




## System-10 / D-100 Meter Program Guide (Software Rev. DD.3.0)



### User Interface & Alphanumeric Display

There are three pushbutton switches immediately below the display on the front panel of the System-10 BTU meter or D-100 Display. The function of each switch is detailed in the table below.

Name	Symbol	Function
SCROLL		PROGRAM MODE: TOGGLES PARAMETERS RUN MODE - ADVANCES TO THE NEXT DISPLAY PAGE
RESET		PROGRAM MODE: MOVES CURSOR RUN MODE - (IF ENABLED) ZEROES GALS, BTU
PROGRAM		PROGRAM MODE: ADVANCES TO THE NEXT DISPLAY PAGE RUN MODE - CHANGES USER INTERFACE MODE TO DEVICE ADDRESS ENTRY OR PROGRAM IF ENABLED

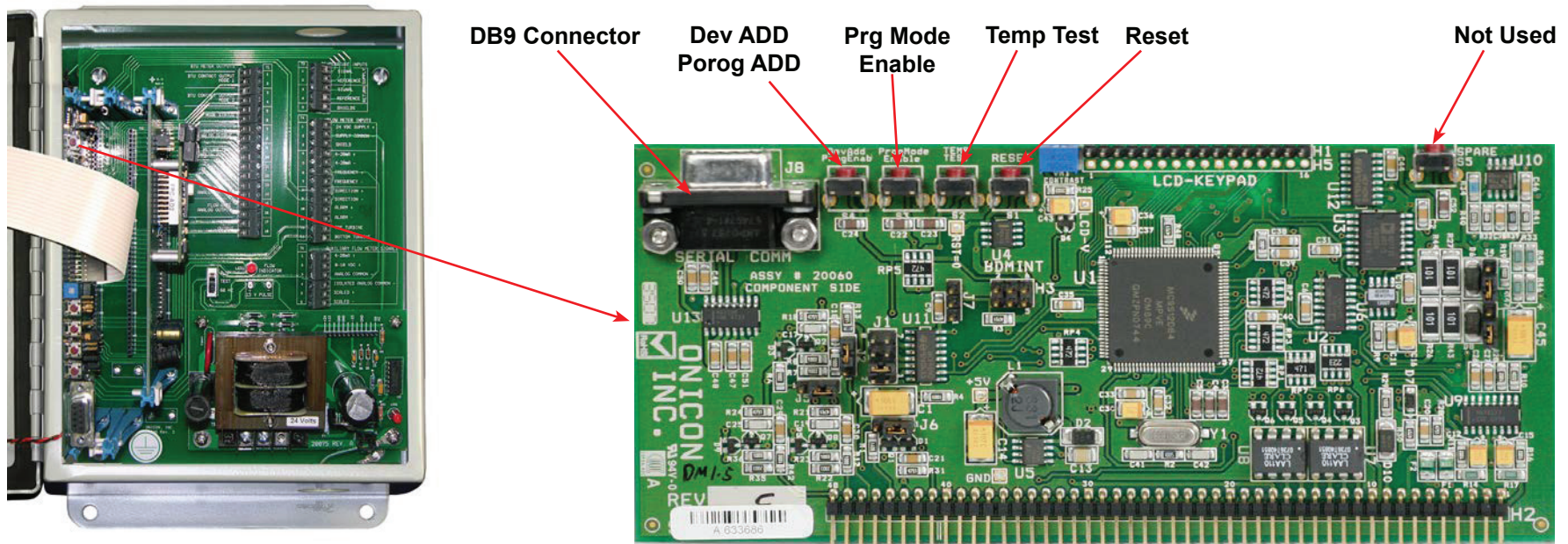


The alphanumeric display provides two lines of information. The top line consists of 8 large numeric characters. The bottom line displays 16 smaller alphanumeric characters.

During normal (run mode) operation, the top line indicates the current numeric value and the bottom line displays the associated engineering units and scaling multiplier. When operating in the program mode, the top line of the display indicates “PPPPPPPP”.

Shown below is a view of the enclosure with the door open. Also shown is a detailed view of the computer board. Two pushbutton switches located on the computer board are used when programming. Their name, label and function are detailed in the table below.

Name	Label	Function
RESET	RESET	Resets the MCU and restarts the program
PROGRAM MODE ENABLE	PRG MODE ENABLE	Enables the Program mode to be entered when the appropriate front panel switch is pressed.



Computer Board (HC12) for System-10 / D-100



### Entering the Program Mode

The user can enter the program mode by first pressing the PROGRAM MODE ENABLE switch located on the computer board and then pressing the PROGRAM button on the front panel.



In the program mode, pressing the PROGRAM button located on the front panel advances the program mode menu pages. If no button is pressed for 5 minutes, the meter will return to the run mode without saving any changes made to the program.




## SYSTEM-10

**1 Protocol**     Selects option: N2, LON, BNET, MODB (This page does not display for P1 Systems.)

**2 Mode**     Selects option: DUAL, SINGLE, BIDIR  
 Next Menu Page

The following options will set the display for energy calculation (System-10)

**3 Model #**     Selects option: F-1100, F-1200, F-1300, F-2000Water, F-3100Pulse, F-3100Analog, F-3500Pulse, F-3500Analog, Pulse, Analog, \*Flow-Pulse, \*Flow Analog, \*BTU-STEAMP and \* BTU\_STEAMA  
 Next Menu Page:



 **\*Flow-Pulse, \*Flow Analog:** will set the meter as D-100.  
 Continue to page 10 if you selected these options.  
 **\*BTU-STEAMP, \*BTU-STEAMA:** Please contact ONICON for guidance if you need to select these options.

**CAUTION**




The System-10 and D-100 are capable of providing up to four analog outputs (optional). Analog outputs are programmed at the factory based on the displayed engineering units and multipliers. Changing any of the displayed units or multipliers will affect the analog outputs. If any unit or multiplier values are changed at the meter, the analog output value(s) will also be changed. If you are unsure of the ramifications of any changes you are contemplating, please contact ONICON for assistance.

**4A F-1300 series, F-3100Pulse, F-3500Pulse, Pulse**

**4B F-3100Analog, F-3500Analog, Analog F-2000Water**

**4B-1 FlowMTR UNTS**     Selects option: GPM, GPH, MGD, L/S, L/M, L/H, M3H, PPH, KPH, CFS, CFM  
 Next Menu Page

(= 20mA)

**4B-3 FLTRH**     Increments Digits: 0-999,999  
 Moves Cursor  
 Next Menu Page

**4C F-1100, F-1200, FB-1200 series (Continued on Page 4)**

**IMPORTANT NOTE**

FLMAX is the full scale value of the analog flow signal. This is defined by the flow meter 4 – 20mA output connected to the System-10. Example: 4 – 20mA flow meter output = 0 – 10,000 GPM, FLMAX = 10,000 GPM.

FLTRH is the minimum flow rate the System-10 will respond to. The System-10 will display to flow rate values below this threshold as zero flow. ONICON Recommends that this value be set to value equal to 0.005 x FLMAX. Example: 4 – 20mA flow meter output = 0 – 10,000 GPM, FLTRH = (10,000 GPM x 0.005) or 50 GPM.



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## SYSTEM-10

### 4C F-1100, F-1200, FB-1200 Series



#### 4C-1 Turbine Test

(This page only displays for F-1200)

-  Selects option: ON, OFF
-  Next Menu Page

#### 4C-2 Edit Turbine Test

(This page only displays for F-1200)

-  Selects option: N, Y
-  Next Menu Page



#### 4C-3A NO

#### 4C-3B YES




#### 4C-3C Test Damping

-  Increments Digits: 1-16, default = 5
-  Next Menu Page




#### 4C-3D Low Flow Cut

-  Increments Digits: 0.1 - 2.0, default = 0.4
-  Moves Cursor
-  Next Menu Page




#### 4C-3E Percent Diff

-  Increments Digits: 10 - 90, default - 50
-  Moves Cursor
-  Next Menu Page



#### 4C-3F Alarm Time

-  Increments Digits: 10-999, default - 120
-  Moves Cursor
-  Next Menu Page


#### 4C-3G Reset Time

-  Increments Digits: 0-999, default - 60
-  Moves Cursor
-  Next Menu Page


#### 4C-4 Pipe Units

-  Selects option: MM, INCHES
-  Next Menu Page

#### 4C-5 Pipe ID

-  Increments Digits: 0-999,999
-  Moves Cursor




#### 4C-6 MCU Code

-  Next Menu Page

On Later Versions: MFAC

#### 5 MTR FCTR



(Meter Factor)

-  Increments Digits: 000.000 - 999.999
-  Moves Cursor
-  Next Menu Page

#### 6 Vol Rate

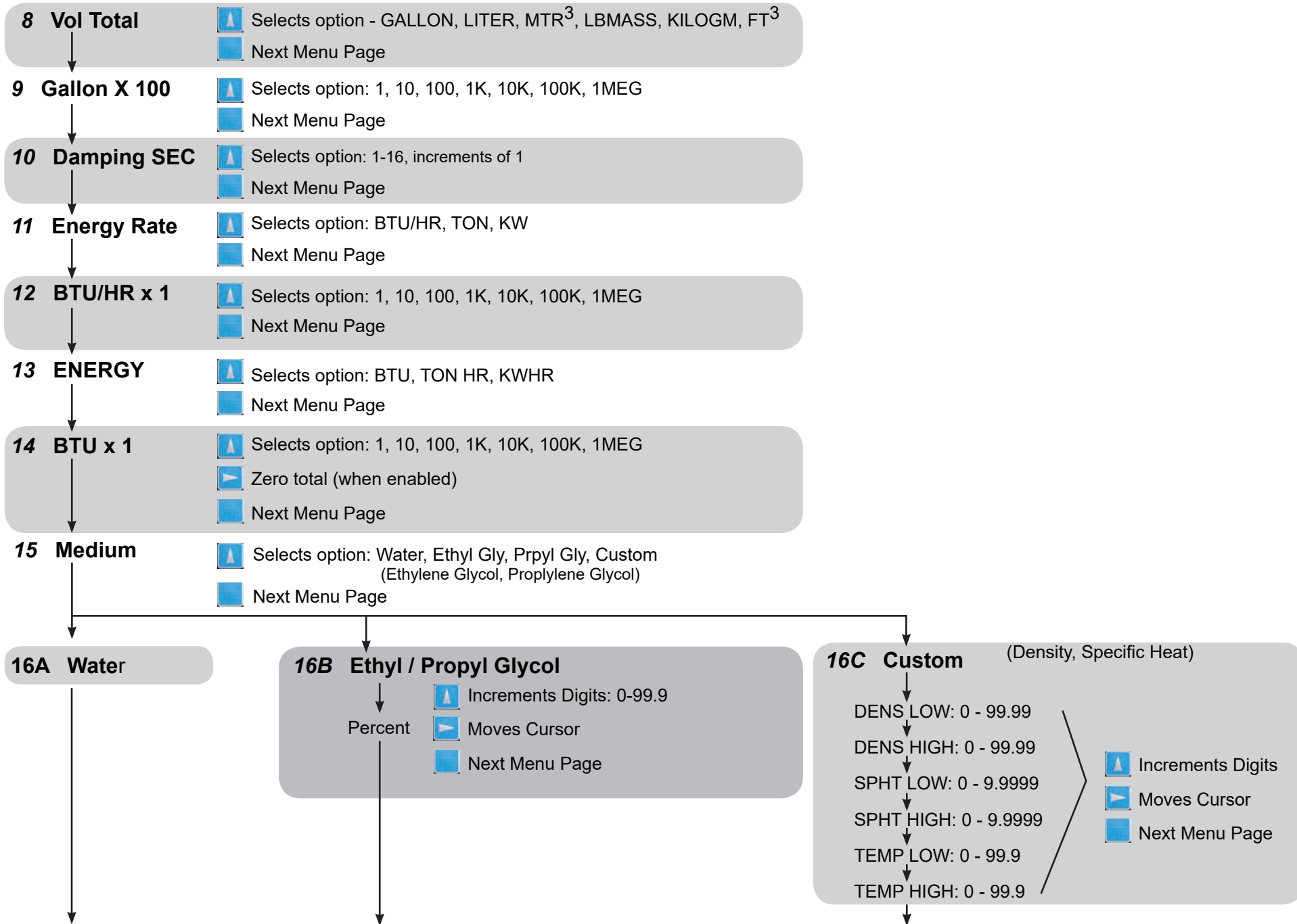
-  Selects option: GPM, GPH, MGD, L/S, L/M, L/H, M3H, PPH, KPH, CFS, CFM  
(MGD = Million Gallons per Day)
-  Next Menu Page

#### 7 GPM X 1

-  Selects option: 1, 10, 100, 1K, 10K, 100K, 1MEG
-  Next Menu Page

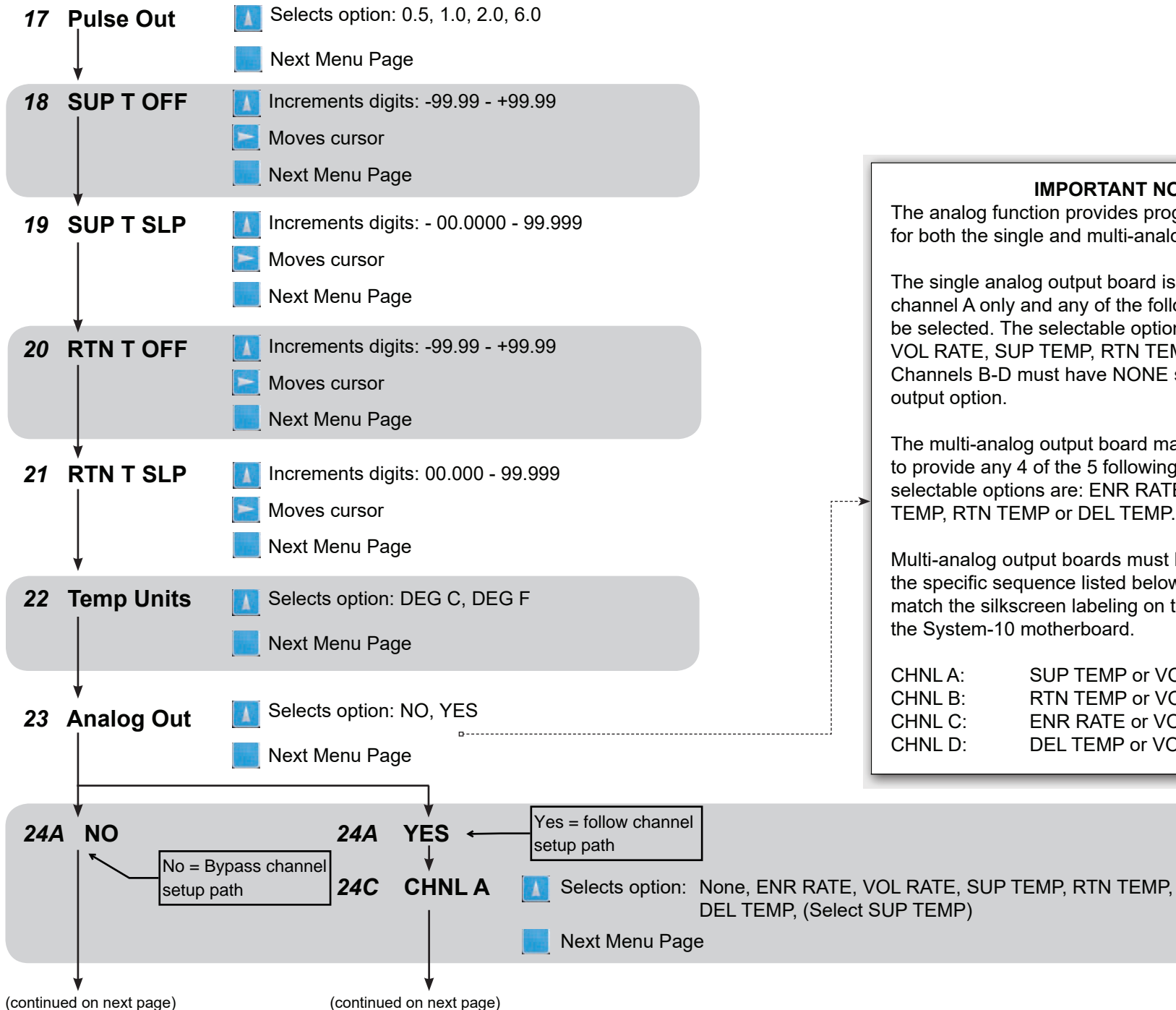
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**SYSTEM-10**



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# SYSTEM-10



**IMPORTANT NOTE**

The analog function provides programming options for both the single and multi-analog output boards.

The single analog output board is programmed on channel A only and any of the following 5 options may be selected. The selectable options are : ENR RATE, VOL RATE, SUP TEMP, RTN TEMP or DEL TEMP. Channels B-D must have NONE selected as the output option.

The multi-analog output board may be programmed to provide any 4 of the 5 following options. The selectable options are: ENR RATE, VOL RATE, SUP TEMP, RTN TEMP or DEL TEMP.

Multi-analog output boards must be programmed in the specific sequence listed below. This is required to match the silkscreen labeling on terminal block T1 of the System-10 motherboard.

CHNL A:	SUP TEMP or VOL RATE
CHNL B:	RTN TEMP or VOL RATE
CHNL C:	ENR RATE or VOL RATE
CHNL D:	DEL TEMP or VOL RATE

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# SYSTEM-10

24D CH A SUPTEM  
DGF

- ▲ Selects option: DGF, DGC
- Next Menu Page

24E CH A OFST

- ▲ Increments digits: 0 - 999,999
- ▶ Moves cursor

24F CH A SPAN

- Next Menu Page

24G CHNL B

The next two menu pages will only appear if an option other than none is selected.

- ▲ Selects option: None, ENR RATE, VOL RATE, SUP TEMP, RTN TEMP, DEL TEMP, (Select RTN TEMP)
- Next Menu Page

24H CH B RTNTEMP  
DGF

- ▲ Selects option: DGF, DGC
- Next Menu Page

24I CH B OFST

- ▲ Increments digits: 0 - 999,999
- ▶ Moves cursor

24J CH B SPAN

- Next Menu Page

24K CHNL C

The next two menu pages will only appear if an option other than none is selected.

- ▲ Selects option: None, ENR RATE, VOL RATE, SUP TEMP, RTN TEMP, DEL TEMP, (Select ENR RATE)
- Next Menu Page

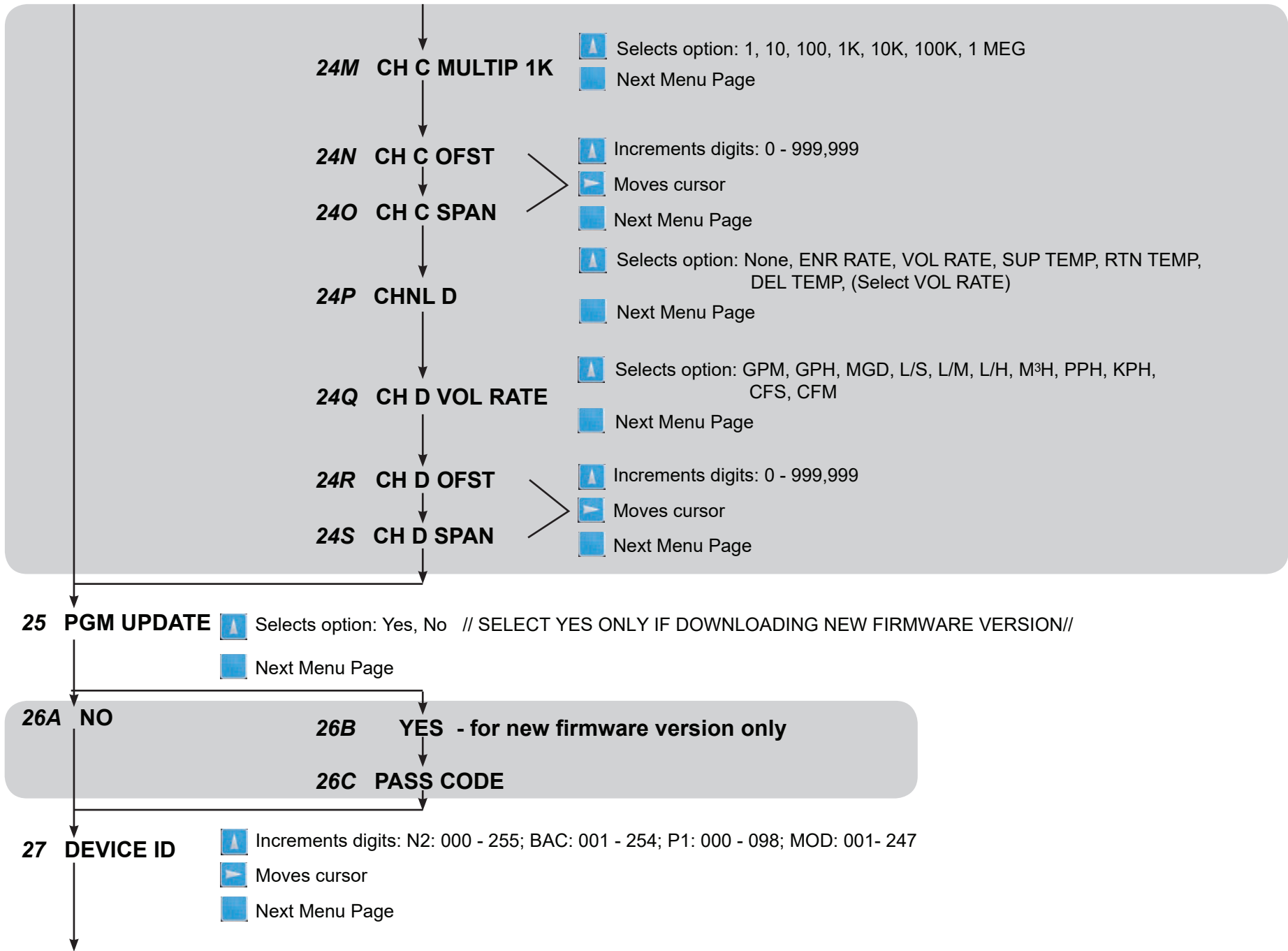
24L CHNL C ENR  
RATE

- ▲ Selects option: BPH, TON, KW
- Next Menu Page

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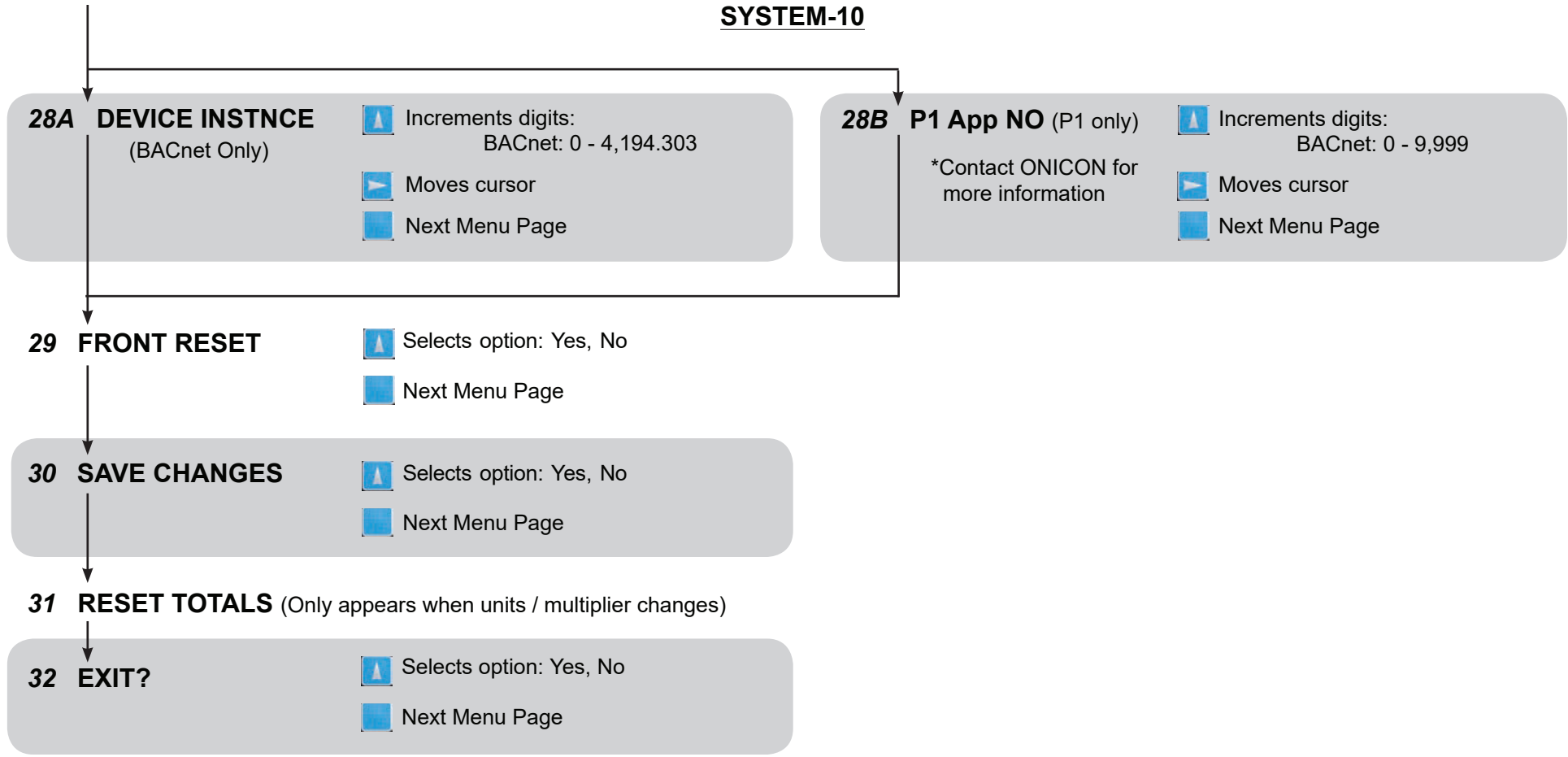
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**SYSTEM-10**



(continued from Note 1 on page 3)

### D-100 FLOW-PULSE OR FLOW-ANALOG

**4A FLOW-PULSE**

**4A-1 MFAC PPG (pulses per gallon)**

- ▲ Increments digits: 000,000 - 999.999
- ▶ Moves cursor
- Next Menu Page

**4B FLOW-ANALOG**

**4B-1 FLOWMTR UNTS**

- ▲ Selects option: GPM, GPH, MGD, L/S, L/M, L/H, M3H, PPH, KPH, CFS, CFM, SCFM, SCFH, NCMH
- Next Menu Page

**4B-2 FLMAX (=20mA)**

**4B-3 FLTRH**

**5 VOL RATE**

- ▲ Selects option: GPM, GPH, MGD, L/S, L/M, L/H, M3H, PPH, KPH, CFS, CFM (MGD = Million Gallons per Day)
- Next Menu Page

**6 GPM x 1**

- ▲ Selects option: 1, 10, 100, 1K, 10K, 100K, 1MEG
- Next Menu Page

**7 VOL TOTAL**

- ▲ Selects option: GALLON, LITER, MTR<sup>3</sup>, LBMASS, KILOGM, FT<sup>3</sup>
- Next Menu Page

**8 GALLON x**

- ▲ Selects option: 1, 10, 100, 1K, 10K, 100K, 1MEG
- Next Menu Page

**9 DAMPING**

- ▲ Increments digits: 1-16, default = 5
- ▶ Moves cursor
- Next Menu Page

**10 PULSE OUT**

- ▲ Selects option: 0.5, 1.0, 2.0, 6.0
- Next Menu Page

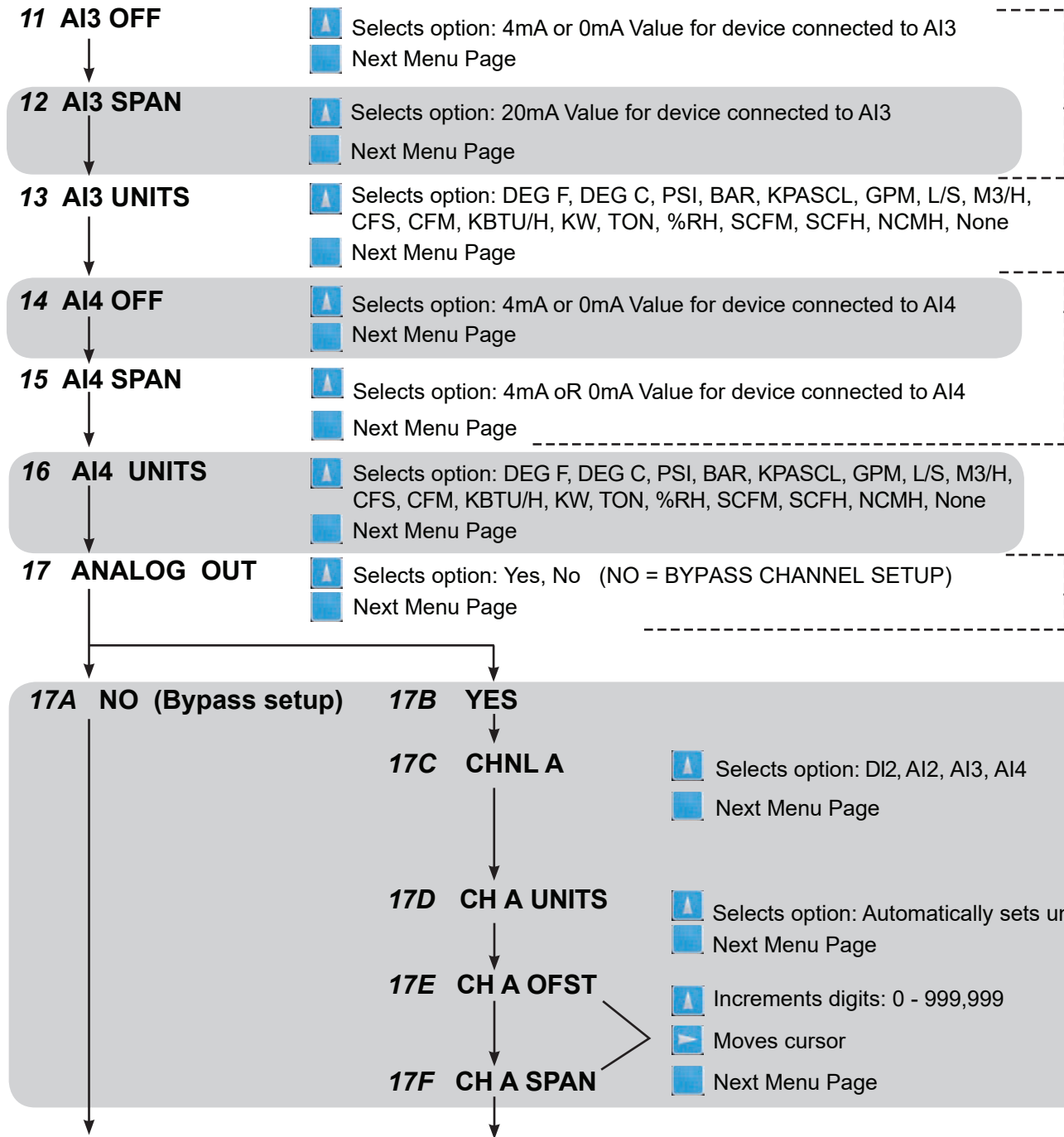
**IMPORTANT NOTE**

FLMAX is the full scale value of the analog flow signal. This is defined by the flow meter 4 – 20mA output connected to the System-10. Example: 4 – 20mA flow meter output = 0 – 10,000 GPM, FLMAX = 10,000 GPM.

FLTRH is the minimum flow rate the System-10 will respond to. The System-10 will display to flow rates values below this threshold as zero flow. ONICON Recommends that this value be set to value equal to 0.005 x FLMAX. Example: 4 – 20mA flow meter output = 0 – 10,000 GPM, FLTRH = (10,000 GPM x 0.005) or 50 GPM.

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## D-100 FLOW-PULSE OR FLOW-ANALOG



**IMPORTANT NOTE**

AI3 OFF and AI4 OFF is the value of the 4 mA or 0 mA output defined by the sensor connected to the AI3 input of the D-100.  
 Example: 4-20 mA flow meter output = 50 - 10,000; AI3 OFF = 50.

AI3 and AI4 Span is the value of the 20 mA output of the meter connected to the AI3 input, minus the offset.  
 Example: 4-20 mA flow meter output = 50 - 10,000; AI3 Span = 10,000 - 50.

**IMPORTANT NOTE**

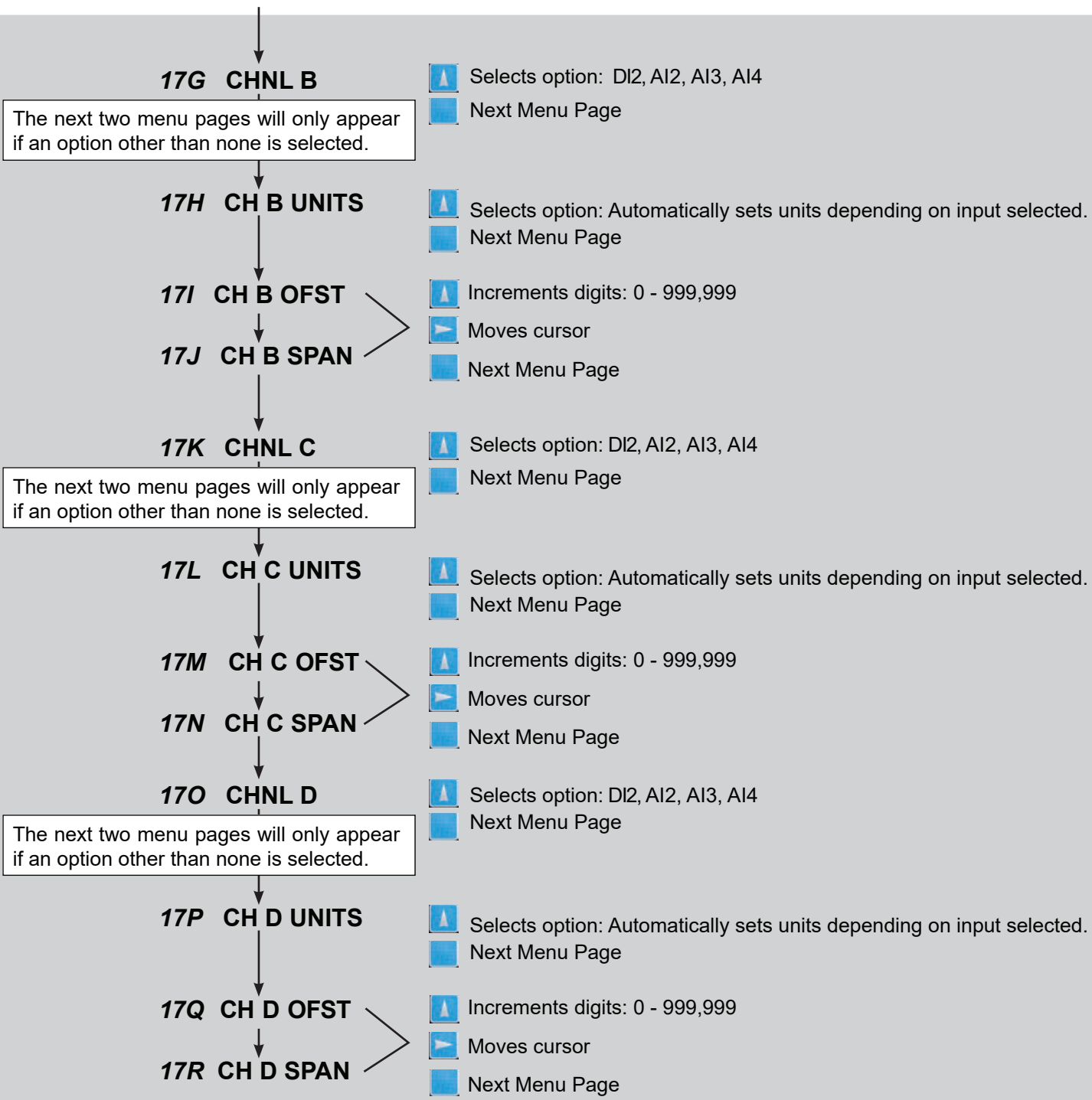
The analog function provides programming options for both the single and multi-analog output boards.

The single analog output board is programmed on channel A only and any of the following 4 options may be selected. The selectable options are : DI2, AI2, AI3, AI4.

The multi-analog output board may be programmed to provide all four options. The selectable options are: DI2, AI2, AI3, AI4.

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## D-100 FLOW-PULSE OR FLOW-ANALOG

