

# **CONFIGURING TERMINATOR I/O ANALOG OUTPUT MODULES**

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### Analog Output Module Control Byte

Terminator I/O analog voltage and current output and combination analog modules require configuring via the module control byte. Analog input modules do not require configuration. The **DirectLOGIC** example below shows an ERM network Terminator I/O slave with a discrete input module in slot 1, an analog voltage output module in slot 2 and a combination analog current module in slot 3. Note that the module control bytes are automatically mapped to the "Y" data type registers. The bits within the module control byte are used to enable or disable the analog outputs, select bipolar or unipolar output and select the voltage or current output range. For Do-more! applications, the control bits are mapped to DLY addresses, an example is shown below.

The image displays two screenshots of configuration software, DirectLOGIC and Do-more!, showing the mapping of module control bytes to DLY addresses for an ERM slave.

**DirectLOGIC Screenshot:**

- Top Panel:** Shows Ethernet Remote Master [IP: 10.0.0.2 IP: 255.255.255.255], Modbus ID: 8, and a status bar indicating Slave Status: 00 00 02 20 13 F2.
- Bottom Panel:** Shows the ERM Slave configuration with Slot 1 (Discrete Input), Slot 2 (Analog Voltage Output), and Slot 3 (Combination Analog Current Module). The Analog Voltage Output module has its Control Bytes highlighted in red boxes: Y000, Y001, Y002, Y003, and Y004.

**Do-more! Screenshot:**

- Top Panel:** Shows Ethernet Remote Master [IP: 10.0.0.2 IP: 10.1.25.2 Modbus ID: 8] and a status bar indicating Slave Status: 00 00 02 21 63 C4.
- Bottom Panel:** Shows the ERM Slave configuration with Slot 1 (Discrete Input), Slot 2 (Analog Voltage Output), and Slot 3 (Combination Analog Current Module). The Analog Voltage Output module has its Control Bytes highlighted in red boxes: DL1000, DL1001, DL1002, DL1003, and DL1004.

**Annotations:**

- Module Control Byte for each analog output module:** Points to the Control Bytes listed in the DirectLOGIC screenshot.
- T1F-08DA-2** and **T1F-8AD4DA-1**: Points to the two analog output modules in the DirectLOGIC screenshot.
- Control Bytes are mapped to DLY addresses in Do-more! applications**: Points to the Control Bytes listed in the Do-more! screenshot.
- T1F-08DA-2** and **T1F-8AD4DA-1**: Points to the two analog output modules in the Do-more! screenshot.

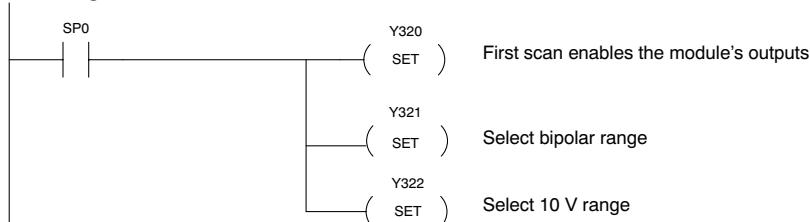
The table below defines the bits of an analog module control byte. Example "Y" bit addresses are listed for the analog module control bytes from the ERM network example on the previous page, along with their equivalent Do-more! addresses. The module control byte addresses will vary depending on the location of the analog module in the system, the number of slaves, the amount of output modules used in an ERM network and the starting discrete output address that is user specified. ERM Workbench will list the appropriate control byte for any Terminator analog module that requires configuration.

Module Control Byte of 8 and 16-Channel Analog Output Modules and Analog Combination Modules			
Bit Definitions		Example Bit Addresses for T1F-08DA-2	Example Bit Addresses for T1F-8AD4DA-1
<b>Bit 0</b>	Outputs Enable 0 = All outputs OFF 1 = All outputs Enabled	DL: Y320 Do-more!: DLY320	DL: Y330 Do-more!: DLY330
<b>Bit 1</b>	Unipolar / Bipolar 0 = Unipolar selected 1 = Bipolar selected	DL: Y321 Do-more!: DLY321	DL: Y331 Do-more!: DLY331
<b>Bit 2</b>	5V / 10V Range 0 = 5V range 1 = 10V range	DL: Y322 Do-more!: DLY322	DL: Y332 Do-more!: DLY332
<b>Bit 3</b>	0–20 mA / 4–20 mA Range 0 = 0–20 mA range 1 = 4–20 mA range	DL: Y323 Do-more!: DLY323	DL: Y333 Do-more!: DLY333
<b>Bit 4–7</b>	Reserved for system use	–	–

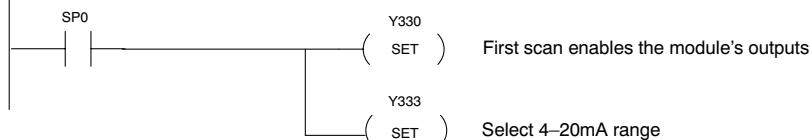
The following example ladder logic code configures the analog output and combination analog modules used in the previous examples. The T1F-08DA-2 is configured for outputs enabled with 10V bipolar range. The T1F-8AD4DA-1 is configured for outputs enabled with 4–20mA unipolar range. The RST instruction can be used to reset the bits, if necessary.

### DirectSOFT

#### Configure T1F-08DA-2



#### Configure T1F-8AD4DA-1



### Do-more! Designer

