MPC-20
Software Release 2.8.10043

Enovation Controls continues to improve the software for the popular Murphy PowerCore MPC-20 controller. The latest software release (2.8.10043) provides an enhanced user experience with several new features. Enovation Controls will continue to provide enhancements to the MPC-20 controller software periodically throughout its life cycle. In order to take advantage of the new features in this update, please download the latest configuration tool (2.8.10298), and load the new firmware into your current controller. This may require additional Murphy equipment such as the ML2000 USB programming harness or an ECOM communication dongle, which are available for purchase.

This software update provides many new features including:

- **New Engine Support:**
  - **Volvo Electronic Engine:** Starting, stopping and Tier 4 support added to operate Volvo electronic engines when Volvo is selected as the Engine Manufacturer in the Engine Settings menu.
  - **Kubota Electronic Engine:** CAN throttling and Tier 4 support added to operate Kubota Tier 4 electronic engines when Kubota is selected as the Engine Manufacturer in the Engine Settings menu. Parking Brake and Neutral Switch digital inputs have been added for Kubota Final Tier engines. These two inputs must be active for the engine to perform a parked regeneration.
- **New Tier 4 Aftertreatment Screen:** Allows a user to inhibit and request a Tier 4 engine aftertreatment regeneration without accessing the menu. This screen can be toggled on or off in the Tier 4 menu.
- **New Analog Input Parameters:**
  - **Gear Box Pressure:** Added to the predefined selection of analog inputs. This parameter can be monitored by selecting 4-20mA Gear Box Pressure, 0-5V Gear Box Pressure or resistive Murphy PMK-400 Pressure as an analog input. High and low warning and shut-

down settings were also added for this parameter within the Warnings and Shutdowns menu of Advanced Engine Settings.
    - **Pump Housing Temperature:** Added to the predefined selection of analog inputs for viewing only. This parameter can be monitored by selecting 4-20mA Pump Housing Temp, 0-5V Pump Housing Temp, resistive Datcon Pump Housing Temp, resistive VDO Pump Housing Temp or resistive Murphy Pump Housing Temp as an analog input.
- **New Governor Control Output:** Added for customers using a governor controller. The output will turn on after the warm-up state and turn off when entering the cool-down state.
- **Improved Menu Settings**:
    - **Speed Calibration Setting**: Calibrates the speed setting when used on a mechanical engine. This allows the user to set either the flywheel tooth count or engine alternator pulses for the speed signal. This setting is now hidden from the user in the menu if J1939 is selected as the speed source.
    - **Speed Calibration Setting**: A decimal was added to the whole number for better tuning while calibrating the speed setting when Speed Source is set to Magnetic Pickup or Engine Alternator.
    - **Analog, 0-5 VDC Throttle Type:** Used for throttling the engine using 0-5VDC signal. Two additional settings were added in the Throttle Menu for Analog Minimum Value and Analog Maximum Value when Analog, 0-5 VDC is selected as the throttle type.
    - **Soot Gauge:** Located within the Engine Settings menu, this option allows a user to turn the digital soot gauge on or off depending on if the engine sends this information via J1939 CAN Communications.
    - **DEF Gauge:** Located within the Engine Settings menu, this setting allows a user to turn the digital DEF gauge on or off depending on if the engine sends this information via J1939 CAN Communications.
- **Improved Auto Stop Conditions:** Auto Stop conditions are now recognized in the warm-up state when in Auto mode. In previous software versions, the automatic stop condition was ignored in the warm-up state but is now active during the warm-up state.
- **Improved Digital Input Function for EMERGENCY SHUTDOWN:** This function is now changed from Emergency Shutdown to Remote Shutdown. This input does not remove/break power to the controller thus not allowing for a true Emergency Shutdown. Remote stop is a better description of this function.
- **Improved Stop Button Function in Auto Mode:** A single press of the stop button will not take the controller out of Auto mode after the engine shuts down. The controller now remains in Auto mode when the stop button is pressed once for the shut-down sequence to start. Holding the stop button will immediately stop the engine and place the controller in Manual mode.
- **Improved Digital Input Action for Shutdown, Controlled:** The action Shutdown, Controlled in the digital inputs now works as designed by allowing the controller to shut down through cool-down instead of immediately.
- **Improved Application Screen when using Discharge/Suction Pressure:** When the application was set to throttle with discharge or suction pressure, the deadband would round up or down in

place of remaining to the value set. This now correctly displays the desired value for the deadband.

- **Improved Bypass Timer to Include Warnings:** Bypass timers now lock out warnings and shutdowns. In the previous version, the bypass timers only locked out the shutdowns.
- **Improved Pre-Start Functions to Include Manual Mode:** Pre-starts now work in manual and auto mode. In previous versions, the pre-starts only worked in auto mode. This is beneficial in both modes of operation for functions such as preheat, pump priming, etc.
- **Improved Suction Pressure to Include Negative Values:** Suction pressure can now be measured to read a negative value.
- **Improved Battery Voltage Display Parameter:** Battery voltage is now available in the selection of viewable parameters in the six-up screens when using the PC configuration tool.
- **Improved Fuel Rate Gauge:** Display for Fuel Rate now looks at SPN 183 per SAE J1939 protocol.
- **Improved Clutch Disengage Function:** Clutch output now disengages when reaching the disengage speed.
- **Improved Modbus:**
    - **New Registers Added in Modbus Map:** See new Modbus map in MPC-20 operations manual for detail of the new register(s).
        - **Fuel Level**
        - **DEF%**
        - **Soot%**
        - **Aftertreatment Regeneration Status Set in Controller**
        - **Tier 4 Lamp Status From ECU**
        - **State Timer**
        - **Target Engine Speed**
        - **Type of Auto Start/Stop Selected in Controller**
        - **Pressure Deadband**
        - **Level Deadband**
        - **Flow Deadband**
        - **Ambient Temperature Start**
        - **Ambient Temperature Stop**
        - **Maintain Flow**
        - **Minimum Engine RPM**
        - **Service Reminders with Associated Timers**
    - **Registers Added to Include Active Warnings:** See new Modbus map in MPC-20 operations manual for detail of the new register(s) and warnings.
    - **Registers Added to Save New Settings to Controller:** Two new registers were added to save and confirm setting changes made via Modbus into the controller. See new Modbus map in MPC-20 operations manual for detail of the new register(s).
- **Application Firmware Update to Support Features in PowerVision Configuration Studio®:** Customers using the free configuration software will not see the following features:

- **Do Not Transmit on CAN bus when ECU Enable Output is Off Feature:** The System App now has CAN Enable/Disable actions for companies utilizing Full PowerVision Configuration Studio software in custom configurations.
- **TSC1 Enable/Disable:** The System App now has TSC1 Enable/Disable actions for companies utilizing Full PowerVision Configuration Studio software in custom configurations.