



BearCat Pumps

BCM Control Manual

Version 009.2023.009



Index (Click link for quick access)

Overview:

[1.1 Overview](#)

Model Number:

[2.1 Model Number](#)

T7

- [3.1 T7 - Start Up Screen](#)
- [3.2 T7 - Display Setup Screen](#)
- [3.3 T7 - Meter Setup Screen](#)
- [3.4 T7 - Save and Restore Screen](#)
- [3.5 T7 - Manual Control Screen](#)
- [3.6 T7 - Drum Feed Screen](#)
- [3.7 T7 - Terminal Feed Screen](#)
- [3.8 T7 - Calibration Window](#)

T4:

- [4.1 T4 - Start Up Screen](#)
- [4.2 T4 - Meter Setup Screen](#)
- [4.3 T4 - Save and Restore](#)
- [4.4 T4 - Manual Control Screen](#)
- [4.5 T4 - Calibration Window](#)

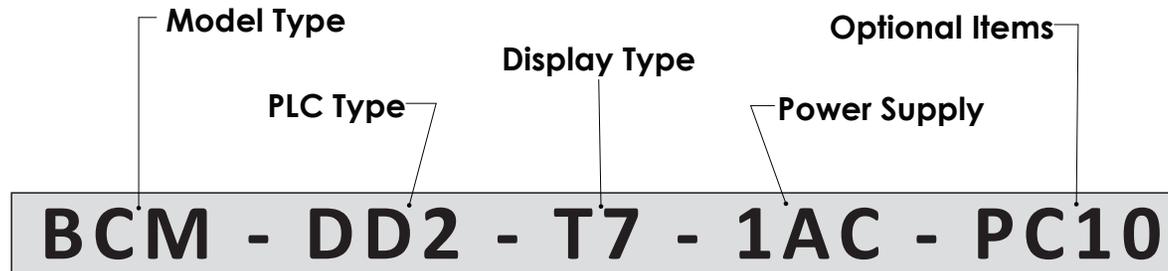
VFD:

- [5.1 Communication Parameters](#)

Overview

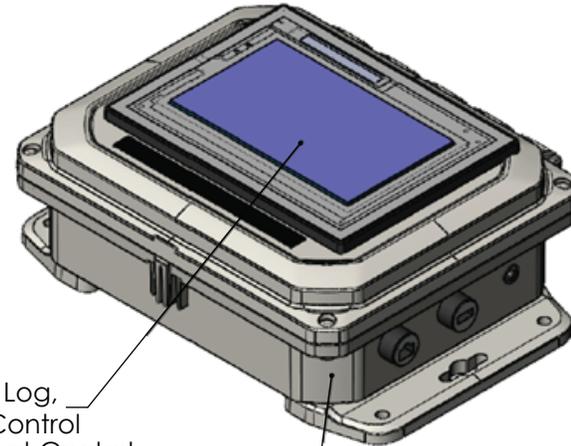
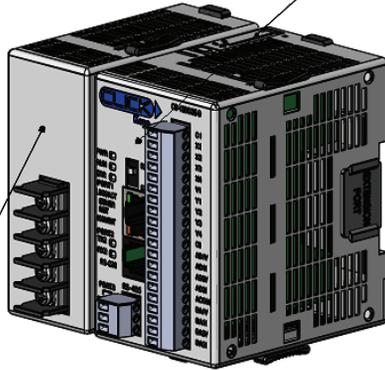
PLACEHOLDER

Model Number



PLC Type

- DD1 C0-12DD1E-2-D, 4dc in, 4dc out, 0-10 A-I/O
- DD2 C0-12DD2E-D, 4dc in, 4dc out, 4/20mA A-I/O



Display

- T7 - 7" Touch Screen, USB Log, Analog I/O, Multi Mode Control
- T4 - 4" Touch Screen, Target Control

Power Supply

- 0AC - 120-240VAC Input, 24VDC x 0.5amp
- 1AC - 120-240VAC Input, 24VDC x 1.3amp

Optional

- PC10 - 10x8x4 PolyCase

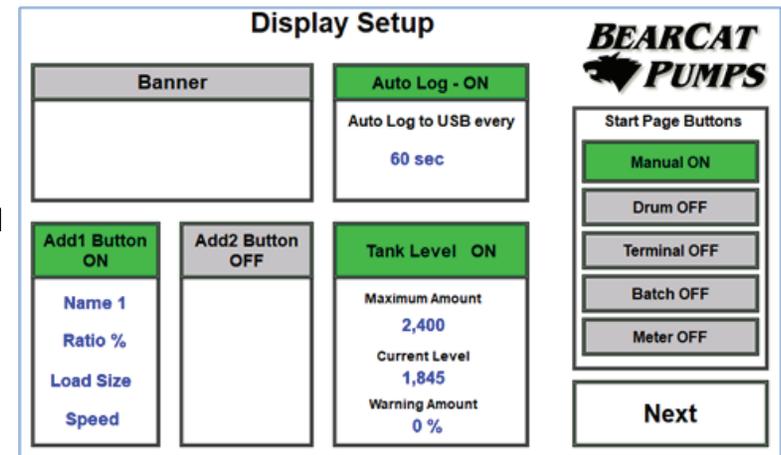
3. T7 Control

3.1. T7 - Start Up Screen

- 3.1.1. To **operate**, touch desired operation method from buttons on bottom. Note: If the buttons are gray, they have not been activated. Please proceed to Set-up.
- 3.1.2. To Enter **Set Up**, touch the center of the screen and type Password.

3.2. T7 - Display Setup Screen

- 3.2.1. **Banner**; This feature changes the Start Up screen and upper/right corner button.
- 3.2.2. **Auto Log**; Auto Log adjusts frequency for data logging to USB.
- 3.2.3. **Add1 and Add2**; These buttons can be activated to display buttons in Terminal Feed mode. They are not necessary if only one amount is used.
- 3.2.4. **Tank Level**; Displays a Tank Level indicator. When a value greater than 0 is entered in the Warn amount, the system will alert the operator when the tank or tote dips below the set amount. Note: all values are indicated in 0-100% regardless of operating units.
- 3.2.5. **Start Up Buttons**; This item toggles which Start Up page buttons will actuate in previous screen.



3.3. T7 - Meter Setup Screen

3.3.1. Type; Tap to the right of "Type" to toggle to the desired meter type. We use PD in this case as it is the most common.

3.3.2. Units; Tap units to toggle thru the available types.

3.3.3. Duration; Time Duration Tap durations to toggle thru time duration the flow rate.

3.3.4. Fact; Calibration factor. It is typically set to 1.0 when the meter is calibrated. Then adjusted in the future to track the amount at which the meter has drifted from original calibration.

3.3.5. Dens; Density of the material in lbs/gal.

3.3.6 RCal; This value will be calculate during calibration.

3.3.7. ppR; If displayed, this is Pulse Per Revolution, and is used when an encoder is used.

3.3.8. ppG; Pulses Per Gallons.

3.3.9. RECORD button; When pressed, this will place a screen capture on the USB drive.

3.4. T7 - Save and Restore Screen

3.4.1. Save All Parameters; Press and hold for 10sec to record all current parameters.

3.4.2. Restore All Parameters; Press and hold for 10sec, to recall all previously saved parameters.

3.4.3. Output Set-up; Advanced Parameters

3.4.4. VFD Set-up; Advanced Parameters

Meter Parameters	
Type	PD
Units	Duration
Lbs	/ min
Fact: 1.0000	
Dens: 8.2400	
RCal: 0.0001	
ppG: 15,243.00	

Start Calibration

BEARCAT PUMPS

Outputs	
Amps	0.00
Hz	0.00
0.00	

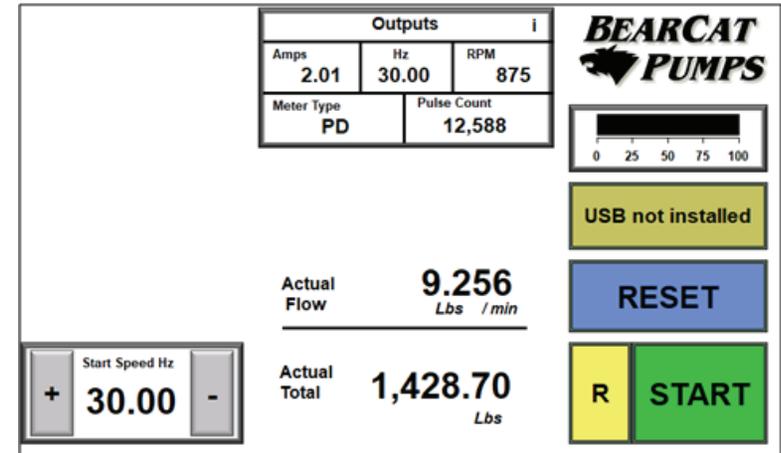
Record

STOP

Next

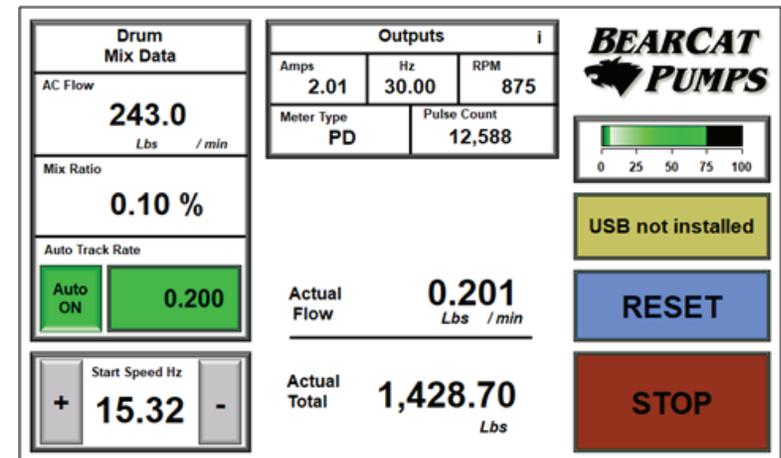
3.5. T7 - Manual Control Screen

- 3.5.1. **Outputs;** Outputs from the VFD and Meter.
- 3.5.2. **Start Speed** is the speed that the motor will operate at when Start is pressed.
- 3.5.3. **RECORD** Button. Pressing Record will write values to the USB Drive.
- 3.5.4. **RESET;** Press and hold (3sec) to clear value. Note: This automatically write all previous values with date and time to the USB Drive.



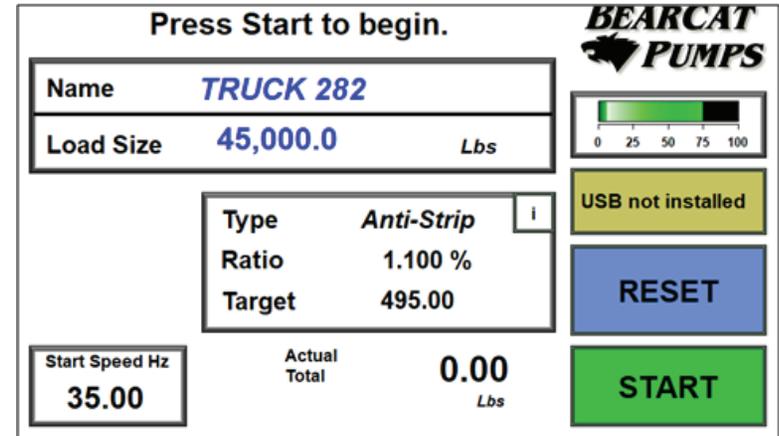
3.6. T7 - Drum Feed Screen

- 3.6.1. **AC Flow;** 4/20mA or 0-10v input from the main AC pump.
- 3.6.2. **Mix Ratio;** Desired additive going in to the mix.
- 3.6.3. **Auto Track;** When activated (Green) the system will adjust the motor speed to the auto track value in the green window. This value is being calculated at all times based on the current AC value and Mix Ratio above.
- 3.6.4. **Auto Logging;** Auto logging can be turned on and adjusted. Please See section 2.2.2 Auto Log.



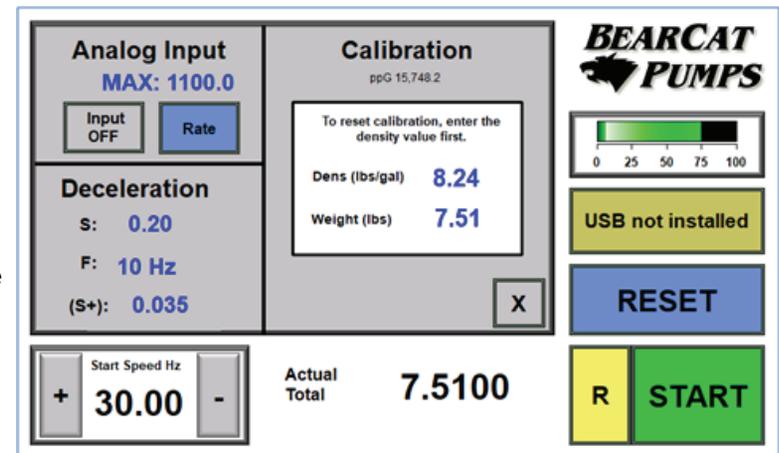
3.7. T7 - Terminal Feed Screen

- 3.7.1. **Name and Load Size** need to be entered at the start of each load. The system will calculate the Target amount based on Load Size and Ratio. Press Start to begin loading. The system will automatically stop when the Target is reached.
- 3.7.2. **RESET**; Pressing RESET will automatically record the totals with a time /date stamp to the USB drive. It will then clear the name and zero the values to begin a new load.



3.8. T7 - Calibration Window

- 3.8.1. **Quick Parameters** from Manual Control Screen; Press the "i" in the upper/right corner of the Outputs window. Enter security code to display the quick parameters window.
- 3.8.2. **Analog Input**; **Input** button. This activates the analog input function. **Rate/Total**; This toggles the analog input value between Rate and Total. Max: 1100.0; Maximum value for the Analog input.
- 3.8.3. **Deceleration**; These values control the speed when approaching the Total. The S value is the amount before Total to change to the slower frequency F: The S (+) value initiates the STOP command prior to reaching the actual Target to compensate for flow inertia.
- 3.8.4. **Calibration**; To calibrate, first reset the total. Then run the system pumping into a bucket on a scale. Once a desired amount is reached, stop the pump. First enter density then the weight (from the scale). The system will automatically calculate and store the new ppG (pulse per gallon).



T4

4. T4 Control

4.1. T4 - Start Up Screen

- 4.1.1. To **operate**, touch desired operation method from buttons on bottom. Note: If the buttons are gray, they have not been activated. Please proceed to Set-up.
- 4.1.2. To Enter **Set Up**, touch the center of the screen and type Password.



4.2. T4 - Meter Setup Screen

- 4.2.1. **Meter**; Tap to the right of "Type" to toggle to the desired meter type. We use PD in this case as it is the most common.
- 4.2.2. **Units**; Tap units to toggle thru the available types.
- 4.2.3. **Duration**; Time Duration Tap durations to toggle thru time duration the flow rate.
- 4.2.4. **Factor**; Calibration factor. It is typically set to 1.0 when the meter is calibrated. Then adjusted in the future to track the amount at which the meter has drifted from original calibration.
- 4.2.5. **Density**; Density of the material in lbs/gal.
- 4.2.6. **RCal**; This value will be calculate during calibration.
- 4.2.7. **ppR**; If displayed, this is Pulse Per Revolution, and is used when an encoder is used.
- 4.2.8. **ppG**; Pulses Per Gallons.

Meter	PD	Factor	1.0000	Save
Units	Lbs	Density	8.2400	
Duration	/ min	RCal	0.0001	Q Param
		PPR	1	
		ppG	15,782.30	Exit

T4

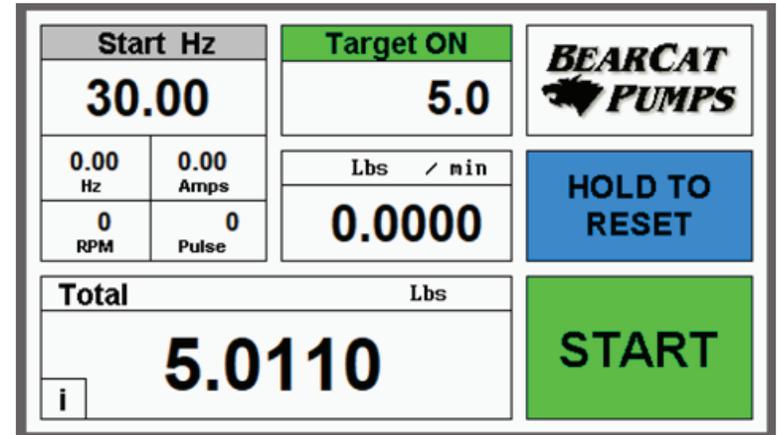
4.3. T4 - Save and Restore

- 4.1.1. **Save**; Press to record all current parameters.
- 4.3.2. **Restore**; Press to recall all previously saved parameters.



4.4. T4 - Manual Control Screen

- 4.4.1. **Start Speed** is the speed that the motor will operate at when Start is pressed.
- 4.4.2. **Outputs**; Outputs from the VFD and Meter.
- 4.4.3. **Target Button**. Press to activate (turns green). Enter a Target value. The pump will STOP when Target is reached.
- 4.4.4. **RESET**; Press and hold (5sec) to clear value.



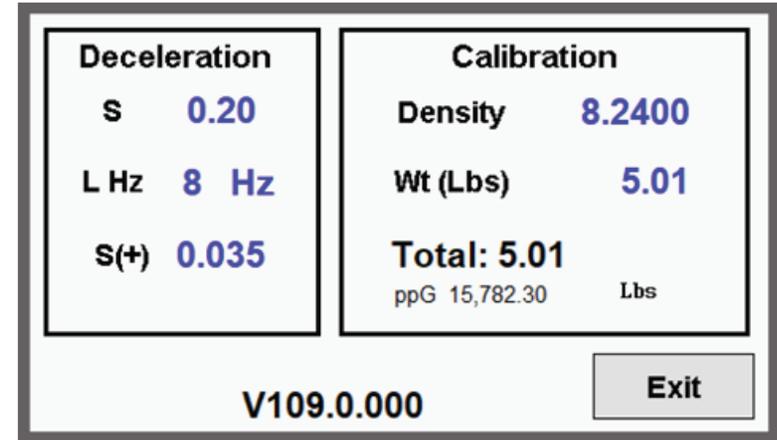
T4

4.5. T4 - Calibration Window

4.5.1. Press the “i” in the Lower/Left corner of the Manual Screen. Enter security code to display the quick parameters window.

4.5.2. **Deceleration;** These values control the speed when approaching the Total. The S value is the amount before Total to change to the slower frequency F: The S (+) value initiates the STOP command prior to reaching the actual Target to compensate for flow inertia.

4.5.3. **Calibration;** To calibrate, first reset the total. Then run the system pumping into a bucket on a scale. Once a desired amount is reached, stop the pump. First enter density then the weight (from the scale). The system will automatically calculate and store the new ppG (pulse per gallon).



VFD

5. VFD Parameters

5.1. **Communication Parameters** (This only shows values different from factory set)

5.1.1. P09.00 = 2, P09.01 = 19.2, P09.04 = 14

5.1.2. P00.20 = 1, P00.21 = 2