Reference Guide

Standard Automation Interface (SAI)

Transmitters & Terminals

METTLER TOLEDO

Contents

1 Introduction

This manual is one of several available that explains the Standard Automation Interface (SAI). Each manual covers SAI in a slightly different way explained in the chart below. The SAI manuals needed for use with your device can be found on the downloads page of your SAI device at www.mt.com

SAI Manual	File Name (xx = Revision)	Uses for Manual
Standard Automation Interface User's Guide	30588288_Rxx_MAN_UG_SAI_EN.pdf	Explains SAI in detail in a general sense. No information specific to your SAI device.
Standard Automation Interface Reference Guide – Transmitters & Terminals	305787511_xx_MAN_REF_SAI-Transmitters_EN.pdf	Explains what status information and commands are supported by specific terminals and transmitters. Can be used as a reference for a programmer.
Standard Automation Interface Reference Guide - APW	305787512_xx_MAN_REF_SAI-APW_EN.pdf	Explains what status information and commands are supported by specific high precision APW scales. Can be used as a reference for a programmer.

2 Status Bits

2.1. Device Status Bits

The device status is a composite status word that contains individual bits to indicate the state of various scale or device-specific binary values. The device status bits are always a part of the Floating Point Block (Measuring Block) so no matter the SAI block format in use (1 block, 2 block or 4 block), this information is always available. The 16 bits include the following information:

Bit	Device-specific Value	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	Sequence bit 0	Used as sequence toggle bits. When commands are sent by the control system, the device changes the value of the sequence bits as an indication that the command has been seen and acted on. Sequence bits are used during a sequence of commands to ensure that there have been no sequencing errors in the request and the response of data. They are updated on every new command.	X	X	X	X	X	X	X
1	Sequence bit 1								
2	Heart beat	Toggles between 0 and 1 (1 sec.) to ensure that the device is operational and updating data in Words 0, 1 and 2.	X	X	X	X	X	X	X

Bit	Device-specific Value	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
3	Data OK	This bit gets set to 0 when the device is still operational, but the value being reported cannot be guaranteed to be valid. The following conditions cause the Data OK bit to be set to 0: • Device is powering up • Device is in setup mode • Device is in test mode • Over capacity condition occurs o When the A/D converter is at its limit o Product dependent over capacity that occurs when the device determines it cannot trust the weight • Under capacity condition occurs o When the A/D converter is at its limit o Product dependent under capacity that occurs when the device determines it cannot trust the weight	X	X	X	X	X	X	X
4	RedAlert Alarm condition	The alarm condition indicates a system error. More information about the specific alarm can be found in the section 2.2, RedAlert Alarms. 1 = Application fault; predictive diagnostics alarm triggered or command cannot be executed as requested.	X	X	X	X	X	X	X
5	Center of zero	1 = Gross weight value is at a value of zero +/- one quarter of a weight and measures verification interval denoted as "e".	X	X	X		X	X	X
6	Motion	1 = Weight is unstable.	X	X	X	X	X	X	X
7	Net Mode	1 = Net weight instead of gross weight is reported.	X	X	X	X	X	X	X
8	Alternate weight unit	1 = An alternate weight unit, other than the primary unit is in use.							

Bit	Device-specific Value	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
9	Device-specific bit 1	These bits are used to provide device-specific status information e.g. I/O or application status. Refer to section 2.1.1, Device-Specific Bits to see how different devices utilize these bits.			X				
10	Device-specific bit 2								
11	Device-specific bit 3								
12	Device-specific bit 4								
13	Device-specific bit 5								
14	Device-specific bit 6								
15	Device-specific bit 7								

2.1.1. Device-Specific Bits

Device-specific Bit	ACT350POWERCELL	
1	Runflat	0 = not triggered, 1 = triggered
2	--	
3	--	
4	--	
5	--	
6	--	
7	--	

2.2. RedAlert Alarms

RedAlert Alarms are sent by default as Status Group1 when using the SAI 2 block or 8 block formats. This information is not available if using the SAI 1 block format. See section 3 of this document for all status commands that return the RedAlert Alarms.

Bit	Red Alert	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	Calibration error	1 = Weight data can no longer be trusted due to loss of calibration data or an algorithm running in the product to detect weighing irregularities.					X	X	X
1	Out of A/D range over/under	1 = Weight data can no longer be trusted due to loss of data or mechanical damage of the weigh module.	X	X			X		
2	Checksum failure	1 = A checksum analysis of memory does not yield the expected result.	X	X	X	X	X	X	X
3	Weight blocked	1 = Weight data does not change appreciably over a defined period of time.	X	X	X		X	X	
4	Single sensor communication failure (LC missing)	1 = One or more of the connected sensors are not working properly.			X	X	X	X	
5	Customer defined overload	1 = Weight is equal to or greater than the maximum load allowed. Although overload is a conditional limit, it can lead to bigger errors such as mechanical breakage or personal injury.	X	X	X		X	X	
6	Customer defined underload	1 = Weight is equal or less than the minimum load allowed.	X	X	X		X	X	
7	Network failure (all cells)	Applicable only on multi-cell networks. 1 = Failure of the entire network. No cells are responding.					X	X	
8	Zero out of range	1 = A control system attempted a zero command but the device did not accept the command because the weight is outside the specified limits or the weights and measure limits.	X	X	X	X	X	X	
9	Symmetry errors	Applicable only for products with TraxDSP function which detects significant errors between load cells and their peers. 1 = A symmetry error has been detected.							
10	Temperature errors (LC temperature out of normal temperature)	1 = Sensor is outside of the allowed temperature range. The weight value can be affected or the components can prematurely fail.							

11	Weights and measures failure	1 = The product is no longer in compliance with weights and measure regulations.	X	X	X		X	X	
12	Foreign device detected	1 = A foreign device is attached to the system or any similar algorithm limits.							
13	Test mode	1 = Device is in a mode in which live data is being replaced with special test data.	X	X	X		X	X	X
14	Analog LC Error	1 = Analog Sensor Error detected by measuring system total resistance			X		X		
15	Unused								

2.3. Secondary Scale Status

These status bits are sent by default as Status Group 2 when using either the SAI 2 block or 8 block formats. This information is not available if using the SAI 1 block format. See section 3 of this document for all status commands that return the Secondary Scale Status. The 16 bits include the following information:

Bit	Scale Status Group	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	Unit Bit 1	Unit bits are used to indicate the weight unit. Refer to "Unit Bits" table below for more information.	X	X	X	X	X	X	X
1	Unit Bit 2								
2	Unit Bit 3								
3	Unit Bit 4								
4	MinWeigh Error	1 = Scale is below acceptable minimum weighing range.							
5	Range bit 1	Range bits are used to indicate weight range or interval based on the values shown. See "Range Bits" table below for more information.							
6	Range bit 2								
7	In Set Up	1 = Sensor is in setup mode.	X	X	X	X	X	X	X
8	Power Up Zero Failure	1 = Scale has not been able to complete its power-up restore / reset of zero.	X	X	X		X	X	X
9	GWP out of Tolerance	1 = Scale has a GWP out of tolerance error.							
10	Smart5 Level 4	Imminent failure according to Smart5 definition Note: Smart5 is not supported for ACT350 devices.					X	X	X

Bit	Scale Status Group	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
11	Smart5 Level 3	Out of specification according to Smart5 definition Note: Smart5 is not supported for ACT350 devices.					X	X	X
12	Smart5 Level 2	Predictive Alarm according to Smart5 definition Note: Smart5 is not supported for ACT350 devices.					X	X	X
13	LFT Switch On	1 = weights and measures switch is enabled for transactional weighing					X	X	X
14	Open	Unused							
15	Open	Unused							

2.3.1. Unit Bits

Unit Bit 1	Unit Bit 2	Unit Bit 3	Unit Bit 4	Value
0	0	0	0	g
0	0	0	1	kg
0	0	1	0	lb
0	0	1	1	t
0	1	0	0	ton
0	1	0	1	lboz*
0	1	1	0	otz*
0	1	1	1	dwt*
1	0	0	0	oz*
1	0	0	1	mg*
1	0	1	0	µg*
1	0	1	1	cus*

*Only available for IND360 Precision

2.3.2. Range Bits

Range bit 1	Range bit 2	Value
0	0	Range/Interval 1
0	1	Range/Interval 2
1	0	Range/Interval 3

Range bit 1	Range bit 2	Value
1	1	Reserved

2.4. Alarm Status 2nd Group

These status bits are available when using either the SAI 2 block or 8 block formats. This information is not available if using the SAI 1 block format. Please note that this group is not sent by default. A status command that returns this group must be sent. See section 3 of this document for all status commands that return the Alarm Status 2nd Group. The 16 bits include the following information:

Bit	Soft Alarm	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	Rate of change	Product, application or customer defines a weight / time scenario as a method of assurance that the scale is detecting weight							
1	Communication errors	1 = The communication of a device which is connected to a sensor is not working according to specification.							
2	Over and under voltage (s)	1 = A device which supports dynamic measurements of system power has over or under voltage.						X	
3	Weight drift	1 = A strain gauge sensor has either a broken bridge or is damaged by water or lightning.							
4	Breach	1 = The enclosure of the sensor has been compromised and is therefore vulnerable to environmental influences, e.g. moisture or water. In most cases, a failure will occur if the breach is not corrected or if the sensor is not replaced.						X	
5	Calibration expired	1 = The maximum number of transactions or a time limit before a preventive service or recalibration has been reached. The alarm will toggle on N+1 weighing transactions.							

Bit	Soft Alarm	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
6	Application defined 0	Refer to section 2.4.1, **Application-Specific Soft Alarms** for more information			X			X	
7	Application defined 1				X				
8	Application defined 2				X				
9	Application defined 3				X				
10	Application defined 4				X				
11	Application defined 5								
12	Application defined 6								
13	Application defined 7								
14	Application defined 8								
15	Application defined 9								

2.4.1. Application-Specific Soft Alarms

	ACT350 POWERCELL	IND360 POWERCELL
Application Defined 0	Over current – network current > 1A	1 = in RunFlat mode
Application Defined 1	LC overload weight between 101% and 150%	
Application Defined 2	LC overload weight >150%	
Application Defined 3	Load cells are not the same type	
Application Defined 4	LC temperature out of operation range	
Application Defined 5	None	
Application Defined 6	None	
Application Defined 7	None	
Application Defined 8	None	
Application Defined 9	None	

2.5. Target Status Group

These status bits are target application bits sent when a status block command that contains this status word in its combination is sent in the Write Status command word. Please note that no devices covered by this manual currently support the target status group.

2.6. Load Cell Groups

The load cell group status bits are used to display critical errors for individual attached devices such as POWERCELL load cells. Load cell group 2 is an extension of load cell group 1. These status bits are available when using either the SAI 2 block or 8 block formats. This information is not available if using the SAI 1 block format. Please note that this group is not sent by default. A status command that returns this group must be sent. See section 3 of this document for all status commands that return the Load Cell Groups. The 16 bits include the following information:

2.6.1. Load Cell Group 1

Bit	Data	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	Error on attached device 1			X			X	
1	Error on attached device 2			X			X	
2	Error on attached device 3			X			X	
3	Error on attached device 4			X			X	
4	Error on attached device 5			X			X	
5	Error on attached device 6			X			X	
6	Error on attached device 7			X			X	
7	Error on attached device 8			X			X	
8	Error on attached device 9			X			X	
9	Error on attached device 10			X			X	
10	Error on attached device 11			X			X	
11	Error on attached device 12			X			X	
12	Error on attached device 13			X			X	
13	Error on attached device 14			X			X	
14	Error on attached device 15						X	
15	Error on attached device 16						X	

2.6.2. Load Cell Group 2

No devices covered in this manual currently support this group.

2.7. Last Error Message Status Group

No devices covered in this manual currently support this group.

2.8. Custom Application Status Groups

These bits give information relating to the run status or an alarm status of an application within the device. For more information on how to use the custom application for the ACT350 DIO, please refer to the user manual for that product. For more information on how to use the custom applications for IND360, please see the specific application manual for IND360.

2.8.1. Custom Application Status Group 1

These bits give information relating to the run status of an application within the device. For more information on how to use the custom application for the ACT350 DIO, please refer to the user manual for that product. For more information on how to use the custom applications for IND360, please see the specific application manual for IND360. These status bits are available when using either the SAI 2 block or 8 block formats. This information is not available if using the SAI 1 block format. Please note that this group is not sent by default. A status command that returns this group must be sent. See section 3 of this document for all status commands that return the Custom Application Status Group 1. The 16 bits include the following information:

Bit	Custom application status bits, group 1	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Tank Vessel	IND360 Rate Control	IND360 Dynamic	IND360 Fill Dose
0	Application defined 0	None	New Data Available 1 = triggered weight is available	None	None	Run	Run	Run	Run
1	Application defined 1	None	OK (ready for next object) Finished last weighing process, can start next process	None	None	Refill	Refill	Front PE	Complete

Bit	Custom application status bits, group 1	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Tank Vessel	IND360 Rate Control	IND360 Dynamic	IND360 Fill Dose
2	Application defined 2	None	Up Scale Weighing object is coming onto the scale	None	None	Upper Limit	Alarm	On Scale Entirely	Dump
3	Application defined 3	None	On scale Weighing object is on the scale	None	None	Lower Limit	None	Rear PE	Refill
4	Application defined 4	None	Weighing start Start the weighing or calibration process	None	None	Alarm	None	Complete	Pause
5	Application defined 5	None	Weighing over End the weighing or calibration process	None	None	None	None	Ready	Fast Feed
6	Application defined 6	None	OK (no error) No error in weighing process	None	None	None	None	Zero State	Fine Feed
7	Application defined 7	None	Long object Object is too long and cannot be weighed	None	None	None	None	Empty State	Spill
8	Application defined 8	None	Short Distance Distance between objects is too small and cannot be weighed	None	None	None	None	Alarm	Upper Limit
9	Application defined 9	None	Photo Occlusion Front Front light barrier is blocked. The process should be stopped and the light barrier should be cleared	None	None	None	None	None	Lower Limit

Bit	Custom application status bits, group 1	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Tank Vessel	IND360 Rate Control	IND360 Dynamic	IND360 Fill Dose
10	Application defined 10	None	Flag of update zero 1 = PLC can send zero command to clear the zero	None	None	None	None	None	Alarm
11	Application defined 11	None	None	None	None	None	None	None	None
12	Application defined 12	None	None	None	None	None	None	None	None
13	Application defined 13	None	None	None	None	None	None	None	None
14	Application defined 14	None	None	None	None	None	None	None	None
15	Application defined 15	None	None	None	None	None	None	None	None

2.8.2. Custom Application Status Group 2

These bits give information relating to the alarm status of an application within the device. For more information on how to use the custom applications for IND360, please see the specific application manual for IND360. These status bits are available when using either the SAI 2 block or 8 block formats. This information is not available if using the SAI 1 block format. Please note that this group is not sent by default. A status command that returns this group must be sent. See section 3 of this document for all status commands that return the Custom Application Status Group 2. The 16 bits include the following information:

Bit	Custom application status bits, group 2	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Tank Vessel	IND360 Rate Control	IND360 Dynamic	IND360 Fill Dose
0	Application defined 0	None	None	None	None	Lower Limit Alarm	Flow Calibration Failed	Front PE Timeout	Filling Autotare Fault
1	Application defined 1	None	None	None	None	Upper Limit Alarm	Control Rate Below Lower Limit	Rear PE Timeout	Filling Fault

Bit	Custom application status bits, group 2	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Tank Vessel	IND360 Rate Control	IND360 Dynamic	IND360 Fill Dose
2	Application defined 2	None	None	None	None	Parameter Invalid	Control Rate Over Upper Limit	PE Logic Error	Dosing Fault
3	Application defined 3	None	None	None	None	Parameter Logic Error	Refill Out	Weighing Time	Process Timeout
4	Application defined 4	None	None	None	None	None	Out of Flow Tolerance	Weighing Timeout	Refill Timeout
5	Application defined 5	None	None	None	None	None	Control Abnormal	Objects Exceeded	Over + Tolerance
6	Application defined 6	None	None	None	None	None	Flow Abnormal	Over Weight	Under - Tolerance
7	Application defined 7	None	None	None	None	None	Parameter Invalid	Under Weight	Parameter Invalid
8	Application defined 8	None	None	None	None	None	Parameter Logic Error	Timed Zero	Parameter Logic Error
9	Application defined 9	None	None	None	None	None	None	Parameters Invalid	None
10	Application defined 10	None	None	None	None	None	None	Parameter Logic Error	None
11	Application defined 11	None	None	None	None	None	None	None	None
12	Application defined 12	None	None	None	None	None	None	None	None
13	Application defined 13	None	None	None	None	None	None	None	None
14	Application defined 14	None	None	None	None	None	None	None	None
15	Application defined 15	None	None	None	None	None	None	None	None

2.9. I/O Status Groups

On devices which support physical I/O, the status groups contain a combination of input and output status bits for I/O.

Devices which do not support physical I/O may have variables and logic to virtually represent inputs and outputs within the device. If the device does not support I/O groups, an invalid command response is sent for any unsupported I/O groups. These status bits are available when using either the SAI 2 block or 8 block formats. This information is not available if using the SAI 1 block format. Please note that this group is sent by default as status group 3 if no other status commands have been executed. See section 3 of this document for all status commands that return the I/O Status Groups. The 16 bits include the following information:

The input and output status bits reflect the state of the associated inputs and outputs, 1 = on, 0 = off.

Bit	Data	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	In 1		X	X	X	X	X	X
1	In 2		X	X	X	X	X	X
2	In 3		X	X	X	X	X	X
3	In 4					X	X	X
4	In 5					X	X	X
5	In 6							
6	In 7							
7	In 8							
8	Out 1		X	X	X	X	X	X
9	Out 2		X	X	X	X	X	X
10	Out 3		X	X	X	X	X	X
11	Out 4		X	X	X	X	X	X
12	Out 5		X	X	X	X	X	X
13	Out 6					X	X	X
14	Out 7					X	X	X
15	Out 8					X	X	X

2.10. Comparator Status Groups

The Comparator status group bits indicate whether the corresponding comparator for the device is high or low. These status bits are available when using either the SAI 2 block or 8 block formats. This information is not available if using the SAI 1 block format. Please note that this group is not sent by default. A status command that returns this group must be sent. See section 3 of this document for all status commands that return the Comparator Status Groups. The 16 bits include the following information:

2.10.1. Comparator Status Group 1

Bit	Data	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	Comparator 1		X	X	X	X	X	X
1	Comparator 2		X	X	X	X	X	X
2	Comparator 3		X	X	X	X	X	X
3	Comparator 4		X	X	X	X	X	X
4	Comparator 5		X	X	X	X	X	X
5	Comparator 6					X	X	X
6	Comparator 7					X	X	X
7	Comparator 8					X	X	X
8	Comparator 9							
9	Comparator 10							
10	Comparator 11							
11	Comparator 12							
12	Comparator 13							
13	Comparator 14							
14	Comparator 15							
15	Comparator 16							

2.10.2. Comparator Status Group 2

Note that none of the devices in this manual currently support this group

3 SAI Status Block Command List

By default, Status Block Command = 0 when using SAI 2 block and 8 block formats. Status block commands are not available when SAI 1 block format is used. If Status Block information other than the default information is required, simply issue the command from the table below that returns the necessary data. The most recently executed Status Block Command executed can be confirmed by checking the Status Block Response Value. The response value will either match the most recently executed command or will indicate an error executing the command if bit 15 of the response is high.

Value	Description		ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	Word 0	RedAlert Alarms	X	X	X	X	X	X	X
	Word 1	Secondary Scale Status							
	Word 2	I/O Group 1							
1	Word 0	RedAlert Alarms	X	X	X	X	X	X	X
	Word 1	Secondary Scale Status							
	Word 2	I/O Group 1							
2	Word 0	Target Group	X	X	X	X	X	X	X
	Word 1	Comparator Group 1							
	Word 2	Comparator Group 2							
4	Word 0	Target Group			X				
	Word 1	I/O Group 2							
	Word 2	Load Cell Group 1							
12	Word 0	Customer App Status 1					X	X	X
	Word 1	Customer App Status 2							
	Word 2	I/O Group 1							
16	Word 0	Comparator Group 1	X	X	X	X	X	X	X
	Word 1	Comparator Group 2							

	Word 2	I/O Group 1							
21	Word 0	RedAlert Alarms	X	X	X	X	X	X	X
	Word 1	Alarm Status 2nd Group							
	Word 2	Secondary Scale Status							
23	Word 0	Alarm Status 2nd Group		X					
	Word 1	I/O Group 1							
	Word 2	Customer App Status 1							
24	Word 0	Load Cell Group 1						X	
	Word 1	Load Cell Group 2							
	Word 2	Customer App Status 1							
100	Report last error code		X	X	X	X			

4 Cyclic Command List for Floating Point Block

The chart below shows which floating-point cyclic commands are supported by specific devices. In the case of IND360, some cyclic commands are available for specific applications, but not the base unit. These commands have been separated into the tables found in Sections 4.1 – 4.4.

To issue a cyclic read command, set the floating point block command equal to the command found in the read column of the table below. Verify the command was executed successfully by monitoring the response value of the floating point block. If the command was executed successfully, the response value = the command. The result of the read command will be available in the floating point block measuring value. If not executed successfully, bit 15 of the response value will be high. A cyclic read command will continue to update the value being read until a different floating point block command is sent.

To issue a cyclic write command, enter the value to be written in the floating point block command value and then set the floating point block command equal to the command found in the write column of the table below. Verify the command was executed successfully by monitoring the response value of the floating point block. If the command was executed successfully, the response value = the command value. If not executed successfully, bit 15 of the response value will be high. A cyclic write command will execute one time.

Please note that a cyclic command cannot be executed twice in a row. If required, send a "no-op" (command = 2000) command between the first and second instances of the command.

Read	Write	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
0	N/A	Gross weight – rounded	X	X	X	X	X	X	X
1	N/A	Gross weight – rounded	X	X	X	X	X	X	X
2	N/A	Tare weight – rounded	X	X	X	X	X	X	X
3	N/A	Net weight – rounded	X	X	X	X	X	X	X
5	N/A	Gross weight - internal resolution	X	X	X	X	X	X	X
6	N/A	Tare weight - internal resolution	X	X	X	X	X	X	X

Read	Write	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
7	N/A	Net weight - internal resolution	X	X	X	X	X	X	X
9	N/A	Weight unit (number representing unit from chart)					X	X	X
14	N/A	Net weight - alternative weight path							
16	N/A	Gross weight of each POWERECELL in displayed resolution						X	
17	N/A	Net weight of each POWERCELL in displayed resolution						X	
20	N/A	Read target weight (display unit)							
40	240	Report/Write comparator 1 limit	X	X	X	X	X	X	X
41	241	Report / Write Comparator 1 High Limit					X	X	X
42	242	Report/Write comparator 2 limit	X	X	X	X	X	X	X
43	243	Report / Write Comparator 2 High Limit					X	X	X
44	244	Report/Write comparator 3 limit	X	X	X	X	X	X	X
45	245	Report / Write Comparator 3 High Limit					X	X	X
46	246	Report/Write comparator 4 limit	X	X	X	X	X	X	X
47	247	Report / Write Comparator 4 High Limit					X	X	X
48	248	Report/Write comparator 5 limit	X	X	X	X	X	X	X
49	249	Report / Write Comparator 5 High Limit					X	X	X
50	250	Report/Write comparator 6 limit					X	X	X
51	251	Report / Write Comparator 6 High Limit					X	X	X
52	252	Report/Write comparator 7 limit					X	X	X
53	253	Report / Write Comparator 7 High Limit					X	X	X
54	254	Report/Write comparator 8 limit					X	X	X
55	255	Report / Write Comparator 8 High Limit					X	X	X
83	N/A	Report general stability timeout [s] **Parameter:** 0 – 65535 seconds							
84	284	Report/Write observation time for zero **Parameter**: 0.1 – 4.0 Seconds				X			X
85	285	Report/Write tolerance for zero **Parameter**: 0.25 – 1000 digits				X			X

Read	Write	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
86	286	Report/Write observation time for tare **Parameter**: 0.1 – 4.0 Seconds				X			X
87	287	Report/Write tolerance for tare **Parameter**: 0.25 – 1000 digits				X			X
88	288	Report/Write observation time for weighing **Parameter**: 0.1 – 4.0 Seconds				X			X
89	289	Report/Write tolerance for weighing **Parameter**: 0.25 – 1000 digits				X			X
90	290	Report weighing mode **Parameter:** 0 = Universal Weighing 2 = Fix Filter				X			X
91	291	Report weighing environment **Parameter:** 0 = Very Stable 1 = Stable 2 = Standard 3 = Unstable 4 = Very Unstable				X			X
92	292	Report filter cut-off frequency **Parameter**: 0 = Predefined frequency used, changeable over weighing environment 0.001 Hz – 20.0 Hz = Cutoff Frequency				X			X
95	295	Report/Write Zero adjustment count					X	X	
96	296	Report/Write weight readability **Parameter:** 0 = 1 digit 1 = 10 digits 2 = 100 digits 3 = 1000 digits 4 = 2 digits 5 = 5 digits							X

Read	Write	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
97	N/A	Internal temperature in °C							
98	N/A	Report filter cut-off frequency for dosing path							
N/A	201	Write Preset tare (display unit) **Parameter:** Pre-tare weight (float 32) placed in floating point value	X	X	X	X	X	X	X
220	N/A	Write target weight (display unit)							
283	N/A	Write general stability timeout [s] **Parameter:** 0 – 65535 seconds							
298	N/A	Write filter cut-off frequency for dosing path							
N/A	400	Tare when stable	X	X	X	X	X	X	X
N/A	401	Zero when stable	X	X	X	X	X	X	X
N/A	402	Clear tare	X	X	X	X	X	X	X
N/A	403	Tare immediately	X	X	X	X	X	X	X
N/A	404	Zero immediately	X	X	X	X	X	X	X
N/A	500	Run filling application							
N/A	501	Pause filling application							
N/A	502	Resume filling application							
N/A	510	Apply Comparators	X	X	X	X	X	X	X
N/A	1000	Force all outputs OFF	X	X	X	X	X	X	X
1506	N/A	Validate (confirm) adjustment					X	X	
1706	N/A	Span adjustment value 1 – xLow, used in 5 point linearity adjustment					X	X	
1707	N/A	Span adjustment value 2 – Low, used in 5 and 4 point linearity adjustment					X	X	
1708	N/A	Span adjustment value 3 – Middle, used in 5, 4 and 3 point linearity adjustment					X	X	
1709	N/A	Span adjustment value 4 – High, used in all forms of span adjustment					X	X	
N/A	1900	Alarm bit – write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1901	Motion bit – write value of bit when in test mode	X	X	X	X	X	X	X

Read	Write	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
N/A	1902	Net mode bit – write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1903	Center of zero bit – write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1904	Alt weight bit – write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1905	Device bit 1 – write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1906	Device bit 2– write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1907	Device bit 3– write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1908	Device bit 4– write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1909	Device bit 5– write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1910	Device bit 6– write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1911	Device bit 7– write value of bit when in test mode	X	X	X	X	X	X	X
N/A	1912	Performance Mode **Parameter**: 0 – send performance count at A/D rate 1 – send performance count at 1 mese interval n – send performance count at n mese interval	X	X	X	X	X	X	X
N/A	2000	No operation command – used to test command	X	X	X	X	X	X	X
2002	N/A	Continue to next step in sequence					X	X	X
2003	N/A	Continue to next step in sequence					X	X	X
2004	N/A	Abort sequence … response value means abort in process	X	X	X	X	X	X	X
2005	N/A	After step failure, retries previous step in sequence					X	X	X
2006	N/A	After step failure, skips step and advances to next in sequence					X	X	X
2045	N/A	Step successful, next value	X	X	X	X	X	X	X

Read	Write	Description	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
2046	N/A	Step successful	X	X	X	X	X	X	X
2047	N/A	Command has been received and is being evaluated (in process)	X	X	X	X	X	X	X
N/A	8080h	Start cyclic test mode	X	X	X	X	X	X	X
N/A	8888h	Stop cyclic test mode	X	X	X	X	X	X	X

4.1. Cyclic Commands – IND360 Dynamic Application

The cyclic commands listed below are for use with the IND360 Dynamic application. Please note that these same commands will not necessarily be supported or may work differently if used with anything other than the IND360 Dynamic application. Please see the section specific to the application installed on your device if using something other than the IND360 Dynamic application. More details about the IND360 Dynamic Application can be found in the IND360 Dynamic Application Manual.

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
101	301	Photoeye Mode **Parameter**: 0 = Dual photoeye 1 = Single Photoeye	X		
102	302	Installation Position **Parameter**: 0 = Front 1 = Rear	X		
103	303	Multiple Objects **Parameter**: 0 = False 1 = True	X		
104	304	Burr Time **Parameter**: 1-1000 ms	X		
105	305	Interval Time **Parameter**: 1-1000 ms	X		
106	306	Object Length **Parameter**: < Belt Length	X		
107	307	Belt Speed **Parameter**: 1-10000 rpm	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
108	308	Belt Length **Parameter**: 1-5000 cm	X		
109	309	Photoeye Polarity **Parameter**: 0 = High Level 1 = Low Level	X		
110	310	Min. Weighing Time **Parameter**: 1-5000 ms	X		
111	311	Max. Weighing Time **Parameter**: Min. Weighing Time – 10000 ms	X		
112	312	Filter Mode **Parameter**: 0 = Automatic 1 = Manual	X		
113	313	Filter Parameter **Parameter**: 1-1000 ms	X		
114	314	Compensation Management **Parameter**: 0 = Disable 1 = Enable	X		
115	315	Weight 1 – Dynamic Application	X		
116	316	Weight 2 – Dynamic Application	X		
117	317	Weight 3 – Dynamic Application	X		
118	318	Weight 4 – Dynamic Application	X		
119	319	Weight 5 – Dynamic Application	X		
120	320	Factor 1 – Dynamic Application **Parameter**: 0.1-9	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
121	321	Factor 2 – Dynamic Application **Parameter**: 0.1-9	X		
122	322	Factor 3 – Dynamic Application **Parameter**: 0.1-9	X		
123	323	Factor 4 – Dynamic Application **Parameter**: 0.1-9	X		
124	324	Factor 5 – Dynamic Application **Parameter**: 0.1-9	X		
125	325	Completed Time Signal **Parameter**: 1-5000 ms	X		
126	326	Match Weighing Time **Parameter**: Weighing Time – 5000 ms	X		
127	N/A	Object Counts **Parameter**: 0-5	X		
128	N/A	Total Counts **Parameter**: 0-99,999,999	X		
129	N/A	Dynamic Weight	X		
130	N/A	Real Weighing Time	X		
138	N/A	Valid Weight Counts **Parameter**: 0-99,999,999	X		
139	N/A	Invalid Weight Counts **Parameter**: 0-99,999,999	X		
N/A	336	Control Command – Dynamic Application **Parameter**: 0 = Stop 1 = Run	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
N/A	337	Clear Statistics **Parameter**: 1 = clear	X		
140	340	Zero State **Parameter**: 0-100 d	X		
141	341	Empty State **Parameter**: 0-1000d	X		
142	342	Over Weight **Parameter**: 0-capacity	X		
143	343	Under Weight **Parameter**: 0-capacity	X		
144	344	Photoeye Timeout **Parameter**: 0-5000 ms	X		
146	346	Dynamic Zero Enable **Parameter**: 0 = Disable 1 = Enable	X		
147	347	Dynamic Zero Threshold **Parameter**: 0-capacity	X		
148	348	Dynamic Zero Delay **Parameter**: 1-999 ms	X		
149	349	Dynamic Zero Interval **Parameter**: 1-999 ms	X		

4.2. Cyclic Commands – IND360 Tank Vessel Application

The cyclic commands listed below are for use with the IND360 Tank Vessel application. Please note that these same commands will not necessarily be supported or may work differently if used with anything other than the IND360 Tank Vessel application. Please see the section specific to the application installed on your device if using something other than the IND360 Tank Vessel application. More details about the IND360 Tank Vessel Application can be found in the IND360 Tank Vessel Application Manual.

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
101	301	Target Source **Parameter**: 0 – Tank Capacity	X	X	X
102	302	Tank Capacity **Parameter**: 0 – Scale Capacity	X	X	X
103	303	Upper Limit **Parameter**: 0 – Tank Capacity	X	X	X
104	304	Lower Limit **Parameter**: 0 – Upper Limit	X	X	X
105	305	Lower Limit Alarm **Parameter**: 0 – Lower Limit	X	X	X
106	306	Over Limit Alarm **Parameter**: 0 – Tank Capacity	X	X	X
107	N/A	Current Weight	X	X	X
108	N/A	Percentage of tank filled based on capacity	X	X	X
N/A	309	Clear Statistics **Parameter**: 0 = Disable 1 = Enable (Will automatically disable once complete)	X	X	X

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
110	N/A	Lower Limit Counts **Parameter**: 0 – 99,999,999	X	X	X
111	N/A	Upper Limit Counts **Parameter**: 0 – 99,999,999	X	X	X
112	N/A	Refill Counts **Parameter**: 0 – 99,999,999	X	X	X
N/A	313	Control Command **Parameter**: 0 = Stop 1 = Run	X	X	X

4.3. Cyclic Commands – IND360 Fill Dose Application

The cyclic commands listed below are for use with the IND360 Fill Dose application. Please note that these same commands will not necessarily be supported or may work differently if used with anything other than the IND360 Fill Dose application. Please see the section specific to the application installed on your device if using something other than the IND360 Fill Dose application. More details about the IND360 Fill Dose Application can be found in the IND360 Fill Dose Application Manual.

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
101	301	Work Mode **Parameter**: 0 = Fill Dump 1 = Refill Dose	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
102	302	Feed Speeds **Parameter**: 0 = One Speed 1 = Two Speed 2 = Three Speed	X		
103	303	Output Type **Parameter**: 0 = Concurrent 1 = Independent	X		
104	304	Complete Mode **Parameter**: 0 = Weight Mode 1 = Time Mode	X		
N/A	306	Clear Statistics **Parameter**: 0 = Disable 1 = Enable (Will automatically disable once complete)	X		
107	307	Target Source **Parameter**: 0 = Gross 1 = Net	X		
108	308	Target **Parameter**: 0 - Capacity	X		
109	309	Spill **Parameter**: 0 - Capacity	X		
110	310	Fine Feed **Parameter**: 0 - Capacity	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
111	311	Fast Feed **Parameter**: 0 - Capacity	X		
112	312	Heel Weight **Parameter**: 0 - Capacity	X		
113	313	+ Tolerance **Parameter**: 0 - Capacity	X		
114	314	- Tolerance **Parameter**: 0 - Capacity	X		
115	315	Upper Limit **Parameter**: 0 - Capacity	X		
116	316	Lower Limit **Parameter**: 0 - Capacity	X		
117	317	Container Tare Max **Parameter**: 0 - Capacity	X		
118	318	Container Tare Min **Parameter**: 0 - Capacity	X		
119	319	Inhibit Time **Parameter**: 0 – 9.99 seconds	X		
120	320	Stable Time **Parameter**: 0 – 9.99 seconds	X		
121	321	Complete Time **Parameter**: 0 – 9.99 seconds	X		
122	322	Control Timeout **Parameter**: 0 – 99.99 seconds	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
123	323	Process Timeout **Parameter**: 0 – 99.99 seconds	X		
124	324	Self Learning Mode **Parameter**: 0 = None 1 = Spill Learning 2 = All Learning	X		
125	325	Spill Adjust Period **Parameter**: 1 - 9	X		
126	326	Spill Adjust Factor **Parameter**: 0.1 – 0.9	X		
127	N/A	Spill Adjust Range **Parameter**: 0 - Capacity	X		
129	329	Control Reliability **Parameter**: 3 = 93.32% 4 = 99.379% 5 = 99.977% 6 = 99.9997%	X		
130	330	Learning Samples **Parameter**: 6, 9, 12, 15, 9999	X		
131	331	Adjust Factor **Parameter**: 0.1 – 0.9	X		
132	N/A	Filling Dosing Weight	X		
133	N/A	Min Cycle Time	X		
134	N/A	Max Cycle Time	X		
135	N/A	Total Cycle Weight	X		
136	N/A	Total Buckets	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
137	N/A	Valid Buckets	X		
N/A	338	Control Command **Parameter**: 0 = Stop 1 = Run 2 = Pause	X		

4.4. Cyclic Commands – IND360 Rate Control Application

The cyclic commands listed below are for use with the IND360 Rate Control application. Please note that these same commands will not necessarily be supported or may work differently if used with anything other than the IND360 Rate Control application. Please see the section specific to the application installed on your device if using something other than the IND360 Rate Control application. More details about the IND360 Rate Control Application can be found in the IND360 Rate Control Application Manual.

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
101	301	Flow Target **Parameter**: 0.1 – Rated Flow	X		
102	302	Flow Control Mode **Parameter**: 0 = Flow Control Mode 1 = Fixed Frequency Control Mode 2 = Rapid Cal 3 = Step Cal	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
103	303	Refill Control Mode **Parameter**: 0 = Fixed Frequency 1 = Follow Mode 2 = Level Switch Mode	X		
104	304	Upper Limit **Parameter**: 0 - Capacity	X		
105	305	Lower Limit **Parameter**: 0 - Capacity	X		
106	306	Control Rate Upper Limit **Parameter**: 0 - 1	X		
107	307	Control Rate Lower Limit **Parameter**: 0 - 1	X		
108	308	Rated Flow **Parameter**: 0.1 – 99,999	X		
109	309	Control Filter **Parameter**: 0 - 9	X		
110	310	Flow Filter **Parameter**: 0 - 9	X		
111	311	Control Tolerance **Parameter**: 0 - 1	X		
112	312	Flow Tolerance **Parameter**: 0 - 1	X		
113	313	Test Time **Parameter**: 0 – 9,999 Seconds	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
114	314	Flow Stability Range **Parameter**: 0 - 20	X		
115	315	Flow Stability Time **Parameter**: 0 - 20	X		
116	316	Start Delay Time **Parameter**: 0 – 9,999	X		
117	317	Refill Delay Time **Parameter**: 0 – 9,999	X		
118	318	PID Mode **Parameter**: 0 = Auto PID 1 = Manual PID	X		
119	319	Proportional Term (P) **Parameter**: 0 – 255	X		
120	320	Intergral Term (I) **Parameter**: 0 – 255	X		
121	321	Derivative Term (D) **Parameter**: 0 – 255	X		
122	322	Control Rate Factor **Parameter**: 0 – 2	X		
123	323	Refill Control Rate Factor **Parameter**: 0 – 2	X		
124	324	Refill Control Rate Target **Parameter**: 0 - 1	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
125	325	Control Rate Target **Parameter**: 0 - 1	X		
126	326	Rapid Cal. Time **Parameter**: 10 - 60	X		
127	N/A	20% Flow Rate **Parameter**: 0 – 99,999	X		
128	N/A	40% Flow Rate **Parameter**: 0 – 99,999			
129	N/A	60% Flow Rate **Parameter**: 0 – 99,999	X		
130	N/A	80% Flow Rate **Parameter**: 0 – 99,999	X		
131	N/A	100% Flow Rate **Parameter**: 0 – 99,999	X		
132	N/A	Control Rate	X		
133	333	Refill Time **Parameter**: 0 – 9,999 seconds	X		
134	N/A	Flow	X		
136	N/A	Cumulant	X		
137	N/A	Work Cumulant	X		
138	N/A	Test Cumulant	X		
N/A	339	Control Command **Parameter**: 0 = Stop 1 = Run	X		

Read	Write	Description	IND360 Analog	IND360 POWERCELL	IND360 Precision
N/A	340	Clear Totalization **Parameter**: 1 = Clear	X		

5 Acyclic Command List

The chart below shows acyclic commands that can be sent and which devices support specific commands. In the case of IND360, some commands are supported only for versions of the device with applications built-in and not the base versions. These application specific acyclic commands have been separated into the tables found in Sections 5.1 – 5.4.

To send an acyclic command, use the information for the command corresponding to your automation protocol (EtherNet/IP, PROFIBUS DP or PROFINET). All devices covered by this manual provide sample code and detailed engineering notes for each automation protocol with examples of acyclic commands. Sample code and engineering notes can be found on www.mt.com on your device's downloads page.

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Gross weight - rounded	Gross weight data in defined resolution	read	Float 32	1	0x14	0x300	0x01	0x01	0, 1	0x2000	X	X	X	X	X	X	X
Gross weight - rounded	Gross weight data in defined resolution	read	Float 32	1	0x15	0x300	0x01	0x02	0, 1	0x2001	X	X	X	X	X	X	X
Tare weight - rounded	Tare weight data in defined resolution	read	Float 32	1	0x16	0x300	0x01	0x03	0, 1	0x2002	X	X	X	X	X	X	X
Net weight - rounded	Net weight data in defined resolution	read	Float 32	1	0x17	0x300	0x01	0x04	0, 1	0x2003	X	X	X	X	X	X	X
Gross weight - internal resolution	Gross weight data in internal resolution	read	Float 32	1	0x18	0x300	0x01	0x05	0, 1	0x2004	X	X	X	X	X	X	X
Tare weight - internal resolution	Tare weight data in internal resolution	read	Float 32	1	0x19	0x300	0x01	0x06	0, 1	0x2005	X	X	X	X	X	X	X
Net weight - internal resolution	Net weight data in internal resolution	read	Float 32	1	0x1A	0x300	0x01	0x07	0, 1	0x2006	X	X	X	X	X	X	X
Zero adjustment count (Read)	Zero Register	read/ write	Float 32	1	0x20	300	0x01	12	0,1	0x2007					X	X	
Tare procedure status bits	Report Tare operation status (used when triggering tare from acyclic interface) **Parameter**: 0 = tare procedure complete 1 = tare procedure in process	read	UInt 16	1	0x1F	0x300	0x01	0x16	0, 1	0x2008	X	X	X	X	X	X	X
Zero procedure status bits	Report Zero operation status (used when triggering zero from acyclic interface) **Parameter**: 0 = zero procedure complete 1 = zero procedure in process	read	Uint 16	1	0x24	0x300	0x01	0x17	0, 1	0x2009	X	X	X	X	X	X	X
Weight Unit	Weight unit (number representing unit from Scale Status Group 2)	read/ write	byte, 1	1	0x99	0x300	0x01	0x18	0, 1	0x200A	X	X	X		X	X	X
Tare when stable	Tare when within motion limit	write	Uint 8	1	0x1C	0x300	0x01	0x09	0, 1	0x2010	X	X	X	X	X	X	X
Tare immediately	Motion not checked, tare executed	write	Uint 8	1	0x1E	0x300	0x01	0x10	0, 1	0x2011	X	X	X	X	X	X	X
Clear tare	Motion not checked, clear tare executed	write	Uint 8	1	0x1D	0x300	0x01	0x11	0, 1	0x2012	X	X	X	X	X	X	X
Zero when stable	Zero when within motion limit	write	Uint 8	1	0x22	0x300	0x01	0x14	0, 1	0x2013	X	X	X	X	X	X	X
Zero immediately	Motion not checked, zero executed	write	Uint 8	1	0x23	0x300	0x01	0x15	0, 1	0x2014	X	X	X	X	X	X	X

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Preset tare (display unit)	Write tare register (Preset Tare) **Parameter**: Pre-tare weight (float 32)	write	Float 32	1	0x1B	0x300	0x01	0x08	0, 1	0x2020	X	X	X	X	X	X	X
Turn all internal & external outputs OFF	Forces all outputs OFF	write	byte, 1	1	0x26	0x301	0x01	0x02	0, 1	0x2031	X	X	X	X	X	X	X
Report scale status group	Scale status group according to specification in Section 2.1 of this document	read	Short, 2	1	0x27	0x302	0x01	0x01	0, 1	0x2040	X	X	X	X	X	X	X
Alarm status group	Application Specific Errors according to specification in Section 2.4 of this document	read	Short, 2	1	0x28	0x302	0x01	0x02	0, 1	0x2041	X	X	X	X	X	X	X
Report RedAlert group	RedAlert status according to specification in Section 2.2 of this document	read	Short, 2	1	0x29	0x302	0x01	0x03	0, 1	0x2042	X	X	X	X	X	X	X
Report scale status group	Scale Status Group 2 according to specification in Section 2.3 of this document	read	Short, 2	1	0x2A	0x302	0x01	0x04	0, 1	0x2043	X	X	X	X	X	X	X
Model type part 1	Identification (main ID)	read	String 160	1	0x2B	0x303	0x01	0x01	0, 1	0x2050	X	X	X	X			
Model type part 2	Identification # 2	read	String 160	1	0x2C	0x303	0x01	0x02	0, 1	0x2051	X	X	X	X			
Model type part 3	Identification # 3	read	String 160	1	0x2D	0x303	0x01	0x03	0, 1	0x2052	X	X	X	X			
Software OS version	Software OS Version	read	String (36 byte)	1	0x2E	0x303	0x01	0x04	0, 1	0x2053	X	X	X	X	X	X	X
Fieldbus stack version	Fieldbus Stack version	read	String (36 byte)	1	0x2F	0x303	0x01	0x05	0, 1	0x2054	X	X	X	X	X	X	X
Software application version	Software Apps Version	read	String (36 byte)	1	0x30	0x303	0x01	0x06	0, 1	0x2055				X	X	X	X
SAI version	SAI specification version number	read	String (36 byte)	1	0x31	0x303	0x01	0x07	0, 1	0x2056	X	X	X	X	X	X	X
Serial number	Device main serial number	read	String (36 byte)	1	0x33	0x303	0x01	0x08	0, 1	0x2057				X	X	X	X
Device identification	user configurable ID	read	String (36 byte)	1	0x34	0x303	0x01	0x09	0, 1	0x2058				X			X
Query of the remaining weighing ranges	Remaining Weighing Ranges	read	String 36	1	0x35	0x303	0x01	0x10	0, 1	0x2059				X			X
Get initial zero information	Initial zero information	read	String 60	1	0x36	0x303	0x01	0x11	0, 1	0x205A				X			X
Start adjustment with internal weight	Start Internal Adjustment	write	Byte, 1	1	0x80	0x410	0x01	0x01	0, 1	0x4001				X			X
Start adjustment with external weight	Start External Adjustment	write	Byte, 1	1	0x81	0x410	0x01	0x02	0, 1	0x4002				X			X
Start customer standard calibration	Start User Standard Adjustment	write	Byte, 1	1	0x82	0x410	0x01	0x03	0, 1	0x4003				X			X
Cancel adjustment / test (Abort Test Function / Adjustment)	Abort Test Function / Adjustment	write	Byte, 1	1	0x83	0x410	0x01	0x04	0, 1	0x4004	X	X	X	X	X	X	X
Start test with internal weight	Start Test Function with internal weight	write	Byte, 1	1	0x84	0x410	0x01	0x05	0, 1	0x4005				X			X
Start test with external weight	Start Test Function with external weight	write	Byte, 1	1	0x85	0x410	0x01	0x06	0, 1	0x4006				X			X
Adjustment and test status Information	Adjustment / Test status	read	Byte, 2	1	0x86	0x410	0x01	0x07	0, 1	0x4007	X	X	X	X	X	X	X
Test deviation	Adjustment / Test value	read	Float 32	1	0x87	0x410	0x01	0x08	0, 1	0x4008				X			X
External adjustment weight	Set external adjustment weight and start adjust **Parameter**: Weight in unit selected according to Scale Status Group 2	write	Float 32	1	0x88	0x410	0x01	0x09	0, 1	0x4009	X	X	X	X	X	X	X

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Number of linearity ranges	Number of points of linearity to be used **Parameter**: 0 = None 1 = 3 points of linearity 2 = 4 points of linearity 3 = 5 points of linearity	read/ write	Byte, 2	1	0x89	0x410	0x01	0x0A	0, 1	0x400A	X	X	X		X	X	
Zero Adjustment	Resets the zero (absolute reference)	write	byte, 1	1	0x8A	0x410	0x01	0x0B	0, 1	0x400B	X	X	X		X	X	
Span Adjustment Value 1 xLow	Used in 5 point linearity adjustment	read/ write	Float 32	1	0x8C	0x410	0x01	0x0C	0, 1	0x400C	X	X	X		X	X	
Span Adjustment Value 2 Low	Used in 5 point and 4 point linearity adjustment	read/ write	Float 32	1	0x8D	0x410	0x01	0x0D	0, 1	0x400D	X	X	X		X	X	
Span Adjustment Value 3 Middle	Used in 5, 4 and 3 point linearity adjustment	read/ write	Float 32	1	0x8E	0x410	0x01	0x0E	0, 1	0x400E	X	X	X		X	X	
Span Adjustment Value 4 High	Used in all forms of span adjustment	read/ write	Float 32	1	0x8F	0x410	0x01	0x0F	0, 1	0x400F	X	X	X		X	X	
Validate (Confirm) Adjustment	Validate Adjustment	read/ write	byte, 1	1	0x90	0x410	0x01	0x10	0, 1	0x4010	X	X	X		X	X	
Requested weight	Get currently requested external calibration weight during ongoing adjustment or calibration procedure	read	Float 32	1	0x91	0x410	0x01	0x11	0, 1	0x4011				X			X
External test weight	Set external calibration test weight unless default shall be used **Parameter**: Weight in unit selected according to Scale Status Group 2	write	Float 32	1	0x92	0x410	0x01	0x12	0, 1	0x4012				X			X
Span Adjustment Counts 1 xLow	Used with Span adjustment value to read/write calibration	read/ write	long, 4	1	0x93	0x410	0x01	0x13	0, 1	0x4013	X	X	X		X	X	
Span Adjustment Counts 2 Low	Used with Span adjustment value to read/write calibration	read/ write	long, 4	1	0x94	0x410	0x01	0x14	0, 1	0x4014	X	X	X		X	X	
Span Adjustment Counts 3 Middle	Used with Span adjustment value to read/write calibration	read/ write	long, 4	1	0x95	0x410	0x01	0x15	0, 1	0x4015	X	X	X		X	X	
Span Adjustment Counts 4 High	Used with Span adjustment value to read/write calibration	read/ write	long, 4	1	0x96	0x410	0x01	0x16	0, 1	0x4016	X	X	X		X	X	
Set number of steps & begin step calibration	Set number of steps and begin step calibration	write	byte, 1	1	0x97	0x410	0x01	0x17	0, 1	0x4017	X	X	X		X	X	
Sets weight value for current step in calibration & starts step	Set weight value for current step in calibration and starts step	write	Float 32	1	0x98	0x410	0x01	0x18	0, 1	0x4018	X	X	X		X	X	
Calfree	triggers CalFree calibration start	write	byte, 2	1	0x9B	0x410	0x01	0x1A	0, 1	0x401A	X	X			X		
Calfree cell capacity	parameter for CalFree	read/ write	Float 32	1	0x9C	0x410	0x01	0x1B	0, 1	0x401B	X	X			X		
Calfree unit	parameter for CalFree	read/ write	Byte, 1	1	0x9D	0x410	0x01	0x1C	0, 1	0x401C	X	X			X		
Calfree cell output	parameter for CalFree	read/ write	Float 32	1	0x9E	0x410	0x01	0x1D	0, 1	0x401D	X	X			X		
CalFree Plus	Trigger CalFree Plus calibration start	read/ write	Byte, 2	1	0x9F	0x410	0x01	0x1E	0, 1	0x401E			X			X	
Get temporary weight in step mode	Set weight value for current step in calibration and starts step	read	float, 4	1	0x8B	0x410	0x01	0x1F	0, 1	0x401F	X	X	X				
Enable / Disable step control C5		Read/ write	Byte, 1	1	0x8B	0x410	0x01	0x1F	0, 1	0x401F				X			X
Zero adjustment count	Resets the zero (absolute reference)	read/ write	long, 4	1	0xE5	0x410	0x01	0x20	0, 1	0x4020	X	X	X				
Sensitivity adjustment (Triggered) C8 1 -4		read/ write	Byte, 1	1	0xE5	0x410	0x01	0x20	0, 1	0x4020				X			X
Sensitivity adjustment (Display weight) C8 7	Sensitivity adjustment (displayed weight)	write	Struct 32 (Float, Float)	3	0x02	0x410	0x01	0x21	0, 1	0x4021				X			X
Internal adjustment PBK/PFK	Internal adjustement (MTCS C9, 1)	write	Byte, 1	3	0x03	0x410	0x01	0x22	0,1	0x4022							X

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Get temporary weight in step mode	Get temporary weight in step mode	Read	Float 32	3	0x04	0x410	0x01	0x23	0,1	0x4023					X	X	
Comparator status group 1	Comparator status group 1	read	short, 2	1	0xD0	0x411	0x01	0x01	0, 1	0x4051	X	X	X	X	X	X	X
Report # of Comparator used	Read how many comparators are used	read	byte, 1	2	0x03	0x411	0x01	0x04	0, 1	0x4054	X	X	X	X			
Write # of Comparator used	Write how many comparators are used	write	byte, 1	2	0x03	0x411	0x01	0x04	0, 1	0x4054	X	X	X	X			
Report/Write Comparator 1 Limit	Read/Write value for comparator # 1	read/ write	Float 32	2	0x04	0x411	0x01	0x05	0, 1	0x4055	X	X	X	X	X	X	X
Report/Write Comparator 2 Limit	Read/Write value for comparator # 2	read/ write	Float 32	2	0x05	0x411	0x01	0x06	0, 1	0x4056	X	X	X	X	X	X	X
Report/Write Comparator 3 Limit	Read/Write value for comparator # 3	read/ write	Float 32	2	0x06	0x411	0x01	0x07	0, 1	0x4057	X	X	X	X	X	X	X
Report/Write Comparator 4 Limit	Read/Write value for comparator # 4	read/ write	Float 32	2	0x07	0x411	0x01	0x08	0, 1	0x4058	X	X	X	X	X	X	X
Report/Write Comparator 5 Limit	Read/Write value for comparator # 5	read/ write	Float 32	2	0x08	0x411	0x01	0x09	0, 1	0x4059	X	X	X	X	X	X	X
Report/Write Comparator 6 Limit	Read/Write value for comparator # 6	read/ write	Float 32	2	0x09	0x411	0x01	0x0A	0,1	0x405A					X	X	X
Report/Write Comparator 7 Limit	Read/Write value for comparator # 7	read/ write	Float 32	2	0x0A	0x411	0x01	0x0B	0,1	0x405B					X	X	X
Report/Write Comparator 8 Limit	Read/Write value for comparator # 8	read/ write	Float 32	2	0x0B	0x411	0x01	0x0C	0,1	0x405C					X	X	X
Apply Comparator trigger	Instructs device to use new comparator values	write	byte, 1	2	0x1E	0x411	0x01	0x1F	0, 1	0x406F	X	X	X	X	X	X	X
Report / Write Comparator 1 High Limit	Comparator 1 configuration high limit	read/ write	Float 32	4	0x00	0x411	1	0x20	0,1	0x4070					X	X	X
Report / Write Comparator 2 High Limit	Comparator 2 configuration high limit	read/ write	Float 32	4	0x01	0x411	1	0x21	0,1	0x4071					X	X	X
Report / Write Comparator 3 High Limit	Comparator 3 configuration high limit	read/ write	Float 32	4	0x02	0x411	1	0x22	0,1	0x4072					X	X	X
Report / Write Comparator 4 High Limit	Comparator 4 configuration high limit	read/ write	Float 32	4	0x03	0x411	1	0x23	0,1	0x4073					X	X	X
Report / Write Comparator 5 High Limit	Comparator 5 configuration high limit	read/ write	Float 32	4	0x04	0x411	1	0x24	0,1	0x4074					X	X	X
Report / Write Comparator 6 High Limit	Comparator 6 configuration high limit	read/ write	Float 32	4	0x05	0x411	1	0x25	0,1	0x4075					X	X	X
Report / Write Comparator 7 High Limit	Comparator 7 configuration high limit	read/ write	Float 32	4	0x06	0x411	1	0x26	0,1	0x4076					X	X	X
Report / Write Comparator 8 High Limit	Comparator 8 configuration high limit	read/ write	Float 32	4	0x07	0x411	1	0x27	0,1	0x4077					X	X	X
Read / Write Comparator 1 Source	Comparator 1 source configuration	read/ write	Byte, 1	4	0x10	0x411	1	0x30	0,1	0x4080					X	X	X
Read / Write Comparator 2 Source	Comparator 2 source configuration	read/ write	Byte, 1	4	0x11	0x411	1	0x31	0,1	0x4081					X	X	X
Read / Write Comparator 3 Source	Comparator 3 source configuration	read/ write	Byte, 1	4	0x12	0x411	1	0x32	0,1	0x4082					X	X	X
Read / Write Comparator 4 Source	Comparator 4 source configuration	read/ write	Byte, 1	4	0x13	0x411	1	0x33	0,1	0x4083					X	X	X
Read / Write Comparator 5 Source	Comparator 5 source configuration	read/ write	Byte, 1	4	0x14	0x411	1	0x34	0,1	0x4084					X	X	X
Read / Write Comparator 6 Source	Comparator 6 source configuration	read/ write	Byte, 1	4	0x15	0x411	1	0x35	0,1	0x4085					X	X	X
Read / Write Comparator 7 Source	Comparator 7 source configuration	read/ write	Byte, 1	4	0x16	0x411	1	0x36	0,1	0x4086					X	X	X
Read / Write Comparator 8 Source	Comparator 8 source configuration	read/ write	Byte, 1	4	0x17	0x411	1	0x37	0,1	0x4087					X	X	X
Read / Write Comparator 1 Active	Comparator 1 active	read/ write	Byte, 1	4	0x20	0x411	1	0x40	0,1	0x4090					X	X	X
Read / Write Comparator 2 Active	Comparator 2 active	read/ write	Byte, 1	4	0x21	0x411	1	0x41	0,1	0x4091					X	X	X
Read / Write Comparator 3 Active	Comparator 3 active	read/ write	Byte, 1	4	0x22	0x411	1	0x42	0,1	0x4092					X	X	X
Read / Write Comparator 4 Active	Comparator 4 active	read/ write	Byte, 1	4	0x23	0x411	1	0x43	0,1	0x4093					X	X	X

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Read / Write Comparator 5 Active	Comparator 5 active	read/ write	Byte, 1	4	0x24	0x411	1	0x44	0,1	0x4094					X	X	X
Read / Write Comparator 6 Active	Comparator 6 active	read/ write	Byte, 1	4	0x25	0x411	1	0x45	0,1	0x4095					X	X	X
Read / Write Comparator 7 Active	Comparator 7 active	read/ write	Byte, 1	4	0x26	0x411	1	0x46	0,1	0x4096					X	X	X
Read / Write Comparator 8 Active	Comparator 8 active	read/ write	Byte, 1	4	0x27	0x411	1	0x47	0,1	0x4097					X	X	X
Print	Execute ePrint	Write	Uint 8	2	0x70	0x412	1	0x01	0,1	0x4101					X	X	X
Report custom group 1	Custom group 1 status	Read	Short, 2	2	0x71	0x412	1	0x02	0, 1	0x4102					X	X	X
Report custom group 2	Custom group 2 status	read	Short, 2	2	0x72	0x412	1	0x03	0, 1	0x4103						X	
Voltage monitor channels	View voltage monitor channels	read	Struct 256	1	0xB0	0x413	0x01	0x11	0, 1	0x4161							
Load cycle monitor channels	view load cycle monitor channels	read	Struct 512	1	0xB1	0x413	0x01	0x12	0, 1	0x4162							
Zero deviation	Query zero deviation	read	Float 32	1	0xB2	0x413	0x01	0x13	0, 1	0x4163							
Zero deviation monitor channels	view zero deviation monitor channels	read	Struct 256	1	0xB3	0x413	0x01	0x14	0, 1	0x4164							
Temperature monitor channels	view temperature monitor channels	read	Struct 512	1	0xB4	0x413	0x01	0x15	0, 1	0x4165							
Temperature gradient	Query temperature gradient	read	Struct 96	1	0xB5	0x413	0x01	0x16	0, 1	0x4166							
Temperature gradient channels	view temperature gradient channels	read	Struct 128	1	0xB6	0x413	0x01	0x17	0, 1	0x4167							
Temperature values	Query temperature value (multiple channels)	read	Struct 128	1	0xB7	0x413	0x01	0x18	0, 1	0x4168				X			
Internal temperature	Query the load cell temperature value	read	Float 32	1	0xB8	0x413	0x01	0x19	0, 1	0x4169							
Restart device	restart device - software restart	write	Uint 8	1	0xC9	0x413	0x01	0x2A	0, 1	0x417A				X			
Update CANMaster power diagnosis	Send 1 command to update the voltage and current of CANMaster	write	byte, 1	1	0xCE	0x413	0x01	0x2E	0, 1	0x417E			X				
Maximum supply power for LCs	Inquire maximum supply voltage for LCs in history in mV	read	unsigned short, 2	1	0xCF	0x413	0x01	0x2F	0, 1	0x417F			X				
Maximum supply current for LCs	Inquire maximum supply voltage for LCs in history in mA	read	unsigned short, 2	1	0xEC	0x413	0x01	0x30	0, 1	0x4180			X				
Supply power error counts	Inquire supply power error counts. Once over current has occurred, the error counts would increase one. Int type, range 0~65535	read	unsigned short, 2	1	0xD1	0x413	0x01	0x31	0, 1	0x4181			X				
Supply current error counts	Inquire supply current error counts. Once over current has occurred, the error counts would increase one. Int type, range 0~65535	read	unsigned short, 2	1	0xD2	0x413	0x01	0x32	0, 1	0x4182			X				
Maximum voltage of CANH	Inquire maximum voltage of CANH in mv	read	short, 2	1	0xD3	0x413	0x01	0x33	0, 1	0x4183			X				
Minimum voltage of CANH	Inquire minimum voltage of CANH in mv	read	short, 2	1	0xD4	0x413	0x01	0x34	0, 1	0x4184			X				
Maximum voltage of CANL	Inquire maximum voltage of CANL in mv	read	short, 2	1	0xD5	0x413	0x01	0x35	0, 1	0x4185			X				
Minimum voltage of CANL	Inquire minimum voltage of CANL in mv	read	short, 2	1	0xD6	0x413	0x01	0x36	0, 1	0x4186			X				
Current supply power for LCs	Inquire the current supply power for LCs	read	short, 2	1	0xD7	0x413	0x01	0x37	0, 1	0x4187			X				
Current supply current for LCs	Inquire the current supply current for LCs	read	short, 2	1	0xD8	0x413	0x01	0x38	0, 1	0x4188			X				
Update LCs voltage diagnosis	Send 1 to update the current VIN_LC, VIN_COM,V_SHIELD voltage of LCs, every LC need one second to update data	write	byte,1	1	0xD9	0x413	0x01	0x39	0, 1	0x4189			X				
VIN_LC of LCs	Inquire the current VIN_LC voltage of LCs in mV	read	long*1 4,56	1	0xDA	0x413	0x01	0x3A	0, 1	0x418A			X				
Temperature of LCs	Inquire the current temperature of every LC in ℃	read	long*1 4,56	1	0xDB	0x413	0x01	0x3B	0, 1	0x418B			X				

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
VIN_COM of LCs	Inquire the current VIN_COM voltage of every LC in mV	read	long*1 4,56	1	0xDC	0x413	0x01	0x3C	0, 1	0x418C			X				
V_SHIELD of LCs	Inquire the current V_SHIELD voltage of every LC in mV	read	long*1 4,56	1	0xDD	0x413	0x01	0x3D	0, 1	0x418D			X				
Update LCs gas diagnosis	Send 1 to update the current gas sensor value of LCs, every LC need maximum six seconds to update data	write	byte, 1	1	0xDE	0x413	0x01	0x3E	0, 1	0x418E			X				
Gas concentration of LCs	Inquire the current gas sensor value of LCs as percentage	read	long*1 4,56	1	0xDF	0x413	0x01	0x3F	0, 1	0x418F			X				
Update LCs information	Send 1 to update the current capacity, unit & sw version of LCs. Every LC needs one second to update data	write	byte, 1	1	0xE0	0x413	0x01	0x40	0, 1	0x4190			X				
Communication error counts of LCs	Inquire the current communication error counts of every LC. If normal at first then LC communication error occurs, the error counts would increase one. Int type, range 0~65535	read	long*1 4,56	1	0xE1	0x413	0x01	0x41	0, 1	0x4191			X				
Overload normal range counts of LCs	Inquire the current overload normal range counts of every LC. If weight is normal at first then overload between 101% ~ 150% of LC normal capacity occurs, the error counts would increase one. Int type, range 0~65535	read	long*1 4,56	1	0xE2	0x413	0x01	0x42	0, 1	0x4192			X				
Overload operate range counts of LCs	Inquire the current overload operate range counts of every LC. If weight is normal at first then overload larger than 150% of LC normal capacity occurs, the error counts would increase one. Int type, range 0~65535	read	long*1 4,56	1	0xE3	0x413	0x01	0x43	0, 1	0x4193			X				
Temperature beyond normal range counts of LCs	Inquire the current temperature beyond normal range counts of every LC. Once first normal then temperature beyond LC normal range happened, the error counts would increase one. Int type, range 0~65535	read	long*1 4,56	1	0xE4	0x413	0x01	0x44	0, 1	0x4194			X				
Temperature beyond operate range counts of LCs	Inquire the current temperature beyond operate range counts of every LC. If normal at first then temperature beyond LC operate range occurs, the error counts would increase one. Int type, range 0~65535	read	long*1 4,56	1	0xE5	0x413	0x01	0x45	0, 1	0x4195			X				
Temperature beyond operate range counts of LCs after temperature RunFlat trigger	Inquire the current temperature beyond operate range counts of every LC after temperature RunFlat trigger. If normal at first then temperature beyond LC operate range occurs, the error counts would increase one. Int type, range 0~65535. The operate ranges differ by LC type (index 736)	read	long*1 4,56	1	0xE6	0x413	0x01	0x46	0, 1	0x4196			X				
PLC communication failure count	Cable / PLC / Device failure. Each time fieldbus loses connection, count increases by one	read	unsigned short, 2	1	0xE7	0x413	0x01	0x47	0, 1	0x4197			X				
Scale overload count	Scale overload count	read	unsigned short, 4	1	0xE8	0x413	0x01	0x48	0, 1	0x4198			X				
Scale calibration count	Scale calibration count	read	unsigned short, 4	1	0xE9	0x413	0x01	0x49	0, 1	0x4199			X				
Scale zero command count	Scale zero command count	read	unsigned short, 4	1	0xEA	0x413	0x01	0x4A	0, 1	0x419A			X				
Scale zero command failed count	Scale zero command failed count	read	unsigned short, 4	1	0xEB	0x413	0x01	0x4B	0, 1	0x419B			X				
Automatic prefilling	Automatic prefilling configuration	read/write	Struct 32	1	0xEF	0x414	0x01	0x01	0, 1	0x4201							
Material filling duration	Material filling duration configuration	read/write	Uint 16	1	0xF0	0x414	0x01	0x02	0, 1	0x4202							
Automatic refilling	Automatic refilling configuration	read/write	Uint 8	1	0xF1	0x414	0x01	0x03	0, 1	0x4203							
Target weight	Target weight configuration	read/ write	Struct 128	1	0xF2	0x414	0x01	0x04	0, 1	0x4204							
Optimization function	Optimization function configuration	read/ write	Struct 24	1	0xF3	0x414	0x01	0x05	0, 1	0x4205							
Weight monitor function	Weight monitor function configuration	read/ write	Struct 480	1	0xF4	0x414	0x01	0x06	0, 1	0x4206							

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Time monitor function	Time monitor function configuration	read/ write	Struct 320	1	0xF5	0x414	0x01	0x07	0, 1	0x4207							
Filter stability criteria	Filling stability criteria configuration	read/ write	Struct 64	1	0xF6	0x414	0x01	0x08	0, 1	0x4208							
Filing phase	Filling phase configuration	read/ write	Struct 480	1	0xF7	0x414	0x01	0x09	0, 1	0x4209							
Automatic tare	Automatic tare configuration	read/ write	Struct 192	1	0xF8	0x414	0x01	0x0A	0, 1	0x420A							
Digital output function	Digital output function configuration	read/ write	Struct 80	1	0xF9	0x414	0x01	0x0B	0, 1	0x420B							
Emptying function	Emptying function configuration	read/ write	Struct 48	1	0xFA	0x414	0x01	0x0C	0, 1	0x420C							
Filling statistics	Filling statistics	read	Struct 224	1	0xFB	0x414	0x01	0x0D	0, 1	0x420D							
Clear filling statistics	Clear filling statistics	write	Uint 8	1	0xFC	0x414	0x01	0x0E	0, 1	0x420E							
Filling application status	Filling application status	read	Uint 16	1	0xFD	0x414	0x01	0x0F	0, 1	0x420F							
Report filling status	Report filling state	read	Uint 8	1	0xFE	0x414	0x01	0x10	0, 1	0x4210							
Control filling status	control filling	write	Uint 8	1	0xFF	0x414	0x01	0x11	0, 1	0x4211							
Report/Write low pass frequency	Read/Write low pass Frequency	read/ write	Float 32	1	0x3C	0x415	1	0x01	0,1	0x4251						X	
Report/write Stabilty Filter	Stability Filter	read/ write	Float 32	1	0x40	0x415	1	0x05	0,1	0x4255						X	
Weighing mode	weighing filter mode **Parameter**: 0 = Universal weighing 2 = Fix filter	read/ write	Float 32	1	0x41	0x415	0x01	0x06	0, 1	0x4256				X	X		X
Weighing environment	weighing filter level **Parameter**: 0 = Very stable 1 = Stable 2 = Standard 3 = Unstable 4 = Very unstable	read/ write	Float 32	1	0x42	0x415	0x01	0x07	0, 1	0x4257				X	X		X
Cut-off frequency	Configure / Read Cut-Off frequency **Parameter**: 0 = Pre-defined frequency used, changeable over weighing environment 0.001 Hz – 20.0 Hz = Cut-off frequency	read/ write	Float 32	1	0x43	0x415	0x01	0x08	0, 1	0x4258				X	X		X
Cut-off frequency for alternate weight path	Configure / Read Cut-off frequency for alternate weight path	read/ write	Float 32	1	0x69	0x415	0x01	0x0B	0, 1	0x4259							
Read/Write customer defined overload threshold	Set threshold about the customer overload in divisions	read/ write	Short, 2	1	0x6A	0x415	0x01	0x0C	0, 1	0x425C					X	X	X
Read/Write customer defined underload threshold	Set threshold about the customer underload in divisions	read/ write	Short, 2	1	0x6B	0x415	0x01	0x0D	0, 1	0x425D					X	X	X
Geo code	Offset of calibration for gravity influence **Parameter**: -1.0 – 31.0	read/ write	Float 32	1	0x70	0x416	0x01	0x01	0, 1	0x4301					X	X	X
Disable weight display	1 = weight display disabled, 0 = weight display enabled	read/ write	Binary	1	0x71	0x416	0x01	0x02	0, 1	0x4302							
Report LFT State	Shows the status of the weights and measures switch position (LFT Y/N)	read	Binary	1	0x73	0x416	0x01	0x04	0, 1	0x4304							

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Display - Energy Saving Mode	Time value for the display to turn off "Green MT feature"	read/ write	Float 32	1	0x78	0x416	0x01	0x09	0, 1	0x4309	X	X	X		X	X	X
Factory reset	Factory Reset	write	Short	1	0x79	0x416	0x01	0x0A	0, 1	0x430A				X			X
Readability	Change weight readability **Parameter**: 0 = 1 d 1 = 10 d 2 = 100 d 3 = 1000 d 4 = 2 d 5 = 5 d	read/ write	Float 32	1	0x7A	0x416	0x01	0x0B	0, 1	0x430B				X			X
Change Display Resolution (M110)	value from -6 to 6 which corresponds with different display resolutions	read/ write	Uint 8	1	0x7B	0x416	0x01	0x0C	0, 1	0x430C				X			X
Signal output frequency settings	reads/sets output frequency signal	read/ write	Float 32	1	0x7C	0x416	0x01	0x0D	0, 1	0x430D							
Reverse weighing mode	sets weighing mode for loss in weight	read/ write	Binary	1	0x7D	0x416	0x01	0x0E	0, 1	0x430E							
Sets electrical termination of RS422/RS485 lines	sets electrical termination of RS422/485 lines	read/ write	Struct 16	1	0x7E	0x416	0x01	0x0F	0, 1	0x430F							
General timeout	Timeout for issued command **Parameter**: 0 – 65535 Seconds	read/ write	Float 32	1	0x46	0x417	0x01	0x01	0, 1	0x4351				X			
Observation time for zero	Report Zero Stability time **Parameter**: 0.1 – 4.0 Seconds	read/ write	Float 32	1	0x48	0x417	0x01	0x03	0, 1	0x4353				X			X
Tolerance for zero	Report Zero Stability digit [d] **Parameter**: 0.25 – 1000 digits	read/ write	Float 32	1	0x49	0x417	0x01	0x04	0, 1	0x4354				X			X
Observation time for tare	Report Tare Stability time **Parameter**: 0.1 – 4.0 Seconds	read/ write	Float 32	1	0x4A	0x417	0x01	0x05	0, 1	0x4355				X			X
Tolerance for tare	Report Tare Stability digit [d] **Parameter**: 0.25 – 1000 digits	read/ write	Float 32	1	0x4B	0x417	0x01	0x06	0, 1	0x4356				X			X
Observation time for weighing	Report Weight Stability time **Parameter**: 0.1 – 4.0 Seconds	read/ write	Float 32	1	0x4C	0x417	0x01	0x07	0, 1	0x4357				X			X
Tolerance for weighing	Report Weight Stability digit [d] **Parameter**: 0.25 – 1000 digits	read/ write	Float 32	1	0x4D	0x417	0x01	0x08	0, 1	0x4358				X			X
Smallest calculated approvable interval value	Smallest calculated approvable interval value	read/ write	Float 32	1	0x5A	0x417	0x01	0x15	0, 1	0x4365							
d, increment	Smallest available digit	read/ write	Float 32	1	0x5B	0x417	0x01	0x16	0, 1	0x4366	X	X	X		X	X	

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Nmax (Maximal capacity)	Scale/Sensor capacity	read/ write	Float 32	1	0x5C	0x417	0x01	0x17	0, 1	0x4367	X	X	X		X	X	X
Automatic zero tracking	Enable / Disable auto zero function **Parameter**: 0 = Disabled 1 = Enabled	read/ write	Byte, 1	1	0x63	0x417	0x01	0x1E	0, 1	0x436E				X	X	X	X
Zeroing at start-up	Enable / Disable zeroing mode at startup **Parameter**: 0 = Disabled 1 = Enabled	read/ write	Byte, 1	1	0x64	0x417	0x01	0x1F	0, 1	0x436F				X	X	X	X
Report Raw load cell counts	Filtered load cell value in counts	Read	Unsigned Long	1	0x66	0x417	0x01	0x21	0,1	0x4371					X	X	
Report gross weight from each LC	Reports gross weight value from each individual load cell. Placed into 15 element array of floating point values. The first element is the total gross weight for the scale. Individual weight values follow in subsequent elements of the array. If not all possible load cells are used, a value of 0 will be reported in all unused array elements.	Read	Struct(Float 32*15)	2	0xB0	0x417	0x01	0x24	0,1	0x4374			X			X	
Report net weight from each LC	Reports net weight value from each individual load cell. Placed into 15 element array of floating point values. The first element is the total net weight for the scale. Individual weight values follow in subsequent elements of the array. If not all possible load cells are used, a value of 0 will be reported in all unused array elements.	Read	Struct(Float 32*15)	2	0xB1	0x417	0x01	0x25	0,1	0x4375			X			X	
Report/Write #1 Input Polarity	Determines the polarity of the input at setup.	Read/ write	byte, 1	2	0x10	0x418	0x01	0x01	0, 1	0x4401		X	X	X			
Report/Write #1 Input Assignment	Application dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	Read/ write	byte, 1	2	0x11	0x418	0x01	0x02	0, 1	0x4402		X	X	X	X	X	X
Report/Write #1 trig mode (edge)	Input is triggered on the leading (1) or lagging edge(0)	Read/ write	Byte, 1	2	0x12	0x418	0x01	0x03	0,1	0x4403					X	X	X
Report/Write #2 Input Polarity	Determines the polarity of the input at setup.	Read/ write	byte, 1	2	0x13	0x418	0x01	0x04	0, 1	0x4404		X	X	X			
Report/Write #2 Input Assignment	Application dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	Read/ write	byte, 1	2	0x14	0x418	0x01	0x05	0, 1	0x4405		X	X	X	X	X	X
Report/Write #2 trig mode (edge)	Input is triggered on the leading (1) or lagging edge(0)	Read/ write	byte, 1	2	0x15	0x418	0x01	0x06	0,1	0x4406					X	X	X
Report/Write #3 Input Polarity	Determines the polarity of the input at setup.	Read/ write	byte, 1	2	0x16	0x418	0x01	0x07	0, 1	0x4407		X	X	X			
Report/Write #3 Input Assignment	Application dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	Read/ write	byte, 1	2	0x17	0x418	0x01	0x08	0, 1	0x4408		X	X	X	X	X	X
Report/Write #3 trig mode (edge)	Input is triggered on the leading (1) or lagging edge(0)	Read/ write	byte, 1	2	0x18	0x418	0x01	0x09	0,1	0x4409					X	X	X
Report/Write Output Polarity	Read/Write Output polarity	Read/ write	byte, 1	2	0x1C	0x418	0x01	0x0D	0, 1	0x440D		X	X	X			
Report/Write #1 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	Read/ write	byte, 1	2	0x1D	0x418	0x01	0x0E	0, 1	0x440E		X	X	X	X	X	X
Report/Write #2 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	Read/ write	byte, 1	2	0x24	0x418	0x01	0x15	0, 1	0x4415		X	X	X	X	X	X
Report/Write #3 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	Read/ write	byte, 1	2	0x2B	0x418	0x01	0x1C	0, 1	0x441C		X	X	X	X	X	X
Report/Write #4 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	Read/ write	byte, 1	2	0x32	0x418	0x01	0x23	0, 1	0x4423		X	X	X	X	X	X
Report/Write #5 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	Read/ write	byte, 1	2	0x39	0x418	0x01	0x2A	0, 1	0x442A		X	X	X	X	X	X
Last dynamic weight value	Last dynamic weight value	Read	Float 32	2	0x90	0x41A	0x01	0x01	0, 1	0x4501		X					
Calculated number of dynamic weighments	Calculated number of dynamic weighments (counts)	Read	Uint 32	2	0x92	0x41A	0x01	0x03	0, 1	0x4503		X					
Maximum dynamic weight value	Max dynamic weight	Read	Float 32	2	0x93	0x41A	0x01	0x04	0, 1	0x4504		X					

Command	Description	Read/Write	Data Type	PROFIBUS slot	PROFIBUS Index	EIP Class Code	EIP Instance Values	EIP Attribute #	PROFINET slot + subslot	PROFINET Index	ACT350	ACT350 DIO	ACT350 POWERCELL	ACT350 Precision	IND360 Analog	IND360 POWERCELL	IND360 Precision
Minimum dynamic weight value	Min dynamic weight	Read	Float 32	2	0x94	0x41A	0x01	0x05	0, 1	0x4505		X					
Mean dynamic weight value	Average dynamic weight	Read	Float 32	2	0x95	0x41A	0x01	0x06	0, 1	0x4506		X					
Standard deviation of last 20 dynamic weighments	Standard deviation of last 20 dynamic weighments	Read	Float 32	2	0x96	0x41A	0x01	0x07	0, 1	0x4507		X					
Input setup using structure (DIN & SICS string)	Input setup using structure (DIN & SICS string)	read/ write	Struct	2	0x41	0x418	0x01	0x32	0, 1	0x4432	X	X					
Write Output Signal	Manually control output ports of device. High value will force the corresponding output to turn high. e.g. When using little Endian format, 00011101 will cause output 0, 2, 3 and 4 high. Output 1 will be low.	Write	Byte, 1	2	0x42	0x418	0x01	0x33	0, 1	0x4433		X	X				
Report Target weight	Report Target Weight	read	Float 32	2	0x5F	0x419	0x01	0x10	0, 1	0x4460	X	X					
Report/Write #4 trig mode (edge)	Input is triggered on the leading (1) or lagging edge(0)	read/ write	Byte, 1	3	0x22	0x418	0x01	0x43	0,1	0x4603					X	X	X
Report/Write #4 input Assignment	Application dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero, 4…	read/ write	Byte, 1	3	0x21	0x418	0x01	0x42	0,1	0x4602					X	X	X
Report/Write #5 trig mode (edge)	Input is triggered on the leading (1) or lagging edge(0)	read/ write	Byte, 1	3	0x25	0x418	0x01	0x46	0,1	0x4606					X	X	X
Report/Write #5 input Assignment	Application dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero, 4…	read/ write	Byte, 1	3	0x24	0x418	0x01	0x45	0,1	0x4605					X	X	X
Report/write #6 output assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	read/ write	Byte, 1	3	0x27	0x418	0x01	0x48	0, 1	0x4608					X	X	X
Report/write #7 output assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	read/ write	Byte, 1	3	0x2E	0x418	0x01	0x4F	0, 1	0x460F					X	X	X
Report/write #8 output assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	read/ write	Byte, 1	3	0x35	0x418	0x01	0x56	0, 1	0x4616					X	X	X
Read float32	Test floating point variable – always reads 123.45 – no write permitted	read	Float 32	1	0x0A	0x30F	0x01	0x01	0, 1	0x5000	X	X	X	X			
Write float32	Test floating point variable – no usage in device except for test	write	Float 32	1	0x0B	0x30F	0x01	0x02	0, 0	0x5001	X	X	X	X			
Read uint16	Test integer variable – always reads 9876	read	Uint 8	1	0x0C	0x30F	0x01	0x03	0, 1	0x5002	X	X	X	X			
Write uint16	Test integer variable – no usage in device except for test	write	Uint 8	1	0x0D	0x30F	0x01	0x04	0, 1	0x5003	X	X	X	X			
Read string	Test string variable – always read "ABCD"	read	String 160	1	0x0E	0x30F	0x01	0x05	0, 1	0x5004	X	X	X	X			
Write string	Test string variable – always read "ABCD"	write	String 160	1	0x0F	0x30F	0x01	0x06	0, 1	0x5005	X	X	X	X			
Read uint32	Test long integer variable – always reads 98765	read	Long	1	0x10	0x30F	0x01	0x07	0, 1	0x5006	X	X	X	X			
Write uint32	Test long integer variable – no usage in device except for test	write	Long	1	0x11	0x30F	0x01	0x08	0, 1	0x5007	X	X	X	X			
Read uint8	Test byte variable – always reads 56h	read	byte, 1	1	0x12	0x30F	0x01	0x09	0, 1	0x5008	X	X	X	X			
Write uint8	Test byte variable – no usage in device except for test	write	byte, 1	1	0x13	0x30F	0x01	0x10	0, 1	0x5009	X	X	X	X			

5.1. Acyclic Commands – IND360 Dynamic Application

The acyclic commands listed below are for use with the IND360 Dynamic application. Please note that these same commands will not necessarily be supported or may work differently if used with anything other than the IND360 Dynamic application. Please see the section specific to the application installed on your device if using something other than the IND360 Dynamic application. More details about the IND360 Dynamic Application can be found in the IND360 Dynamic Application Manual.

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Photoeye Mode **Parameter**: 0 = Dual photoeye 1 = Single Photoeye	READ/ WRITE	Float 32	3	0xA0	0x41B	0x01	0x01	0, 1	0x4701	X		
Installation Position **Parameter**: 0 = Front 1 = Rear	READ/ WRITE	Float 32	3	0xA1	0x41B	0x01	0x02	0, 1	0x4702	X		
Multiple Objects **Parameter**: 0 = False 1 = True	READ/ WRITE	Float 32	3	0xA2	0x41B	0x01	0x03	0, 1	0x4703	X		
Burr Time **Parameter**: 1-1000 ms	READ/ WRITE	Float 32	3	0xA3	0x41B	0x01	0x04	0, 1	0x4704	X		
Interval Time **Parameter**: 1-1000 ms	READ/ WRITE	Float 32	3	0xA4	0x41B	0x01	0x05	0, 1	0x4705	X		
Object Length **Parameter**: < Belt Length	READ/ WRITE	Float 32	3	0xA5	0x41B	0x01	0x06	0, 1	0x4706	X		
Belt Speed **Parameter**: 1-10000 rpm	READ/ WRITE	Float 32	3	0xA6	0x41B	0x01	0x07	0, 1	0x4707	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Belt Length **Parameter**: 1-5000 cm	READ/ WRITE	Float 32	3	0xA7	0x41B	0x01	0x08	0, 1	0x4708	X		
Photoeye Polarity **Parameter**: 0 = High Level 1 = Low Level	READ/ WRITE	Float 32	3	0xA8	0x41B	0x01	0x09	0, 1	0x4709	X		
Min. Weighing Time **Parameter**: 1-5000 ms	READ/ WRITE	Float 32	3	0xA9	0x41B	0x01	0x0A	0, 1	0x470A	X		
Max. Weighing Time **Parameter**: Min. Weighing Time – 10000 ms	READ/ WRITE	Float 32	3	0xAA	0x41B	0x01	0x0B	0, 1	0x470B	X		
Filter Mode **Parameter**: 0 = Automatic 1 = Manual	READ/ WRITE	Float 32	3	0xAB	0x41B	0x01	0x0C	0, 1	0x470C	X		
Filter Parameter **Parameter**: 1-1000 ms	READ/ WRITE	Float 32	3	0xAC	0x41B	0x01	0x0D	0, 1	0x470D	X		
Compensation Management **Parameter**: 0 = Disable 1 = Enable	READ/ WRITE	Float 32	3	0xAD	0x41B	0x01	0x0E	0, 1	0x470E	X		
Weight 1 – Dynamic Application	READ/ WRITE	Float 32	3	0xAE	0x41B	0x01	0x0F	0, 1	0x470F	X		
Weight 2 – Dynamic Application	READ/ WRITE	Float 32	3	0xAF	0x41B	0x01	0x10	0, 1	0x4710	X		
Weight 3 – Dynamic Application	READ/ WRITE	Float 32	3	0xB0	0x41B	0x01	0x11	0, 1	0x4711	X		
Weight 4 – Dynamic Application	READ/ WRITE	Float 32	3	0xB1	0x41B	0x01	0x12	0, 1	0x4712	X		
Weight 5 – Dynamic Application	READ/ WRITE	Float 32	3	0xB2	0x41B	0x01	0x13	0, 1	0x4713	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Factor 1 – Dynamic Application **Parameter**: 0.1-9	READ/ WRITE	Float 32	3	0xB3	0x41B	0x01	0x14	0, 1	0x4714	X		
Factor 2 – Dynamic Application **Parameter**: 0.1-9	READ/ WRITE	Float 32	3	0xB4	0x41B	0x01	0x15	0, 1	0x4715	X		
Factor 3 – Dynamic Application **Parameter**: 0.1-9	READ/ WRITE	Float 32	3	0xB5	0x41B	0x01	0x16	0, 1	0x4716	X		
Factor 4 – Dynamic Application **Parameter**: 0.1-9	READ/ WRITE	Float 32	3	0xB6	0x41B	0x01	0x17	0, 1	0x4717	X		
Factor 5 – Dynamic Application **Parameter**: 0.1-9	READ/ WRITE	Float 32	3	0xB7	0x41B	0x01	0x18	0, 1	0x4718	X		
Completed Time Signal **Parameter**: 1-5000 ms	READ/ WRITE	Float 32	3	0xB8	0x41B	0x01	0x19	0, 1	0x4719	X		
Match Weighing Time **Parameter**: Weighing Time – 5000 ms	READ/ WRITE	Float 32	3	0xB9	0x41B	0x01	0x1A	0, 1	0x471A	X		
Object Counts **Parameter**: 0-5	READ	Float 32	3	0xBA	0x41B	0x01	0x1B	0, 1	0x471B	X		
Total Counts **Parameter**: 0-99,999,999	READ	Float 32	3	0xBB	0x41B	0x01	0x1C	0, 1	0x471C	X		
Dynamic Weight	READ	Float 32	3	0xBC	0x41B	0x01	0x1D	0, 1	0x471D	X		
Real Weighing Time	READ	Float 32	3	0xBD	0x41B	0x01	0x1E	0, 1	0x471E	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Valid Weight Counts **Parameter**: 0-99,999,999	WRITE	Float 32	3	0xC3	0x41B	0x01	0x24	0, 1	0x4724	X		
Invalid Weight Counts **Parameter**: 0-99,999,999	WRITE	Float 32	3	0xC4	0x41B	0x01	0x25	0, 1	0x4725	X		
Control Command – Dynamic Application **Parameter**: 0 = Stop 1 = Run	READ	Float 32	3	0xC5	0x41B	0x01	0x26	0, 1	0x4726	X		
Clear Statistics **Parameter**: 1 = clear	READ	Float 32	3	0xC6	0x41B	0x01	0x27	0, 1	0x4727	X		
Zero State **Parameter**: 0-100 d	READ/ WRITE	Float 32	3	0xC7	0x41B	0x01	0x28	0, 1	0x4728	X		
Empty State **Parameter**: 0-1000d	READ/ WRITE	Float 32	3	0xC8	0x41B	0x01	0x29	0, 1	0x4729	X		
Over Weight **Parameter**: 0-capacity	READ/ WRITE	Float 32	3	0xC9	0x41B	0x01	0x2A	0, 1	0x472A	X		
Under Weight **Parameter**: 0-capacity	READ/ WRITE	Float 32	3	0xCA	0x41B	0x01	0x2B	0, 1	0x472B	X		
Photoeye Timeout **Parameter**: 0-5000 ms	READ/ WRITE	Float 32	3	0xCB	0x41B	0x01	0x2C	0, 1	0x472C	X		
Dynamic Zero Enable **Parameter**: 0 = Disable 1 = Enable	READ/ WRITE	Float 32	3	0xCD	0x41B	0x02	0x2E	0, 2	0x472E	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Dynamic Zero Threshold **Parameter**: 0-capacity	READ/ WRITE	Float 32	3	0xCE	0x41B	0x03	0x2F	0, 3	0x472F	X		
Dynamic Zero Delay **Parameter**: 1-999 ms	READ/ WRITE	Float 32	3	0xCF	0x41B	0x04	0x30	0, 4	0x4730	X		
Dynamic Zero Interval **Parameter**: 1-999 ms	READ/ WRITE	Float 32	3	0xD0	0x41B	0x05	0x31	0, 5	0x4731	X		
Input1 Assignment **Parameter**: 0 = None 7 = Run/Stop 8 = Front Photo Eye 9 = Rear Photo Eye 10 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x11	0x418	0x01	0x02	0, 1	0x4402	X		
Input2 Assignment **Parameter**: 0 = None 7 = Run/Stop 8 = Front Photo Eye 9 = Rear Photo Eye 10 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x14	0x418	0x01	0x05	0,1	0x4405	X		
Input3 Assignment **Parameter**: 0 = None 7 = Run/Stop 8 = Front Photo Eye 9 = Rear Photo Eye 10 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x17	0x418	0x01	0x08	0,1	0x4408	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Input4 Assignment **Parameter**: 0 = None 7 = Run/Stop 8 = Front Photo Eye 9 = Rear Photo Eye 10 = Clear Statistics	READ/ WRITE	Byte, 1	3	0x21	0x418	0x01	0x42	0,1	0x4602	X		
Input5 Assignment **Parameter**: 0 = None 7 = Run/Stop 8 = Front Photo Eye 9 = Rear Photo Eye 10 = Clear Statistics	READ/ WRITE	Byte, 1	3	0x24	0x418	0x01	0x45	0,1	0x4605	X		
Output1 Assignment **Parameter**: 0 = None 15 = Run/Stop 16 = Ready 17 = Complete 18 = Zero State 19 = Empty State 20 = Alarm 21 = Timed Zero	READ/ WRITE	Byte, 1	2	0x1D	0x418	0x01	0x0E	0,1	0x440E	X		
Output2 Assignment **Parameter**: 0 = None 15 = Run/Stop 16 = Ready 17 = Complete 18 = Zero State 19 = Empty State 20 = Alarm 21 = Timed Zero	READ/ WRITE	Byte, 1	2	0x24	0x418	0x01	0x15	0, 1	0x4415	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Output3 Assignment **Parameter**: 0 = None 15 = Run/Stop 16 = Ready 17 = Complete 18 = Zero State 19 = Empty State 20 = Alarm 21 = Timed Zero	READ/ WRITE	Byte, 1	2	0x2B	0x418	0x01	0x1C	0, 1	0x441C	X		
Output4 Assignment **Parameter**: 0 = None 15 = Run/Stop 16 = Ready 17 = Complete 18 = Zero State 19 = Empty State 20 = Alarm 21 = Timed Zero	READ/ WRITE	Byte, 1	2	0x32	0x418	0x01	0x23	0, 1	0x4423	X		
Output5 Assignment **Parameter**: 0 = None 15 = Run/Stop 16 = Ready 17 = Complete 18 = Zero State 19 = Empty State 20 = Alarm 21 = Timed Zero	READ/ WRITE	Byte, 1	2	0x39	0x418	0x01	0x2A	0, 1	0x442A	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Output6 Assignment **Parameter**: 0 = None 15 = Run/Stop 16 = Ready 17 = Complete 18 = Zero State 19 = Empty State 20 = Alarm 21 = Timed Zero	READ/ WRITE	Byte, 1	3	0x27	0x418	0x01	0x48	0,1	0x4608	X		
Output7 Assignment **Parameter**: 0 = None 15 = Run/Stop 16 = Ready 17 = Complete 18 = Zero State 19 = Empty State 20 = Alarm 21 = Timed Zero	READ/ WRITE	Byte, 1	3	0x2E	0x418	0x01	0x4F	0,1	0x460F	X		
Output8 Assignment **Parameter**: 0 = None 15 = Run/Stop 16 = Ready 17 = Complete 18 = Zero State 19 = Empty State 20 = Alarm 21 = Timed Zero	READ/ WRITE	Byte, 1	3	0x35	0x418	0x01	0x56	0,1	0x4616	X		

5.2. Acyclic Commands – IND360 Tank Vessel Application

The acyclic commands listed below are for use with the IND360 Tank Vessel application. Please note that these same commands will not necessarily be supported or may work differently if used with anything other than the IND360 Tank Vessel application. Please see the section specific to the application installed on your device if using something other than the IND360 Tank Vessel application. More details about the IND360 Tank Vessel Application can be found in the IND360 Tank Vessel Application Manual.

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Target Source **Parameter**: 0 – Tank Capacity	READ/ WRITE	Float 32	3	0xA0	0x41B	0x01	0x01	0, 1	0x4701	X	X	X
Tank Capacity **Parameter**: 0 – Scale Capacity	READ/ WRITE	Float 32	3	0xA1	0x41B	0x01	0x02	0, 1	0x4702	X	X	X
Upper Limit **Parameter**: 0 – Tank Capacity	READ/ WRITE	Float 32	3	0xA2	0x41B	0x01	0x03	0, 1	0x4703	X	X	X
Lower Limit **Parameter**: 0 – Upper Limit	READ/ WRITE	Float 32	3	0xA3	0x41B	0x01	0x04	0, 1	0x4704	X	X	X
Lower Limit Alarm **Parameter**: 0 – Lower Limit	READ/ WRITE	Float 32	3	0xA4	0x41B	0x01	0x05	0, 1	0x4705	X	X	X
Over Limit Alarm **Parameter**: 0 – Tank Capacity	READ/ WRITE	Float 32	3	0xA5	0x41B	0x01	0x06	0, 1	0x4706	X	X	X
Current Weight	READ	Float 32	3	0xA6	0x41B	0x01	0x07	0, 1	0x4707	X	X	X
Percentage of tank filled based on capacity	READ	Float 32	3	0xA7	0x41B	0x01	0x08	0, 1	0x4708	X	X	X
Clear Statistics **Parameter**: 0 = Disable 1 = Enable (Will automatically disable once complete)	WRITE	Float 32	3	0xA8	0x41B	0x01	0x09	0, 1	0x4709	X	X	X

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Lower Limit Counts **Parameter**: 0 – 99,999,999	READ	Float 32	3	0xA9	0x41B	0x01	0x0A	0, 1	0x470A	X	X	X
Upper Limit Counts **Parameter**: 0 – 99,999,999	READ	Float 32	3	0xAA	0x41B	0x01	0x0B	0, 1	0x470B	X	X	X
Refill Counts **Parameter**: 0 – 99,999,999	READ	Float 32	3	0xAB	0x41B	0x01	0x0C	0, 1	0x470C	X	X	X
Control Command **Parameter**: 0 = Stop 1 = Run	WRITE	Float 32	3	0xAC	0x41B	0x01	0x0D	0, 1	0x470D	X	X	X
Input1 Assignment **Parameter**: 0 = None 1 = Tare 2 = Zero 3 = Print 4 = Clear Tare 6 = Silence Alarm 7 = Run/Stop 8 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x11	0x418	0x01	0x02	0, 1	0x4402	X	X	X
Input2 Assignment **Parameter**: 0 = None 1 = Tare 2 = Zero 3 = Print 4 = Clear Tare 6 = Silence Alarm 7 = Run/Stop 8 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x14	0x418	0x01	0x05	0,1	0x4405	X	X	X

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Input3 Assignment **Parameter**: 0 = None 1 = Tare 2 = Zero 3 = Print 4 = Clear Tare 6 = Silence Alarm 7 = Run/Stop 8 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x17	0x418	0x01	0x08	0,1	0x4408	X	X	X
Input4 Assignment **Parameter**: 0 = None 1 = Tare 2 = Zero 3 = Print 4 = Clear Tare 6 = Silence Alarm 7 = Run/Stop 8 = Clear Statistics	READ/ WRITE	Byte, 1	3	0x21	0x418	0x01	0x42	0,1	0x4602	X	X	X
Input5 Assignment **Parameter**: 0 = None 1 = Tare 2 = Zero 3 = Print 4 = Clear Tare 6 = Silence Alarm 7 = Run/Stop 8 = Clear Statistics	READ/ WRITE	Byte, 1	3	0x24	0x418	0x01	0x45	0,1	0x4605	X	X	X

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Output1 Assignment **Parameter**: 0 = None 1 = Center of Zero 2 = Over Capacity 3 = Under Zero 4 = Motion 5 = Net 15 = Upper Limit 16 = Lower Limit 17 = Refill 18 = Alarm	READ/ WRITE	Byte, 1	2	0x1D	0x418	0x01	0x0E	0,1	0x440E	X	X	X
Output2 Assignment **Parameter**: 0 = None 1 = Center of Zero 2 = Over Capacity 3 = Under Zero 4 = Motion 5 = Net 15 = Upper Limit 16 = Lower Limit 17 = Refill 18 = Alarm	READ/ WRITE	Byte, 1	2	0x24	0x418	0x01	0x15	0, 1	0x4415	X	X	X
Output3 Assignment **Parameter**: 0 = None 1 = Center of Zero 2 = Over Capacity 3 = Under Zero 4 = Motion 5 = Net 15 = Upper Limit 16 = Lower Limit 17 = Refill 18 = Alarm	READ/ WRITE	Byte, 1	2	0x2B	0x418	0x01	0x1C	0, 1	0x441C	X	X	X

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Output4 Assignment **Parameter**: 0 = None 1 = Center of Zero 2 = Over Capacity 3 = Under Zero 4 = Motion 5 = Net 15 = Upper Limit 16 = Lower Limit 17 = Refill 18 = Alarm	READ/ WRITE	Byte, 1	2	0x32	0x418	0x01	0x23	0, 1	0x4423	X	X	X
Output5 Assignment **Parameter**: 0 = None 1 = Center of Zero 2 = Over Capacity 3 = Under Zero 4 = Motion 5 = Net 15 = Upper Limit 16 = Lower Limit 17 = Refill 18 = Alarm	READ/ WRITE	Byte, 1	2	0x39	0x418	0x01	0x2A	0, 1	0x442A	X	X	X
Output6 Assignment **Parameter**: 0 = None 1 = Center of Zero 2 = Over Capacity 3 = Under Zero 4 = Motion 5 = Net 15 = Upper Limit 16 = Lower Limit 17 = Refill 18 = Alarm	READ/ WRITE	Byte, 1	3	0x27	0x418	0x01	0x48	0,1	0x4608	X	X	X

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Output7 Assignment **Parameter**: 0 = None 1 = Center of Zero 2 = Over Capacity 3 = Under Zero 4 = Motion 5 = Net 15 = Upper Limit 16 = Lower Limit 17 = Refill 18 = Alarm	READ/ WRITE	Byte, 1	3	0x2E	0x418	0x01	0x4F	0,1	0x460F	X	X	X
Output8 Assignment **Parameter**: 0 = None 1 = Center of Zero 2 = Over Capacity 3 = Under Zero 4 = Motion 5 = Net 15 = Upper Limit 16 = Lower Limit 17 = Refill 18 = Alarm	READ/ WRITE	Byte, 1	3	0x35	0x418	0x01	0x56	0,1	0x4616	X	X	X

5.3. Acyclic Commands – IND360 Fill Dose Application

The acyclic commands listed below are for use with the IND360 Fill Dose application. Please note that these same commands will not necessarily be supported or may work differently if used with anything other than the IND360 Fill Dose application. Please see the section specific to the application installed on your device if using something other than the IND360 Fill Dose application. More details about the IND360 Fill Dose Application can be found in the IND360 Fill Dose Application Manual.

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Work Mode **Parameter**: 0 = Fill Dump 1 = Refill Dose	READ/WRITE	Float 32	3	0xA0	0x41B	0x01	0x01	0, 1	0x4701	X		
Feed Speeds **Parameter**: 0 = One Speed 1 = Two Speed 2 = Three Speed	READ/WRITE	Float 32	3	0xA1	0x41B	0x01	0x02	0, 1	0x4702	X		
Output Type **Parameter**: 0 = Concurrent 1 = Independent	READ/WRITE	Float 32	3	0xA2	0x41B	0x01	0x03	0, 1	0x4703	X		
Complete Mode **Parameter**: 0 = Weight Mode 1 = Time Mode	READ/WRITE	Float 32	3	0xA3	0x41B	0x01	0x04	0, 1	0x4704	X		
Clear Statistics **Parameter**: 0 = Disable 1 = Enable (Will automatically disable once complete)	WRITE	Float 32	3	0xA5	0x41B	0x01	0x06	0, 1	0x4706	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Target Source **Parameter**: 0 = Gross 1 = Net	READ/WRITE	Float 32	3	0xA6	0x41B	0x01	0x07	0, 1	0x4707	X		
Target **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xA7	0x41B	0x01	0x08	0, 1	0x4708	X		
Spill **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xA8	0x41B	0x01	0x09	0, 1	0x4709	X		
Fine Feed **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xA9	0x41B	0x01	0x0A	0, 1	0x470A	X		
Fast Feed **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xAA	0x41B	0x01	0x0B	0, 1	0x470B	X		
Heel Weight **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xAB	0x41B	0x01	0x0C	0, 1	0x470C	X		
+ Tolerance **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xAC	0x41B	0x01	0x0D	0, 1	0x470D	X		
- Tolerance **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xAD	0x41B	0x01	0x0E	0, 1	0x470E	X		
Upper Limit **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xAE	0x41B	0x01	0x0F	0, 1	0x470F	X		
Lower Limit **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xAF	0x41B	0x01	0x10	0, 1	0x4710	X		
Container Tare Max **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xB0	0x41B	0x01	0x11	0, 1	0x4711	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Container Tare Min **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xB1	0x41B	0x01	0x12	0, 1	0x4712	X		
Inhibit Time **Parameter**: 0 – 9.99 seconds	READ/WRITE	Float 32	3	0xB2	0x41B	0x01	0x13	0, 1	0x4713	X		
Stable Time **Parameter**: 0 – 9.99 seconds	READ/WRITE	Float 32	3	0xB3	0x41B	0x01	0x14	0, 1	0x4714	X		
Complete Time **Parameter**: 0 – 9.99 seconds	READ/WRITE	Float 32	3	0xB4	0x41B	0x01	0x15	0, 1	0x4715	X		
Control Timeout **Parameter**: 0 – 99.99 seconds	READ/WRITE	Float 32	3	0xB5	0x41B	0x01	0x16	0, 1	0x4716	X		
Process Timeout **Parameter**: 0 – 99.99 seconds	READ/WRITE	Float 32	3	0xB6	0x41B	0x01	0x17	0, 1	0x4717	X		
Self Learning Mode **Parameter**: 0 = None 1 = Spill Learning 2 = All Learning	READ/WRITE	Float 32	3	0xB7	0x41B	0x01	0x18	0, 1	0x4718	X		
Spill Adjust Period **Parameter**: 1 - 9	READ/WRITE	Float 32	3	0xB8	0x41B	0x01	0x19	0, 1	0x4719	X		
Spill Adjust Factor **Parameter**: 0.1 – 0.9	READ/WRITE	Float 32	3	0xB9	0x41B	0x01	0x1A	0, 1	0x471A	X		
Spill Adjust Range **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xBA	0x41B	0x01	0x1B	0, 1	0x471B	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Control Reliability **Parameter**: 3 = 93.32% 4 = 99.379% 5 = 99.977% 6 = 99.9997%	READ/WRITE	Float 32	3	0xBC	0x41B	0x01	0x1D	0, 1	0x471D	X		
Learning Samples **Parameter**: 6, 9, 12, 15, 9999	READ/WRITE	Float 32	3	0xBD	0x41B	0x01	0x1E	0, 1	0x471E	X		
Adjust Factor **Parameter**: 0.1 – 0.9	READ/WRITE	Float 32	3	0xBE	0x41B	0x01	0x1F	0, 1	0x471F	X		
Filling Dosing Weight	READ	Float 32	3	0xBF	0x41B	0x01	0x20	0, 1	0x4720	X		
Min Cycle Time	READ	Float 32	3	0xC0	0x41B	0x01	0x21	0, 1	0x4721	X		
Max Cycle Time	READ	Float 32	3	0xC1	0x41B	0x01	0x22	0, 1	0x4722	X		
Total Cycle Weight	READ	Float 32	3	0xC2	0x41B	0x01	0x23	0, 1	0x4723	X		
Total Buckets	READ	Float 32	3	0xC3	0x41B	0x01	0x24	0, 1	0x4724	X		
Valid Buckets	READ	Float 32	3	0xC4	0x41B	0x01	0x25	0, 1	0x4725	X		
Control Command **Parameter**: 0 = Stop 1 = Run 2 = Pause	WRITE	Float 32	3	0xC5	0x41B	0x01	0x26	0, 1	0x4726	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Input1 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Pause 9 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x11	0x418	0x01	0x02	0, 1	0x4402	X		
Input2 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Pause 9 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x14	0x418	0x01	0x05	0,1	0x4405	X		
Input3 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Pause 9 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x17	0x418	0x01	0x08	0,1	0x4408	X		
Input4 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Pause 9 = Clear Statistics	READ/ WRITE	Byte, 1	3	0x21	0x418	0x01	0x42	0,1	0x4602	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Input5 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Pause 9 = Clear Statistics	READ/ WRITE	Byte, 1	3	0x24	0x418	0x01	0x45	0,1	0x4605	X		
Output1 Assignment **Parameter**: 0 = None 15 = Fast Feed 16 = Fine Feed 17 = Spill 18 = Complete 19 = Dump 20 = Refill 21 = Run	READ/ WRITE	Byte, 1	2	0x1D	0x418	0x01	0x0E	0,1	0x440E	X		
Output2 Assignment **Parameter**: 0 = None 15 = Fast Feed 16 = Fine Feed 17 = Spill 18 = Complete 19 = Dump 20 = Refill 21 = Run	READ/ WRITE	Byte, 1	2	0x24	0x418	0x01	0x15	0, 1	0x4415	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Output3 Assignment **Parameter**: 0 = None 15 = Fast Feed 16 = Fine Feed 17 = Spill 18 = Complete 19 = Dump 20 = Refill 21 = Run	READ/ WRITE	Byte, 1	2	0x2B	0x418	0x01	0x1C	0, 1	0x441C	X		
Output4 Assignment **Parameter**: 0 = None 15 = Fast Feed 16 = Fine Feed 17 = Spill 18 = Complete 19 = Dump 20 = Refill 21 = Run	READ/ WRITE	Byte, 1	2	0x32	0x418	0x01	0x23	0, 1	0x4423	X		
Output5 Assignment **Parameter**: 0 = None 15 = Fast Feed 16 = Fine Feed 17 = Spill 18 = Complete 19 = Dump 20 = Refill 21 = Run	READ/ WRITE	Byte, 1	2	0x39	0x418	0x01	0x2A	0, 1	0x442A	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Output6 Assignment **Parameter**: 0 = None 15 = Fast Feed 16 = Fine Feed 17 = Spill 18 = Complete 19 = Dump 20 = Refill 21 = Run	READ/ WRITE	Byte, 1	3	0x27	0x418	0x01	0x48	0,1	0x4608	X		
Output7 Assignment **Parameter**: 0 = None 15 = Fast Feed 16 = Fine Feed 17 = Spill 18 = Complete 19 = Dump 20 = Refill 21 = Run	READ/ WRITE	Byte, 1	3	0x2E	0x418	0x01	0x4F	0,1	0x460F	X		
Output8 Assignment **Parameter**: 0 = None 15 = Fast Feed 16 = Fine Feed 17 = Spill 18 = Complete 19 = Dump 20 = Refill 21 = Run	READ/ WRITE	Byte, 1	3	0x35	0x418	0x01	0x56	0,1	0x4616	X		

5.4. Acyclic Commands – IND360 Rate Control Application

The cyclic commands listed below are for use with the IND360 Rate Control application. Please note that these same commands will not necessarily be supported or may work differently if used with anything other than the IND360 Rate Control application. Please see the section specific to the application installed on your device if using something other than the IND360 Rate Control application. More details about the IND360 Rate Control Application can be found in the IND360 Rate Control Application Manual.

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Flow Target **Parameter**: 0.1 – Rated Flow	READ/WRITE	Float 32	3	0xA0	0x41B	0x01	0x01	0, 1	0x4701	X		
Flow Control Mode **Parameter**: 0 = Flow Control Mode 1 = Fixed Frequency Control Mode 2 = Rapid Cal 3 = Step Cal	READ/WRITE	Float 32	3	0xA1	0x41B	0x01	0x02	0, 1	0x4702	X		
Refill Control Mode **Parameter**: 0 = Fixed Frequency 1 = Follow Mode 2 = Level Switch Mode	READ/WRITE	Float 32	3	0xA2	0x41B	0x01	0x03	0, 1	0x4703	X		
Upper Limit **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xA3	0x41B	0x01	0x04	0, 1	0x4704	X		
Lower Limit **Parameter**: 0 - Capacity	READ/WRITE	Float 32	3	0xA4	0x41B	0x01	0x05	0, 1	0x4705	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Control Rate Upper Limit **Parameter**: 0 - 1	READ/WRITE	Float 32	3	0xA5	0x41B	0x01	0x06	0, 1	0x4706	X		
Control Rate Lower Limit **Parameter**: 0 - 1	READ/WRITE	Float 32	3	0xA6	0x41B	0x01	0x07	0, 1	0x4707	X		
Rated Flow **Parameter**: 0.1 – 99,999	READ/WRITE	Float 32	3	0xA7	0x41B	0x01	0x08	0, 1	0x4708	X		
Control Filter **Parameter**: 0 - 9	READ/WRITE	Float 32	3	0xA8	0x41B	0x01	0x09	0, 1	0x4709	X		
Flow Filter **Parameter**: 0 - 9	READ/WRITE	Float 32	3	0xA9	0x41B	0x01	0x0A	0, 1	0x470A	X		
Control Tolerance **Parameter**: 0 - 1	READ/WRITE	Float 32	3	0xAA	0x41B	0x01	0x0B	0, 1	0x470B	X		
Flow Tolerance **Parameter**: 0 - 1	READ/WRITE	Float 32	3	0xAB	0x41B	0x01	0x0C	0, 1	0x470C	X		
Test Time **Parameter**: 0 – 9,999 Seconds	READ/WRITE	Float 32	3	0xAC	0x41B	0x01	0x0D	0, 1	0x470D	X		
Flow Stability Range **Parameter**: 0 - 20	READ/WRITE	Float 32	3	0xAD	0x41B	0x01	0x0E	0, 1	0x470E	X		
Flow Stability Time **Parameter**: 0 - 20	READ/WRITE	Float 32	3	0xAE	0x41B	0x01	0x0F	0, 1	0x470F	X		
Start Delay Time **Parameter**: 0 – 9,999	READ/WRITE	Float 32	3	0xAF	0x41B	0x01	0x10	0, 1	0x4710	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Refill Delay Time **Parameter**: 0 – 9,999	READ/WRITE	Float 32	3	0xB0	0x41B	0x01	0x11	0, 1	0x4711	X		
PID Mode **Parameter**: 0 = Auto PID 1 = Manual PID	READ/WRITE	Float 32	3	0xB1	0x41B	0x01	0x12	0, 1	0x4712	X		
Proportional Term (P) **Parameter**: 0 – 255	READ/WRITE	Float 32	3	0xB2	0x41B	0x01	0x13	0, 1	0x4713	X		
Intergral Term (I) **Parameter**: 0 – 255	READ/WRITE	Float 32	3	0xB3	0x41B	0x01	0x14	0, 1	0x4714	X		
Derivative Term (D) **Parameter**: 0 – 255	READ/WRITE	Float 32	3	0xB4	0x41B	0x01	0x15	0, 1	0x4715	X		
Control Rate Factor **Parameter**: 0 – 2	READ/WRITE	Float 32	3	0xB5	0x41B	0x01	0x16	0, 1	0x4716	X		
Refill Control Rate Factor **Parameter**: 0 – 2	READ/WRITE	Float 32	3	0xB6	0x41B	0x01	0x17	0, 1	0x4717	X		
Refill Control Rate Target **Parameter**: 0 - 1	READ/WRITE	Float 32	3	0xB7	0x41B	0x01	0x18	0, 1	0x4718	X		
Control Rate Target **Parameter**: 0 - 1	READ/WRITE	Float 32	3	0xB8	0x41B	0x01	0x19	0, 1	0x4719	X		
Rapid Cal. Time **Parameter**: 10 - 60	READ/WRITE	Float 32	3	0xB9	0x41B	0x01	0x1A	0, 1	0x471A	X		
20% Flow Rate **Parameter**: 0 – 99,999	READ	Float 32	3	0xBA	0x41B	0x01	0x1B	0, 1	0x471B	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
40% Flow Rate **Parameter**: 0 – 99,999	READ	Float 32	3	0xBB	0x41B	0x01	0x1C	0, 1	0x471C			
60% Flow Rate **Parameter**: 0 – 99,999	READ	Float 32	3	0xBC	0x41B	0x01	0x1D	0, 1	0x471D	X		
80% Flow Rate **Parameter**: 0 – 99,999	READ	Float 32	3	0xBD	0x41B	0x01	0x1E	0, 1	0x471E	X		
100% Flow Rate **Parameter**: 0 – 99,999	READ	Float 32	3	0xBE	0x41B	0x01	0x1F	0, 1	0x471F	X		
Control Rate	READ	Float 32	3	0xBF	0x41B	0x01	0x20	0, 1	0x4720	X		
Refill Time **Parameter**: 0 – 9,999 seconds	READ/WRITE	Float 32	3	0xC0	0x41B	0x01	0x21	0, 1	0x4721	X		
Flow	READ	Float 32	3	0xC1	0x41B	0x01	0x22	0, 1	0x4722	X		
Cumulant	READ	Float 32	3	0xC3	0x41B	0x01	0x24	0, 1	0x4724	X		
Work Cumulant	READ	Float 32	3	0xC4	0x41B	0x01	0x25	0, 1	0x4725	X		
Test Cumulant	READ	Float 32	3	0xC5	0x41B	0x01	0x26	0, 1	0x4726	X		
Control Command **Parameter**: 0 = Stop 1 = Run	WRITE	Float 32	3	0xC6	0x41B	0x01	0x27	0, 1	0x4727	X		
Clear Totalization **Parameter**: 1 = Clear	WRITE	Float 32	3	0xC7	0x41B	0x01	0x28	0, 1	0x4728	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Input1 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Refill 9 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x11	0x418	0x01	0x02	0, 1	0x4402	X		
Input2 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Refill 9 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x14	0x418	0x01	0x05	0,1	0x4405	X		
Input3 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Refill 9 = Clear Statistics	READ/ WRITE	Byte, 1	2	0x17	0x418	0x01	0x08	0,1	0x4408	X		
Input4 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Refill 9 = Clear Statistics	READ/ WRITE	Byte, 1	3	0x21	0x418	0x01	0x42	0,1	0x4602	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Input5 Assignment **Parameter**: 0 = None 6 = Silence Alarm 7 = Run/Stop 8 = Refill 9 = Clear Statistics	READ/ WRITE	Byte, 1	3	0x24	0x418	0x01	0x45	0,1	0x4605	X		
Output1 Assignment **Parameter**: 0 = None 14 = Alarm 15 = Run 16 = Refill	READ/ WRITE	Byte, 1	2	0x1D	0x418	0x01	0x0E	0,1	0x440E	X		
Output2 Assignment **Parameter**: 0 = None 14 = Alarm 15 = Run 16 = Refill	READ/ WRITE	Byte, 1	2	0x24	0x418	0x01	0x15	0, 1	0x4415	X		
Output3 Assignment **Parameter**: 0 = None 14 = Alarm 15 = Run 16 = Refill	READ/ WRITE	Byte, 1	2	0x2B	0x418	0x01	0x1C	0, 1	0x441C	X		
Output4 Assignment **Parameter**: 0 = None 14 = Alarm 15 = Run 16 = Refill	READ/ WRITE	Byte, 1	2	0x32	0x418	0x01	0x23	0, 1	0x4423	X		

Command/Description	Read/Write	Data Type	PROFIBUS Slot	PROFIBUS Index	EIP Class Code	EIP Instance Value	EIP Attribute #	PROFINET Slot + subslot	PROFINET Index	IND360 Analog	IND360 POWERCELL	IND360 Precision
Output5 Assignment **Parameter**: 0 = None 14 = Alarm 15 = Run 16 = Refill	READ/ WRITE	Byte, 1	2	0x39	0x418	0x01	0x2A	0, 1	0x442A	X		
Output6 Assignment **Parameter**: 0 = None 14 = Alarm 15 = Run 16 = Refill	READ/ WRITE	Byte, 1	3	0x27	0x418	0x01	0x48	0,1	0x4608	X		
Output7 Assignment **Parameter**: 0 = None 14 = Alarm 15 = Run 16 = Refill	READ/ WRITE	Byte, 1	3	0x2E	0x418	0x01	0x4F	0,1	0x460F	X		
Output8 Assignment **Parameter**: 0 = None 14 = Alarm 15 = Run 16 = Refill	READ/ WRITE	Byte, 1	3	0x35	0x418	0x01	0x56	0,1	0x4616	X		

6 Frequently Asked Questions

6.1. What is the easiest way to get my SAI device communicating with my automation system?

Mettler Toledo provides various device description files for each SAI device covered in this manual. These files make integration into the automation system quick and easy. Many of these device description files are already installed by default in the latest versions of the most popular automation system configuration programs. If not already installed in your program, available device description files can be found below.

SAI Device	Automation Network	Device Description File	Mettler Toledo Product Page	Downloads Page
ACT350	EtherNet/IP	Add-On Profile (AOP) & Electronic Data Sheet (EDS)	www.mt.com/act350	ACT350 Downloads
ACT350DIO				ACT350DIO Downloads
ACT350POWERCELL			www.mt.com/act350-powercell	ACT350POWERCELL Downloads
ACT350 Precision			www.mt.com/act350-precision	ACT350 Precision Downloads
IND360			www.mt.com/ind360	IND360 Downloads
ACT350	PROFINET	GSDML File	www.mt.com/act350	ACT350 Downloads
ACT350DIO				ACT350DIO Downloads
ACT350POWERCELL			www.mt.com/act350-powercell	ACT350POWERCELL Downloads
ACT350 Precision			www.mt.com/act350-precision	ACT350 Precision Downloads
IND360			www.mt.com/ind360	IND360 Downloads

ACT350	PROFIBUS DP	GSD File	www.mt.com/act350	ACT350 Downloads
ACT350DIO				ACT350DIO Downloads
ACT350POWERCELL			www.mt.com/act350-powercell	ACT350POWERCELL Downloads
ACT350 Precision			www.mt.com/act350-precision	ACT350 Precision Downloads
IND360			www.mt.com/ind360	IND360 Downloads

6.2. What are the Assembly Instance Values for each device covered in this manual?

Device	Block Format	Input	Output
ACT350 Single Port (ACT350-1P)	1 Block	103	100
ACT350 Single Port (ACT350-1P)	2 Blocks	101	100
ACT350 DIO, POWERCELL and Precision (ACT350-2P)	1 Block	103	100
ACT350 DIO, POWERCELL and Precision (ACT350-2P)	2 Blocks	101	100
IND360	2 Blocks	101	100
IND360	8 Blocks	105	100

6.3. How can I tell if my cyclic command executed successfully?

Once the cyclic command has been sent, monitor the response value. If the response value = cyclic command, the cyclic command was executed successfully. If bit 15 of the response value is high, that means an error has occurred when trying to execute the cyclic command.

If bit 15 of the response is low and the response does not equal the command, it could mean the command is still being executed. For example, the cyclic command "tare when stable" (command = 400) will wait for a no-motion before completing the tare. While waiting for a no-motion condition, the response value may equal 2047 (in-process). Eventually, the command will either complete successfully (response = 400) or the process will timeout if the no-motion condition is not met (response bit 15 = 1).

6.4. Is it possible to read gross weight and net weight at the same time?

It is possible to read both gross weight and net weight at the same time if using the SAI 8 block format. The 8 block format is available on the IND360. This format allows for 7 floating point block cyclic commands and 1 status block cyclic command to be executed at the same time.

If using the SAI 1 block or 2 block formats, there is only one floating point block available for cyclic commands at a time. In order to read gross weight and net weight using these formats, the weight commands will need to be cycled repeatedly in the automation system.

6.5. Bit 15 of my Floating Point Block Response is High. What does this mean?

If bit 15 of the response for the floating point block is high, an error has occurred when trying to execute the last cyclic command. The possible errors are:

Bit Value of Response	Decimal Value	Error	Description
1000000000000001	-32767	Invalid Command	Sent when the device determines that the command is known but cannot be executed. This might occur due state restrictions – for example attempting to zero when the scale is outside of acceptable zero range.
1000000000000010	-32766	Timeout Command	Sent when the valid command that is received by the device is unable to execute within a pre-determined time. This might occur for commands that require stable weight before execution, for example.
1000000000000100	-32764	Unknown Command	Sent when the device does not support this information (for example requesting rate values from a device that does not provide rate functionality).
1000000000001000	-32760	Invalid Command Data	Sent when a valid write command is received with an invalid argument (for example one that is smaller or larger than the allowed value).
1000000000010000	-32752	Aborted Command	Sent once a second command to cancel the prior command has been received and processed. This can only occur if the original command 1) permits cancellation, 2) has not already completed successfully, and 3) has not already failed.
1000000000100000	-32736	Step Failed Command	Sent when the device determines that the command's current step has failed. At this point the control system will need to decide whether to abort the sequence (command = 2004), to retry the step (command = 2005), or to skip this step (command = 2006) and try to perform the next step. Not all processes will allow all three of these options – those not permitted will have an invalid command response when the next step command is sent.

6.6. I still don't quite understand how SAI works. What other resources are available?

One of the best ways to understand SAI is to see an example of it. Sample code is provided for each SAI device covered in this manual. Sample code is written for Studio 5000 (EtherNet/IP) and TIA Portal (PROFINET and PROFIBUS DP). The sample code shows how to use cyclic commands such as zero and tare, scale processes like performing a span adjustment via acyclic commands and much more. These functions are contained in Add-On Instructions (AOIs) for EtherNet/IP and Function Blocks for PROFINET and PROFIBUS DP. Even if you do not have access to the software the sample code was written for, detailed engineering notes are available in the sample code download that explain how to use the sample code.

This SAI manual is specific to Mettler Toledo terminals and transmitters. A more detailed manual about SAI called 30588288_Rxx_MAN_UG_SAI_EN.pdf is available. This manual details SAI in a more general sense.

Both the sample code and SAI manual can be found on the downloads page of your SAI device. See the table in Section 5.1 for a link to the downloads page.

If there are still questions, please contact your local Mettler Toledo representative for additional help.

METTLER TOLEDO Service

To protect your product's future:

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use according to these instructions and regular calibration and maintenance by our factory-trained service team ensure dependable and accurate operation, protecting your investment. Contact us about a service agreement tailored to your needs and budget.

We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your product.

www.mt.com
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