Reference Guide

Standard Automation Interface (SAI)
APW Products

METTLER TOLEDO

Contents

1 SAI for APW Products

This manual covers all APW scales that currently support the Standard Automation Interface (SAI) protocol. All firmware versions of WMF and SLP85xD support SAI. Please note that firmware version >= 3.0.4 is required for the SPC to support SAI.

1.1. 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 16 bits include the following information:

Bit	Device Specific Value	Description	WMF	SPC	SLP85xD
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.	X	X	X
1	Sequence bit 1				
		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.			
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
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

Bit	Device Specific Value	Description	WMF	SPC	SLP85xD
4	RedAlert Alarm condition	The alarm condition indicates a system error. More information about the specific alarm can be found section 1.2, **RedAlert Alarms**. 1 = Application fault; predictive diagnostics alarm triggered or command cannot be executed as requested.	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
6	Motion	1 = Weight is unstable.	X	X	X
7	Net Mode	1 = Net weight instead of gross weight is reported.	X	X	X
8	Alternate weight unit	1 = An alternate weight unit, other than the primary unit is in use.	X	X	X
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 1.1.1, **Device-Specific Bits** to see how different devices utilize these bits.			X
10	Device specific bit 2				X
11	Device specific bit 3				X
12	Device specific bit 4				X
13	Device specific bit 5				X
14	Device specific bit 6				
15	Device specific bit 7				

1.1.1. Device-Specific Bits

Device Specific Bit		SLP85xD
1	Unit Bit 1	Refer to section 1.3, **Scale Group 2** for more information
2	Unit Bit 2	
3	Unit Bit 3	
4	Unit Bit 4	
5	Test Mode	1 = device is in a mode in which live data is being replaced with special test data
6	--	
7	--	

1.2. RedAlert Alarms

The critical alarm status bits are sent as part of the default status block when a status block command 0 is sent. If the control system does not place any data in the command word (write), the device will send the data of RedAlert group. The 16 bits include the following information:

Bit	Red Alert	Description	WMF	SPC	SLP85xD
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.			
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	
2	Checksum failure	1 = A checksum analysis of memory does not yield the expected result.			
3	Weight blocked	1 = Weight data does not change appreciably over a defined period of time.			
4	Single sensor communication failure (LC missing)	1 = One or more of the connected sensors are not working properly.			
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.			
6	Customer defined underload	1 = Weight is equal or less than the minimum load allowed.			
7	Network failure (all cells)	Applicable only on multi-cell networks. 1 = Failure of the entire network. No cells are responding.			
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.			
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. This bit goes high when Application Specific Bit 3 or 4 is activated (Section 1.4.1)	X	X	
11	Weights and measures failure	1 = The product is no longer in compliance with weights and measure regulations.	X	X	
12	Foreign device detected	1 = A foreign device is attached to the system or any			

Bit	Red Alert	Description	WMF	SPC	SLP85xD
		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	
14	LC temperature outside operation range	1 = Temperature for at least one loadcell is outside the operation temperature range			
15	LC parameters block checksum error	1 = Checksum error occurred with loadcell parameters block			

1.3.   Scale Group 2

These status bits are sent as part of the default status block when a status block command 0 is sent. If the control system does not place any data in the command word (write), the device will send this data in scale status group. The 16 bits include the following information:

Bit	Scale Status Group	Description	WMF	SPC	SLP85xD
0	Unit Bit 1	Unit bits are used to indicate the weight unit. Refer to section 1.3.1, **Unit Bits**, for more information.	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. Refer to section 1.3.2, **Range Bits**, for more information.			
6	Range bit 2				
7	In Set Up	1 = Sensor is in setup mode.	X	X	
8	Power Up Zero Failure	1 = Scale has not been able to complete its power-up restore / reset of zero.	X	X	
9	GWP out of Tolerance	1 = Scale has a GWP out of tolerance error.			
10	Selected Scale	For multi-scale devices only: 1 = Scale is selected and therefore in focus or seen on the device display.	X	X	
11	Open	Unused (always 0)			
12	Open				
13	Open				
14	Open				
15	Open				

1.3.1. Unit Bits

Unit Bit 4	Unit Bit 3	Unit Bit 2	Unit Bit 1	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	mg
0	1	1	0	ug
0	1	1	1	Custom
1	0	0	0	oz
1	0	0	1	dwt
1	0	1	0	ozt
1011-1111				Unused

1.3.2. Range Bits

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

1.4. Status Group 2 – Alarms

The application alarm status bits are set if the status block command "21" is sent. Otherwise, scale status group 2 information will be displayed.

Bit	Soft Alarm	Description	WMF	SPC	SLP85xD
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.			
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.			
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.			
6	Application defined 0	Refer to section 1.4.1, **Application-Specific Soft Alarms**, for more information.			X
7	Application defined 1		X	X	X
8	Application defined 2				X
9	Application defined 3		X	X	X
10	Application defined 4			X	X
11	Application defined 5				X

Bit	Soft Alarm	Description	WMF	SPC	SLP85xD
12	Application defined 6		X	X	X
13	Application defined 7			X	X
14	Application defined 8				X
15	Application defined 9				X

1.4.1. Application-Specific Soft Alarms

	WMF	SPC	SLP85xD
Application Defined 0	None	None	Error - Non-volatile data memory
Application Defined 1	Error – System general	Error – System General	Error - Zero drift
Application Defined 2	None	None	Error - Supply voltage
Application Defined 3	Error – Temperature (weight sensor)	Error – Temperature (weight sensor)	Error - Temperature (electronic)
Application Defined 4	None	Error – Temperature (electronic unit)	Warning – Temperature (sensor)
Application Defined 5	None	None	Warning – Temperature gradient (sensor)
Application Defined 6	Warning – Temperature (weight sensor)	Warning – Temperature (weight sensor)	Warning – Temperature (electronic)
Application Defined 7	None	Warning – Temperature (electronic unit)	Warning – Supply voltage
Application Defined 8	None	None	Warning – Zero drift
Application Defined 9	None	None	Error – Load cell overload

1.5. 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.

Bit	Data	Description	WMF	SPC	SLP85xD
0	Feed	Turns ON when target feed is active (before final cutoff)			
1	Fast Feed	Turns ON when target fast feed is active			
2	Coarse Feed	Optional 3rd speed, turns ON when coarse feed is active (prior to fast feed)			
3	Feed Stage 2				
4	Feed Stage 1				
5	Tolerance OK	Turns ON when weight value is within tolerance of target			
6	Over Zone	Turns ON when weight value is in Over Zone (too high) or optionally when weight value is outside of + TOL			
7	Under Zone	Turns ON when weight value is in Under Zone (too low) or optionally when weight value is outside of − TOL			
8	Heavy Zone	Turns ON when weight value is in Heavy Zone (acceptable high)			
9	Light Zone	Turns ON when weight value is in Light Zone (acceptable low)			
10	Open	Unused			
11	Open	Unused			
12	Open	Unused			
13	Open	Unused			
14	Open	Unused			
15	Open	Unused			

1.6. Custom Application Group 2

No devices covered in this manual currently support this group.

1.7. Last Error Message Status Group

No devices covered in this manual currently support this group.

1.8. Custom Application Status Group

The custom application status bits are sent only if the status block command "23" is issued. Refer to the separate application note for SLP85xD for additional information on how to use the filling application for that device.

Bit	Custom application status bits, group 1	WMF	SPC	SLP85xD
0	Application defined 0	None	None	General status bit
1	Application defined 1	None	None	Tare weight+
2	Application defined 2	None	None	Tare weight–
3	Application defined 3	None	None	TOUT1
4	Application defined 4	None	None	TOUT2
5	Application defined 5	None	None	TOUT3
6	Application defined 6	None	None	TOUT4
7	Application defined 7	None	None	TOUT5
8	Application defined 8	None	None	Bag/bottle breakage
9	Application defined 9	None	None	TOL–
10	Application defined 10	None	None	TOL+
11	Application defined 11	None	None	Empty
12	Application defined 12	None	None	Ready
13	Application defined 13	None	None	Run/stop
14	Application defined 14	None	None	None
15	Application defined 15	None	None	None

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

Bit	Data	WMF	SPC	SLP85xD
0	In 1			X
1	In 2			X
2	In 3			X
3	In 4			
4	In 5			
5	In 6			
6	In 7			
7	In 8			
8	Out 1			X
9	Out 2			X
10	Out 3			X
11	Out 4			X
12	Out 5			X
13	Out 6			X
14	Out 7			X
15	Out 8			X

1.10. Comparator Status Groups

These status bits are comparator 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 comparators.

Bit	Data	WMF	SPC	SLP85xD
0	Comparator 1			
1	Comparator 2			
2	Comparator 3			
3	Comparator 4			
4	Comparator 5			
5	Comparator 6			
6	Comparator 7			
7	Comparator 8			
8	Comparator 9			
9	Comparator 10			
10	Comparator 11			
11	Comparator 12			
12	Comparator 13			
13	Comparator 14			
14	Comparator 15			
15	Comparator 16			

1.11. SAI Status Block Command List

Value	Description	WMF	SPC	SLP85xD
0	Report default status words	X	X	X
1	Report RedAlert alarm, scale group, I/O group	X	X	X
2	Report target / Comparator status			
4	Report Target 1, I/O group 2, custom application group 2			
16	Report comparator mix 1			
21	Report RedAlert alarms, alarms & scale group 2	X	X	
23	Report alarm status, I/O status, customer application status			X
100	Report last error code			

1.12. Cyclic Command List for Floating Point Block

Value	Description	Block	WMF	SPC	SLP85xD
0	Gross weight – rounded	Floating Block	X	X	X
1	Gross weight – rounded	Floating Block	X	X	X
2	Tare weight – rounded	Floating Block	X	X	X
3	Net weight – rounded	Floating Block	X	X	X
5	Gross weight - internal resolution	Floating Block	X	X	X
6	Tare weight - internal resolution	Floating Block	X	X	X
7	Net weight - internal resolution	Floating Block	X	X	X
14	Net weight - alternative weight path	Floating Block	X	X	
20	Read target weight (display unit)	Floating Block	X	X	
40	Report comparator 1 limit	Floating Block			
42	Report comparator 2 limit	Floating Block			
44	Report comparator 3 limit	Floating Block			
46	Report comparator 4 limit	Floating Block			
48	Report comparator 5 limit	Floating Block			
82	Report adjustment stability time [s]	Floating Block	>=3.0.2	X	
83	Report general stability timeout [s] **Parameter:** 0 – 65535 seconds	Floating Block	X	X	
84	Report observation time for zero **Parameter**: 0.1 – 4.0 Seconds	Floating Block	X	X	
85	Report tolerance for zero **Parameter**: 0.25 – 1000 digits	Floating Block	X	X	
86	Report observation time for tare **Parameter**: 0.1 – 4.0 Seconds	Floating Block	X	X	
87	Report tolerance for tare **Parameter**: 0.25 – 1000 digits	Floating Block	X	X	
88	Report observation time for weighing **Parameter**: 0.1 – 4.0 Seconds	Floating Block	X	X	
89	Report tolerance for weighing **Parameter**: 0.25 – 1000 digits	Floating Block	X	X	
90	Report weighing mode **Parameter:** 0 = Universal Weighing 2 = Fix Filter	Floating Block	X	X	X

Value	Description	Block	WMF	SPC	SLP85xD

91	Report weighing environment
	Parameter: 0 = Very Stable
	    1 = Stable
	    2 = Standard
	    3 = Unstable
	    4 = Very Unstable
		Floating Block	X	X	X

92	Report filter cut-off frequency **Parameter**: 0 = Predefined frequency used, changeable over weighing environment 0.001 Hz – 20.0 Hz = Cutoff Frequency	Floating Block	X	X	X

96	Report weight readability
	Parameter: 0 = 1 digit
	    1 = 10 digits
	    2 = 100 digits
	    3 = 1000 digits
	    4 = 2 digits
	    5 = 5 digits
		Floating Block	X	X	

97	Internal temperature in °C	Floating Block	X	X	
98	Report filter cut-off frequency for dosing path	Floating Block	X	X	
99	Report Adjustment Stability digit [d]	Floating Block	>=3.0.2	X	
201	Preset tare (display unit) **Parameter:** Pre-tare weight (float 32) placed in floating point value	Floating Block	X	X	X
220	Write target weight (display unit)	Floating Block	X	X	X
240	Write comparator 1 limit	Floating Block			
242	Write comparator 2 limit	Floating Block			
244	Write comparator 3 limit	Floating Block			
246	Write comparator 4 limit	Floating Block			
248	Write comparator 5 limit	Floating Block			
282	Write Adjustment stability time [s]	Floating Block	>=3.0.2	X	
283	Write general stability timeout [s] **Parameter:** 0 – 65535 seconds	Floating Block	X	X	
284	Write observation time for zero **Parameter**: 0.1 – 4.0 Seconds	Floating Block	X	X	
285	Write tolerance for zero **Parameter**: 0.25 – 1000 digits	Floating Block	X	X	
286	Write observation time for tare **Parameter**: 0.1 – 4.0 Seconds	Floating Block	X	X	

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Value	Description	Block	WMF	SPC	SLP85xD
287	Write tolerance for tare **Parameter**: 0.25 – 1000 digits	Floating Block	X	X	
288	Write observation time for weighing **Parameter**: 0.1 – 4.0 Seconds	Floating Block	X	X	
289	Write tolerance for weighing **Parameter**: 0.25 – 1000 digits	Floating Block	X	X	
290	Write weighing mode **Parameter:** 0 = Universal Weighing, 2 = Fix Filter	Floating Block	X	X	X
291	Write weighing environment **Parameter:** 0 = Very Stable 1 = Stable 2 = Standard 3 = Unstable 4 = Very Unstable	Floating Block	X	X	X
292	Write filter cut-off frequency **Parameter**: 0 = Predefined frequency used, changeable over weighing environment 0.001 Hz – 20.0 Hz = Cutoff Frequency	Floating Block	X	X	X
296	Write weight readability **Parameter:** 0 = 1 digit 1 = 10 digits 2 = 100 digits 3 = 1000 digits 4 = 2 digits 5 = 5 digits	Floating Block	X	X	
298	Write filter cut-off frequency for dosing path	Floating Block	X	X	
299	Write adjustment stability digit [d]	Floating Block	>=3.0.2	X	
400	Tare when stable	Floating Block	X	X	X
401	Zero when stable	Floating Block	X	X	X
402	Clear tare	Floating Block	X	X	X
403	Tare immediately	Floating Block	X	X	X
404	Zero immediately	Floating Block	X	X	X
500	Run filling application	Floating Block			X
501	Pause filling application	Floating Block			X
502	Resume filling application	Floating Block			X
510	Apply Comparators	Floating Block			
1000	Turn all internal & external outputs OFF	Floating Block			
1900	Alarm bit	Floating Block			X

Value	Description	Block	WMF	SPC	SLP85xD
1901	Motion bit	Floating Block	X	X	X
1902	Net mode bit	Floating Block			X
1903	Center of zero bit	Floating Block			X
1904	Alt weight bit	Floating Block			X
1905	Device bit 1	Floating Block			X
1906	Device bit 2	Floating Block			X
1907	Device bit 3	Floating Block			X
1908	Device bit 4	Floating Block			X
1909	Device bit 5	Floating Block			X
1910	Device bit 6	Floating Block			X
1911	Device bit 7	Floating Block			X
1912	Performance test value	Floating Block			X
2000	No operation command – used to test command	Floating Block			X
2002	Continue to next step in sequence	Floating Block			
2003	Continue to next step in sequence	Floating Block			
2004	Abort sequence … response value means abort in process	Floating Block			X
2005	After step failure, retries previous step in sequence	Floating Block			
2006	After step failure, skips step and advances to next in sequence	Floating Block			
2045	Step successful, next value	Floating Block			X
2046	Step successful	Floating Block			X
2047	Command has been received and is being evaluated (in process)	Floating Block			X
8080h	Start cyclic test mode	Floating Block			X
8888h	Stop cyclic test mode	Floating Block			X

1.13. Acyclic Command List

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Gross weight - rounded	Gross weight data in defined resolution	read	Float 32	1	0x14	0x300	0x01	0x01	0, 1	0x2000	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
Tare weight - rounded	Tare weight data in defined resolution	read	Float 32	1	0x16	0x300	0x01	0x03	0, 1	0x2002	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
Gross weight - internal resolution	Gross weight data in internal resolution	read	Float 32	1	0x18	0x300	0x01	0x05	0, 1	0x2004	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
Net weight - internal resolution	Net weight data in internal resolution	read	Float 32	1	0x1A	0x300	0x01	0x07	0, 1	0x2006	X	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	Ulnt 16	1	0x1F	0x300	0x01	0x16	0, 1	0x2008		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
Weight Unit	Weight unit (number representing unit from Scale Status Group 2)	read/ write	byte, 1	1	0x99	0x300	0x01	0x18	0, 1	0x200A			
Tare when stable	Tare when within motion limit	write	Uint 8	1	0x1C	0x300	0x01	0x09	0, 1	0x2010	X	X	X
Tare immediately	Motion not checked, tare executed	write	Uint 8	1	0x1E	0x300	0x01	0x10	0, 1	0x2011	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

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Zero when stable	Zero when within motion limit	write	Uint 8	1	0x22	0x300	0x01	0x14	0, 1	0x2013	X	X	X
Zero immediately	Motion not checked, zero executed	write	Uint 8	1	0x23	0x300	0x01	0x15	0, 1	0x2014	X	X	X
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
Turn all internal & external outputs OFF	Forces all outputs OFF	write	byte, 1	1	0x26	0x301	0x01	0x02	0, 1	0x2031			
Report scale status group	Scale status group according to specification in Section 3 of this document	read	Uint 16	1	0x27	0x302	0x01	0x01	0, 1	0x2040			
Alarm status group	Application Specific Errors according to specification in Section 4 of this document	read	Uint 16	1	0x28	0x302	0x01	0x02	0, 1	0x2041			
Report RedAlert group	RedAlert status according to specification in Section 2 of this document	read	Uint 16	1	0x29	0x302	0x01	0x03	0, 1	0x2042			
Report scale status group	Scale Status Group 2 according to specification in Section 4 of this document	read	Uint 16	1	0x2A	0x302	0x01	0x04	0, 1	0x2043			
Model type part 1	Identification (main ID)	read	String 160	1	0x2B	0x303	0x01	0x01	0, 1	0x2050	X	X	X
Model type part 2	Identification # 2	read	String 160	1	0x2C	0x303	0x01	0x02	0, 1	0x2051			X
Model type part 3	Identification # 3	read	String 160	1	0x2D	0x303	0x01	0x03	0, 1	0x2052			X
Software OS version	Software OS Version	read	String 160	1	0x2E	0x303	0x01	0x04	0, 1	0x2053	X	X	X
Fieldbus stack version	Fieldbus Stack version	read	String 160	1	0x2F	0x303	0x01	0x05	0, 1	0x2054	X	X	X
Software application version	Software Apps Version	read	String 160	1	0x30	0x303	0x01	0x06	0, 1	0x2055	X	X	X
SAI version	SAI specification version number	read	String 160	1	0x31	0x303	0x01	0x07	0, 1	0x2056	X	X	X
Serial number	Device main serial number	read	String 160	1	0x33	0x303	0x01	0x08	0, 1	0x2057	>= 3.0 .2	X	
Device identification	user configurable ID	read	String 160	1	0x34	0x303	0x01	0x09	0, 1	0x2058			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Query of the remaining weighing ranges	Remaining Weighing Ranges	read	Struct 128	1	0x35	0x303	0x01	0x10	0, 1	0x2059			
Get initial zero information	Initial zero information	read	Struct 16	1	0x36	0x303	0x01	0x11	0, 1	0x205A			
Start adjustment with internal weight	Start Internal Adjustment	write	Uint 8	1	0x80	0x410	0x01	0x01	0, 1	0x4001	X	X	X
Start adjustment with external weight	Start External Adjustment	write	Uint 8	1	0x81	0x410	0x01	0x02	0, 1	0x4002	X	X	X
Start customer standard calibration	Start User Standard Adjustment	write	Uint 8	1	0x82	0x410	0x01	0x03	0, 1	0x4003	X	X	X
Cancel adjustment / test (Abort Test Function / Adjustment)	Abort Test Function / Adjustment	write	Uint 8	1	0x83	0x410	0x01	0x04	0, 1	0x4004	X	X	X
Start test with internal weight	Start Test Function with internal weight	write	Uint 8	1	0x84	0x410	0x01	0x05	0, 1	0x4005	X	X	
Start test with external weight	Start Test Function with external weight	write	Uint 8	1	0x85	0x410	0x01	0x06	0, 1	0x4006	X	X	X
Adjustment and test status Information	Adjustment / Test status	read	Uint 16	1	0x86	0x410	0x01	0x07	0, 1	0x4007	X	X	X
Test deviation	Adjustment / Test value	read	Float 32	1	0x87	0x410	0x01	0x08	0, 1	0x4008	X	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
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	unsigned short, 2	1	0x89	0x410	0x01	0x0A	0, 1	0x400A			
Zero Adjustment	Resets the zero (absolute reference)	write	byte, 1	1	0x8A	0x410	0x01	0x0B	0, 1	0x400B			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Span Adjustment Value 1 xLow	Used in 5 point linearity adjustment	read/ write	float, 4	1	0x8C	0x410	0x01	0x0C	0, 1	0x400C			
Span Adjustment Value 2 Low	Used in 5 point and 4 point linearity adjustment	read/ write	float, 4	1	0x8D	0x410	0x01	0x0D	0, 1	0x400D			
Span Adjustment Value 3 Middle	Used in 5, 4 and 3 point linearity adjustment	read/ write	float, 4	1	0x8E	0x410	0x01	0x0E	0, 1	0x400E			
Span Adjustment Value 4 High	Used in all forms of span adjustment	read/ write	float, 4	1	0x8F	0x410	0x01	0x0F	0, 1	0x400F			
Validate (Confirm) Adjustment	Validate Adjustment	read/ write	byte, 1	1	0x90	0x410	0x01	0x10	0, 1	0x4010			
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	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	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			
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			
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			
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			
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			
Sets weight value for current step in calibration & starts step	Set weight value for current step in calibration and starts step	write	float, 4	1	0x98	0x410	0x01	0x18	0, 1	0x4018			
Calfree	Triggers CalFree calibration start	write	byte, 1	1	0x9B	0x410	0x01	0x1A	0, 1	0x401A			
Calfree cell capacity	Parameter for CalFree	read/ write	Float 32	1	0x9C	0x410	0x01	0x1B	0, 1	0x401B			
Calfree unit	Parameter for CalFree	read/ write	Uint 8	1	0x9D	0x410	0x01	0x1C	0, 1	0x401C			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Calfree cell output	Parameter for CalFree	read/ write	Float 32	1	0x9E	0x410	0x01	0x1D	0, 1	0x401D			
CalFree Plus	Trigger CalFree Plus calibration start	read/ write	unsigned short, 2	1	0x9F	0x410	0x01	0x1E	0, 1	0x401E			
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			
Enable / Disable step control C5		read	float, 4	1	0x8B	0x410	0x01	0x1F	0, 1	0x401F			
Zero adjustment count	Resets the zero (absolute reference)	read/ write	long, 4	1	0xE5	0x410	0x01	0x20	0, 1	0x4020			
Sensitivity adjustment (Triggered) C8 1 -4		read/ write	long, 4	1	0xE5	0x410	0x01	0x20	0, 1	0x4020			
Sensitivity adjustment (Display weight) C8 7	Sensitivity adjustment (displayed weight)	write	Struct 32	3	0x02	0x410	0x01	0x21	0, 1	0x4021			
Comparator status group 1	Comparator status group 1	read	short, 2	1	0xD0	0x411	0x01	0x01	0, 1	0x4051			
Report # of Comparator used	Read how many comparators are used	read	byte, 1	2	0x03	0x411	0x01	0x04	0, 1	0x4054			
Write # of Comparator used	Write how many comparators are used	write	byte, 1	2	0x03	0x411	0x01	0x04	0, 1	0x4054			
Report Comparator 1 Limit	Read value for comparator # 1	read	float, 4	2	0x04	0x411	0x01	0x05	0, 1	0x4055			
Write Comparator 1 Limit	Write value for comparator # 1	write	float, 4	2	0x04	0x411	0x01	0x05	0, 1	0x4055			
Report Comparator 2 Limit	Read value for comparator # 2	read	float, 4	2	0x05	0x411	0x01	0x06	0, 1	0x4056			
Write Comparator 2 Limit	Write value for comparator # 2	write	float, 4	2	0x05	0x411	0x01	0x06	0, 1	0x4056			
Report Comparator 3 Limit	Read value for comparator # 3	read	float, 4	2	0x06	0x411	0x01	0x07	0, 1	0x4057			
Write Comparator 3 Limit	Write value for comparator # 3	write	float, 4	2	0x06	0x411	0x01	0x07	0, 1	0x4057			
Report Comparator 4 Limit	Read value for comparator # 4	read	float, 4	2	0x07	0x411	0x01	0x08	0, 1	0x4058			
Write Comparator 4 Limit	Write value for comparator # 4	write	float, 4	2	0x07	0x411	0x01	0x08	0, 1	0x4058			
Report Comparator 5 Limit	Read value for comparator # 5	read	float, 4	2	0x08	0x411	0x01	0x09	0, 1	0x4059			
Write Comparator 5 Limit	Write value for comparator # 5	write	float, 4	2	0x08	0x411	0x01	0x09	0, 1	0x4059			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Apply Comparator trigger	Instructs device to use new comparator values	write	byte, 1	2	0x1E	0x411	0x01	0x1F	0, 1	0x406F			
Voltage monitor channels	View voltage monitor channels	read	Struct 256	1	0xB0	0x413	0x01	0x11	0, 1	0x4161			X
Load cycle monitor channels	View load cycle monitor channels	read	Struct 512	1	0xB1	0x413	0x01	0x12	0, 1	0x4162			X
Zero deviation	Query zero deviation	read	Float 32	1	0xB2	0x413	0x01	0x13	0, 1	0x4163			X
Zero deviation monitor channels	view zero deviation monitor channels	read	Struct 256	1	0xB3	0x413	0x01	0x14	0, 1	0x4164			X
Temperature monitor channels	view temperature monitor channels	read	Struct 512	1	0xB4	0x413	0x01	0x15	0, 1	0x4165			X
Temperature gradient	Query temperature gradient	read	Struct 96	1	0xB5	0x413	0x01	0x16	0, 1	0x4166			X
Temperature gradient channels	View temperature gradient channels	read	Struct 128	1	0xB6	0x413	0x01	0x17	0, 1	0x4167			X
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	X	X	
Restart device	restart device - software restart	write	Uint 8	1	0xC9	0x413	0x01	0x2A	0, 1	0x417A			
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			
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			
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			
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			
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			
Maximum voltage of CANH	Inquire maximum voltage of CANH in mv	read	short, 2	1	0xD3	0x413	0x01	0x33	0, 1	0x4183			
Minimum voltage of CANH	Inquire minimum voltage of CANH in mv	read	short, 2	1	0xD4	0x413	0x01	0x34	0, 1	0x4184			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Maximum voltage of CANL	Inquire maximum voltage of CANL in mv	read	short, 2	1	0xD5	0x413	0x01	0x35	0, 1	0x4185			
Minimum voltage of CANL	Inquire minimum voltage of CANL in mv	read	short, 2	1	0xD6	0x413	0x01	0x36	0, 1	0x4186			
Current supply power for LCs	Inquire the current supply power for LCs	read	short, 2	1	0xD7	0x413	0x01	0x37	0, 1	0x4187			
Current supply current for LCs	Inquire the current supply current for LCs	read	short, 2	1	0xD8	0x413	0x01	0x38	0, 1	0x4188			
Update LCs voltage diagnosis	Send 1 to update the current VIN_LC, VIN_COM, V_SHIELD voltage of LCs, every LC needs one second to update data	write	byte,1	1	0xD9	0x413	0x01	0x39	0, 1	0x4189			
VIN_LC of LCs	Inquire the current VIN_LC voltage of LCs in mV	read	long*14,56	1	0xDA	0x413	0x01	0x3A	0, 1	0x418A			
Temperature of LCs	Inquire the current temperature of every LC in °C	read	long*14,56	1	0xDB	0x413	0x01	0x3B	0, 1	0x418B			
VIN_COM of LCs	Inquire the current VIN_COM voltage of every LC in mV	read	long*14,56	1	0xDC	0x413	0x01	0x3C	0, 1	0x418C			
V_SHIELD of LCs	Inquire the current V_SHIELD voltage of every LC in mV	read	long*14,56	1	0xDD	0x413	0x01	0x3D	0, 1	0x418D			
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			
Gas concentration of LCs	Inquire the current gas sensor value of LCs as percentage	read	long*14,56	1	0xDF	0x413	0x01	0x3F	0, 1	0x418F			
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			
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*14,56	1	0xE1	0x413	0x01	0x41	0, 1	0x4191			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
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			
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			
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			
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			
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			
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			
Scale overload count	Scale overload count	read	unsigned short, 4	1	0xE8	0x413	0x01	0x48	0, 1	0x4198			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Scale calibration count	Scale calibration count	read	unsigned short, 4	1	0xE9	0x413	0x01	0x49	0, 1	0x4199			
Scale zero command count	Scale zero command count	read	unsigned short, 4	1	0xEA	0x413	0x01	0x4A	0, 1	0x419A			
Scale zero command failed count	Scale zero command failed count	read	unsigned short, 4	1	0xEB	0x413	0x01	0x4B	0, 1	0x419B			
Automatic prefilling	Automatic prefilling configuration **Parameter:** Active (unsigned 8 bits) – automatic prefilling is activated/deactivated 0 = off 1 = on Out (unsigned 8 bits) – number of digital outputs which will remain high during prefilling. Bit 0 corresponds to output 1, bit 1 corresponds to output 2, etc. 0 = off 1 = on PreFillTime (unsigned 16 bits) – material filling duration in ms	read/write	Struct 32	1	0xEF	0x414	0x01	0x01	0, 1	0x4201			X
Material filling duration	Material filling duration configuration **Parameter:** Duration – Material filling duration in ms	read/write	Uint 16	1	0xF0	0x414	0x01	0x02	0, 1	0x4202			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Automatic refilling	Automatic refilling configuration **Parameter:** Active – Automatic refilling function behavior 0 = off 1 = on	read/write	Uint 8	1	0xF1	0x414	0x01	0x03	0, 1	0x4203			X
Target weight	Target weight configuration **Parameter:** TargetWeight (float 32) – target weight value Unit (unsigned 32) – unit for target weight 0 = g 3 = mg NegTolP (float 32) - Negative tolerance limit given in % of TargetWeight PosTolP (float 32) - Positive tolerance limit given in % of TargetWeight.	read/ write	Struct 128	1	0xF2	0x414	0x01	0x04	0, 1	0x4204			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Optimization function	Optimization function configuration **Parameter:** Active (byte) – Optimization function behavior 0 = off 1 = on Method (unsigned 8) - Define the method of optimization 1 = Feedback optimization_1 (Enable for only last enabled normal filling process) 2 = Feedback optimization_2 (Enable for all enabled normal filling process) 3 = Feed forward optimization (Enable for only last enabled normal filling process) 4 = Both method 1 and 3 5 = Both method 2 and 3 Degree (unsigned 8) - Define the degree of the optimization step 1 = High optimization degree 2 = Medium optimization degree 3 = Low optimization degree	read/ write	Struct 24	1	0xF3	0x414	0x01	0x05	0, 1	0x4205			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Weight monitor function	Weight monitor function configuration **Parameter (n = 1…5):** N_n (unsigned 16) - Number of the normal filling process. Range from 1 to 5 $Active_n$ (unsigned 16) - Weight monitor function behavior 0 = off 1 = on $Delta_n$ (float 32) - The weight difference between the filling characteristic curve and the monitoring characteristic curve $Unit_n$ (unsigned 32) - Unit for target weight 0 = g 3 = mg	read/ write	Struct 480	1	0xF4	0x414	0x01	0x06	0, 1	0x4206			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Time monitor function	Time monitor function configuration **Parameter (n = 1…5):** N_n (unsigned 16) – Selected cut-off point. Range from 1 to 5. $Active_n$ (unsigned 16) – Time monitor function behavior 0 = off 1 = on $TOUT_n$ (float 32) – Timeout duration for the slected cut-off point given in seconds.	read/ write	Struct 320	1	0xF5	0x414	0x01	0x07	0, 1	0x4207			X
Filling stability criteria	Filling stability criteria configuration **Parameter:** Tol (32 bits) – Specify tolerance in digits (smallest weight increment) within which the value must stay to be regarded as stable. Range from 0.1 to 1000.0 ObserTimeOut (unsigned 16) – Specify the observation time in milliseconds during which the value must stay within tolerance in order to be regarded as stable StabTimeOut (unsigned 16 bits) - Stabilization timeout in milliseconds. If this duration is reached during control weighing, last measured value will be taken as the final weight result, no matter if the stabilization criteria is met or not.	read/ write	Struct 64	1	0xF6	0x414	0x01	0x08	0, 1	0x4208			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Filling phase	Filling phase configuration **Parameter (n = 1…5):** N_n (unsigned 8) – Number of the normal filling process. Range from 1 to 5 $Active_n$ (unsigned 8) – Normal filling process behavior 0 = off 1 = on $OutputOn_n$ (unsigned 8) - Set of digital outputs which will remain high during normal filling. Each bit corresponds to an output. If bit is high, output is high during normal filling process. Bit 0 – Output 1 Bit 1 – Output 2 Bit 2 – Output 3 Bit 3 – Output 4 Bit 4 – Output 5 Bit 5 – Output 6 Bit 6 – Output 7 Bit 7 – Output 8 $Weight_n$ (float 32) – Upper limit value for the normal filling process $Unit_n$ (unsigned 16) – Unit of weight value 0 = g 3 = mg $LockDuration_n$ (unsigned 16) - Lock duration given in	read/ write	Struct 480	1	0xF7	0x414	0x01	0x09	0, 1	0x4209			X

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Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Automatic tare	Automatic tare configuration **Parameter:** Active (unsigned 32) – automatic tare function behavior 0 = off 1 = on Weight (float 32) – Expected weight of the container Unit (unsigned 32) – Unit of the weight 0 = g 3 = mg LowTolP (float 32) – Lower limit for the tare weight given in % of parameter weight UppTolP (float 32) – Upper limit for the tare weight given in % of parameter weight Delay (unsigned 32) - Tare delay time given in millisecond	read/ write	Struct 192	1	0xF8	0x414	0x01	0x0A	0, 1	0x420A			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Digital output function	Digital output function configuration **Parameter (n = 1…5):** $Output_n$ (unsigned 8) – Number of the digital output ports 1 = Output 1 2 = Output 2 3 = Output 3 4 = Output 4 5 = Output 5 $Function_n$ (unsigned 8) – Function of the digital output ports 0 = No function, the output is always 0 1 = Ready, the output is 1 if the "READY" bit of F09 is 1 2 = Empty, the output is 1 if the "EMPTY" bit of F09 is 1 3 = Alarm, the output is 1 if the "General Status" bit of F09 is 1 4 = Valve, the output is 1 based on the filling application (F01, F03, F13)	read/ write	Struct 80	1	0xF9	0x414	0x01	0x0B	0, 1	0x420B			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Emptying function	Emptying function configuration **Parameter:** Active (unsigned 16) – Emptying function behavior 0 = off 1 = on EmptyDuration (unsigned 16) – Specify the bottle/container unloading time in milliseconds during which the "Empty" signal is active. Range from 0 to 65535 ZeroDuration (unsigned 16) - Specify the zero time in milliseconds after bottle/container unloading, and then to do the zero function automatically after "ZeroDuration" is expired. Range from 0 to 65535	read/ write	Struct 48	1	0xFA	0x414	0x01	0x0C	0, 1	0x420C			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Filling statistics	Filling statistics **Parameter:** Mean (float 32) – Mean value of the actual filling weights Std (float 32) – Standard deviation of the actual filling weights Sum (float 32) – Sum of all the last actual filling weights Count (float 32) – Number of the total filling cycles ActualWeight (float 32) – Last filling result recorded by the weighing device Unit (unsigned 32) – Unit of the above weight values, Only available units permitted TotalTime (float 32) – Last total filling time recorded by the weighing device. Unit given in seconds	read	Struct 224	1	0xFB	0x414	0x01	0x0D	0, 1	0x420D			X
Clear filling statistics	Clear filling statistics **Parameter**: Reset – write 0 to clear filling statistics	write	Uint 8	1	0xFC	0x414	0x01	0x0E	0, 1	0x420E			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Filling application status	Filling application status **Parameter:** Status – Status of the filling application Bit 0 – General Status, 0 if bits 1-8 are all 0 Bit 1 – TareWeight+, This bit is 1 if the container weight > upper limit for tare weight Bit 2 – TareWeight-, This bit is 1 if the container weight < lower limit for tare weight Bit 3 – TOUT1, This bit is 1 if the filling time for the cut-off point1 > timeout parameter 1 Bit 4 – TOUT2, This bit is 1 if the filling time for the cut-off point2 > timeout parameter 2 Bit 5 – TOUT3, This bit is 1 if the filling time for the cut-off point3 > timeout parameter 3 Bit 6 – TOUT4, This bit is 1 if the filling time for the cut-off point4 > timeout parameter 4 Bit 7 – TOUT5, This bit is 1 if the filling time for the cut-off point5 > timeout parameter 5 Bit 8 – Bag/Bottle Breakage, This bit is 1 if the weight value of the actual filling curve < weight value of the monitor characteristic curve Bit 9 – TOL-, This bit is 1 if the final filling weight < lower tolerance limit of target weight Bit 10 – TOL+, This bit is 1 if the final filling weight > upper tolerance limit of target weight Bit 11 – Empty, This bit is 1 if the EMPTY signal from LC is 1 Bit 12 – Ready, This bit is 1 if the READY signal from LC is 1 Bit 13 – Reserved Bit 14 – Reserved Bit 15 – Reserved	read	Uint 16	1	0xFD	0x414	0x01	0x0F	0, 1	0x420F			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Report filling status	Report filling state **Parameter:** 0 = Initial 1 = Running 2 = Suspended or finished	read	Uint 8	1	0xFE	0x414	0x01	0x10	0, 1	0x4210			X
Control filling status	Control filling **Parameter:** 0 = Run the filling application 1 = Abort the filling application 2 = Resume the filling application	write	Uint 8	1	0xFF	0x414	0x01	0x11	0, 1	0x4211			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

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
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	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
Disable weight display	1 = weight display disabled 0 = weight display enabled	read/ write	Binary	1	0x71	0x416	0x01	0x02	0, 1	0x4302	X	X	X
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		X	X
Display - Energy Saving Mode	Time value for the display to turn off "Green MT feature"	read/ write	float, 4	1	0x78	0x416	0x01	0x09	0, 1	0x4309			
Factory reset	Factory Reset	write	Uint 16	1	0x79	0x416	0x01	0x0A	0, 1	0x430A	X	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	X
Change Display Resolution (M110)	value from -6 to 6 which corresponds with different display resolutions	read/ write	signed int 8	1	0x7B	0x416	0x01	0x0C	0, 1	0x430C			
Signal output frequency settings	reads/sets output frequency signal	read/ write	Float 32	1	0x7C	0x416	0x01	0x0D	0, 1	0x430D			X
Reverse weighing mode	sets weighing mode for loss in weight	read/ write	Binary	1	0x7D	0x416	0x01	0x0E	0, 1	0x430E			X
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			X

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
General timeout	Timeout for issued command **Parameter:** 0 – 65535 Seconds	read/ write	Float 32	1	0x46	0x417	0x01	0x01	0, 1	0x4351	X	X	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	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	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	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	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	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	X
Smallest calculated approvable interval value	Smallest calculated approvable interval value	read/ write	Float 32	1	0x5A	0x417	0x01	0x15	0, 1	0x4365		X	X
d, increment	Smallest available digit	read	Float 32	1	0x5B	0x417	0x01	0x16	0, 1	0x4366	X		
Nmax (Maximal capacity)	Scale/Sensor capacity	read	Float 32	1	0x5C	0x417	0x01	0x17	0, 1	0x4367	X	X	X
Automatic zero tracking	Enable / Disable auto zero function **Parameter:** 0 = Disabled 1 = Enabled	read/ write	Uint 8	1	0x63	0x417	0x01	0x1E	0, 1	0x436E	X	X	X
Zeroing at start-up	Enable / Disable zeroing mode at startup **Parameter:** 0 = Disabled 1 = Enabled	read/ write	Uint 8	1	0x64	0x417	0x01	0x1F	0, 1	0x436F	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	WMF	SPC	SLP85xD
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	2	0xB0	0x417	0x01	0x24	0,1	0x4374			
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	2	0xB1	0x417	0x01	0x25	0,1	0x4375			
Report/Write Adjustment Stability Time	Time in seconds in which the weight value must remain within tolerance in order to be regarded as stable during an adjustment **Parameter:** 0.1-4.0 seconds	Read/Write	Float 32	1	0x6C	0x417	0x01	0x27	0,1	0x4377	>= 3.0 .2	X	
Report/Write Adjustment Stability digit	Tolerance for the fluctuation of the weight value to still be regarded as stable during an adjustment Reported in digits (smallest weight increment) **Parameter:** 0.1-1000 d	Read/Write	Float 32	1	0x6D	0x417	0x01	0x28	0,1	0x4378	>= 3.0 .2	X	
Report #1 Input Polarity	Determines the polarity of the input at setup.	read	byte, 1	2	0x10	0x418	0x01	0x01	0, 1	0x4401			
Write #1 Input Polarity	Determines the polarity of the input at setup.	write	byte, 1	2	0x10	0x418	0x01	0x01	0, 1	0x4401			
Report #1 Input Assignment	Application-dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	read	byte, 1	2	0x11	0x418	0x01	0x02	0, 1	0x4402			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Write #1 Input Assignment	Application-dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	write	byte, 1	2	0x11	0x418	0x01	0x02	0, 1	0x4402			
Report #2 Input Polarity	Determines the polarity of the input at setup.	read	byte, 1	2	0x13	0x418	0x01	0x04	0, 1	0x4404			
Write #2 Input Polarity	Determines the polarity of the input at setup.	write	byte, 1	2	0x13	0x418	0x01	0x04	0, 1	0x4404			
Report #2 Input Assignment	Application-dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	read	byte, 1	2	0x14	0x418	0x01	0x05	0, 1	0x4405			
Write #2 Input Assignment	Application-dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	write	byte, 1	2	0x14	0x418	0x01	0x05	0, 1	0x4405			
Report #3 Input Polarity	Determines the polarity of the input at setup.	read	byte, 1	2	0x16	0x418	0x01	0x07	0, 1	0x4407			
Write #3 Input Polarity	Determines the polarity of the input at setup.	write	byte, 1	2	0x16	0x418	0x01	0x07	0, 1	0x4407			
Report #3 Input Assignment	Application-dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	read	byte, 1	2	0x17	0x418	0x01	0x08	0, 1	0x4408			
Write #3 Input Assignment	Application-dependent ex. 0=None, 1=Clear Tare, 2 = Tare, 3 = zero	write	byte, 1	2	0x17	0x418	0x01	0x08	0, 1	0x4408			
Report Output Polarity	Read Output polarity	read	byte, 1	2	0x1C	0x418	0x01	0x0D	0, 1	0x440D			
Write Output Polarity	Write Output polarity	write	byte, 1	2	0x1C	0x418	0x01	0x0D	0, 1	0x440D			
Report #1 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	read	byte, 1	2	0x1D	0x418	0x01	0x0E	0, 1	0x440E			
Write #1 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	write	byte, 1	2	0x1D	0x418	0x01	0x0E	0, 1	0x440E			
Report #2 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	read	byte, 1	2	0x24	0x418	0x01	0x15	0, 1	0x4415			
Write #2 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	write	byte, 1	2	0x24	0x418	0x01	0x15	0, 1	0x4415			
Report #3 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	read	byte, 1	2	0x2B	0x418	0x01	0x1C	0, 1	0x441C			
Write #3 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	write	byte, 1	2	0x2B	0x418	0x01	0x1C	0, 1	0x441C			
Report #4 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	read	byte, 1	2	0x32	0x418	0x01	0x23	0, 1	0x4423			
Write #4 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	write	byte, 1	2	0x32	0x418	0x01	0x23	0, 1	0x4423			
Report #5 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	read	byte, 1	2	0x39	0x418	0x01	0x2A	0, 1	0x442A			

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Write #5 Output Assignment	Value based on application: 0, 1, 2, 3, 4, 5,etc.	write	byte, 1	2	0x39	0x418	0x01	0x2A	0, 1	0x442A			
Last dynamic weight value	Last dynamic weight value	Read	Float 32	2	0x90	0x41A	0x01	0x01	0, 1	0x4501			
Calculated number of dynamic weighments	Calculated number of dynamic weighments (counts)	Read	Uint 32	2	0x92	0x41A	0x01	0x03	0, 1	0x4503			
Maximum dynamic weight value	Max dynamic weight	Read	Float 32	2	0x93	0x41A	0x01	0x04	0, 1	0x4504			
Minimum dynamic weight value	Min dynamic weight	Read	Float 32	2	0x94	0x41A	0x01	0x05	0, 1	0x4505			
Mean dynamic weight value	Average dynamic weight	Read	Float 32	2	0x95	0x41A	0x01	0x06	0, 1	0x4506			
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			
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
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			
Report Target weight	Report Target Weight	read	Float 32	2	0x5F	0x419	0x01	0x10	0, 1	0x4460	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
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
Read uint16	Test integer variable – always reads 9876	read	Uint 8	1	0x0C	0x30F	0x01	0x03	0, 1	0x5002	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
Read string	Test string variable – always read "ABCD"	read	String 160	1	0x0E	0x30F	0x01	0x05	0, 1	0x5004	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

Command	Description	Read/Write	Data Type	Profibus slot	Profibus Index	EIP Class Code	EIP Instance Values	EIP Attribute #	Profinet slot + subslot	Profinet Index	WMF	SPC	SLP85xD
Read uint32	Test long integer variable – always reads 98765	read	Long	1	0x10	0x30F	0x01	0x07	0, 1	0x5006	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
Read uint8	Test byte variable – always reads 56h	read	byte, 1	1	0x12	0x30F	0x01	0x09	0, 1	0x5008	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

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