FMC Technologies

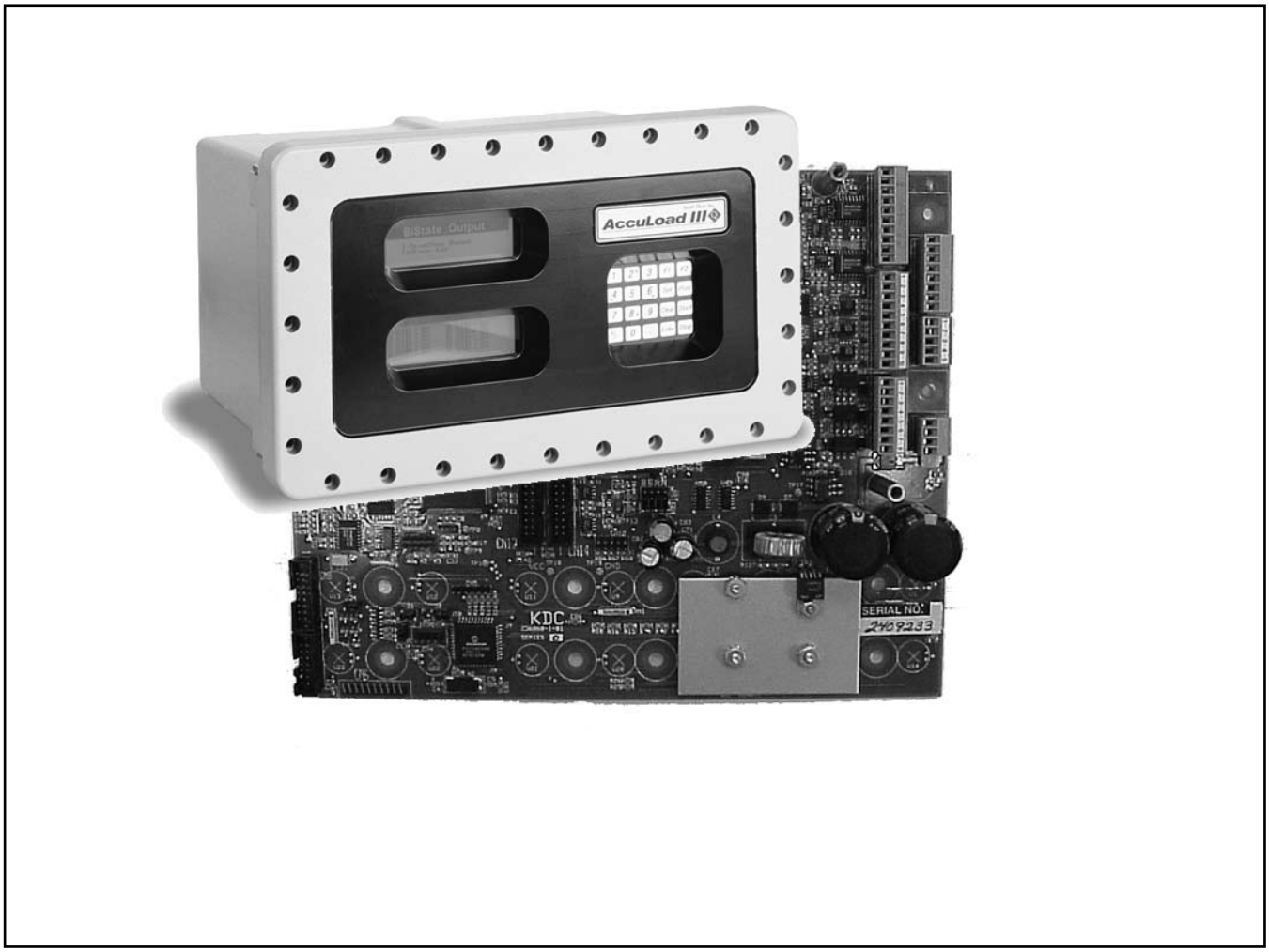
Smith Meter™

AccuLoad III-X
Expanded Pulse Outputs

Application Bulletin

Issue/Rev. 0.0 (10/06)

Bulletin AB06067



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Overview

Smith Meter™ AccuLoad III has always offered two high speed pulse outputs. These pulse outputs can be programmed to output pulses representative of the volume or mass measured by the AccuLoad.

This application bulletin will demonstrate how three additional pulse outputs can be configured. Digital outputs one through three in conjunction with digital inputs one through three can be programmed to form these additional pulse outputs. The maximum frequency of these new outputs will be limited to 125 Hz.

The remainder of this bulletin will define the configuration and control for these new outputs which are available on AccuLoad III-X revisions 10.14 and higher.

Pulse Output Specifications

Pulse Out 1 and 2

Type: Optically isolated open collector output. Pulser units are program selectable through the AccuLoad keypad or communications.

Max. Voltage: 30 volts DC
Load Current: 10mA with .6 volts drop
Freq. Range: 0-3500 Hz
Duty Cycle: 50/50 (on /off)

Pulse Out 3, 4, and 5

Type: Solid state relay digital output switch

See diagram for connection details

Load current: 110mA max.
Freq. Range: 0-125Hz
Duty Cycle: 50/50 (on /off)

Program Mode

In the program mode Configuration Directory – Pulse Outputs Directory, Out 1 and Out 2 subdirectories currently exist for pulse outputs 1 and 2. Three new subdirectories, Out 3, Out 4, Out 5, will be added to accommodate the three new pulse outputs. The following is an example of the AccuLoad display with the new subdirectories.

200 Pulse Outputs
Out 1
Out 2
Out 3
More…

200 Pulse Outputs
Out 3
Out 4
Out 5
More…

When pulse output 3 is required, digital output 1 (DC) and digital input 1 (DC) functions must be left unassigned (NA). Pulses from output 3 will occur at the terminations for digital output 1 (KDC TB5 1and 2). In order for the pulse output functionality to operate correctly the pulses from digital output 1 must be connected to digital input 1 (KDC TB4 1 and 2). Digital input 1 serves as a feedback input for pulse output 3 to insure that the correct number of pulses are issued according to the volume registered by the AccuLoad.

When pulse output 4 is required, digital output 2 (DC) and digital input 2 (DC) functions must be left unassigned (NA). Pulses from output 4 will occur at the terminations for digital output 2 (KDC TB5 3 and 4). In order for the pulse output functionality to operate correctly the pulses from digital output 2 must be connected to digital input 2 (KDC TB4 3 and 4). Digital input 2 serves as a feedback input for pulse output 4 to insure that the correct number of pulses are issued according to the volume registered by the AccuLoad.

When pulse output 5 is required, digital output 3 (DC) and digital input 3 (DC) functions must be left unassigned (NA). Pulses from output 5 will occur at the terminations for digital output 3 (KDC TB5 5 and 6). In order for the pulse output functionality to operate correctly the pulses from digital output 3 must be connected to digital input 3 (KDC TB4 5 and 6). Digital input 3 serves as a feedback input for pulse output 5 to insure that the correct number of pulses are issued according to the volume registered by the AccuLoad.

The parameters for programming each of the 3 expanded pulse outputs include the following:

211 Pulse Output 3 Function
212 Pulse Output 3 Meter
213 Pulse Output 3 Pulses/Amount
214 Pulse Output 3 Units
215 Pulse Output 3 Frequency
216 Pulse Output 4 Function
217 Pulse Output 4 Meter
218 Pulse Output 4 Pulses/Amount
219 Pulse Output 4 Units
220 Pulse Output 4 Frequency
221 Pulse Output 5 Function
222 Pulse Output 5 Meter
223 Pulse Output 5 Pulses/Amount
224 Pulse Output 5 Units
225 Pulse Output 5 Frequency

The following is an AccuLoad program mode display example for programming Output #3

200 Pulse Outputs
211 Out 3 Func Arm4 Pulses
212 Out 3 Mtr Combined Mtrs
213 Out 3 Pulse/Amt 10.00
More…

200 Pulse Outputs

214 Out 3 Pulse Units	GV
215 Out 3 Max Freq	10

More…

Criticals (When 211 Out 3 Func not set to 'NA'):

- Digital Input 1 function must be set to NA
- Digital Output 1 function must be set to NA

Criticals (When 216 Out 4 Func not set to 'NA'):

- Digital Input 2 function must be set to NA
- Digital Output 2 function must be set to NA

Criticals (When 221 Out 5 Func not set to 'NA'):

- Digital Input 3 function must be set to NA
- Digital Output 3 function must be set to NA

Fatal:

- 215, 220, 225 limited to 20 Hz

The following defines the selections for Pulse Out #3, #4, and #5 Functions

- Not Used
- Arm 1 Pulses
- Arm 2 Pulses
- Arm 3 Pulses
- Arm 4 Pulses
- Arm 5 Pulses
- Arm 6 Pulses

The following defines the selections for Pulse Out #3, #4, #5 Meter

- Combined Meters (Ratio/Hybrid Blending Only)
- Meter 1
- Meter 2
- Meter 3
- Meter 4
- Meter 5
- Meter 6

The following defines the selection for Pulse Out #3, #4, #5 Units

- IV (indicated or raw volume)
- GV (Gross)
- GST (Gross Standard Temperature)
- GSV (Gross at Standard Temperature and Pressure)
- Mass

Pulse Output #3, #4, #5 Pulses /Volume represent the output pulses per one unit of volume or mass.

Pulse Output #3, #4, #5 Maximum Frequency indicate the maximum frequency at which the pulses will be output. All intended pulses will be eventually transmitted; the total period will be increased if required to ensure the correct number of pulses is output. A 0 entry disables this feature.

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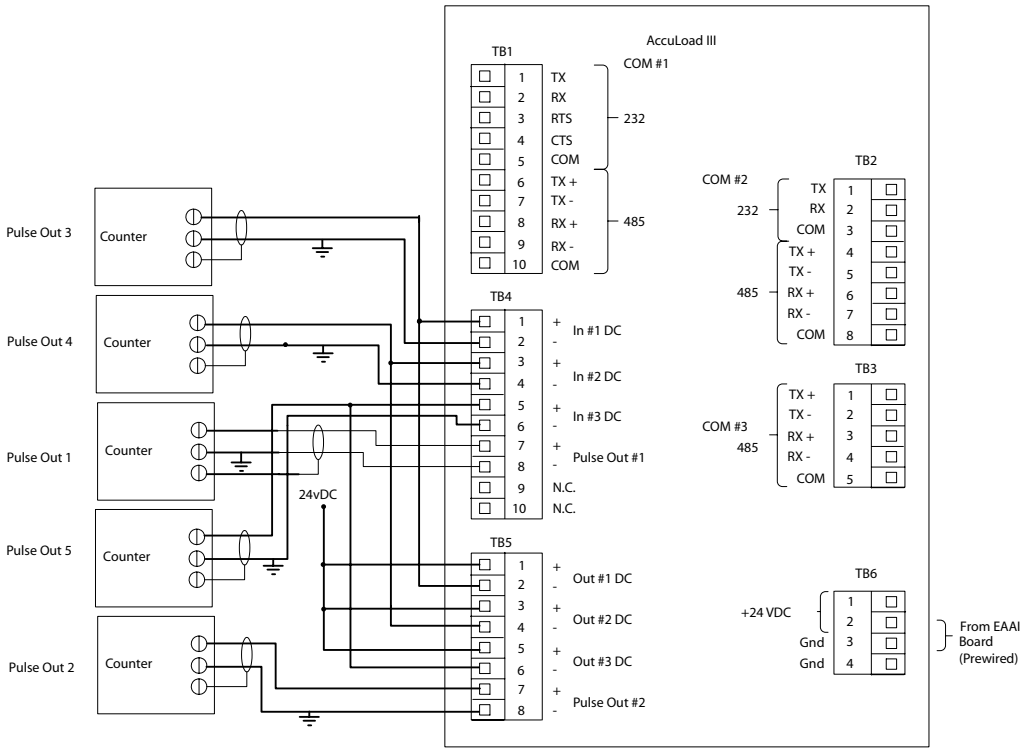
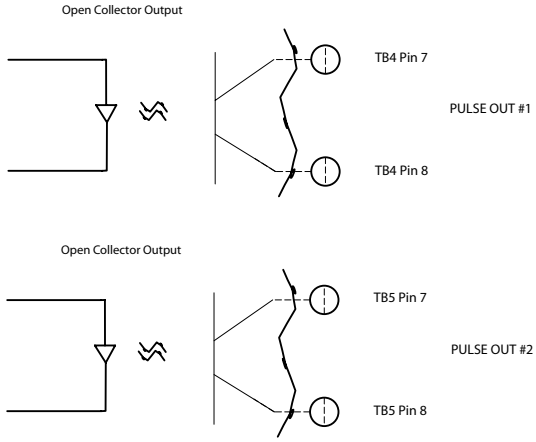
KDC Pulse Output
3, 4, and 5 Connections



Note: Pulse Out #1 and Pulse Out #2 are open collector.
See diagram below for further clarification.



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