EMERSON
Industrial Automation

Application Note
CTAN #210

The Application Note is pertinent to the Unidrive Family

Unidrive / UD76 Quick Setup for Modbus Plus

Scope - This procedure applies to a Unidrive / UD76 combination and describes a minimal Global comm.(s) setup for simple speed control, and assumes that the PLC master is at node ID "1". Fieldbus start-stop control *requires* that sequencing "**Mode 4**" or "**Mode 3**" has been selected (**#6.04 = 4** or **3**). "**Mode 4**" is recommended and is the present default.

Instructions

Step 1 – Menu 8 Insure that any of the following parameter pointer locations do not values that conflict with Control Word control of the Unidrive. If a value of **6.29**, **6.30**, **6.31**, **6.32**, **6.33**, or **6.34** is found in any of the following locations, set the value at that location to a value of zero (**"0.00"**).

Menu 8	If following value is found:	Then set to:
#8.10	6.29, 6.30, 6.31, 6.32, 6.33 or 6.34	0.00
#8.13	" (same)	0.00
#8.16	" (same)	0.00
#8.19	" (same)	0.00
#8.21	" (same)	0.00
#8.23	6.29, 6.30, 6.31, 6.32, 6.33 or 6.34	0.00

Step 2 – Menu 20 Insure that the following Menu 20 parameters are set to the required values:

Menu 20	Value	Comment
#20.01	2 to 63	Node ID (RO), set by switches, all nodes different, PLC at ID=1
#20.02	1	Negative number support (range 0, 1 or 2) 0=sign/magnitude, 1=2(s) complement, 2=mixed (sign/mag PLC query / 2(s) complement Global Data
If Global Data is disabled, read / write of parameters only possible from PLC Master		
#20.03	1	Value=1 enables Global data, Value=0 disables Global data
The following parameters only relevant if #20.03=1 (Global Data enabled)		
#20.04	* 101	IN Slot 1 source (0=disabled) format is nnrr = node / register
#20.05	9911	IN Slot 1 destination parameter (format mmpp = menu / pram)
#20.06	* 102	IN Slot 2 source (0=disabled) format is nnrr = node / register
#20.07	121	IN Slot 2 destination parameter (format mmpp = menu / pram)
#20.08	* 103	IN Slot 3 source (0=disabled, format is nnrr = node / register)
#20.09	408	IN Slot 3 destination parameter (format mmpp = menu / pram)
#20.10	9911	OUT Slot 1 source parameter
#20.11	201	OUT Slot 2 source parameter
320.12	402	OUT Slot 3 source parameter
#20.13	0	PLC Transmit – Number of _Rxx% registers to send (range 0-5)
#20.14	400	Fieldbus ID code (RO)
#20.15	0	PLC _S00% IN (0=disabled, format is nnrr = node / register)
#20.16	0	PLC _S01% IN (0=disabled, format is nnrr = node / register)
#20.17	0	PLC _S02% IN (0=disabled, format is nnrr = node / register)
#20.18	0	PLC _S03% IN (0=disabled, format is nnrr = node / register)
#20.19	0	PLC _S04% IN (0=disabled, format is nnrr = node / register)

* note these parameters actually map the UD76 into the PLC address space. Example illustrates control, speed, and torque set-points being sourced from IN Slot 1, IN Slot2 and IN Slot 3 from the PLC master (assumed to be node 1). The PLC master is responsible for picking up the actual status, speed, and torque from OUT Slots 1, 2 and 3.

Step 3 – Menu 1 Insure that "**Digital Preset 1**" is selected as the speed reference source.

1. Check and set parameter **#1.14** to a value of "3".
2. Check and set parameter **#1.15** to a value of "1".

Step 4 – Save and activate

1. Save Menu 1 through Menu 19 by setting **#x.00** = 1000 and press the red "reset" button on the Unidrive.
2. Save the Menu 20 values by setting **#17.19** = 1 (resets itself back to zero).
3. Activate this configuration by setting **#x.00** = 1070 and press the red "reset" button on the Unidrive.

Step 5 – Observe Normal Network Indications

1. Network Activity LED (next to the Address switch) blinking 6 flashes per second
2. Read Only Parameter **#20.50** indicating network number registers transferred per second, should not display zero value at this point.
3. Read Only Parameter **#20.49** indicating token rotation time in milliseconds. Could be as low as 4 milliseconds on a small system with few nodes to 400 milliseconds on a large, overworked system.

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