# **PROFIBUS DP Interface**

Interface for the 1280 Indicator

# Installation and Programming Manual



COMPATABILITY NOTICE:
If card no longer communicates correct
data, change SWAP parameter to "BYTE"
in the indicator



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www.ricelake.com

# **Revision History**

This section tracks and describes manual revisions for awareness of major updates.

Revision	Date	Description
E	February 29, 2024	Established revision history; Added first and second generation option card details

Table i. Revision Letter History



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# 1.0 Introduction

The Profibus DP Interface can be used to read and write data between a scale indicator and a PLC or another primary controller. This manual provides information for installation and use of this product.

The Profibus DP Interface is installed inside the indicator enclosure and installation in NEMA Type 4X stainless steel enclosures permits use in washdown environments.

See the indicator technical manual for additional installation information and detailed descriptions of indicator functions.



WARNING: Some procedures described in this manual require work inside the indicator enclosure. These procedures are to be performed by qualified service personnel only.



Manuals and additional resources are available on the Rice Lake Weighing Systems website at <a href="https://www.ricelake.com">www.ricelake.com</a>

Warranty information can be found on the website at <a href="www.ricelake.com/warranties">www.ricelake.com/warranties</a>

# 1.1 Overview

The primary controller communicates by sending commands through the Profibus DP Interface to the indicator. The indicator responds to the primary controller with data and status depending on the command sent. These actions are referred to as polled response. Indicator configuration and calibration cannot be performed through the Profibus DP Interface.



# 1.2 FCC Compliance

#### United States

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

#### Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescites dans le Règlement sur le brouillage radioélectrique edicté par le ministère des Communications du Canada.



# 2.0 Installation

Profibus DP Interface specific functions are provided by a Profibus DP module.

The module plugs into an open slot on the CPU board and provides power and access from the indicator bus to the module.



IMPORTANT: See the indicator Technical Manual for installation instructions.

The interface option cards of the 1280 Enterprise Series indicator share the same carrier board (PN 164756). The carrier board plugs into an open slot on the CPU board and provides power and access from the indicator bus to the module. 1280 interface option card kits are shipped with the module and carrier board already assembled.

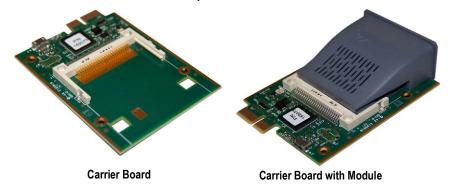


Figure 2-1. Interface Option Card Kit

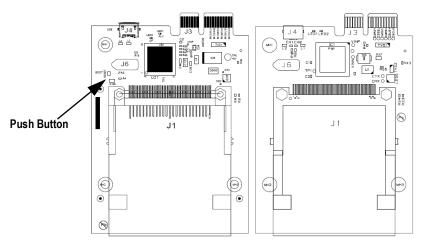


Figure 2-2. Second Generation (left) and First Generation (right) Boards

Card Generation	Identifying Characteristics
First Generation	green board
Second Generation	blue board, push button

Table 2-1. Option Card Identification Information



NOTE: Only second generation cards (blue boards) can have the firmware updated. See the 1280 Enterprise Technical Manual (PN 167659) for further instructions.

The indicator automatically recognizes all installed option cards when the unit is powered on. No hardware-specific configuration is required to identify an installed card to the system.



WARNING: Always disconnect the power before opening an enclosure. Interface option cards are not hot swappable.



CAUTION: A grounding wrist strap must be worn to protect components from electrostatic discharge (ESD) when working inside an enclosure or controller assembly.



# 2.1 Installation Instructions

- 1. Disconnect power to the indicator.
- See the 1280 technical manual (PN 167659) to gain access to the Controller Assembly box for the specific model.
- Remove the screw securing the intended slot cover plate of the Controller Assembly box, set the slot cover plate aside and save the screw.
- Mount the faceplate on module and slide module board assembly into place within the slot.
- Secure the faceplate and module board assembly into place with the previously removed screw.



NOTE: nterface cable is routed through a cord grip in Universal and Wall mount enclosures.

Alternately, a chassis mounted connect can be installed in the enclosure.

6. See 1280 technical manual to reinstall the Controller Assembly box.

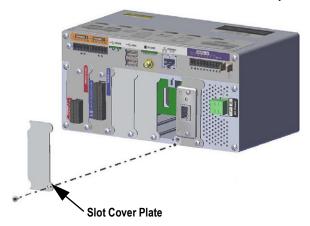


Figure 2-3. Existing Cover Plate Removal





**Installed Option Card** 

Figure 2-4. Installed Interface Option Card

# 2.2 LED Status Indicators and Connector

An LED array on the Profibus DP module provides status information for troubleshooting.

- · LED 1 provides network status
- · LED 2 provides status indication for the Profibus DP module



Figure 2-5. Profibus DP Status LED Module

#### **Operation Mode LED (Item 1)**

LED State	Description	
Off	No power or no IP address	
Green	Data exchange	
Green, Flashing	Clear, waiting for connections	
Red, Flashing (1-flash)	Parametrization error	
Red, Flashing (2-flash)	Profibus DP configuration error	

Table 2-2. Operation Status LED Indications



# Module Status LED (Item 2)

LED State	Description	Comments
Off	Not initialized	Anybus state = <b>SETUP</b> or <b>NW_INIT</b>
Steady Green	Initialized	Anybus module has left the <b>NW_INIT</b> state
Flashing Green	Initialized, diagnostic event(s) present	Extended diagnostic bit is set
Steady Red	Exception error	Anybus state = <b>EXCEPTION</b>

Table 2-3. Module Status LED

# Connector DB9F (Item 3)

Pin	Signal	Description
1	_	-
2	-	_
3	B Line	Positive RxD/TxD, RS485 level
4	RTS	Request to send
5	GND Bus	ground (isolated)
6	+5 V Bus Output	+5 V termination power (isolated, short-circuit protected)
7	_	_
8	A Line	Negative RxD/TxD, RS-485 level
9	_	_
Housing	Cable Shield	Internally connected to the Anybus protective earth via cable shield filters according to the Profibus DP standard

Table 2-4. Connector Pins



# 3.0 Commands

Commands are used by the primary device to send and receive data from the interface as integer or floating-point data. The primary sends eight bytes in the output format to write commands to the indicator and reads eight bytes in the input format to read data from the indicator.

# **Decimal Point Handling**

Integer commands return no decimal point information to the primary.

For example, a value of 750.1 displayed on the indicator is returned to the primary as 7501. Floating point commands support decimal point information with no special handling.

# 3.1 Output Data Format

To perform a command, the primary uses the output command format to send four 16-bit words to the interface. These four words contain the command and the necessary parameters to execute it. The output command format is shown in Table 3-1.

Byte	Description	
Byte 0	Command Number	
Byte 1	Command Number	
Byte 2	Parameter -Value (MSW)	
Byte 3		
Byte 4		
Byte 5		
Byte 6	Value (LSW)	
Byte 7		

Table 3-1. 1280 Output Data Format



NOTE: See Section 3.1.1 on page 15 for BYTE swapping parameters.

A lockout feature, incorporated into the indicator receive mechanism, looks for change in the output format data to prevent inundation by the same command.

See affected commands noted in Table 3-2 on page 13 with an (\*).

Repeated commands must be separated by any other valid command/parameter/value combination.



#### Parameter value

In communication with a multi-scale indicator, the scale number is sent in the second word of the output command format. Zero (0) represents the current scale. Certain commands require a parameter other than a scale number, such as a slot number, setpoint number, or other selection parameter. See the command descriptions in Section 3.3 on page 20 for specific command requirements.

#### Value

The third and fourth words of the output format are used to pass value data on certain commands. Values entered in these words are treated as unsigned long integers or floating-point values, depending on the command.

#### Command number

The number representing the indicator command is sent in the first word. Table 3-2 lists the commands that can be specified for indicators.

Some commands may not be available on all indicators.

Decimal	Hex	Command
0	0x000	Return Status and Weight (integer)
1	0x001	Display Channel
2	0x002	Displays Gross Weight Mode
3	0x003	Displays Net Weight Mode
9	0x009	Gross/Net key press (toggle)
10	0x00A	Zero*
11	0x00B	Display Tare*
12	0x00C	Enter Tare*
13	0x00D	Acquire Tare*
14	0x00E	Clear Tare*
16	0x010	Primary Units
17	0x011	Secondary Units
18	0x012	Tertiary Units
19	0x013	Units key press (toggle units)
20	0x014	Print Request
21	0x015	Display Accumulator
22	0x016	Clear Accumulator
23	0x017	Push Weight to Accumulator
32	0x020	Return Gross (integer)
33	0x021	Return Net (integer)
34	0x022	Return Tare (integer)

Table 3-2. Remote Commands



37         0x025         Return Current Display (integer)           38         0x026         Return Accumulator (integer)           95         0x05F         Set Batching State           96         0x060         Batch Start           97         0x061         Batch Pause           98         0x062         Batch Reset           99         0x063         Batch Status           112         0x070         Lock Indicator Front Panel           113         0x071         Unlock Indicator Front Panel           114         0x072         Set Digital Output ON           115         0x073         Set Digital JI/O Status           128         0x074         Read Digital II/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           268         0x10C         Enter Tare (float)           289         0x121         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           294	Decimal	Hex	Command	
95         0x05F         Set Batching State           96         0x060         Batch Start           97         0x061         Batch Pause           98         0x062         Batch Reset           99         0x063         Batch Status           112         0x070         Lock Indicator Front Panel           113         0x071         Unlock Indicator Front Panel           114         0x072         Set Digital Output ON           115         0x073         Set Digital Output OFF           116         0x074         Read Digital I/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           268         0x10C         Enter Tare (float)           288         0x120         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Hysteresis (float)           305	37	0x025	Return Current Display (integer)	
96         0x060         Batch Start           97         0x061         Batch Pause           98         0x062         Batch Reset           99         0x063         Batch Status           112         0x070         Lock Indicator Front Panel           113         0x071         Unlock Indicator Front Panel           114         0x072         Set Digital Output ON           115         0x073         Set Digital Output OFF           116         0x074         Read Digital I/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           268         0x10C         Enter Tare (float)           288         0x120         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           293         0x125         Read Current Display (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Hysteresis (float)           305 <td>38</td> <td>0x026</td> <td colspan="2">Return Accumulator (integer)</td>	38	0x026	Return Accumulator (integer)	
97         0x061         Batch Pause           98         0x062         Batch Reset           99         0x063         Batch Status           112         0x070         Lock Indicator Front Panel           113         0x071         Unlock Indicator Front Panel           114         0x072         Set Digital Output ON           115         0x073         Set Digital Output OFF           116         0x074         Read Digital I/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           268         0x10C         Enter Tare (float)           288         0x120         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           294         0x125         Read Current Display (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Hysteresis (float)           305         0x131         Set Setpoint Bandwidth (float) <tr< td=""><td>95</td><td>0x05F</td><td>Set Batching State</td></tr<>	95	0x05F	Set Batching State	
98         0x062         Batch Reset           99         0x063         Batch Status           112         0x070         Lock Indicator Front Panel           113         0x071         Unlock Indicator Front Panel           114         0x072         Set Digital Output ON           115         0x073         Set Digital Output OFF           116         0x074         Read Digital I/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           268         0x10C         Enter Tare (float)           288         0x120         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           293         0x125         Read Current Display (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Value (float)           305         0x131         Set Setpoint Bandwidth (float)           306         0x132         Set Setpoint Preact (float)     <	96	0x060	Batch Start	
99         0x063         Batch Status           112         0x070         Lock Indicator Front Panel           113         0x071         Unlock Indicator Front Panel           114         0x072         Set Digital Output ON           115         0x073         Set Digital Output OFF           116         0x074         Read Digital I/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           288         0x120         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           293         0x125         Read Current Display (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Value (float)           305         0x131         Set Setpoint Hysteresis (float)           306         0x132         Set Setpoint Bandwidth (float)           307         0x133         Set Setpoint Hysteresis (float)           320         0x140         Read	97	0x061	Batch Pause	
112         0x070         Lock Indicator Front Panel           113         0x071         Unlock Indicator Front Panel           114         0x072         Set Digital Output ON           115         0x073         Set Digital Output OFF           116         0x074         Read Digital I/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           288         0x120         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           293         0x125         Read Current Display (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Value (float)           305         0x131         Set Setpoint Bandwidth (float)           306         0x132         Set Setpoint Preact (float)           307         0x133         Set Setpoint Hysteresis (float)           320         0x140         Read Setpoint Hysteresis (float)           321         0x142	98	0x062	Batch Reset	
113         0x071         Unlock Indicator Front Panel           114         0x072         Set Digital Output ON           115         0x073         Set Digital Output OFF           116         0x074         Read Digital I/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           268         0x10C         Enter Tare (float)           289         0x121         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           293         0x125         Read Current Display (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Value (float)           305         0x131         Set Setpoint Bandwidth (float)           306         0x132         Set Setpoint Preact (float)           307         0x133         Set Setpoint Preact (float)           320         0x140         Read Setpoint Hysteresis (float)           321         0x141 <td< td=""><td>99</td><td>0x063</td><td>Batch Status</td></td<>	99	0x063	Batch Status	
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116         0x074         Read Digital I/O Status           128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           268         0x10C         Enter Tare (float)           288         0x120         Read Gross (float)           289         0x121         Read Net (float)           290         0x122         Read Tare (float)           293         0x125         Read Current Display (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Value (float)           305         0x131         Set Setpoint Hysteresis (float)           306         0x132         Set Setpoint Bandwidth (float)           307         0x133         Set Setpoint Preact (float)           320         0x140         Read Setpoint Hysteresis (float)           321         0x141         Read Setpoint Bandwidth (float)	114	0x072	Set Digital Output ON	
128         0x80         Enable Bus Command Handler           253         0x0FD         No operation           254         0x0FE         Reset Indicator           256         0x100         Return Status and Weight (float)           268         0x10C         Enter Tare (float)           289         0x120         Read Gross (float)           290         0x121         Read Net (float)           293         0x125         Read Current Display (float)           294         0x126         Read Accumulator (float)           304         0x130         Set Setpoint Value (float)           305         0x131         Set Setpoint Hysteresis (float)           306         0x132         Set Setpoint Bandwidth (float)           307         0x133         Set Setpoint Value (float)           320         0x140         Read Setpoint Value (float)           321         0x141         Read Setpoint Bandwidth (float)           322         0x142         Read Setpoint Bandwidth (float)	115	0x073	Set Digital Output OFF	
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306 0x132 Set Setpoint Bandwidth (float) 307 0x133 Set Setpoint Preact (float) 320 0x140 Read Setpoint Value (float) 321 0x141 Read Setpoint Hysteresis (float) 322 0x142 Read Setpoint Bandwidth (float)	304	0x130	Set Setpoint Value (float)	
307 0x133 Set Setpoint Preact (float) 320 0x140 Read Setpoint Value (float) 321 0x141 Read Setpoint Hysteresis (float) 322 0x142 Read Setpoint Bandwidth (float)	305	0x131	Set Setpoint Hysteresis (float)	
320 0x140 Read Setpoint Value (float) 321 0x141 Read Setpoint Hysteresis (float) 322 0x142 Read Setpoint Bandwidth (float)	306	0x132	Set Setpoint Bandwidth (float)	
321 0x141 Read Setpoint Hysteresis (float) 322 0x142 Read Setpoint Bandwidth (float)	307	0x133	Set Setpoint Preact (float)	
322 0x142 Read Setpoint Bandwidth (float)	320	0x140	Read Setpoint Value (float)	
1 ,	321	0x141	Read Setpoint Hysteresis (float)	
323 0x143 Read Setpoint Preact (float)	322	0x142	Read Setpoint Bandwidth (float)	
	323	0x143	Read Setpoint Preact (float)	

Table 3-2. Remote Commands (Continued)

#### 3.1.1 BYTE Swapping



NOTE: See the Ports Menu in the indicator manual.

The indicator sends and receives data in integer format.

The standard format is as follows for all input and output values:

High BYTE - Low BYTE

If the indicator FLDBUS/SWAP parameter is set to YES, then the BYTE order changes to:

Low BYTE - High BYTE

Example: If the weight on the scale reads 10 lbs and a value of 2560 is displayed in the PLC, either swap the BYTES in the PLC or change the SWAP parameter to YES.

# 3.2 Input Data Format

In response to a command, the interface returns data and status information to the primary as four 16-bit words. This information is returned in the input command format shown in Table 3-3.

The value type can be set for commands not specifying integer or floating point data by sending the command 0x000 to specify integer data, or sending command 0x100 to specify floating-point data. The value type is returned in the status word (bit 14) of the input format.

Byte	Description	
Byte 0	Command Number	
Byte 1	Command Number	
Byte 2	Status	
Byte 3	Status	
Byte 4	Value (MSW)	
Byte 5		
Byte 6	Value (LSW)	
Byte 7		

Table 3-3. 1280 Input Data Format



NOTE: See Section 3.1.1 for BYTE swapping parameters.



#### 3.2.1 Command number

The first word echoes the command number. If the command fails or is not recognized, the negative of the command number is returned to signal the error.

#### 3.2.2 Status Data

Indicator status data is returned in the second word (Table 3-4). Batch commands return batch status in place of the low byte (Table 3-5 on page 18). Setpoint commands return batch status in the low byte of the status word and the setpoint number in the high byte.

	Indicator Status Data		
Word 2 Bit	Value=0	Value=1	
00	Error **	No error	
	(Bit-0 Errors on page 17)		
01	Tare not entered	Tare entered	
02	Not center of zero	Center of zero	
03	Weight invalid	Weight OK	
04	Standstill	In motion	
05	Primary units	Other units	
06	Tare not acquired	Tare acquired	
07	Gross weight	Net weight	
08		-	
09	Channel number		
10			
11	NOTE: Least significant bit first.		
12			
13	Not used		
14	Integer data	Floating point data	
15	Positive weight	Negative weight	
This error condition does not necessarily mean the weight being reported is invalid.			
Refer to the "Weight invalid" bit.			

Table 3-4. Indicator Status Data Format

#### **Bit-0 Errors**

- · PLC command failed to execute
- · No configuration has taken place
- · Scale parameter is out of range
- · Print error has occurred
- · Load error has occurred
- · Memory error has occurred
- · Analog to digital converter error
- Tare error
- · Scale over range error
- · Scale under range error
- · Non-recoverable configuration store error
- · Indicator in configuration mode



	Batch Function Status Data		
Word 2 Bit	Value=0	Value=1	
00	Digital input 4 OFF	Digital input 4 ON	
01	Digital input 3 OFF	Digital input 3 ON	
02	Digital input 2 OFF	Digital input 2 ON	
03	Digital input 1 OFF	Digital input 1 ON	
04	Batch not paused	Batch paused	
05	Batch not running	Batch running	
06	Batch not stopped	Batch stopped	
07	Alarm OFF	Alarm ON	
08			
09			
10	Setpoint number		
11			
12			
13	Not used		
14	Integer data Floating point data		
15	Positive weight	Negative weight	

Table 3-5. Batch Function Status Data Format

#### 3.2.3 Value

Weight data is returned to the primary in the third and fourth words of the input command format, depending on the command and the value type. The weight data returned is the displayed weight after the command is executed, unless the command specifies otherwise. A negative value is returned in the two's compliment format.

#### 3.2.4 Setting a Float Value

Setting a float value in a setpoint requires the value to be sent in two separate integer values. Most PLCs have a mechanism to take a float value and separate it into to integer values.

Example: The following must be sent in the output words to set the value of Setpoint #1 to 10000.

Command word = 304

Parameter word = 1

MSW = 17948

LSW = 16384

#### 3.2.5 Reading a Float Value

When a float value is read it will be returned in two integers representing the float value.

The PLC must combine MSW and LSW integer values back into a float value.

Example: The following is returned in the input words if the weight on the scale is 800.5.

Command Word = 288

Status word = Scale status

MSW= 17480

LSW = 8192



# 3.3 Command Descriptions

# Return Status and Current Weight as Integer

Command: 0, 0x000

Parameter: Scale number

Command 0 returns the status and gross or net scale weight (per scale configuration) of the specified scale in integer format, without changing the display. This command also causes the

format-independent commands to return a value in the integer format.

# **Display Channel**

Command: 1, 0x001
Parameter: Scale number

Command 1 causes the weight of the specified scale to be displayed and returned in its current

mode and format.

# **Display Gross Weight**

Command: 2, 0x002 Parameter: Scale number

Command 2 causes the gross weight of the specified scale to be displayed and returned.

# **Display Net Weight**

Command: 3, 0x003
Parameter: Scale number

Command 3 causes the net weight of the specified scale to be displayed and returned.

#### **Gross/Net Key Press (Toggle Mode)**

Command: 9, 0x009
Parameter: Scale number

Command 9 toggles between gross and net mode (and count mode, if enabled).

If a scale number other than 0 is specified, the action will not be seen until the specified scale is

displayed.

#### Zero

Command: 10, 0x00A

Command 10 performs a ZERO operation on the current scale.



#### **Display Tare**

Command: 11, 0x00B Parameter: Scale number

Command 11 causes the tare weight on the specified scale to be displayed. If a scale number

other than 0 is specified, the indicator first causes the specified scale to be displayed.

Display returns to the prior mode after checking the indicator.

#### **Enter Tare (Integer)**

Command: 12, 0x00C Parameter: Scale number Value: Tare weight

Command 12 enters a tare for the scale selected. Tare data must be in integer format. The indicator continues to return weight data in the current mode for the specified scale.

# **Acquire Tare (Simulate TARE Key Press)**

Command: 13, 0x00D Parameter: Scale number

Command 13 acquires a tare based on the weight currently on the specified scale. The indicator continues to return weight data in the current mode for the specified scale.

#### **Clear Tare**

Command: 14, 0x00E

Parameter: Scale number

Command 14 clears the tare for the specified scale. The indicator continues to return weight

data in the current mode for the specified scale.

# **Primary Units**

Command: 16, 0x010
Parameter: Scale number

Command 16 switches the current format of the specified scale to the primary units configured

for that scale.

#### **Secondary Units**

Command: 17, 0x011
Parameter: Scale number

Command 17 switches the current format of the specified scale to the secondary units

configured for that scale.

# **Tertiary Units**

Command: 18, 0x012 Parameter: Scale number

Command 18 switches the current format of the specified scale to the tertiary units configured

for that scale, if available.

# Units Key Press (Toggle Units)

Command: 19, 0x013
Parameter: Scale number

Command 19 toggles between primary and secondary units of the specified scale.

#### **Print Request**

Command: 20, 0x014
Parameter: Scale number

Command 20 causes the indicator to execute a print command for the current scale.

#### **Display Accumulator**

Command: 21, 0x015
Parameter: Scale number

Command 21 causes the value of the accumulator for the specified scale to be displayed and returned. This command is valid only when the accumulator for the specified scale is enabled.

#### Clear Accumulator

Command: 22, 0x016
Parameter: Scale number

Command 22 clears the value of the accumulator for the specified scale.

This command is valid only when the accumulator for the specified scale is enabled.



#### **Push Weight to Accumulator**

Command: 23, 0x017
Parameter: Scale number

Command 23 adds the net weight on the specified scale to the value of the accumulator for the

specified scale. The scale must return to net zero between accumulations. The indicator returns the accumulated weight data for the specified scale.

This command is valid only when the accumulator for the specified scale is enabled.

#### Return Gross as Integer

Command: 32, 0x020 Parameter: Scale number

Command 32 returns the gross weight value for the specified scale as an integer.

#### **Return Net as Integer**

Command: 33, 0x021
Parameter: Scale number

Command 33 returns the net weight value for the specified scale as an integer.

#### Return Tare as Integer

Command: 34, 0x022
Parameter: Scale number

Command 34 returns the tare weight value for the specified scale as an integer.

#### **Return Current Display as Integer**

Command: 37, 0x025
Parameter: Scale number

Command 37 returns the weight value for the specified scale as currently displayed.

This may include gross, net, tare, or accumulator values, as enabled.



#### Return Accumulator as Integer

Command: 38, 0x026 Parameter: Scale number

Command 38 returns the accumulator value for the specified scale.

This command is valid only when the accumulator for the specified scale is enabled.

#### Return Rate of Change as Integer

Command: 39, 0x027
Parameter: Scale number

Command 39 returns the current rate of change value for the specified scale.

This command is valid only for the 1280.

#### **Set Batching State**

Command: 95, 0x05F

Parameter: State (0 = off; 1 = auto; 2 = manual)

Command 95 sets the batching (BATCHNG) parameter.

Indicator status is returned with the current weight for the last scale specified.

#### **Batch Start**

Command: 96, 0x060 Parameter: Scale number

Command 96 starts a batch program from the current step after a stop, pause, or reset.

Batch status is returned with the current weight for the specified scale.

#### **Batch Pause**

Command: 97, 0x061
Parameter: Scale number

Command 97 pauses a batch program at the current step.

Batch status is returned with the current weight for the specified scale.

#### **Batch Reset**

Command: 98, 0x062 Parameter: Scale number

Command 98 stops a batch program and resets it to the first batch step. Batch status is returned with the current weight for the specified scale.



#### **Batch Status**

Command: 99, 0x063 Parameter: Scale number

Command 99 returns the status of a batch. Batch status is returned with the current weight for

the specified scale.

#### Lock Front Panel of Indicator

Command: 112, 0x070
Parameter: Scale number

Command 112 disables all the keys on the front panel of the indicator. Indicator status is returned with the current weight for the specified scale.

#### **Unlock Front Panel of Indicator**

Command: 113, 0x071
Parameter: Scale number

Command 113 re-enables all the keys on the front panel of the indicator. Indicator status is returned with the current weight for the specified scale.

#### **Set Digital Output ON**

Command: 114, 0x072 Parameter: Slot number Value: Bit number

Command 114 sets the specified digital output ON (active). Use slot number 0 for onboard digital outputs. Indicator status is returned with the current weight for the last scale specified.

#### **Set Digital Output OFF**

Command: 115, 0x073 Parameter: Slot number Value: Bit number

Command 115 sets the specified digital output OFF (inactive). Use slot number 0 for onboard digital outputs. Indicator status is returned with the current weight for the last scale specified.

# Read Digital I/O

Command: 116, 0x074
Parameter: Slot number

Command 116 returns the status for all digital I/O in the specified slot in words 3 and 4.

Use slot number 0 for onboard digital I/O. Indicator status is returned in the status area for the

last scale specified.

#### **Enable Bus Command Handler**

Command: 128, 0x80 Parameter: None

Command 128 enables the bus command handler in a user program. While this handler is

enabled, all other PLC commands are disabled.

#### No Operation

Command: 253, 0x0FD Parameter: Scale number

Command 253 provides a command to use between operations, as necessary, without causing the indicator to perform any action. Indicator status and weight for the specified scale is

returned.

#### Reset Indicator

Command: 254, 0x0FE Parameter: None

Command 254 provides a command to remotely reset the indicator. No data is returned.

#### **Return Status and Current Weight as Float**

Command: 256, 0x100
Parameter: Scale number

Command 256 returns the status and weight of the specified scale in floating-point format, without changing the display. This command also causes the format-independent commands to return a value in the floating-point format. Returns current weight at a floating-point format.



#### **Enter Tare as Float**

Command: 268, 0x10C Parameter: Scale number Value: Tare weight

Command 268 enters a tare for the scale selected in floating-point format.

The indicator returns the tare weight as taken, or 0 for no tare.

# Read Gross Weight as Float

Command: 288, 0x120
Parameter: Scale number

Command 288 returns the gross weight value for the specified scale in floating-point format.

#### Read Net Weight as Float

Command: 289, 0x121 Parameter: Scale number

Command 289 returns the net weight value for the specified scale in floating-point format.

#### **Read Tare as Float**

Command: 290, 0x122 Parameter: Scale number

Command 290 returns the tare weight value for the specified scale in floating-point format.

# Read Current Display as Float

Command: 293, 0x125
Parameter: Scale number

Command 293 returns the weight value for the specified scale as currently displayed in floating-point format. This may include gross, net, tare, or accumulator values, as enabled.

The weight value is returned in the mode used to display a scale widget.



#### Read Accumulator as Float

Command: 294, 0x126
Parameter: Scale number

Command 294 returns the accumulator value for the specified scale in floating-point format.

Batch status is returned in place of the indicator status.

#### Read Rate of Change as Float

Command: 295, 0x127
Parameter: Scale number

Command 295 returns the current rate of change value for the specified scale in floating-point

format. This command is valid only for the 1280.

# Set Setpoint Value as Float

Command: 304, 0x130
Parameter: Setpoint number
Value: Setpoint value

Command 304 sets the setpoint value for the specified setpoint in floating-point format. This command is valid only when the setpoint is configured and requires a setpoint value.

Batch status is returned in place of the indicator status.

# Set Setpoint Hysteresis as Float

Command: 305, 0x131
Parameter: Setpoint number
Value: Hysteresis value

Command 305 sets the hysteresis value for the specified setpoint in floating-point format. This command is valid only when the setpoint is configured and requires a hysteresis value.

Batch status is returned in place of the indicator status.



#### Set Setpoint Bandwidth as Float

Command: 306, 0x132
Parameter: Setpoint number
Value: Bandwidth value

Command 306 sets the bandwidth value for the specified setpoint in floating-point format. This command is valid only when the setpoint is configured and requires a bandwidth value. Batch status is returned in place of the indicator status.

#### **Set Setpoint Preact as Float**

Command: 307, 0x133
Parameter: Setpoint number

Value: Preact value

Command 307 sets the preact value for the specified setpoint in floating-point format. This command is valid only when the setpoint is configured and requires a preact value.

Batch status is returned in place of the indicator status.

#### Read Setpoint Value as Float

Command: 320, 0x140
Parameter: Setpoint number

Command 320 returns the target value for the specified setpoint in floating-point format. This command is valid only when the setpoint is configured and requires a target value.

Batch status is returned in place of the indicator status.



# Read Setpoint Hysteresis as Float

Command: 321, 0x141
Parameter: Setpoint number

Command 321 returns the hysteresis value for the specified setpoint in floating-point format. This command is valid only when the setpoint is configured and requires a hysteresis value.

Batch status is returned in place of the indicator status.

# Read Setpoint Bandwidth as Float

Command: 322, 0x142 Parameter: Setpoint number

Command 322 returns the bandwidth value for the specified setpoint in floating-point format. This command is valid only when the setpoint is configured and requires a bandwidth value.

Batch status is returned in place of the indicator status.

#### Read Setpoint Preact as Float

Command: 323, 0x143
Parameter: Setpoint number

Command 323 returns the preact value for the specified setpoint in floating-point format. This command is valid only when the setpoint is configured and requires a preact value.

Batch status is returned in place of the indicator status.



# 4.0 Specifications

#### **Power Requirements**

Bus Adapter Card with PROFIBUS DP Module, DC Power

Supply Voltage 6 VDC
Current Draw 100 mA
Maximum Current Draw 300 mA
Power Consumption 0.6 W
Maximum Power Consumption 1.8 W

#### **Communications Specifications**

Up to 12 Mbps

#### **Environmental Specifications**

Temperature Range

Certified 14° to 104° F (-10° to 40° C)
Operating -4° to 131° F (-20° to 55° C)

#### Conformance

CE





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230 W. Coleman St. • Rice Lake, WI 54868 • USA USA: 800-472-6703 • International: +1-715-234-9171