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| APPLICATION NOTE | FECA-AN-132A |
| PID Control with Pressure Transducer Wiring and Function Code Settings | |

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|------------------------------|--------------------|
| Inverter type | FRENIC-MEGA series |
| Software version | All versions |
| Required options | None |
| Related documentation | - |
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| Date | 12/12/2012 |
| Revision | A |

Introduction:

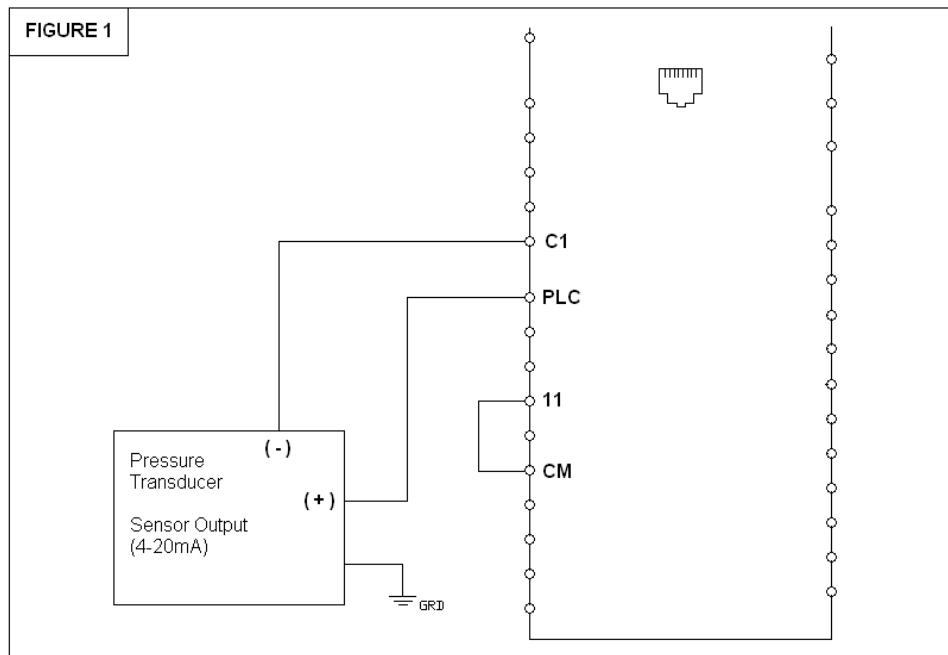
This application note will address the wiring set up of a pressure transducer with a **FRENIC-MEGA** drive, and parameter settings, to operate under PID control using a 4-20mA feedback signal.

Wiring:

The pressure regulator sensor with a 4-20mA output is to be connected as follows:

- 1) Connect drive terminal **PLC** (24VDC) to the sensor's **red** lead or terminal **1 (+)**
- 2) Connect drive terminal **C1** (+) to the sensor's **black** lead or terminal **2 (-)**
- 3) Connect a wire jumper between drive terminals **11** and **CM**

Refer to FIGURE 1 below:



Function Codes

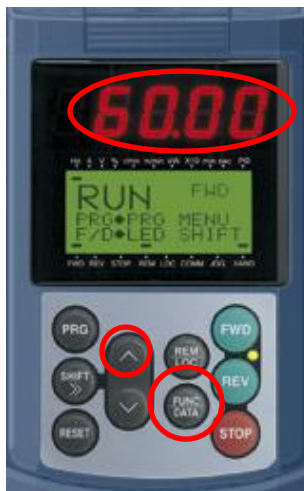
The following table displays the parameters that need to be set in the drive to operate PID control using the keypad to set the command (target) value, and 4-20mA feedback signal.

| Code | Setting | Description |
|------------|---|---|
| J01 | 1 - for normal operation (typically used) 2 - for inverse operation | PID Control Mode |
| J02 | 0 – keypad process command | PID Process Command (how to set target value) |
| J03 | 5 (*) | P – Proportional Gain |
| J04 | 1 second (*) | I – Integral Time |
| E40 | Highest value of sensor range | PID Coefficient A |
| E41 | Lowest value of sensor range | PID Coefficient B |
| E43 | 10 – for PID process command (SV) 12 – for PID feedback (PV) 14 – for PID output (MV) | LED Monitor (Item Selection) |
| E62 | 5 – PID feedback value | Analog Input Terminal C1 Function Selection |

(*)Note: These are initial settings and will need to be adjusted to provide optimum performance per the actual system characteristics and desired response. Changes should be made gradually as you will want to have stable operation with the maximum regulation; excessive settings could result in unstable operation.

Entering the Set value

To enter the set value, the setting the PID loop is to maintain, for the above settings you will enter the set value through the keypad. Utilize the **SHIFT** and **UP** arrow keys to set the value. Pressing **SHIFT** will allow you to move the cursor to the left most digit for faster setting. Press **FUNC/DATA** to save it.



For more information refer to the **FRENIC-MEGA Instruction Manual (INR-SI47-1457a-E)**.