off if there is an E-Stop, fault or the operator stopped the batch.

When the system is in Batch Step 1, the City Water valve opens until there is 1275 lbs of water in the Mixing Tank.

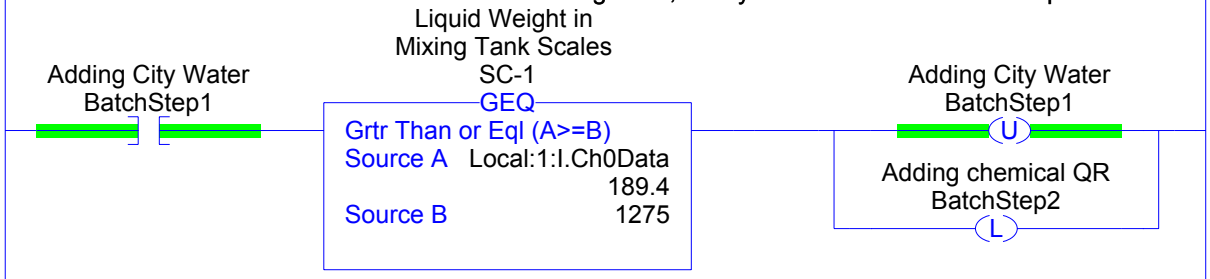
The Adding Water pilot light turns on.

4



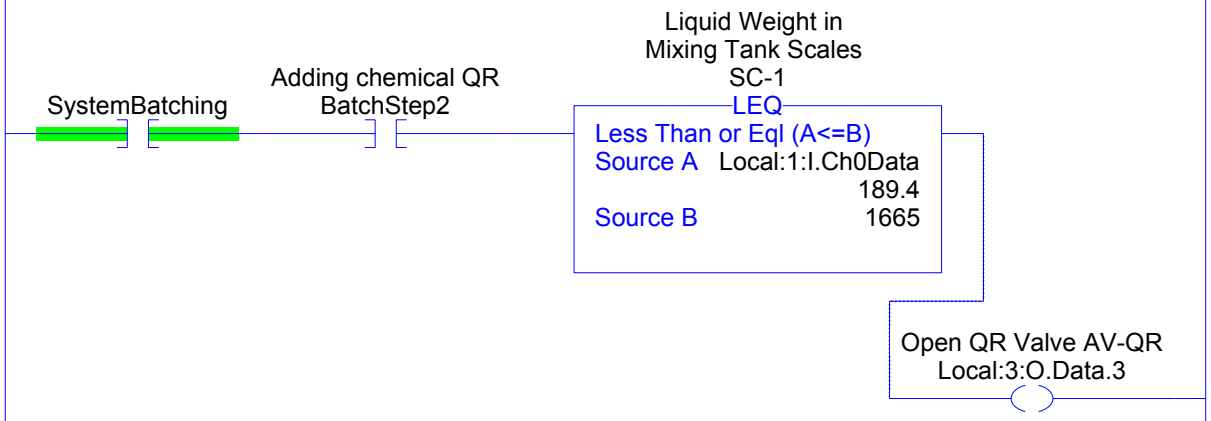
After there is 1275 lbs of water in the Mixing Tank, the system is incremented to Step 2.

5



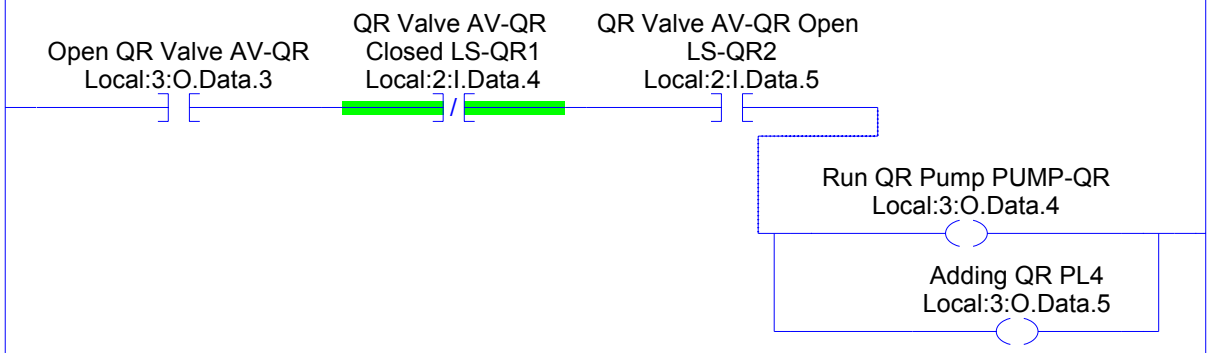
When the system is in Batch Step 2, the QR valve is opened until there is 1665 lbs of liquid in the Mixing Tank. The mixture now includes 1275 lbs of City Water and 390 lbs of QR.

6



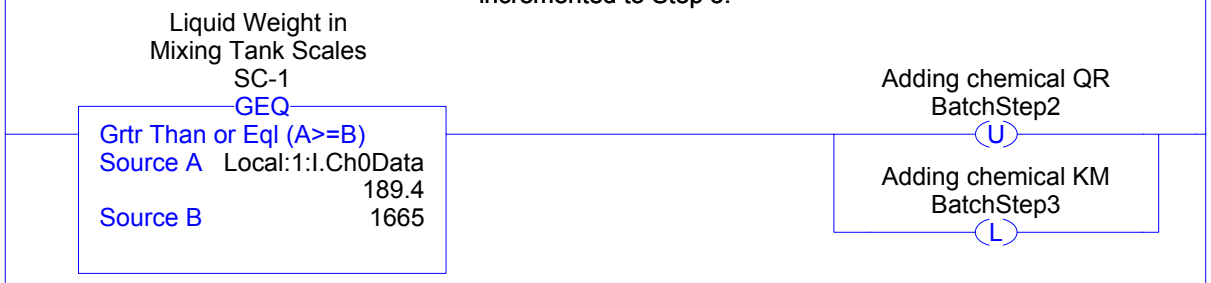
Run QR pump PUMP-QR after the QR valve is opened and the valve position is verified by both valve limit switches. Turn on the "Adding QR" pilot light.

7



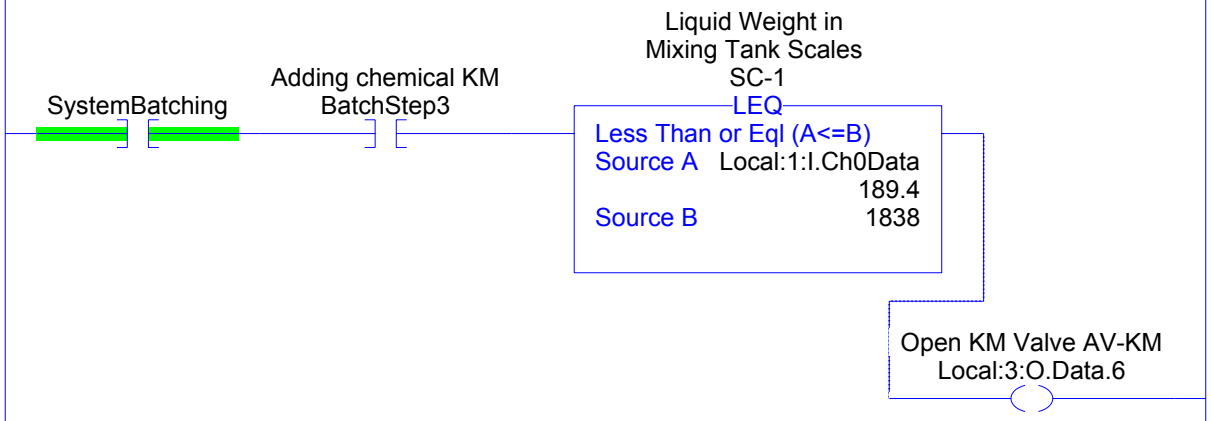
The system will stay in Batch Step 2 until there is 1665 lbs of liquid in the Mixing Tank. It is then incremented to Step 3.

8



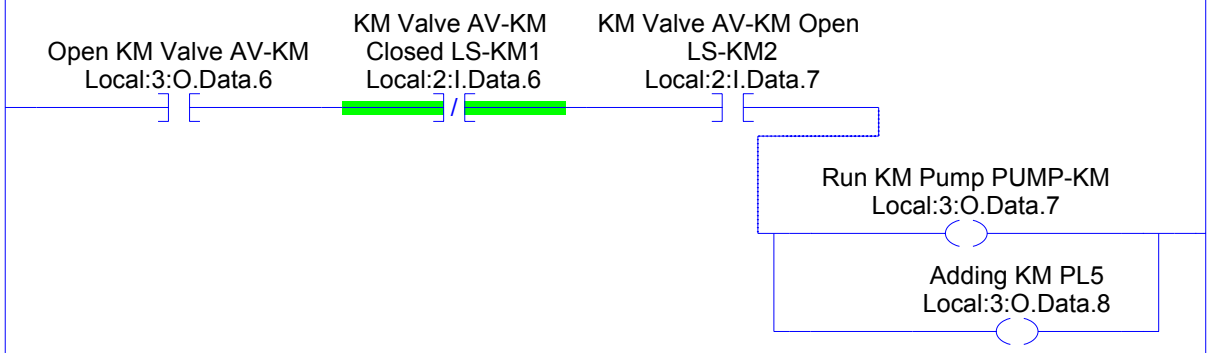
When the system is in Batch Step 3, the KM valve is opened until there is 1838 lbs of liquid in the Mixing Tank. The mixture now includes 1275 lbs of City Water, 390 lbs of QR and 173 lbs of KM.

9



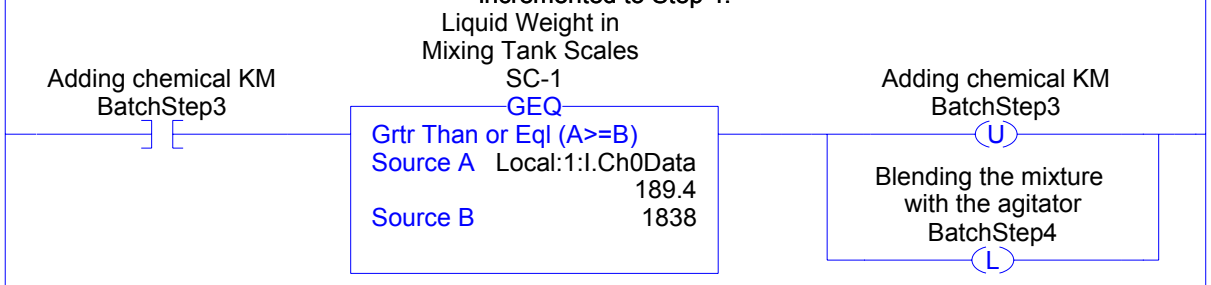
The KM pump PUMP-KM runs after the KM valve is opened and the valve position is verified by both valve limit switches. The Adding KM pilot light turns on.

10



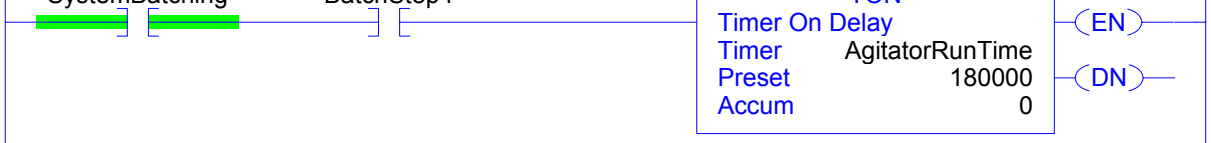
The system will stay in Batch Step 3 until there is 1838 lbs of liquid in the Mixing Tank. It is then incremented to Step 4.

11



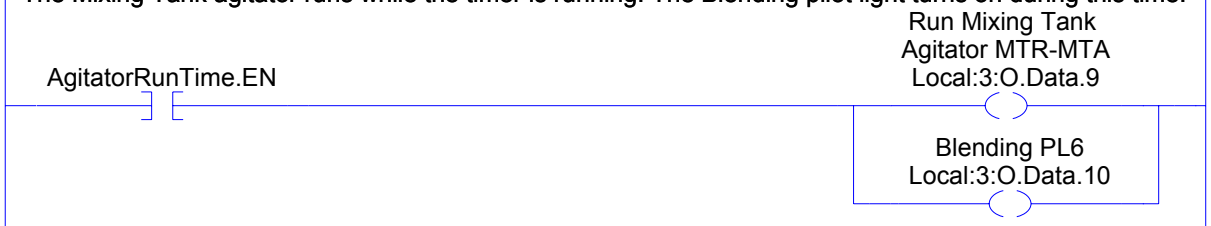
When the system is in Step 4, a timer starts that will run for 3 minutes (180 seconds).

12



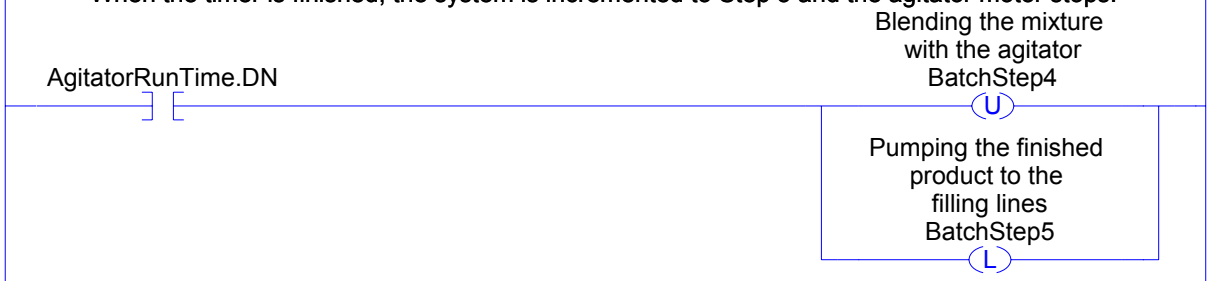
The Mixing Tank agitator runs while the timer is running. The Blending pilot light turns on during this time.

13



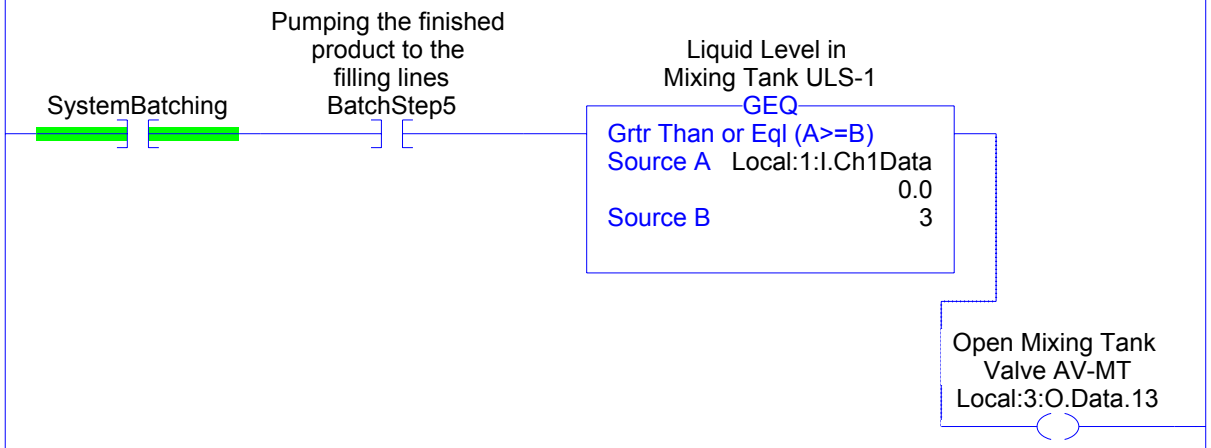
When the timer is finished, the system is incremented to Step 5 and the agitator motor stops.

14



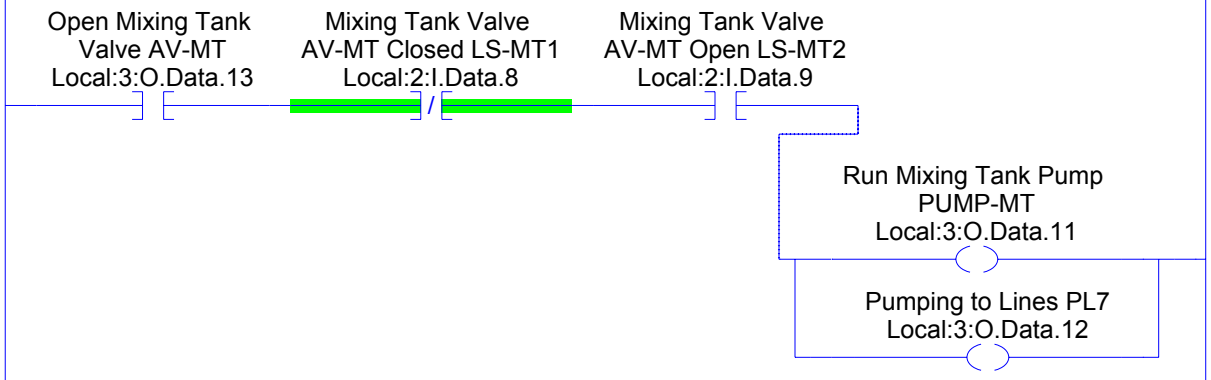
When the system is in Step 5, the Mixing Tank valve AV-MT is opened until the tank liquid level drops to 3%.

15



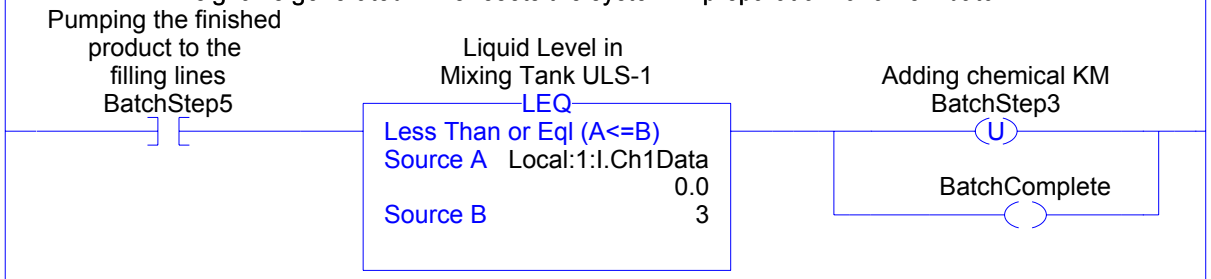
The Mixing Tank pump PUMP-MT runs after the AV-MT valve is opened and the valve position is verified by both valve limit switches. The Pumping to Lines pilot light turns on.

16



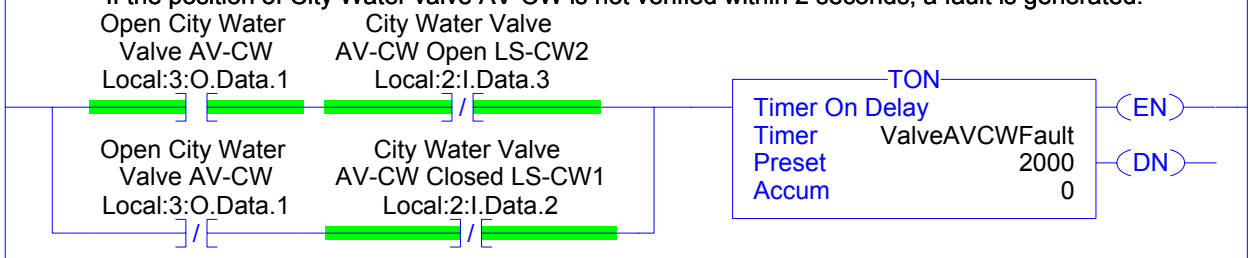
After the liquid level in the tank drops to 3%, the system is advanced out of Step 5 and a Batch Complete signal is generated. This resets the system in preparation for a new batch.

17



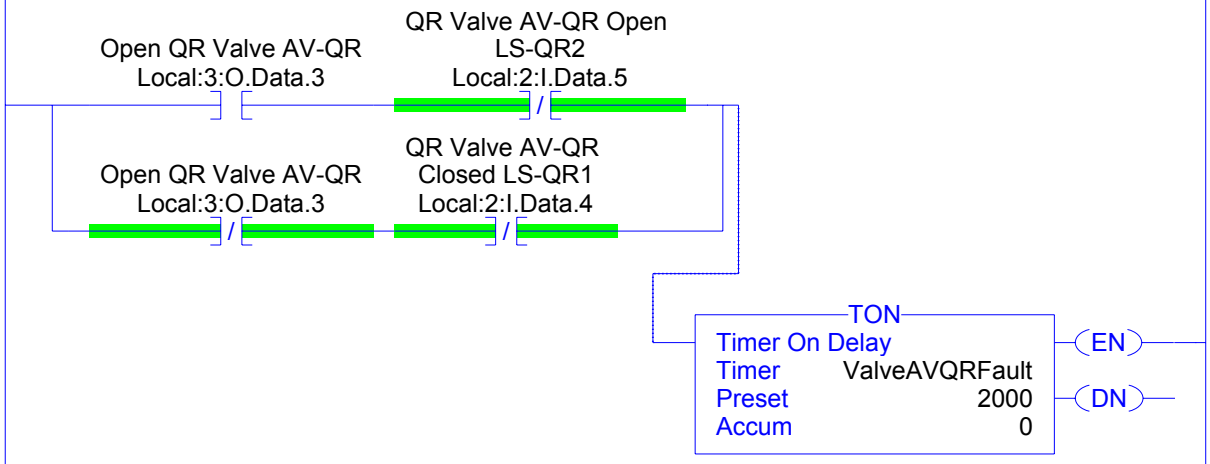
18

If the position of City Water valve AV-CW is not verified within 2 seconds, a fault is generated.



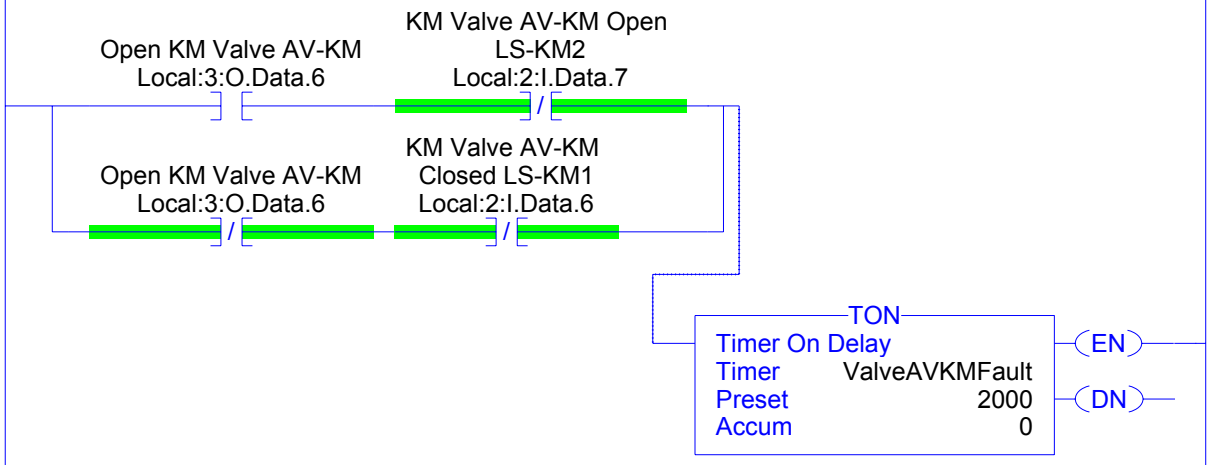
19

If the position of QR valve AV-QR is not verified within 2 seconds, a fault is generated.



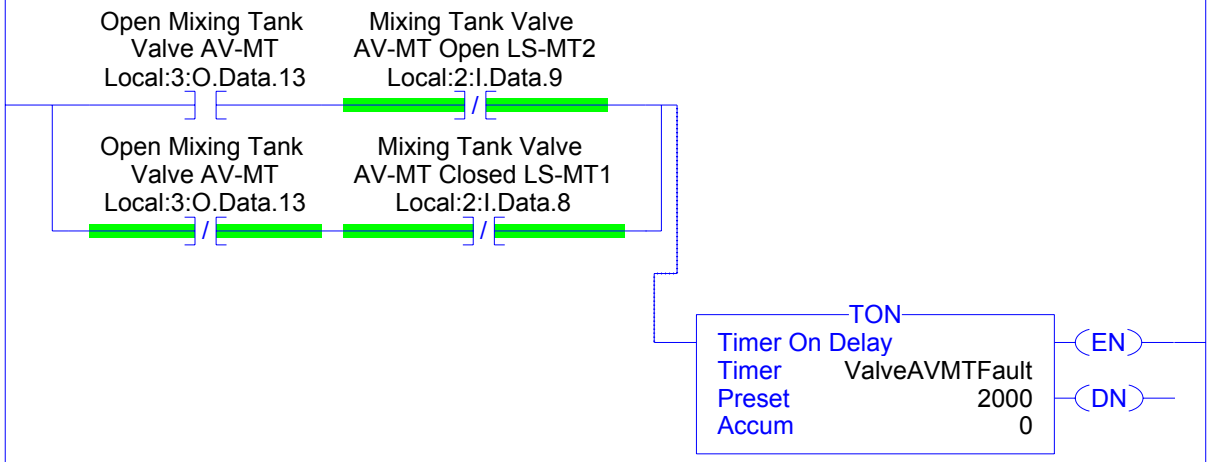
20

If the position of KM valve AV-KM is not verified within 2 seconds, a fault is generated.



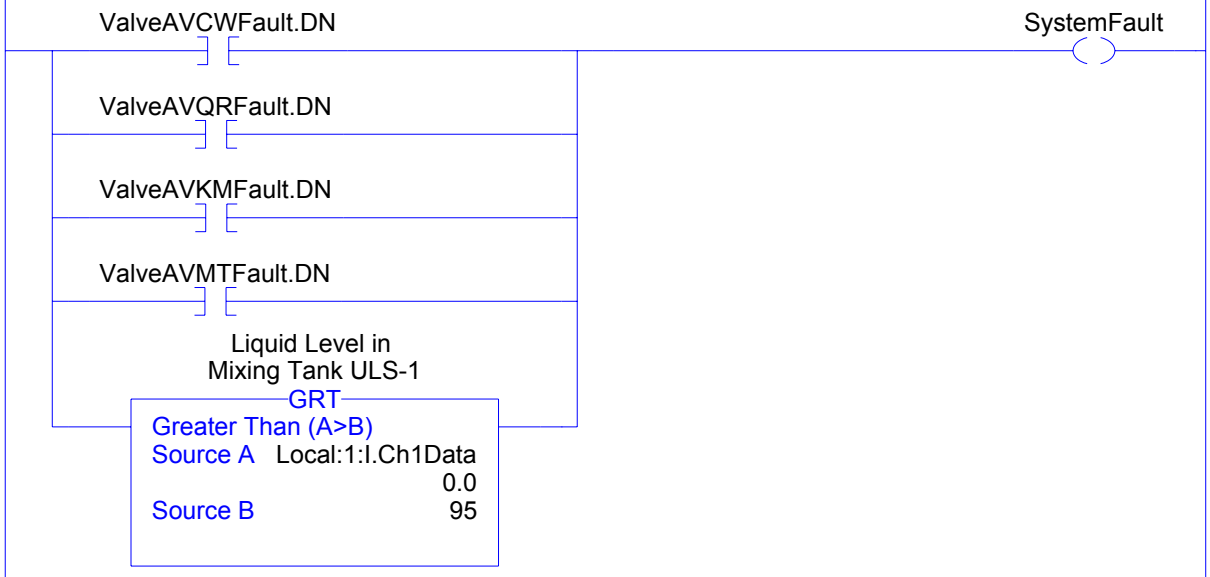
If the position if the Mixing Tank valve AV-MT is not verified within 2 seconds, a fault is generated.

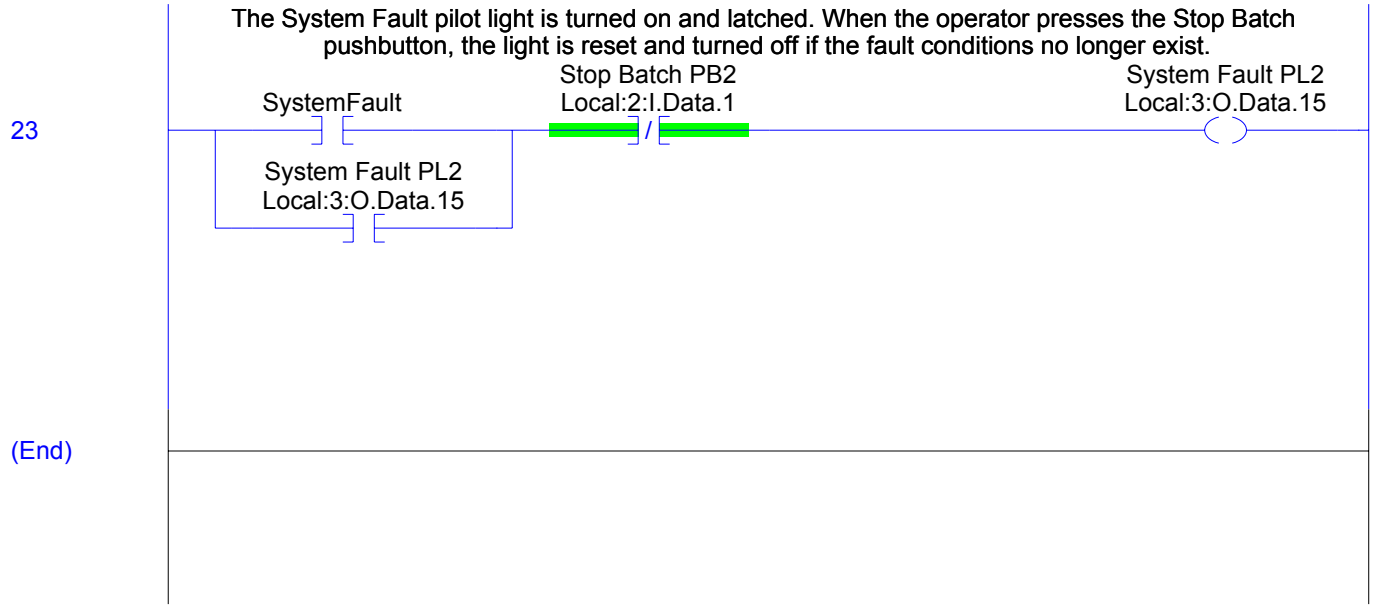
21



The system faults are summarized.

22




The System Fault pilot light is turned on and latched. When the operator presses the Stop Batch pushbutton, the light is reset and turned off if the fault conditions no longer exist.
23
SystemFault
Stop Batch PB2
Local:2:I.Data.1
System Fault PL2
Local:3:O.Data.15
System Fault PL2
Local:3:O.Data.15
(End)

Name	Value	Data Type	Scope
AgitatorRunTime		TIMER	MainProgram
*AgitatorRunTime - MainProgram/MainRoutine - *12(TON)*			
AgitatorRunTime.DN - MainProgram/MainRoutine - 14(XIC)			
AgitatorRunTime.EN - MainProgram/MainRoutine - 13(XIC)			
BatchComplete	0	BOOL	MainProgram
*BatchComplete - MainProgram/MainRoutine - *17(OTE), 1(XIO)*			
BatchStep1	1	BOOL	MainProgram
Adding City Water			
*BatchStep1 - MainProgram/MainRoutine - *3(OTL), *5(OTU), 4(XIC), 5(XIC)*			
BatchStep2	0	BOOL	MainProgram
Adding chemical QR			
*BatchStep2 - MainProgram/MainRoutine - *5(OTL), *8(OTU), 3(XIO), 6(XIC)*			
BatchStep3	0	BOOL	MainProgram
Adding chemical KM			
*BatchStep3 - MainProgram/MainRoutine - *11(OTU), *17(OTU), *8(OTL), 11(XIC), 3(XIO), 9(XIC)*			
BatchStep4	0	BOOL	MainProgram
Blending the mixture with the agitator			
*BatchStep4 - MainProgram/MainRoutine - *11(OTL), *14(OTU), 12(XIC), 3(XIO)*			
BatchStep5	0	BOOL	MainProgram
Pumping the finished product to the filling lines			
*BatchStep5 - MainProgram/MainRoutine - *14(OTL), 15(XIC), 17(XIC), 3(XIO)*			
Local:1:I		AB:1756_IF4_Float:I:0	BATCHING
Local:1:I.Ch0Data - MainProgram/MainRoutine - 11(GEQ), 4(LEQ), 5(GEQ), 6(LEQ), 8(GEQ), 9(LEQ)			
Local:1:I.Ch1Data - MainProgram/MainRoutine - 15(GEQ), 17(LEQ), 22(GRT)			
Local:2:I		AB:1756_DI:I:0	BATCHING
Local:2:I.Data.0 - MainProgram/MainRoutine - 1(XIC), 3(XIC)			
Local:2:I.Data.1 - MainProgram/MainRoutine - 1(XIO), 23(XIO)			
Local:2:I.Data.15 - MainProgram/MainRoutine - 0(XIC)			
Local:2:I.Data.2 - MainProgram/MainRoutine - 18(XIO)			
Local:2:I.Data.3 - MainProgram/MainRoutine - 18(XIO)			
Local:2:I.Data.4 - MainProgram/MainRoutine - 19(XIO), 7(XIO)			
Local:2:I.Data.5 - MainProgram/MainRoutine - 19(XIO), 7(XIC)			
Local:2:I.Data.6 - MainProgram/MainRoutine - 10(XIO), 20(XIO)			
Local:2:I.Data.7 - MainProgram/MainRoutine - 10(XIC), 20(XIO)			
Local:2:I.Data.8 - MainProgram/MainRoutine - 16(XIO), 21(XIO)			
Local:2:I.Data.9 - MainProgram/MainRoutine - 16(XIC), 21(XIO)			
Local:3:O		AB:1756_DO:O:0	BATCHING
*Local:3:O.Data.0 - MainProgram/MainRoutine - *2(OTE)*			
*Local:3:O.Data.1 - MainProgram/MainRoutine - *4(OTE), 18(XIC), 18(XIO)*			
*Local:3:O.Data.10 - MainProgram/MainRoutine - *13(OTE)*			
*Local:3:O.Data.11 - MainProgram/MainRoutine - *16(OTE)*			
*Local:3:O.Data.12 - MainProgram/MainRoutine - *16(OTE)*			
*Local:3:O.Data.13 - MainProgram/MainRoutine - *15(OTE), 16(XIC), 21(XIC), 21(XIO)*			
*Local:3:O.Data.15 - MainProgram/MainRoutine - *23(OTE), 23(XIC)*			
*Local:3:O.Data.2 - MainProgram/MainRoutine - *4(OTE)*			
*Local:3:O.Data.3 - MainProgram/MainRoutine - *6(OTE), 19(XIC), 19(XIO), 7(XIC)*			
*Local:3:O.Data.4 - MainProgram/MainRoutine - *7(OTE)*			
*Local:3:O.Data.5 - MainProgram/MainRoutine - *7(OTE)*			
*Local:3:O.Data.6 - MainProgram/MainRoutine - *9(OTE), 10(XIC), 20(XIC), 20(XIO)*			
*Local:3:O.Data.7 - MainProgram/MainRoutine - *10(OTE)*			
*Local:3:O.Data.8 - MainProgram/MainRoutine - *10(OTE)*			

Local:3:O (Continued)
*Local:3:O.Data.9 - MainProgram/MainRoutine - *13(OTE)*

SystemBatching 1 BOOL MainProgram
*SystemBatching - MainProgram/MainRoutine - *1(OTE), 1(XIC), 12(XIC), 15(XIC), 2(XIO), 3(XIC), 4(XIC), 6(XIC), 9(XIC)*

SystemEnable 1 BOOL MainProgram
*SystemEnable - MainProgram/MainRoutine - *0(OTE), 1(XIC), 2(XIC)*

SystemFault 0 BOOL MainProgram
*SystemFault - MainProgram/MainRoutine - *22(OTE), 0(XIO), 23(XIC)*

SystemReady 1 BOOL MainProgram
*SystemReady - MainProgram/MainRoutine - *2(OTE)*

ValveAVCWFault TIMER MainProgram
*ValveAVCWFault - MainProgram/MainRoutine - *18(TON)*
ValveAVCWFault.DN - MainProgram/MainRoutine - 22(XIC)

ValveAVKMFault TIMER MainProgram
*ValveAVKMFault - MainProgram/MainRoutine - *20(TON)*
ValveAVKMFault.DN - MainProgram/MainRoutine - 22(XIC)

ValveAVMTFault TIMER MainProgram
*ValveAVMTFault - MainProgram/MainRoutine - *21(TON)*
ValveAVMTFault.DN - MainProgram/MainRoutine - 22(XIC)

ValveAVQRFault TIMER MainProgram
*ValveAVQRFault - MainProgram/MainRoutine - *19(TON)*
ValveAVQRFault.DN - MainProgram/MainRoutine - 22(XIC)

Data type Name: STRING

Description:

Size 88 byte(s)

Name	Data Type	Style
LEN	DINT	Decimal
DATA	SINT[82]	ASCII

Description