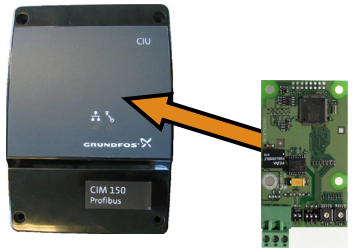
BACnet Protocol Implementation Conformance Statement

Grundfos CIM 300 BACnet MS/TP for Grundfos pumps and boosters

Grundfos CIM 300 BACnet MS/TP for pumps

Document date: June 25th, 2010
Vendor Name: Grundfos
Product Name: CIM
Product Model Number: 300 BACnet MS/TP
Application Software: V01.10
Firmware Revision: V01.10
BACnet Protocol Rev.: 1.4



CIU

CIM 300
BACnet MS/TP

Product Description:

The CIM 300 BACnet MS/TP interface from Grundfos enables BACnet communication with Grundfos pumps that have a GENIbus interface. The communication interface module can either be installed directly in the Grundfos pump / system to enable BACnet MS/TP communication, or in an external power supply unit (called CIU) connected to the pump / booster. In both cases, the communication interface module is the same.
Note: The CIM 300 BACnet MS/TP has passed the BTL test in June 2010.

BACnet Standardized Device Profile (Annex L):

☐ BACnet Operator Workstation (B-OWS)
☐ BACnet Building Controller (B-BC)
☐ BACnet Advanced Application Controller (B-AAC)
☑ **BACnet Application Specific Controller (B-ASC)**
☐ BACnet Smart Sensor (B-SS)
☐ BACnet Smart Actuator (B-SA)

BACnet Interoperability Building Blocks Supported:

Data sharing services:

Name	BACnet BIBB
ReadProperty	DS-RP-B
ReadPropertyMultiple	DS-RPM-B
WriteProperty	DS-WP-B
WritePropertyMultiple	DS-WPM-B
SubscribeCOV ConfirmedCOVNotification UnconfirmedCOVNotification	DS-COV-B

Device management services:

Name	BACnet BIBB
Who-is / I-am	DM-DDB-A
	DM-DDB-B
Who-has / I-have	DM-DOB-B
DeviceCommunicationControl	DM-DCC-B

Segmentation Capability:

☐ Segmented requests supported Window Size _____

☐ Segmented responses supported Window Size _____

Note: Segmentation is not supported

Standard Object Types Supported:

Object type	Supported	Dynamically Createable	Dynamically Deletable
Analog input	☑	☐	☐
Analog output	☑	☐	☐
Analog value	☑	☐	☐
Binary input	☑	☐	☐
Binary output	☑	☐	☐
Multistate input	☑	☐	☐
Multistate output	☑	☐	☐
Device	☑	☐	☐

Data Link Layer Options:
☐ BACnet IP, (Annex J)
☐ BACnet IP, (Annex J), Foreign Device
☐ ISO 8802-3, Ethernet (Clause 7)
☐ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
☐ ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s) _____
☑ **MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 76800**
☐ MS/TP slave (Clause 9), baud rate(s): _____
☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s):_____
☐ Point-To-Point, modem, (Clause 10), baud rate(s): _____
☐ LonTalk, (Clause 11), medium: _____
☐ 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.

☑ **ANSI X3.4**	☐ IBM™/Microsoft™ DBCS	☐ ISO 8859-1
☐ ISO 10646 (UCS-2)	☐ ISO 10646 (UCS-4)	☐ JIS C 6226

Types of non-BACnet equipment supported:

☑ Grundfos MAGNA circulators *
☑ Grundfos UPE Series 2000 (UPE 80-120 and 100-120) circulators
☑ Grundfos CRE, CRNE, CRIE, MTRE, CME (single-phase and three-phase, up to 11 kW + three-phase, 11-22 kW)
☑ Grundfos TPE, TPE Series 2000, NBE, NKE (single-phase and three-phase, up to 11 kW + three-phase, 11-22 kW)
☑ Grundfos CUE frequency converter (all versions, 0.55 - 250 kW).
☑ Grundfos CU 351 Hydro MPC * and Multi-E boosters
☑ Grundfos CU 351 Control MPC * Multi Pump Controller

** = Additional Grundfos GENIbus module required*

Complete object list (For pumps)

Object ID	Object_Name
DEVICE	Device Object
AV, 0	Custom device object instance number
AV, 1	BACnet watchdog
BO, 0	Set control source
MO, 0	Set control mode
MO, 1	Set operating mode
MO, 2	Product simulation
BO, 1	Relay 1 control
BO, 2	Relay 2 control
BO, 3	Set direction
BO, 4	Reset fault
AO, 0	Set setpoint
MI, 0	Actual control mode
MI, 1	Actual operating mode
MI, 2	Next bearing-service type
MI, 3	CIM status
BI, 0	Control source status
BI, 1	Actual direction
BI, 2	Rotation status

Object ID	Object_Name
BI, 3	At minimum speed
BI, 4	At maximum speed
BI, 11	Digital input 1 status
BI, 12	Digital input 2 status
BI, 13	Digital input 3 status
BI, 14	Digital output 1 status
BI, 15	Digital output 2 status
AI, 0	Fault code
AI, 1	Warning code
AI, 2	Time to bearing service
AI, 3	Capacity
AI, 4	Head
AI, 5	Flow
AI, 6	Relative performance
AI, 7	Speed
AI, 8	Frequency
AI, 9	Actual setpoint
AI, 10	Motor current
AI, 11	DC link voltage

Object ID	Object_Name
AI, 12	Motor voltage
AI, 13	Power
AI, 14	Remote flow
AI, 15	Inlet pressure
AI, 16	Remote pressure
AI, 17	Level
AI, 18	Power electronic temperature
AI, 19	Motor temperature
AI, 20	Remote temperature
AI, 21	Electronic temperature
AI, 22	Fluid temperature
AI, 23	Bearing temperature drive end
AI, 24	Bearing temperature non-drive end
AI, 25	Auxilary sensor input
AI, 26	Specific energy
AI, 27	Runtime
AI, 28	Total ontime
AI, 29	Torque
AI, 30	Energy consumption

Note: *Not all objects are supported by each pump type. Please contact Grundfos for details.*

Complete object list (For boosters)

Object ID	Object_Name
DEVICE	Device Object
AV, 0	Custom device object instance number
AV, 1	BACnet watchdog
AV, 4	Simulation event code
AV, 5	Simulation device type
AV, 6	Simulation device number
AV, 7	Simulation action type
AV, 8	Simulation reset type
BO, 0	Set control source
MO, 0	Set control mode
MO, 1	Set operating mode
MO, 2	Product simulation
BO, 4	Reset fault
BO, 5	Fault simulation
AO, 0	Set setpoint
MI, 0	Actual control mode
MI, 1	Actual operating mode
MI, 3	CIM status
MI, 4	Subpump 1 control source
MI, 5	Subpump 2 control source
MI, 6	Subpump 3 control source
MI, 7	Subpump 4 control source
MI, 8	Subpump 5 control source
MI, 9	Subpump 6 control source
BI, 0	Control source status
BI, 2	Rotation status
BI, 3	At minimum speed
BI, 4	At maximum speed
BI, 5	Standby pumps active
BI, 6	Pressure relief active
BI, 7	Soft pressure active

Object ID	Object_Name
BI, 8	Low flow boost active
BI, 9	Low flow stop active
BI, 10	Alternative setpoint active
BI, 11	Digital input 1 status
BI, 12	Digital input 2 status
BI, 13	Digital input 3 status
BI, 14	Digital output 1 status
BI, 15	Digital output 2 status
BI, 16	Subpump 1 presence
BI, 17	Subpump 1 communication status
BI, 18	Subpump 2 presence
BI, 19	Subpump 2 communication status
BI, 20	Subpump 3 presence
BI, 21	Subpump 3 communication status
BI, 22	Subpump 4 presence
BI, 23	Subpump 4 communication status
BI, 24	Subpump 5 presence
BI, 25	Subpump 5 communication status
BI, 26	Subpump 6 presence
BI, 27	Subpump 6 communication status
BI, 28	Fault simulation status
AI, 0	Fault code
AI, 1	Warning code
AI, 3	Capacity
AI, 4	Head
AI, 5	Flow
AI, 6	Relative performance
AI, 9	Actual setpoint
AI, 10	Motor current
AI, 13	Power
AI, 15	Inlet pressure

Object ID	Object_Name
AI, 16	Remote pressure
AI, 17	Level
AI, 20	Remote temperature
AI, 25	Auxilary sensor input
AI, 27	Runtime
AI, 30	Energy consumption
AI, 33	Ambient temperature
AI, 34	Forward temperature
AI, 35	Return temperature
AI, 36	Differential temperature
AI, 37	Outlet pressure
AI, 38	Feed tank level
AI, 39	Subpump 1 fault code
AI, 40	Subpump 1 runtime
AI, 41	Subpump 1 speed
AI, 42	Subpump 2 fault code
AI, 43	Subpump 2 runtime
AI, 44	Subpump 2 speed
AI, 45	Subpump 3 fault code
AI, 46	Subpump 3 runtime
AI, 47	Subpump 3 speed
AI, 48	Subpump 4 fault code
AI, 49	Subpump 4 runtime
AI, 50	Subpump 4 speed
AI, 51	Subpump 5 fault code
AI, 52	Subpump 5 runtime
AI, 53	Subpump 5 speed
AI, 54	Subpump 6 fault code
AI, 55	Subpump 6 runtime
AI, 56	Subpump 6 speed

Note: *Not all objects are supported by each booster type. Please contact Grundfos for details.*