HI1756-WS and -2WS Programmer's Quick Reference 1.3

The Programmer's Quick Reference guide is intended to be a helpful and efficient reference tool for power users and technical personnel when interfacing with this Hardy product. It is not designed to replace the User's Guide.

LED Indicator Lights:

LEDS

Scale Data LEDs	Flashing Green	Error No Calibration
	Steady Green	Running (Normal)
	Steady Red	Error Read Failure or Error eeprom write. Contact HI Customer Support
	Flashing Red	Read Convert Error.
	LED is Off	Channel is Inactive
OK Module Status LED	Brief Steady	During power up the LED lights Red for about one second.
	Flashing Green	In Program mode. (Normal)
	Steady Green	In Run Mode. (Normal)
	Steady Red (Backplane Available)	Config. Fault The eeprom checksum failed - bad serial eeprom data or blank serial eeprom. Contact HI Customer Support.
	Steady Red	Internal Hardware watchdog timer fault (e.g. bad Hardware or Firmware). ASIC is non-operational.
	Flashing Red	Communication Error.

Physical Pinouts:

Single Channel		Dual Channel	
Pin 1	Exc+	Pin 1	Exc+
Pin 2	Sense+	Pin 2	Sense+
Pin 3	Sig+	Pin 3	Sig+
Pin 4	Sig-	Pin 4	Sig-
Pin 5	Sense-	Pin 5	Sense-
Pin 6	Exc-	Pin 6	Exc-
Pin 7	C2+	Pin 7	C2+
Pin 8	C2-	Pin 8	C2-
Pin 9	Shield	Pin 9	Shield
		Pin 10	Exc+
		Pin 11	Sense+
		Pin 12	Sig+
		Pin 13	Sig-
		Pin 14	Sense-
		Pin 15	Exc-
		Pin 16	C2+
		Pin 17	C2-
		Pin 18	Shield

+ Local:5:I.ChannelStatus	{...}		HI:1756_Cha...
Local:5:I.Ch0GrossWeight	700.0	Float	REAL
Local:5:I.Ch0NetWeight	700.0	Float	REAL

PLC INPUT TABLE

− Local:5:O	{...}		HI:1756_
+ Local:5:O.Ch0CMD	16#0000	Hex	INT
+ Local:5:O.Ch1CMD	16#0000	Hex	INT

PLC OUTPUT TABLE

Commands:

1 - Zero
2 - Tare
4 – Write Non Volatile (Save)
64 - Cal Low
65 - Cal High
66 – C2 Cal
69 – Read Param
6D – IT Test -- User must manually input the # of sensors on WeighSysTest Rung 1

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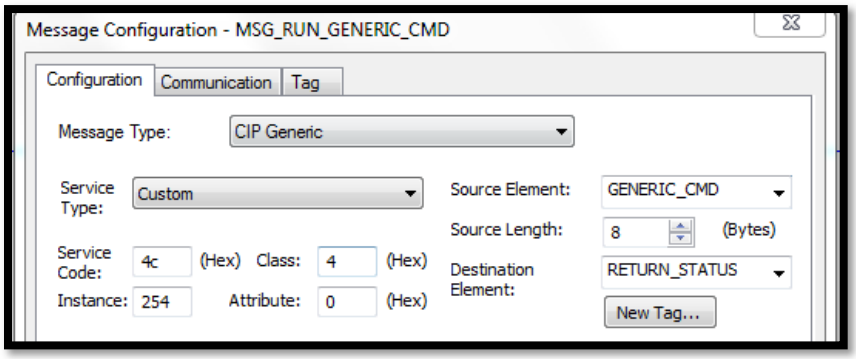
Message Configuration:



When you run a command from the sample program mainroutine, it inserts the command into the GENERIC CMD tag, then runs the run_cmd routine. The run_cmd routine sends a MSG instruction to the module.

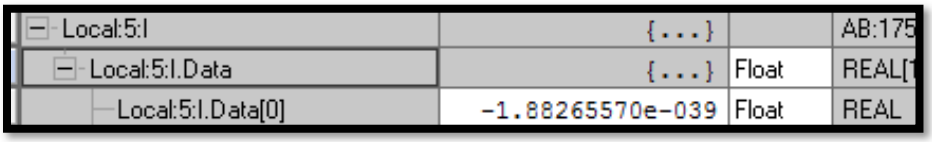
Status Words:

When set up with the AOP:

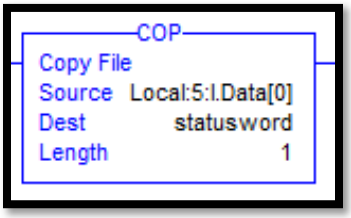
Channel 0 is on the right. Expand the ChannelStatus word to see the individual status bits.

When set up as a Generic Module:

Status comes back in the same general location…word 0… However, it is a floating point.



It gets copied to a DINT called “statusword” in the main routine.



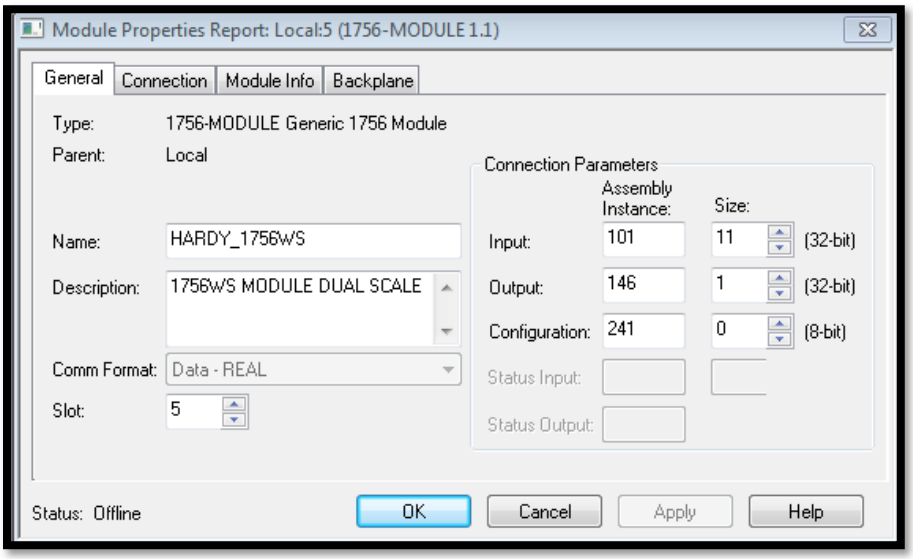
Then the status reads out in hex in the statusword tag.
16#(Channel 1 Status)_(Channel 0 Status)

Each channel is showing a value of 8014:
8000 - That channel is enabled for use.
0010 -The red C2 button is enabled on the front of the module. See manual.
0004 - The unit is calibrated and using LBS. (English system VS Metric System)

Status Word Values:

Word	Number	Definition
ERRORADCONVERT	0x0001	Millivolt return from the load cell system is out of range for the unit.
ERRORADFAILURE	0x0002	A/D converter in the unit is no longer responding.
STATUSENGLISH	0x0004	Unit calibrated in lbs. If the bit is off, calibrated in kgs.
STATUSZTRACK	0x0008	Auto Zero Tracking is turned on.
STATUSBUTTONENABLED	0x0010	Enabled/Disabled calibrate button.
STATUSINMOTION	0x0040	Weight is changing on the scale.
ERRORNOCAL	0x0080	The unit is at factory default settings.
ERROREEPROMWRITE	0x0100	EEPROM Hardware Error
ERROREXCITEMON	0x0200	Excitation monitor error.
ERRORMAX144	0x0400	Hardware Error in Excitation Monitor
STATUSCMDRCVD	0x2000	Output Table Command Complete
STATUSCMDERROR	0x4000	Output Table Command Failed
STATUSCHANENABLED	0x8000	Set if channel is enabled

Generic Module Tips:



- Read the parameters first.
- Copy or manually set the parameters in the WRITE_PARAMS tag, then toggle the write params bits in the main routine.
- When set up as a generic module, the program jumps to the “Run_cmd” routine, then sends messages to the module using the GENERIC_CMD word:

GENERIC_CMD	{...}		HardySimpleMsg	Generic source tag used for most commands.
GENERIC_CMD.command	102	Decimal	DINT	Command # determined by command being done.
GENERIC_CMD.channel	0	Decimal	DINT	Channel #, 0 or 1
GENERIC_CMD.status	0	Decimal	DINT	N/A

AOP Tips:

The AOP sample program sends messages to run commands, even though it has an AOP. However, it does have a command output word to manually perform calibrations, etc.

Local:5:O	{...}		HI:1756_xWS:O:0
Local:5:O.Ch0CMD	16#0000	Hex	INT
Local:5:O.Ch1CMD	16#0000	Hex	INT

IMPORTANT: READ THE PARAMETERS AND SAVE TO NON-VOLATILE MEMORY WHEN CHANGES ARE MADE. BOTH CAN BE TOGGLED IN THE MAINROUTINE

Parameter Changing:

To read the parameters that are running in the unit, toggle the Read Params bit in the mainroutine.
The code will move the parameters into the PARAMS_READ tags.
Then code or manually copy the parameters from the PARAMS_READ to the PARAMS_WRITE tags.
Adjust the parameters in the PARAMS_WRITE tag, then toggle the write params bit in the main routine.

+ PARAMS_READ	{...}		PARAMETERS	Current parameter...
+ PARAMS_WRITE	{...}		PARAMETERS	New parameters t...

In short, you are reading the params out of the unit, copying them to the WRITE PARAMS tags and writing them back to the module.

Parameter changing with the Module Reconfigure Message:

The parameters can be changed in the “C” table and a Module Reconfigure type MSG instruction can be executed to write the “C” parameters to the module.
Its important to read the parameters to verify the changes have taken effect.
These parameters will now be written to the module upon every power/connection cycle if the "Copy Configuration Data" check box is checked in the AOP.

Example:

− Local:1:C	{...}		HI:1756_WS_rev3:C:0
+ Local:1:C.Ch0CopyConfigEnable	{...}		HI:1756_Ch0_CopyConfigEna...
+ Local:1:C.Ch0ChannelEnable	{...}		HI:1756_Ch0_ChannelEnable:...
+ Local:1:C.Ch0NumDecPlaces	0	Decimal	DINT
+ Local:1:C.Ch0Metric	0	Decimal	DINT
+ Local:1:C.Ch0NumAverages	10	Decimal	DINT
+ Local:1:C.Ch0Waversaver	2	Decimal	DINT