

**Date:** 18.08.2016  
**Vendor Name:** Gesellschaft für Regelungstechnik und Energieeinsparung m.b.H.  
**Product Name:** ems2 building controller  
**Product Model Number:** Base product: ems2.CP04D  
 Derived product: ems2.R4D1B  
**Applications Software Version:**  
**Firmware Revision:** ems2-BACnet 2.02  
**BACnet Protocol Revision:** 1.14 (DIN EN ISO 16484-5)

**Product Description:**

The ems2 is a freely programmable compact controller that can be enhanced with I/O modules as well as interface modules of the ems4 series. As a freely programmable universal controller (CP04D with integrated operating display and R4D1B without the display) for accommodating individual building automation concepts.

BACnet Standardized Device Profile (Annex L):
<input type="checkbox"/> BACnet Operator Workstation (B-OWS)
<input checked="" type="checkbox"/> BACnet Building Controller (B-BC)
<input type="checkbox"/> BACnet Advanced Application Controller (B-AAC)
<input type="checkbox"/> BACnet Application Specific Controller (B-ASC)
<input type="checkbox"/> BACnet Smart Sensor (B-SS)
<input type="checkbox"/> BACnet Smart Actuator (B-SA)

Supported BACnet Interoperability Building Blocks (Annex K):				
Data Sharing	Alarm & Event Mgmt	Scheduling	Trending	Device & Network Mgmt
DS-RP-A	AE-N-I-B	SCHED-E-B	T-VMT-I-B	DM-DDB-A
DS-RP-B	AE-N-E-B	SCHED-I-B	T-VMT-E-B	DM-DDB-B
DS-RPM-A	AE-ACK-B		T-ATR-B	DM-DOB-A
DS-RPM-B	AE-ASUM-B		T-VMMV-I-B	DM-DOB-B
DS-WP-A	AE-ESUM-B		T-AMVR-B	DM-DCC-B
DS-WP-B	AE-INFO-B			DM-TS-B
DS-WPM-B				DM-UTC-B
DS-COV-A				DM-RD-B
DS-COV-B				DM-BR-B
DS-COVU-A				DM-LM-B
DS-COVU-B				DM-OCD-B
DS-COVP-B				NM-CE-A

<b>Segmentation Capability:</b>	
<input checked="" type="checkbox"/> Segmented requests supported	Window Size _____
<input checked="" type="checkbox"/> Segmented responses supported	Window Size _____

<b>Standard Object Types Supported:</b>				
<b>Object Type</b>	<b>Dynamically Creatable</b>	<b>Dynamically Deleteable</b>	<b>Optional Prop. Supported</b>	<b>Writable Properties</b>
Accumulator	<input type="checkbox"/>	<input type="checkbox"/>	Description Device_Type Reliability Prescale Value Change Time Value Before Change Value Set Pulse Rate High_Limit Low_Limit Limit Monitoring Interval Notification_Class Time_Delay Limit_Enable Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps	Out_Of_Service Reliability Value Set High_Limit Low_Limit Limit Monitoring Interval Notification_Class Time_Delay Limit_Enable Event_Enable Notify_Type Description
Analog Input	<input type="checkbox"/>	<input type="checkbox"/>	Description Reliability Min_Pres_Value Max_Pres_Value COV_Increment Time_Delay Notification_Class High_Limit Low_Limit Deadband Limit_Enable Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps Device_Type Update_Interval Resolution	Out_Of_Service COV_Increment Time_Delay High_Limit Low_Limit Deadband Limit_Enable Event_Enable Notification_Class Notify_Type Present_Value Reliability Description

**Standard Object Types Supported:**

Object Type	Dynamically Creatable	Dynamically Deleteable	Optional Prop. Supported	Writable Properties
Analog Output	<input type="checkbox"/>	<input type="checkbox"/>	Description Min_Pres_Value Max_Pres_Value Resolution COV_Increment Time_Delay Notification_Class High_Limit Low_Limit Deadband Limit_Enable Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps Device_Type Reliability	Present_Value COV_Increment Time_Delay Notification_Class High_Limit Low_Limit Deadband Limit_Enable Event_Enable Notify_Type Out_Of_Service Reliability Description
Analog Value	<input type="checkbox"/>	<input type="checkbox"/>	Description Reliability Priority_Array Relinquish_Default COV_Increment Time_Delay Notification_Class High_Limit Low_Limit Deadband Limit_Enable Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps	Present_Value Out_Of_Service COV_Increment Time_Delay High_Limit Low_Limit Deadband Limit_Enable Event_Enable Notification_Class Notify_Type Reliability Description
Binary Input	<input type="checkbox"/>	<input type="checkbox"/>	Description Reliability Inactive_Text Active_Text Change_Of_State_Time Change_Of_State_Count Time_Of_State_Count_Reset Elapsed_Active_Time Time_Of_Active_Time_Reset Time_Delay Notification_Class Alarm_Value Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps Polarity Device_Type	Out_Of_Service Change_Of_State_Count Elapsed_Active_Time Time_Delay Notification_Class Event_Enable Notify_Type Reliability Present_Value Polarity Alarm_Value Description

**Standard Object Types Supported:**

Object Type	Dynamically Creatable	Dynamically Deleteable	Optional Prop. Supported	Writable Properties
Binary Output	<input type="checkbox"/>	<input type="checkbox"/>	Description Inactive_Text Active_Text Change_Of_State_Time Change_Of_State_Count Time_Of_State_Count_Reset Elapsed_Active_Time Time_Of_Active_Time_Reset Time_Delay Notification_Class Feedback_Value Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps Minimum_Off_Time Minimum_On_Time Polarity Reliability Device_Type	Present_Value Change_Of_State_Count Elapsed_Active_Time Time_Delay Notification_Class Feedback_Value Event_Enable Notify_Type Reliability Out_Of_Service Polarity Description
Binary Value	<input type="checkbox"/>	<input type="checkbox"/>	Description Reliability Inactive_Text Active_Text Change_Of_State_Time Change_Of_State_Count Time_Of_State_Count_Reset Elapsed_Active_Time Time_Of_Active_Time_Reset Priority_Array Relinquish_Default Time_Delay Notification_Class Alarm_Value Event_Enable Acked_Transitions Minimum_Off_Time Minimum_On_Time Notify_Type Event_Time_Stamps	Present_Value Out_Of_Service Change_Of_State_Count Elapsed_Active_Time Time_Delay Notification_Class Event_Enable Notify_Type Reliability Alarm_Value Description
Calendar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Description	Date_List

Standard Object Types Supported:				
Object Type	Dynamically Creatable	Dynamically Deleteable	Optional Prop. Supported	Writable Properties
Device	<input type="checkbox"/>	<input type="checkbox"/>	Location Description Local_Time Local_Date UTC_Offset Daylight_Savings_Status APDU_Segment_Timeout Active_COV_Subscriptions Backup_Failure_Timeout Configuration_Files Last_Restore_Time Max_Segments_Accepted Backup_Preparation_Time Restore_Preparation_Time Restore_Completion_Time Backup_And_Restore_State Max_Master Max_Info_Frames Serial_Number	Backup_Failure_Timeout Description
Multi-State Input	<input type="checkbox"/>	<input type="checkbox"/>	Description Reliability State_Text Time_Delay Notification_Class Alarm_Values Fault_Values Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps Device_Type	Out_Of_Service Time_Delay Notification_Class Alarm_Values Fault_Values Event_Enable Notify_Type Present_Value Reliability Description
Multi-State Output	<input type="checkbox"/>	<input type="checkbox"/>	Description State_Text Time_Delay Notification_Class Feedback_Value Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps Reliability Device_Type	Present_Value Time_Delay Notification_Class Feedback_Value Event_Enable Notify_Type Reliability Out_Of_Service Description

Standard Object Types Supported:				
Object Type	Dynamically Creatable	Dynamically Deleteable	Optional Prop. Supported	Writable Properties
Multi-State Value	<input type="checkbox"/>	<input type="checkbox"/>	Description Reliability State_Text Priority_Array Relinquish_Default Time_Delay Notification_Class Alarm_Values Fault_Values Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps	Present_Value Out_Of_Service Time_Delay Notification_Class Alarm_Values Fault_Values Event_Enable Notify_Type Reliability Description
Notification Class	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Description	Recipient_List Priority Ack_Required Description
Pulse Converter	<input type="checkbox"/>	<input type="checkbox"/>	Description Input Reference Reliability COV_Increment COV_Period Notification_Class Time_Delay High_Limit Low_Limit Deadband Limit_Enable Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps	Adjust_Value Out_Of_Service Reliability COV_Increment COV_Period Notification_Class Time_Delay High_Limit Low_Limit Deadband Limit_Enable Event_Enable Notify_Type Description
Schedule	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Description Weekly_Schedule Exception_Schedule	Weekly_Schedule Exception_Schedule Priority_For_Writing Effective_Period Schedule_Default List_Of_Obj._Prop._Ref. Reliability Present_Value Description Out_Of_Service

**Standard Object Types Supported:**

Object Type	Dynamically Creatable	Dynamically Deleteable	Optional Prop. Supported	Writable Properties
Trend Log	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Description Start_Time Stop_Time Log_DeviceObjectProperty Log_Interval Notification_Threshold Records_Since_Notification Last_Notify_Record Notification_Class Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps COV_Resubscription_Interval Client_COV_Increment Reliability	Start_Time Stop_Time Log_Interval Stop_When_Full Notification_Class Event_Enable Enable Record_Count COV_Resubscription_Interval Client_COV_Increment Notification_Threshold Notify_Type Logging_Type Description
Trend Log Multiple	<input type="checkbox"/>	<input type="checkbox"/>	Description Reliability Start_Time Stop_Time Notification_Threshold Records_Since_Notification Last_Notify_Record Notification_Class Event_Enable Acked_Transitions Notify_Type Event_Time_Stamps	Enable Start_Time Stop_Time Logging_Type Log_Interval Stop_When_Full Record_Count Notification_Threshold Notification_Class Event_Enable Notify_Type Description

**Standard Object Types Supported:**

Object Type	Dynamically Creatable	Dynamically Deleteable	Optional Prop. Supported	Writable Properties
Loop	<input type="checkbox"/>	<input type="checkbox"/>	Description Proportional_Constant Proportional_Constant_Units Integral_Constant Integral_Constant_Units Derivative_Constant Derivative_Constant_Units Maximum_Output Minimal_Output COV_Increment Time_Delay Notification_Class Error_Limit Deadband Event_Enable Aked_Transitions Notify_Type Event_Time_Stamps Bias Update_Interval Reliability	Out_Of_Service Proportional_Constant Integral_Constant Derivative_Constant COV_Increment Time_Delay Notification_Class Error_Limit Event_Enable Notify_Type Maximum_Output Minimal_Output Bias Reliability Present_Value Description
File	<input type="checkbox"/>	<input type="checkbox"/>	Description	Archive File_Size Description
Event Enrollment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Description	Event_Enable Notify_Type Event_Parameters Object_Property_Reference Notification_Class Description



Data Link Layer Options:	
<input checked="" type="checkbox"/>	BACnet IP, (Annex J), Foreign Device
<input type="checkbox"/>	ISO 8802-3, Ethernet (Clause 7)
<input type="checkbox"/>	ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
<input type="checkbox"/>	ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s)
<input checked="" type="checkbox"/>	MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400
<input type="checkbox"/>	MS/TP slave (Clause 9), baud rate(s):
<input type="checkbox"/>	Point-To-Point, EIA 232 (Clause 10), baud rate(s):
<input type="checkbox"/>	Point-To-Point, modem, (Clause 10), baud rate(s):
<input type="checkbox"/>	LonTalk, (Clause 11), medium:
<input type="checkbox"/>	Other:

**Device Address Binding:**

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)

- Yes     No

**Networking Options:**

- Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.  
 Annex H, BACnet Tunneling Router over IP  
 BACnet/IP Broadcast Management Device (BBMD)  
Does the BBMD support registrations by Foreign Devices?     Yes     No

**Character Sets Supported:**

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

- |   |   |  |
|---|---|--|
| <input checked="" type="checkbox"/> ANSI X3.4         | <input type="checkbox"/> IBM/Microsoft DBCS | <input checked="" type="checkbox"/> ISO 8859-1 |
| <input checked="" type="checkbox"/> ISO 10646 (UTF-8) | <input type="checkbox"/> ISO 10646 (UCS-4)  | <input type="checkbox"/> JIS C 6226            |

**If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:**

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