Application program description

Product family:	Controller
Product type:	Motor Controller
Manufacturer:	WindowMaster A/S
Name:	Motor controller, 4 MotorLink™ lines, 4 local inputs / local heat & smoke inputs
Application name:	WEA1xM
Application version:	0.4

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1. Functional description

The WindowMaster WEA11M, WEA14M and WEA15M (from here on referred to as WEA1xM) are motor controllers with 4 motor lines used for controlling MotorLink™ window actuators. The WEA1xM also have inputs for push button for manually operating the 4 motor lines independently.

MotorLink™ technology is a state of the art digital data communication between actuators and control unit using 3 wires for power and communication.

MotorLink™ technology enables position control and feedback of each group of motors. Up to 4 window actuators in a group are connected in parallel and runs 100% synchronous. The actual position is stored in non-volatile memory in each actuator, so position information is maintained in case of loss of power. Up to 2 additional locking actuators can be connected to a MotorLink™ motor line.

WEA1xM also supports operation with different actuator speeds:

- One low speed setting for automatic operation.
- One higher speed setting for manual control which is giving a slightly higher noise level and a faster response to user input.

WEA11M is compatible with WindowMaster actuators/actuator packages e.g.:

Actuator packages	**Actuator type and no. of actuators/windows on one MotorLink™ motor line**
WMZ 804W 1110	1 window with 1 WMX 804-1
WMZ 804W 2112	1 window with 2 WMX 804-2
	1-4 window(s) each with one actuator. Motor type: WMX 803-1, WMX 804-1, WMX 823-1 or WMX 826-1. **Please note that actuators are not synchronised in this configuration.**
	1 window with 2 actuators. Type: WMX 803-2, WMX 804-2, WMX 823-2 or WMX 826-2. 1 window with 3 actuators. Type: WMX 803-3, WMX 804-3, WMX 823-3 or WMX 826-3. 1 window with 4 actuators. Type: WMX 803-4, WMX 804-4, WMX 823-4 or WMX 826-4.
	1-4 window(s) each with 1 WMU 836-1. **Please note that actuators are not synchronised in this configuration.**
	1 window with 2 actuators. Type: WMU 836-2. 1 window with 3 actuators. Type: WMU 836-3. 1 window with 4 actuators. Type: WMU 836-4.

NOTE! – Please observe maximum power capability of the 24V DC power supply used to power the WEA1xM.

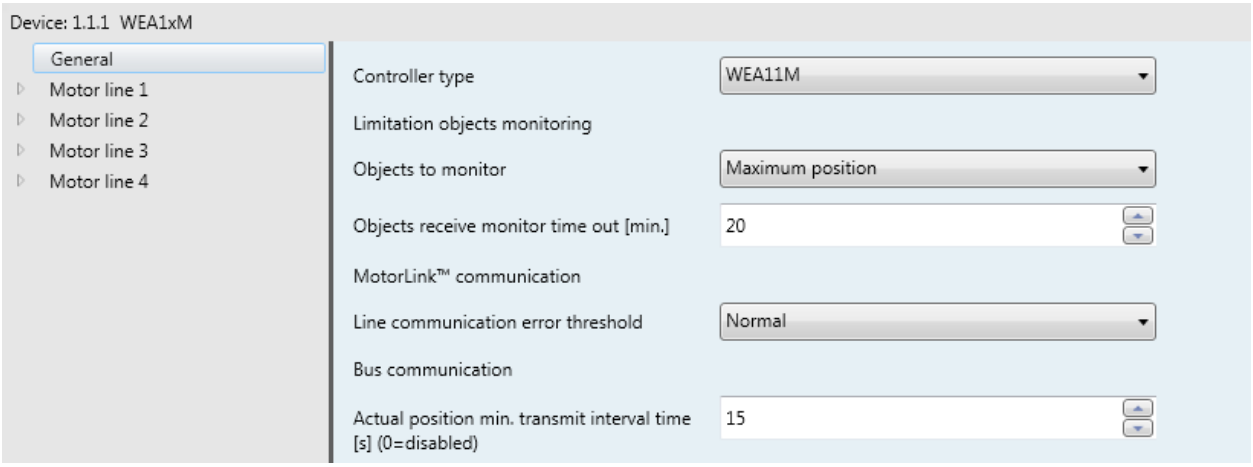
NOTE! – Please observe that only actuators of exactly the same type must be connected to a given motor line.

NOTE! – WEA14M and WEA15M enable heat and smoke link.

For further information about capability please contact your supplier.

2. Parameters

2.1. General parameters common for all motor lines



Parameter	**Controller type**	
Description	Specifies the motor controller type the ETS application is used with.	
Range	WEA11M: WEA14M/WEA15M:	WEA11M motor controller WEA14M or WEA15M motor controller. This adds additional parameters and communication objects.

The following describes parameters when controller type is WEA1xM

Parameter	**Actual position min. transmit interval time [sec.]**	
Description	Rules minimum retransmit interval of Actual Position for each motor line. Actual position will be transmitted if the position has changed, but this parameter rules how often the changes in position will be transmitted.	
Range	0: 1 – 255:	Disables transmission due to change. Equals 1 to 255 seconds.

Parameter	**Objects to monitor**	
Description	WEA1xM can monitor correct cyclic receives of different objects. This parameter rules which objects to monitor.	
Range	None: Maximum position: Close: Max. position and close:	No objects monitored. The maximum position object for each motor line is monitored. The close object for each motor line is monitored. The maximum position object and the close object for each motor line are monitored.

Parameter	**Objects receive monitor time out [min.]**
Description	This parameter determines how often updates on monitored objects must be received – if

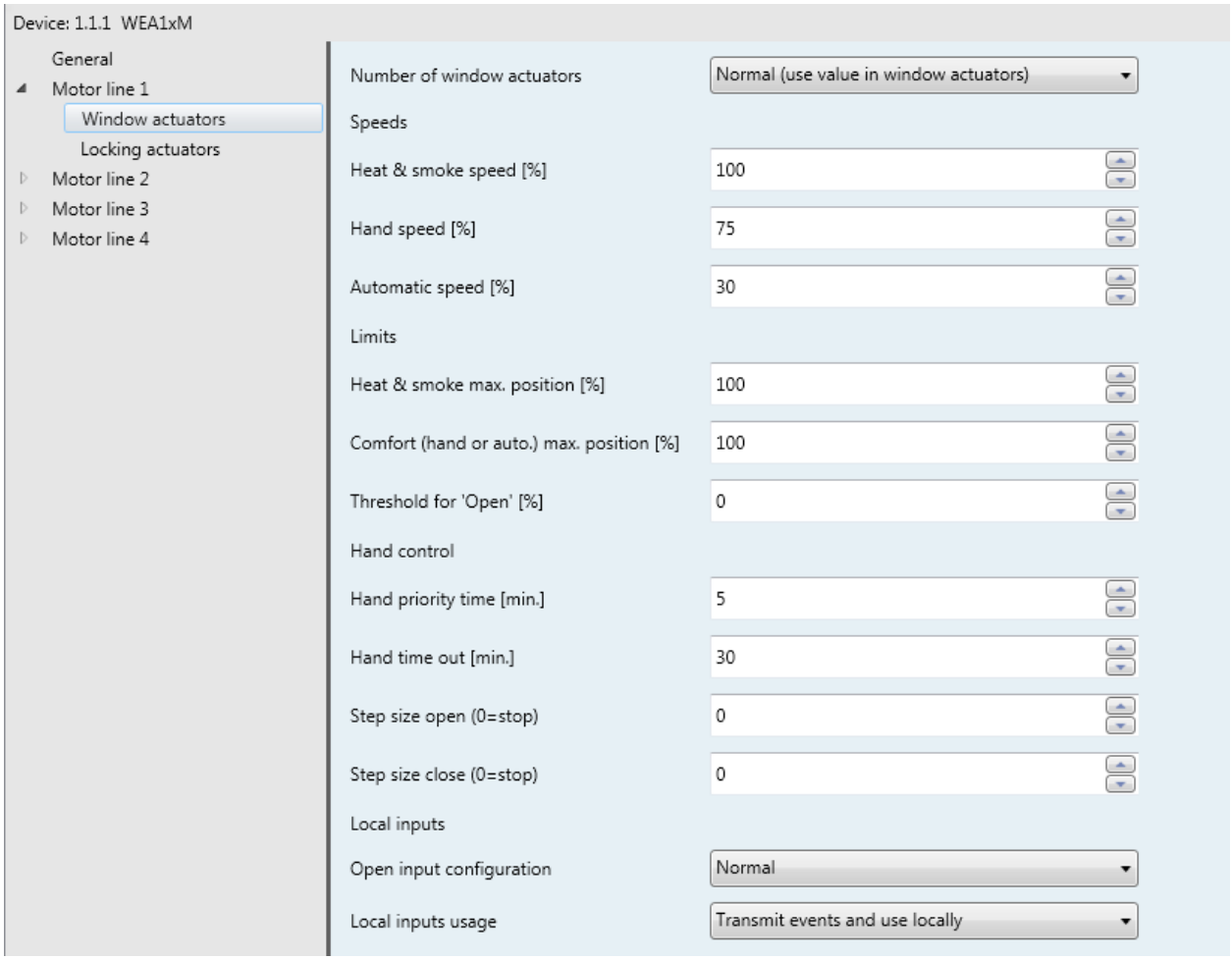
	monitoring is enabled (see above). If the time between object updates exceeds this period, actuators will be moved to closed position.
Range	2 - 255 equals 2 to 255 minutes.

Parameter	**Line communication error threshold**	
Description	Sporadic communication errors can appear in the communication between WEA1xM and the MotorLink™ actuators. This parameter rules how tolerant the WEA1xM must be before an error is transmitted.	
Range	Commissioning:	Any disturbance is handled as an error.
	Normal:	Normal tolerance towards sporadic errors.
	High:	High tolerance towards sporadic errors – to be used in noisy environments.
	Very high:	Very high tolerance towards sporadic errors – to be used in very noisy environments with long motor line cables.
	Disabled:	Motor line errors are ignored. **NOTE**: Do not use in a heat & smoke system.

Parameter	**Actual position min. transmit interval time**	
Description		
Range	0:	Retransmission of changed positions is disabled. The positions are only transmitted cyclically.
	1 – 255:	1 to 255 seconds. Specify the minimum interval between two transmissions of a changed position. Is used to limit the bus telegram load.

2.2. Parameters for each motor line

Only parameters for motor line 1 are described (other motor lines are alike).



Parameter	**Number of window actuators**
Description	WEA11M examines the actual actuator configuration on each motor line. The controller in each MotorLink™ actuator includes information about how many fellow actuators which is needed in order to have a valid configuration. This parameter rules how to handle discrepancies in the actuator configuration. Please note that normally actuators are exchanging actual position in order to keep synchronised positions - independent of tolerances and different loads. If position differs the actuators will automatically wait for the slowest one. If one or more actuators fail to respond, the operation is stopped in order to avoid damage on the window. This synchronisation feature is used if more actuators are needed in order to operate a large or heavy window. If more windows - each equipped with a single actuator (-1) are connected to the same motor line, this synchronisation feature is disabled. Depending on the demand for detection of configuration or run time failures, parameters must be selected in order to fit the expected number of actuators or a don't care value, where no check of the number of actuators is in action.
Range	Line disabled: Actuators will not run, and configuration errors are not transmitted. 1 single-actuator (-1): Only 1 WMX 803-1 or 1 WMX 804-1 or 1 WMX 823-1 or 1 WMX 826-1 or 1 WMU 836-1 is a valid combination.

	2 not synchronised single-actuators (-1): Only 2 WMX 803-1 or 2 WMX 804-1 or 2 WMX 823-1 or 2 WMX 826-1 or 2 WMU 836-1 is a valid combination. Actuators are not 100% synchronised. 3 not synchronised single-actuators (-1): Only 3 WMX 803-1 or 3 WMX 804-1 or 3 WMX 823-1 or 3 WMX 826-1 or 3 WMU 836-1 is a valid combination. Actuators are not 100% synchronised. 4 not synchronised single-actuators (-1): Only 4 WMX 803-1 or 4 WMX 804-1 or 4 WMX 823-1 or 4 WMX 826-1 or 4 WMU 836-1 is a valid combination. Actuators are not 100% synchronised. Don't care: 1 to 4 WMX 803-1 or WMX 804-1 or WMX 823-1 or WMX 826-1 or WMU 836-1 is a valid combination. Actuators are not 100% synchronised. Normal (use value in window actuators): This means, that a configuration is only valid in the found number of fellow actuators, if the settings is equal in each actuator. Valid configurations examples: 1 WMX 803-1, 1 WMX 804-1, 1 WMX 823-1, 1 WMX 826-1, 1 WMU 836-1 2 WMX 803-2, 2 WMX 804-2, 2 WMX 823-2, 2 WMX 826-2, 2 WMU 836-2, 3 WMX 803-3, 2 WMX 804-3, 3 WMX 823-3, 3 WMX 826-3, 3 WMU 836-3, 4 WMX 803-4, 4 WMX 804-4, 4 WMX 823-4, 4 WMX 826-4, 4 WMU 836-4.

Speeds

Parameter	**Heat & smoke speed [%]**
Description	This parameter rules the speed of the actuators during Heat and Smoke operation. This speed is also used when the actuators are closed by Close_Line_X or Close_all objects, or when the actuators are moving due to a decreased value on Max_position_input_Line_X
Range	0 - 100%. 0% means actuators minimum speed, 100% means actuators maximum speed.

Parameter	**Hand speed [%]**
Description	This parameter rules the speed of the actuators during hand operation.
Range	0 - 100%. 0% means actuators minimum speed, 100% means actuators maximum speed.

Parameter	**Automatic speed [%]**
Description	This parameter rules the speed of the actuators during automatic operation.
Range	0 - 100%. 0% means actuators minimum speed, 100% means actuators maximum speed.

Limits

Parameter	**Heat & smoke max. position [%]**
Description	This parameter rules the maximum opening allowed during Heat and Smoke operation. If 0% is selected windows will close during a Heat and smoke scenario.
Range	0 - 100% of full stroke.

Parameter	**Comfort (hand or auto.) max. position [%]**
Description	This parameter rules the maximum opening allowed during normal (comfort) operation. A limitation of the stroke of the actuators can for instance be useful in cases where the actuator is a part of a Heat and Smoke ventilation solution, where actuators normally only are allowed to open e.g. 40% of full stoke during comfort ventilation.
Range	0 - 100% of full stroke.

Parameter	**Threshold for 'Open' [%]**
Description	This parameter rules the threshold for the close / open status of the motor line. If the position is lower than or equal this threshold the status is closed i.e. Motor_closed_Line_X is true. Else if the position is higher than this threshold the status is not closed i.e. Motor_closed_Line_X is false.
Range	0 - 100% of full stroke.

Hand control

Parameter	**Hand priority [min.]**
Description	When actuators are operated by an automatic operation a timer is started. While this timer is running it is always possible to operation the actuator with hand priority independent of settings and limitations. This function is to enable the release of something getting stuck. After the hand priority time out normal operation is retained.
Range	0: Disables the hand priority function. 1 - 255 minutes.

Parameter	**Hand timeout [min.]**
Description	When actuators are operated by hand the automatic operation is ignored in some time. This parameter rules the duration of time after hand operation, where automatic commands are ignored. Hand operation can come from different input objects and local input terminals. Input objects that limits the position is still active.
Range	2 - 255 minutes.

Parameter	**Step size open**
Description	This parameter defines how much the actuator is moved when a step object is activated
Range	0: Stops any ongoing actuator movement. 1 – 100: 1 to 100% of full stroke in opening direction.

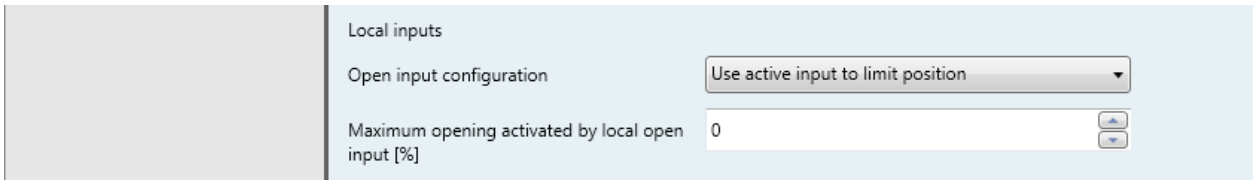
Parameter	**Step size close**
Description	This parameter defines how much the actuator is moved when a step object is activated
Range	0: Stops any ongoing actuator movement. 1 – 100: 1 to 100% of full stroke in closing direction.

Local inputs (this section is only applicable for the controller type WEA11M)

Parameter	**Open input configuration**	
Description	This parameter configures the physical local open input (terminal 1/5/9/13) for the motor line. The open input can be used to operate the motor line or limit the opening of the motor line to a configurable limit position.	
Range	Normal: Use active input to limit position: Use inactive input to limit position:	Use the input for a push buttons for opening An active open input will limit the position An inactive open input will limit the position

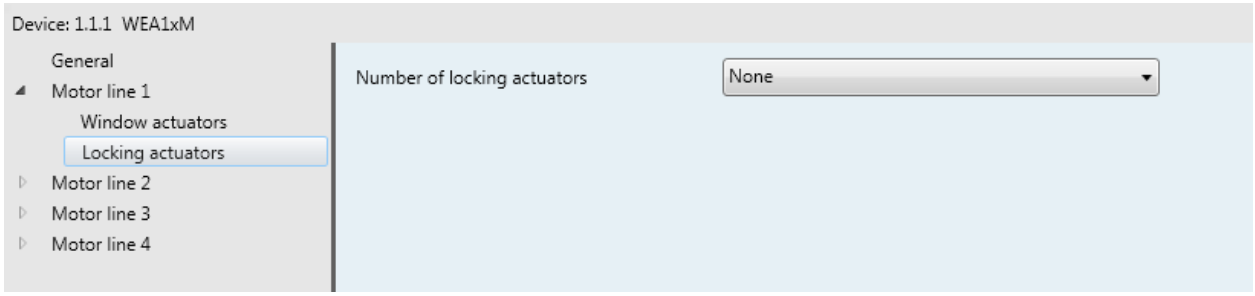
Parameter	**Local inputs usage**	
Description	This parameter configures the how the physical local inputs for push buttons are processed and used.	
Range	Transmit event and use locally: Only transmit event: Only transmit event and transmit cyclically:	The inputs are used to control the motor line. The input events are only transmitted on the bus and does not control the local motor line. The input events are only transmitted on the bus and does not control the local motor line. Additionally the status of the input is sent cyclically on the bus.

If 'Open input configuration' is set to other value than 'Normal' a new parameter is shown



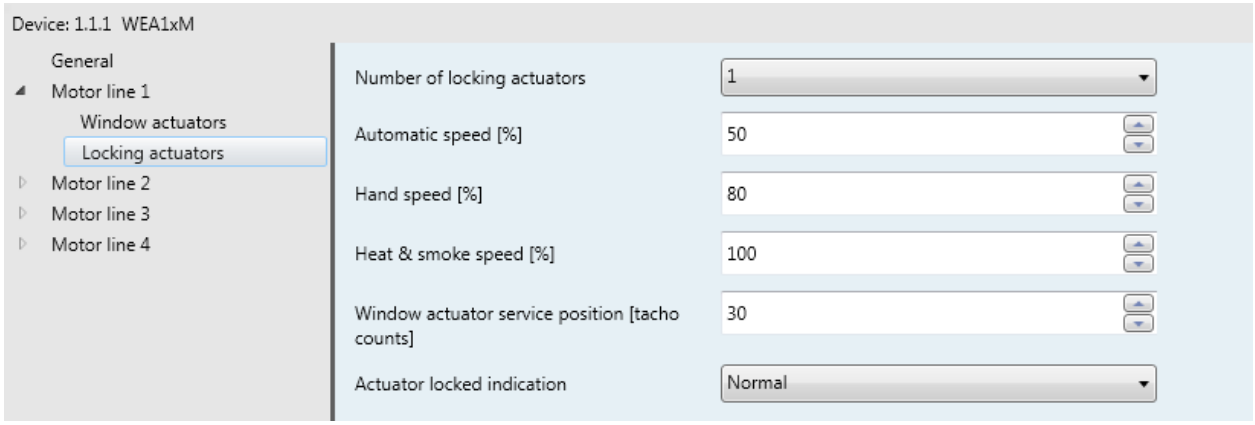
Parameter	**Maximum opening activated by local open input**
Description	The opening limitation position used when the local close input is activate (or inactive depending on configuration)
Range	0 – 100: 0 to 100% of full stroke.

Some windows have one or two locking actuators fitted. This section includes the parameters for the locking actuator(s) on each motor line.



Parameter	**Number of locking actuators**
Description	This parameter rules the expected configuration of locking actuators.
Range	None: No locking actuators are present. 1: One locking actuator must be present. 2: Two locking actuators must be present. Don't care: One or two locking actuators can be present.

If a value other than 'None' is selected more parameters are shown.



Parameter	**Automatic speed [%]**
Description	This parameter rules the speed of the locking actuators during automatic operation.
Range	0 - 100%. 0% means actuators minimum speed, 100% means actuators maximum speed.

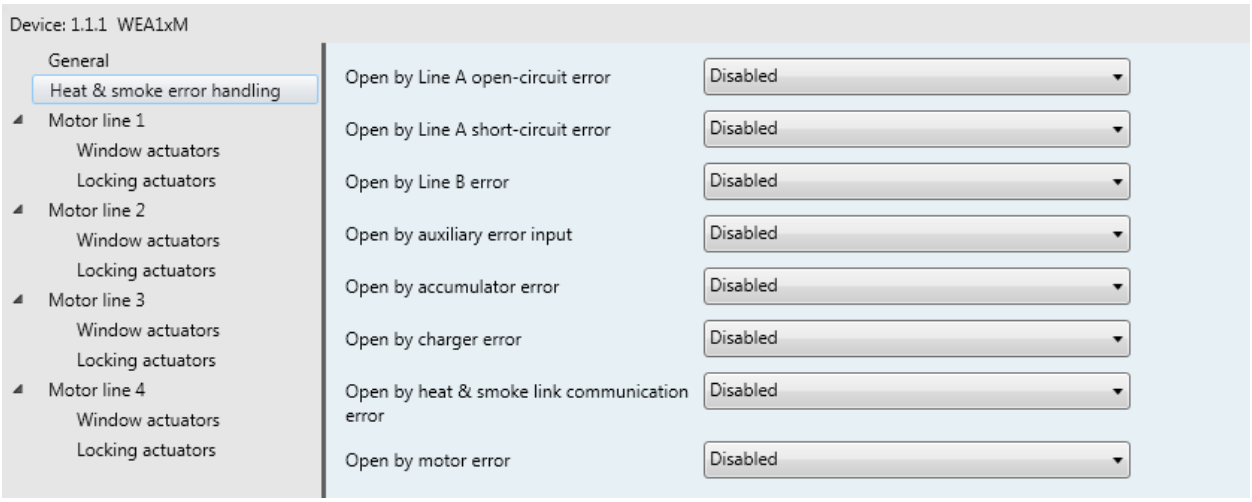
Parameter	**Hand speed [%]**
Description	This parameter rules the speed of the locking actuators during hand operation.
Range	0 - 100%. 0% means actuators minimum speed, 100% means actuators maximum speed.

Parameter	**Heat & smoke speed [%]**
Description	This parameter rules the speed of the locking actuators during heat and smoke operation.
Range	0-100%. 0% means actuators minimum speed, 100% means actuators maximum speed.

Parameter	**Window actuator service position [tacho counts]**
Description	Some locking actuators include a feature, where a special service position can be activated. This feature is typically used in tilt and turn windows, where the locking actuation for service can activate the turn state for the window. In order to ease the disengagement of the window actuator from the sash, a position of the window actuator in service state can be selected. This parameter rules this service position for window actuator.
Range	0 - 255 counts. The typical distance of one count is about 1mm, but it depends of the type of the window actuator.

Parameter	**Actuator locked indication**	
Description	Some locking actuators include position switches for determination of the actual position. Some window hinges do however not allow the locking actuator to reach the final position but stops at a mechanical stop. This parameter rules whether this situation must be judged as a mal function or a normal situation.	
Range	Normal:	Only activation of the built-in switch indicates locked position. If overcurrent is detected it will be shown as an error.
	Accept overcurrent:	Activation of the built-in switch or the mechanical stop will both be taken as indication for locked positions. No overcurrent error will be shown.

Heat & smoke error handling (only applicable for controller type WEA14M/WEA15M)



Parameter	**Open by Line A open-circuit error**
Description	Specifies if the windows should open if a Line A open-circuit error occurs.
Range	Disabled Enabled

Parameter	**Open by Line A short-circuit error**
Description	Specifies if the windows should open if a Line A short-circuit error occurs.
Range	Disabled Enabled

Parameter	**Open by Line B error**
Description	Specifies if the windows should open if a Line B error occurs.
Range	Disabled Enabled

Parameter	**Open by auxiliary error input**
Description	Specifies if the windows should open if the auxiliary error input is active
Range	Disabled Enabled

Parameter	**Open by accumulator error**
Description	Specifies if the windows should open if an accumulator error occurs.
Range	Disabled Enabled

Parameter	**Open by charger error**
Description	Specifies if the windows should open if a charger error occurs.
Range	Disabled Enabled

Parameter	**Open by heat & smoke link communication error**
Description	Specifies if the windows should open if heat & smoke link communication error occurs.
Range	Disabled Enabled

Parameter	**Open by motor error**
Description	Specifies if the windows should open if motor error occurs.
Range	Disabled Enabled

3. Communication objects

3.0. Close_all

No	Object name	Function	Type	Flags
0	Close_all	DPT_Switch	1.001	CW
	This input object is used to indicate that all motor lines should close. When closing the Heat & Smoke speed is being used. 0 = Off: No indication to close all motor lines. 1 = On: Indication to close all motor lines.			

3.1. Auto_off

No	Object name	Function	Type	Flags
1	Auto_off	DPT_Switch	1.001	CW
	This input object is used to indicate whether automatic control is enabled or not. 0 = Off: Automatic control enabled. 1 = On: Automatic control disabled.			

3.2. Service

No	Object name	Function	Type	Flags
2	Service	DPT_Switch	1.001	CW
	This input object is used to indicate that the system is in Service mode. When the service bit is set no movements is allowed. 0 = Off: Movements allowed. 1 = On: Movements not allowed.			

3.3. Close_Line_1

No	Object name	Function	Type	Flags
3	Close_Line_1	DPT_Switch	1.001	CW
	This input object is used to indicate that the motor line must be closed. When closing the Heat & Smoke speed is being used. 0 = Off: Normal operation. 1 = On: Motor line must be closed.			

3.4. Close_Line_2

No	Object name	Function	Type	Flags
4	Close_Line_2	DPT_Switch	1.001	CW
	See Close_Line_1			

3.5. Close_Line_3

No	Object name	Function	Type	Flags
5	Close_Line_3	DPT_Switch	1.001	CW
	See Close_Line_1			

3.6. Close_Line_4

No	Object name	Function	Type	Flags
6	Close_Line_4	DPT_Switch	1.001	CW
	See Close_Line_1			

3.7. Disable_hand_Line_1

No	Object name	Function	Type	Flags
7	Disable_hand_Line_1	DPT_Switch	1.001	CW
	This input object is used to disable manual control of the motor line. 0 = Off: Enable manual control of motor line. 1 = On: Disable manual control of motor line.			

3.8. Disable_hand_Line_2

No	Object name	Function	Type	Flags
8	Disable_hand_Line_2	DPT_Switch	1.001	CW
	See Disable_hand_Line_1			

3.9. Disable_hand_Line_3

No	Object name	Function	Type	Flags
9	Disable_hand_Line_3	DPT_Switch	1.001	CW
	See Disable_hand_Line_1			

3.10. Disable_hand_Line_4

No	Object name	Function	Type	Flags
10	Disable_hand_Line_4	DPT_Switch	1.001	CW
	See Disable_hand_Line_1			

3.11. Disable_auto_Line_1

No	Object name	Function	Type	Flags
11	Disable_auto_Line_1	DPT_Switch	1.001	CW
	This input object is used to disable automatic control of the motor line. 0 = Off: Enable automatically control of motor line. 1 = On: Disable automatically control of motor line.			

3.12. Disable_auto_Line_2

No	Object name	Function	Type	Flags
12	Disable_auto_Line_2	DPT_Switch	1.001	CW
	See Disable_auto_Line_1			

3.13. Disable_auto_Line_3

No	Object name	Function	Type	Flags
13	Disable_auto_Line_3	DPT_Switch	1.001	CW
	See Disable_auto_Line_1			

3.14. Disable_auto_Line_4

No	Object name	Function	Type	Flags
14	Disable_auto_Line_4	DPT_Switch	1.001	CW
	See Disable_auto_Line_1			

3.15. Max_position_input_Line_1

No	Object name	Function	Type	Flags
15	Max_position_input_Line_1	DPT_Scaling	5.001	CW
	This input object is used to set the maximum allowed position for the motor line. When the actuators are moving due to a decreased maximum position heat & smoke speed is being used. 0 - 255 = 0 - 100%			

3.16. Max_position_input_Line_2

No	Object name	Function	Type	Flags
16	Max_position_input_Line_2	DPT_Scaling	5.001	CW
	See Max_position_input_Line_1			

3.17. Max_position_input_Line_3

No	Object name	Function	Type	Flags
17	Max_position_input_Line_3	DPT_Scaling	5.001	CW
	See Max_position_input_Line_1			

3.18. Max_position_input_Line_4

No	Object name	Function	Type	Flags
18	Max_position_input_Line_4	DPT_Scaling	5.001	CW
	See Max_position_input_Line_1			

3.19. Auto_position_Line_1

No	Object name	Function	Type	Flags
19	Auto_position_Line_1	DPT_Scaling	5.001	CW
	This input object is used to set the target position with automatic speed for the motor line. 0 - 255 = 0 - 100%			

3.20. Auto_position_Line_2

No	Object name	Function	Type	Flags
20	Auto_position_Line_2	DPT_Scaling	5.001	CW
	See Auto_position_Line_1			

3.21. Auto_position_Line_3

No	Object name	Function	Type	Flags
21	Auto_position_Line_3	DPT_Scaling	5.001	CW
	See Auto_position_Line_1			

3.22. Auto_position_Line_4

No	Object name	Function	Type	Flags
22	Auto_position_Line_4	DPT_Scaling	5.001	CW
	See Auto_position_Line_1			

3.23. Hand_relative_position_Line_1

No	Object name	Function	Type	Flags
23	Hand_relative_position_Line_1	DPT_Percent_V8	6.001	CW
	This input object is used to manually adjust the position for the motor line. V: -100..-1 = Move actuator V% of full stroke in the closing direction relative to the current position of the actuator 0: Stop any ongoing actuator movement V: 1..100: Move actuator V% of full stroke in the opening direction relative to the current position of the actuator. Values < -100 and >100 are truncated			

3.24. Hand_relative_position_Line_2

No	Object name	Function	Type	Flags
24	Hand_relative_position_Line_2	DPT_Percent_V8	6.001	CW
	See Auto_position_Line_3			

3.25. Hand_relative_position_Line_3

No	Object name	Function	Type	Flags
25	Hand_relative_position_Line_3	DPT_Percent_V8	6.001	CW
	See Auto_position_Line_3			

3.26. Hand_relative_position_Line_4

No	Object name	Function	Type	Flags
26	Hand_relative_position_Line_4	DPT_Percent_V8	6.001	CW
	See Auto_position_Line_3			

3.27. Hand_absolute_position_Line_1

No	Object name	Function	Type	Flags
27	Hand_absolute_position_Line_1	DPT_Scaling	5.001	CW
	This input object is used to set the target position of the motor line using hand speed. 0 - 255 = 0 - 100%			

3.28. Hand_absolute_position_Line_2

No	Object name	Function	Type	Flags
28	Hand_absolute_position_Line_2	DPT_Scaling	5.001	CW
	See Hand_absolute_position_Line_1			

3.29. Hand_absolute_position_Line_3

No	Object name	Function	Type	Flags
29	Hand_absolute_position_Line_3	DPT_Scaling	5.001	CW
	See Hand_absolute_position_Line_1			

3.30. Hand_absolute_position_Line_4

No	Object name	Function	Type	Flags
30	Hand_absolute_position_Line_4	DPT_Scaling	5.001	CW
	See Hand_absolute_position_Line_1			

3.31. Hand_position_move_Line_1

No	Object name	Function	Type	Flags
31	Hand_position_move_Line_1	DPT_OpenClose	1.009	CW
	The input object is used to manually open/close of the window. 0 = Open: Move the window in opening direction 1 = Close: Move the window in closing direction			

3.32. Hand_position_move_Line_2

No	Object name	Function	Type	Flags
32	Hand_position_move_Line_2	DPT_OpenClose	1.009	CW
	See Hand_position_move_Line_1			

3.33. Hand_position_move_Line_3

No	Object name	Function	Type	Flags
33	Hand_position_move_Line_3	DPT_OpenClose	1.009	CW
	See Hand_position_move_Line_1			

3.34. Hand_position_move_Line_4

No	Object name	Function	Type	Flags
34	Hand_position_move_Line_4	DPT_OpenClose	1.009	CW
	See Hand_position_move_Line_1			

3.35. Hand_position_step_Line_1

No	Object name	Function	Type	Flags
35	Hand_position_step_Line_1	DPT_OpenClose	1.009	CW
	The input object is used to manually step the window in open/close direction. The step size is determined by parameter. 0 = Open: Move the window the step size in opening direction 1 = Close: Move the window the step size in closing direction			

3.36. Hand_position_step_Line_2

No	Object name	Function	Type	Flags
36	Hand_position_step_Line_2	DPT_OpenClose	1.009	CW
	See Hand_position_step_Line_1			

3.37. Hand_position_step_Line_3

No	Object name	Function	Type	Flags
37	Hand_position_step_Line_3	DPT_OpenClose	1.009	CW
	See Hand_position_step_Line_1			

3.38. Hand_position_step_Line_4

No	Object name	Function	Type	Flags
38	Hand_position_step_Line_4	DPT_OpenClose	1.009	CW
	See Hand_position_step_Line_1			

3.39. Clear_hand_timer_Line_1

No	Object name	Function	Type	Flags
39	Clear_hand_timer_Line_1	DPT_Trigger	1.017	CW
	This input object is used to clear the hand timer for the motor line. 0: No action 1 = Clear/expire timer			

3.40. Clear_hand_timer_Line_2

No	Object name	Function	Type	Flags
40	Clear_hand_timer_Line_2	DPT_Trigger	1.017	CW
	See Clear_hand_timer_Line_1			

3.41. Clear_hand_timer_Line_3

No	Object name	Function	Type	Flags
41	Clear_hand_timer_Line_3	DPT_Trigger	1.017	CW
	See Clear_hand_timer_Line_1			

3.42. Clear_hand_timer_Line_4

No	Object name	Function	Type	Flags
42	Clear_hand_timer_Line_4	DPT_Trigger	1.017	CW
	See Clear_hand_timer_Line_1			

3.43. Actual_position_Line_1

No	Object name	Function	Type	Flags
43	Actual_position_Line_1	DPT_Scaling	5.001	CRT
	This output object contains the actual position for the motor line. 0 - 255 = 0 - 100%			

3.44. Actual_position_Line_2

No	Object name	Function	Type	Flags
44	Actual_position_Line_2	DPT_Scaling	5.001	CRT
	See Actual_position_Line_1			

3.45. Actual_position_Line_3

No	Object name	Function	Type	Flags
45	Actual_position_Line_3	DPT_Scaling	5.001	CRT
	See Actual_position_Line_1			

3.46. Actual_position_Line_4

No	Object name	Function	Type	Flags
46	Actual_position_Line_4	DPT_Scaling	5.001	CRT
	See Actual_position_Line_1			

3.47. Actual_max_position_Line_1

No	Object name	Function	Type	Flags
47	Actual_max_position_Line_1	DPT_Scaling	5.001	CRT
	This output object contains the actual maximum allowed position of the motor line. Any condition limiting the position is reflected on this output. 0 - 255 = 0 - 100%			

3.48. Actual_max_position_Line_2

No	Object name	Function	Type	Flags
48	Actual_max_position_Line_2	DPT_Scaling	5.001	CRT
	See Actual_max_position_Line_1			

3.49. Actual_max_position_Line_3

No	Object name	Function	Type	Flags
49	Actual_max_position_Line_3	DPT_Scaling	5.001	CRT
	See Actual_max_position_Line_1			

3.50. Actual_max_position_Line_4

No	Object name	Function	Type	Flags
50	Actual_max_position_Line_4	DPT_Scaling	5.001	CRT
	See Actual_max_position_Line_1			

3.51. Motor_status_Line_1

No	Object name	Function	Type	Flags
51	Motor_status_Line_1	DPT_MotorLineStatus(*)	16 bit	CRT
	This output object contains the status of the motor line stored in a 16 bit value. MSB.....LSB **Mode of operation. Bit 3, 2, 1, 0:** 0000b = Only maximum opening limit active. Both hand operation and automatic operation are disabled. 0001b = Hand operation. Automatic operation is disabled. 0010b = Only automatic operation. Hand operation is disabled. 0011b = Normal. Both hand and automatic operation are enabled. 0100b = Emergency. Motor line operated by a heat and smoke emergency input. No other operation possible. 0101b = Emergency closed. Motor line operated by a heat and smoke emergency close input. No other operation possible. 0110b = Close. Close command active. Hand and automatic operation are disabled. 0111b = Open. Open command active. Hand and automatic operation are disabled. 1000b = Position locked. Service input object active. No operation possible. 1001b = Manually operated. The motor line has been operated by hand. Time out determined by parameter. 1010b = Disabled. The motor line is disabled by parameter. 1011b–1111b = Reserved. **Number of window actuators detected. Bit 6, 5, 4:** 0 = No actuators detected on motor line. 1-7 = 1-7 Actuator(s) detected on motor line. **Status. Bit 8, 7:** 00b = Normal operation. 01b = Under configuration. The motor line is being configured. The actuator(s) will not move. 10b = Hand operation blocking. A hand operation blocked state is pending, but in this state hand operation is still possible. 11b = Hand operation blocked. It is not possible to operate the motor line by hand operation commands (hand operation disabled). **Movement. Bit 10, 9:** 00b = Normal. Actuator configuration is valid and no problems detected during last operation of the actuators. 01b = Configuration error. Inconsistency between parameters and actual actuators detected or configuration ongoing. 10b = Obstacle detected during opening. Problem detected during last opening operation of the actuators. 11b = Obstacle detected during closing. Problem detected during last closing operation of the actuators. **Locking actuator #1 Present. Bit 11:** 0 = Locking actuator #1 not present. 1 = Locking actuator #1 present. Locking actuator no. 1 has been found on the motor line.			

	Locking actuator #2 Present. Bit 12: 0 = Locking actuator #2 not present. 1 = Locking actuator #2 present. Locking actuator no. 2 has been found on the motor line. **Watchdog timeout. Bit 13:** 0 = No timeout. 1 = Watchdog timeout. The positioning limitation communication objects have not been updated within the configured time out. **Motor line communication error. Bit 14:** 0 = No motor line communication error. 1 = Motor line communication error. Error during communication with one or more actuator(s) on the motor line. **Closed. Bit 15:** 0 = Not closed. 1 = Closed. All actuators at their closed position. If locking actuators are present these are also locked.		

3.52. Motor_status_Line_2

No	Object name	Function	Type	Flags
52	Motor_status_Line_2	DPT_MotorLineStatus(*)	16 bit	CRT
	See Motor_status_Line_1			

3.53. Motor_status_Line_3

No	Object name	Function	Type	Flags
53	Motor_status_Line_3	DPT_MotorLineStatus(*)	16 bit	CRT
	See Motor_status_Line_1			

3.54. Motor_status_Line_4

No	Object name	Function	Type	Flags
54	Motor_status_Line_4	DPT_MotorLineStatus(*)	16 bit	CRT
	See Motor_status_Line_1			

3.55. Error_status

No	Object name	Function	Type	Flags
55	Error_status	DPT_MotorControllerStatus(*)	8 bit	CRT
	This output object contains information about the error status. Bit 0: 1 = Motor controller error. Indicating any kind of error except errors related to the heat and smoke link. Details on bit 1 - 5. 0 = No error present. Bit 1: 1 = Motor line 1 error. An error was detected during the last operation of the actuator(s) or a communication error with one or more actuators. 0 = No error on motor line 1. Bit 2: 1 = Motor line 2 error. An error was detected during the last operation of the actuator(s) or a communication error with one or more actuators. 0 = No error on motor line 2. Bit 3: 1 = Motor line 3 error. An error was detected during the last operation of the actuator(s) or a communication error with one or more actuators. 0 = No error on motor line 3. Bit 4: 1 = Motor line 4 error. An error was detected during the last operation of the actuator(s) or a communication error with one or more actuators. 0 = No error on motor line 4. Bit 5: 1 = Configuration error. Inconsistency between parameters and actual actuators detected or configuration ongoing. 0 = No configuration error present. Bit 6: 1 = Heat and smoke link communication failure Error detected in the daisy chained communication link. 0 = Heat and smoke link communication ok Bit 7: 1 = Heat and smoke link incoming error bit. Error present in previous controller(s) in daisy chained communication link. 0 = No heat and smoke incoming error bit.			

3.56. Hand_status

No	Object name	Function	Type	Flags
56	Hand_status	DPT_MotorControllerHandStatus(*)	8 bit	CRT
	This output object contains information about the hand and open status of motor line 1 - 4. Bit 0: 1 = Hand operation active on motor line 1. The motor line will not react on automatic commands. 0 = Hand operation not active on motor line 1. The motor line will react on automatic commands. Bit 1: 1 = Hand operation active on motor line 2. The motor line will not react on automatic commands. 0 = Hand operation not active on motor line 2. The motor line will react on automatic commands. Bit 2: 1 = Hand operation active on motor line 3. The motor line will not react on automatic commands. 0 = Hand operation not active on motor line 3. The motor line will react on automatic commands. Bit 3: 1 = Hand operation active on motor line 4. The motor line will not react on automatic commands. 0 = Hand operation not active on motor line 4. The motor line will react on automatic commands. Bit 4: 1 = Motor line 1 closed. All actuators at their closed position. If locking actuators are present these are also locked. 0 = Motor line 1 not closed. The actuators are not at their closed position. If locking actuator is present is not locked. Bit 5: 1 = Motor line 2 closed. All actuators at their closed position. If locking actuators are present these are also locked. 0 = Motor line 2 not closed. The actuators are not at their closed position. If locking actuator is present is not locked. Bit 6: 1 = Motor line 3 closed. All actuators at their closed position. If locking actuators are present these are also locked. 0 = Motor line 3 not closed. The actuators are not at their closed position. If locking actuator is present is not locked. Bit 7: 1 = Motor line 4 closed. All actuators at their closed position. If locking actuators are present these are also locked. 0 = Motor line 4 not closed. The actuators are not at their closed position. If locking actuator is present is not locked.		

3.57. Hand_timer_active_Line_1

No	Object name	Function	Type	Flags
57	Hand_timer_active_Line_1	DPT_Switch	1.001	CRT
	This output object contains information on the motor line control mode. 0 = Off: Not operated by hand. 1 = On: Hand operation active on motor line. The motor line will not react on automatic commands.			

3.58. Hand_timer_active_Line_2

No	Object name	Function	Type	Flags
58	Hand_timer_active_Line_2	DPT_Switch	1.001	CRT
	See Hand_timer_active_Line_1			

3.59. Hand_timer_active_Line_3

No	Object name	Function	Type	Flags
59	Hand_timer_active_Line_3	DPT_Switch	1.001	CRT
	See Hand_timer_active_Line_1			

3.60. Hand_timer_active_Line_4

No	Object name	Function	Type	Flags
60	Hand_timer_active_Line_4	DPT_Switch	1.001	CRT
	See Hand_timer_active_Line_1			

3.61. Motor_error_Line_1

No	Object name	Function	Type	Flags
61	Motor_error_Line_1	DPT_Bool	1.002	CRT
	This output object contains information about the motor line error condition. 0 = False: No error condition detected 1 = True: Error detected			

3.62. Motor_error_Line_2

No	Object name	Function	Type	Flags
62	Motor_error_Line_2	DPT_Bool	1.002	CRT
	See Motor_error_Line_1			

3.63. Motor_error_Line_3

No	Object name	Function	Type	Flags
63	Motor_error_Line_3	DPT_Bool	1.002	CRT
	See Motor_error_Line_1			

3.64. Motor_error_Line_4

No	Object name	Function	Type	Flags
64	Motor_error_Line_4	DPT_Bool	1.002	CRT
	See Motor_error_Line_1			

3.65. Motor_closed_Line_1

No	Object name	Function	Type	Flags
65	Motor_closed_Line_1	DPT_Bool	1.002	CRT
	This output object contains information about the motor line closed status. 0 = False: Motor line not closed 1 = True: Motor line closed. All actuators at their closed position. If locking actuators are present these are also locked.			

3.66. Motor_closed_Line_2

No	Object name	Function	Type	Flags
66	Motor_closed_Line_2	DPT_Bool	1.002	CRT
	See Motor_closed_Line_1			

3.67. Motor_closed_Line_3

No	Object name	Function	Type	Flags
67	Motor_closed_Line_3	DPT_Bool	1.002	CRT
	See Motor_closed_Line_1			

3.68. Motor_closed_Line_4

No	Object name	Function	Type	Flags
68	Motor_closed_Line_4	DPT_Bool	1.002	CRT
	See Motor_closed_Line_1			

3.69. Hand_position_output_Line_1 (only controller type WEA11M)

No	Object name	Function	Type	Flags
69	Hand_position_output_Line_1	DPT_Percent_V8	6.001	CT
	This output object transmits the events on the local input terminals for the motor line. -100 = Long activation on the close input terminal 0 = Short activation on open or close input terminal 100 = Long activation on the open input terminal			

3.70. Hand_position_output_Line_2 (only controller type WEA11M)

No	Object name	Function	Type	Flags
70	Hand_position_output_Line_2	DPT_Percent_V8	6.001	CT
	See Hand_position_output_Line_1			

3.71. Hand_position_output_Line_3 (only controller type WEA11M)

No	Object name	Function	Type	Flags
71	Hand_position_output_Line_3	DPT_Percent_V8	6.001	CT
	See Hand_position_output_Line_1			

3.72. Hand_position_output_Line_4 (only controller type WEA11M)

No	Object name	Function	Type	Flags
72	Hand_position_output_Line_4	DPT_Percent_V8	6.001	CT
	See Hand_position_output_Line_1			

3.77. Heat_smoke_link_status

No	Object name	Function	Type	Flags
77	Heat_smoke_link_status	DPT_HeatSmokeLinkStatus(*)	8 bit	CRT
	This output object contains information about the heat and smoke daisy chaned communication link. Bit 0: 1 = Emergency. 1st priority emergency command active on link. 0 = No emergency command present on link. Bit 1: 1 = Emergency close. 2nd priority emergency close command active on link. 0 = No emergency close command present on link. Bit 2: 1 = Failure. Error present that affects the heat and smoke system. 0 = Ok. No error present. Bit 3: 1 = Link communication failure. Error detected in the daisy chained communication link. 0 = Link communication ok. Bit 4: 1 = Link incoming error bit. Error present in previous controller(s) in daisy chained communication link. 0 = No incoming error bit. Bit 5: 1 = Battery powered operation. The heat and smoke system is running on battery power. 0 = Mains powered operation. Bit 6: 1 = Open. A 4th priority open command is active on link. 0 = No open command present. Bit 7: 1 = Close. A 3rd priority close command is active on link. 0 = No close command present.			

3.78. Emergency

No	Object name	Function	Type	Flags
78	Emergency	DPT_Bool	1.002	CRT
	This output object contains information about the emergency state. 0 = False: Emergency not active. 1 = True: Emergency active. Motor controller operated by a heat and smoke emergency input. No other operation possible.			

3.79. Emergency_close

No	Object name	Function	Type	Flags
79	Emergency_close	DPT_Bool	1.002	CRT
	This output object contains information about the emergency close state. 0 = False: Emergency close not active. 1 = True: Emergency close active. Motor controller operated by a heat and smoke emergency close input. No other operation possible.			

3.80. Heat_smoke_failure

No	Object name	Function	Type	Flags
80	Heat_smoke_failure	DPT_Bool	1.002	CRT
	This output object contains information about the heat and smoke failure condition. 0 = False: No heat and smoke failure. 1 = True: Heat and smoke failure. Error detected that affects normal heat and smoke operation.			

3.81. Heat_smoke_OK

No	Object name	Function	Type	Flags
81	Heat_smoke_OK	DPT_Bool	1.002	CRT
	This output object contains information about Heat and smoke State. 0 = Heat and smoke not OK. 1 = Heat and smoke OK. No error detect that affects the heat and smoke operation.			

3.82. Heat_smoke_sensor_status (only controller type WEA14M/WEA15M)

No	Object name	Function	Type	Flags
82	Heat_smoke_sensor_status	DPT_HeatSmokeSensorStatus(*)	8 bit	CRT
	This output object contains information about Heat and smoke sensor status. Bit 0: 1 = Heat & smoke, 'input A open' active 0 = Heat & smoke, 'input A open' not active Bit 1: 1 = Heat & smoke, 'input A close' active 0 = Heat & smoke, 'input A close' not active Bit 2: 1 = Heat & smoke, 'input B close' active 0 = Heat & smoke, 'input B close' not active Bit 3: 1 = Heat & smoke open by error active 0 = Heat & smoke open by error not active Bit 4: 1 = Heat & smoke 'close all input' active 0 = Heat & smoke 'close all input' not active Bit 5:			

	1 = Heat & smoke 'open all input' active 0 = Heat & smoke 'open all input' not active Bit 6: 1 = Heat & smoke request for power from accumulator 0 = Heat & smoke no request for power from accumulator Bit 7: 1 = Heat & smoke mains power ok 0 = Heat & smoke no mains power For more details please refer to the Data Type Description document.		

3.83. Heat_smoke_error_status (only controller type WEA14M/WEA15M)

No	Object name	Function	Type	Flags
83	Heat_smoke_error_status	DPT_HeatSmokeErrorStatus(*)	8 bit	CRT
	This output object contains information about Heat and smoke sensor status. Bit 0: 1 = Line A input open-circuit error 0 = No line A input open-circuit error Bit 1: 1 = 'Line A input' short-circuit error 0 = No 'line A input' short-circuit error Bit 2: 1 = 'Line B input' error 0 = No 'line B input' error Bit 3: 1 = 'Auxiliary error input' active 0 = 'Auxiliary error input' not active Bit 4: 1 = Accumulator error 0 = No accumulator error Bit 5: 1 = Charger error 0 = No charger error Bit 6: 1 = Heat & smoke daisy chain communication link error 0 = No Heat & smoke daisy chain communication link error Bit 7: 1 = Sum error, one or more heat & smoke errors present 0 =No heat & smoke errors present For more details please refer to the Data Type Description document.			

3.84. Motor_not_closed_Line_1

No	Object name	Function	Type	Flags
84	Motor_not_closed_Line_1	DPT_Bool	1.002	CRT
	This output object contains information about the motor line not closed status. Motor_not_closed_Line_1 is the inverted Motor_closed_Line_1. 0 = False: Motor line closed. All actuators at their closed position. If locking actuators are present these are also locked. 1 = True: Motor line not closed.			

3.85. Motor_not_closed_Line_2

No	Object name	Function	Type	Flags
85	Motor_not_closed_Line_2	DPT_Bool	1.002	CRT
	See Motor_not_closed_Line_1			

3.86. Motor_not_closed_Line_3

No	Object name	Function	Type	Flags
86	Motor_not_closed_Line_3	DPT_Bool	1.002	CRT
	See Motor_not_closed_Line_1			

3.87. Motor_not_closed_Line_4

No	Object name	Function	Type	Flags
87	Motor_not_closed_Line_4	DPT_Bool	1.002	CRT
	See Motor_not_closed_Line_1			

(*) Non-standardised data point type.