

USER
MANUAL

DIRIS Digiware M-50/M-70 & D-50/D-70

BACnet Protocol Implementation
Conformance Statement

EN



[www.socomec.com/
en/diris-digiware](http://www.socomec.com/en/diris-digiware)

socomec
Innovative Power Solutions

1. ANNEX A - PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (NORMATIVE)	3
1.1. Product Description.	3
1.2. BACnet Standardized Device Profile (Annex L)	3
1.3. List all BACnet Interoperability Building Blocks Supported (Annex K)	3
1.4. Segmentation Capability	3
1.5. Standard Object Types Supported	4
1.5.1. Device Object	4
1.5.2. Analog Input Object	4
1.5.3. Analog Input Measurement List	7
1.5.4. Binary Input Object.	10
1.5.5. Binary Output Object	10
1.6. Data Link Layer Options	11
1.7. Device Address Binding	11
1.8. Networking Options.	11
1.9. Network Security Options	11
1.10. Character Sets Supported	11

1. ANNEX A - PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (NORMATIVE)

(This annex is part of this Standard and is required for its use.)

BACnet Protocol Implementation Conformance Statement

Date: 09/09/2019

Vendor Name: SOCOMEC

Product Name: DIRIS Digiware M-50/M-70 & D-50/D-70

Product Model Number: M-50/M-70 & D-50/D-70

Application Software Version: 2.3.17

Firmware Revision: 0.8.3

BACnet Protocol Revision: 1.12

1.1. Product Description

BACnet gateway for Socomec devices supported by the M-50/M-70 gateways or D-50/D-70 displays.

1.2. BACnet Standardized Device Profile (Annex L)

- ☐ BACnet Operator Workstation (B-OWS)
- ☐ BACnet Advanced Operator Workstation (B-AWS)
- ☐ BACnet Operator Display (B-OD)
- ☐ 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)

1.3. List all BACnet Interoperability Building Blocks Supported (Annex K)

Data Sharing-ReadProperty-B (DS-RP-B)
Data Sharing-ReadPropertyMultiple-B (DS-RPM-B)
Data Sharing-WriteProperty-B (DS-WP-B)
Device management-Dynamic Device Binding-B (DM-DDB-B)
Device Management-TimeSynchronization-B (DM-TS-B)

1.4. Segmentation Capability

- ☐ Able to transmit segmented messages Window Size: _____
- ☐ Able to receive segmented messages Window Size: _____

1.5. Standard Object Types Supported

An object type is supported if it may be present in the device. For each standard Object Type supported provide the following data:

- 1) Whether objects of this type are dynamically creatable using the CreateObject service
- 2) Whether objects of this type are dynamically deletable using the DeleteObject service
- 3) List of the optional properties supported
- 4) List of all properties that are writable where not otherwise required by this standard
- 5) List of all properties that are conditionally writable where not otherwise required by this standard
- 6) List of proprietary properties and for each its property identifier, datatype, and meaning
- 7) List of any property range restrictions

Socomec DIRIS Digiware M-50/M-70 gateways and D-50/D-70 displays support the following object types: Device, Analog Input, Binary Input and Binary Output.

1.5.1. Device Object

These objects are neither dynamically creatable using CreateObject service nor deletable using DeleteObject service.

The way the OID is assigned to a device (instance number) is the following:

OID = Main OID (= default 100) + ModbusAddress

- Device with Main OID (100) is the gateway itself
- Device with instance number 1xx is the device with the Modbus address xx.

1.5.1.1. Optional Properties

Property Identifier	ID	Type	Description	Write
Description	28	String	Device's Description	NO
Local_Time	57	Time	Local Time of the gateway	NO
Utc_Offset	119	Signed	Utc Offset of the gateway	NO
Local_Date	56	Date	Local Date of the gateway	NO
Daylight_Saving_Status	24	Boolean	Daylight Saving state of the gateway	NO
Location	58	String	Device's Location	NO
Active_Cov_Subscriptions	152	Subscription	-	NO
Serial_Number	372	String	Device's Serial number	NO
Property_List	371	Property List	List of property of this object	NO

1.5.1.2. Proprietary Properties

Property Identifier	ID	Type	Description	Write
Version Build Date	4000	String	Build Date of Device's application software	NO
Operating Hour Counter	4001	Unsigned	Device's Operating Hour counter	NO

1.5.2. Analog Input Object

These objects are neither dynamically creatable using CreateObject service nor deletable using DeleteObject service.

Such an object is part of a device object.

The way the OID is assigned to an Analog Input Object (instance number) is the following:

OID = LLMM

- with LL = Index of the load of the device (starting at 1)
- with MM = Index of the measurement type (see Analog Input Measurement List).

For example, Analog Input with OID 204 reflects Phasis/Neutral Voltage V1 of Load 2 of corresponding device.

1.5.2.1. Optional Properties

Property Identifier	ID	Type	Description	Write
Description	28	String	Measurement point Description	NO
Reliability	103	Enumeration	Reliability of the measured data	NO
Scale ⁽⁸⁾	187	Real	Value of the scale to apply	NO
Max_Pres_Value ⁽²⁾	65	Real	Max Present Value reached	NO
Maximum_Value_Timestamp ⁽²⁾	149	Real	Timestamp of Max Present Value	NO
Min_Pres_Value ⁽²⁾	69	Real	Min Present Value reached	NO
Minimum_Value_Timestamp ⁽²⁾	150	Real	Timestamp of Min Present Value	NO
Average_Value ⁽³⁾	125	Real	Average value	NO

1.5.2.2. Proprietary Properties

Property Identifier	ID	Type	Description	Write
Instantaneous_Timestamp ⁽¹⁾	4100	Real	Timestamp of present value (not handled yet)	NO
Average_Timestamp ⁽³⁾	4101	Real	Timestamp of average value	NO
Max_Average_Value ⁽⁴⁾	4102	Real	Max Present Value reached	NO
Max_Average_Timestamp ⁽⁴⁾	4103	Real	Timestamp of Max Present Value	NO
Min_Average_Value ⁽⁴⁾	4104	Real	Min Present Value reached	NO
Min_Average_Timestamp ⁽⁴⁾	4105	Real	Timestamp of Min Present Value	NO
Harmonics_Row_02 ⁽⁵⁾	4200	Real	Harmonic Row 2	NO
Harmonics_Row_03 ⁽⁵⁾	4201	Real	Harmonic Row 3	NO
Harmonics_Row_04 ⁽⁵⁾	4202	Real	Harmonic Row 4	NO
Harmonics_Row_05 ⁽⁵⁾	4203	Real	Harmonic Row 5	NO
Harmonics_Row_06 ⁽⁵⁾	4204	Real	Harmonic Row 6	NO
Harmonics_Row_07 ⁽⁵⁾	4205	Real	Harmonic Row 7	NO
Harmonics_Row_08 ⁽⁵⁾	4206	Real	Harmonic Row 8	NO
Harmonics_Row_09 ⁽⁵⁾	4207	Real	Harmonic Row 9	NO
Harmonics_Row_10 ⁽⁵⁾	4208	Real	Harmonic Row 10	NO
Energy_Total_Residual ⁽⁶⁾	4300	Real	Total Residual Energy	NO
Energy_Total_Hourmeter ⁽⁶⁾	4301	Real	Total Hourmeter Energy	NO
Energy_Partial ⁽⁶⁾	4302	Real	Partial Energy	NO
Energy_Partial_Residual ⁽⁶⁾	4303	Real	Partial Residual Energy	NO
Energy_Partial_Hourmeter ⁽⁶⁾	4304	Real	Partial Hourmeter Energy	NO
Energy_Total_Lagging ⁽⁷⁾	4305	Real	Total Lagging Energy	NO
Energy_Total_Lagging_Res ⁽⁷⁾	4306	Real	Total Lagging Residual Energy	NO
Energy_Total_Leading ⁽⁷⁾	4307	Real	Total Leading Energy	NO
Energy_Total_Leading_Res ⁽⁷⁾	4308	Real	Total Leading Residual Energy	NO
Energy_Last_Partial ⁽⁶⁾	4309	Real	Last Partial Energy	NO
Energy_Last_Partial_Res ⁽⁶⁾	4310	Real	Last Partial Residual Energy	NO
Energy_Last_Partial_Time-stamp ⁽⁶⁾	4311	Real	Last Partial Hourmeter Energy	NO
Multifluid_Partial ⁽⁸⁾	4400	Real	Multifluid Partial counter	NO
Multifluid_Weight ⁽⁸⁾	4401	Real	Multifluid Weight (applied per pulse)	NO
Source Priority Type (10)	4500	Real	Source priority (Network, Source1, Source2)	NO
Switch Fault Code (10)	4501	Real	Switch fault code	NO
Last Switchover cause (10)	4502	Real	Last switchover cause	NO
Genset relay state (10)	4503	Real	State of genset relay	NO
Instant_Min_Max_Reset ⁽⁹⁾	4150	Real	Command to Reset all Present Min/Max	YES
Average_Min_Max_Reset ⁽⁹⁾	4151	Real	Command to Reset all Average Min/Max	YES

(1): See Property usage in column "Present + Timestamp" of table "Analog Input Measurement List"

(2): See Property usage in column "Present Min/Max + Timestamp" of table "Analog Input Measurement List"

(3): See Property usage in column "Average + Timestamp" of table "Analog Input Measurement List"

(4): See Property usage in column "Average Min/Max + Timestamp" of table "Analog Input Measurement List"

(5): See Property usage in column "Harmonics 2->10" of table "Analog Input Measurement List"

(6): See Property usage in column "Energies Total + Partial + LastPartial" of table "Analog Input Measurement List"

(7): See Property usage in column "Energies Total Lagging/Leading" of table "Analog Input Measurement List"

(8): See Property usage in column "Multifluid" of table "Analog Input Measurement List"

(9): See Property usage in column "Min/Max Reset" of table "Analog Input Measurement List"

(10): See Property usage in table "Transfer switch"

1.5.3. Analog Input Measurement List

Metrology table:

Index	Object Name	Object Description	Unit	Type	Present + Timestamp	Present Min/Max + Timestamp	Average + Timestamp	Average Min/Max + Timestamp	Reset Min/Max
0	VystPhN	System Ph-N Voltage	V	Unsigned	x				x
1	VystPhPh	System Ph-Ph Voltage	V	Unsigned	x				x
2	CurrentSyst	System Current	A	Unsigned	x				x
3	Frequency	System Frequency	Hz	Unsigned	x	x	x	x	x
4	VoltPhNV1	Ph-N Voltage V1	V	Unsigned	x	x	x	x	x
5	VoltPhNV2	Ph-N Voltage V2	V	Unsigned	x	x	x	x	x
6	VoltPhNV3	Ph-N Voltage V3	V	Unsigned	x	x	x	x	x
7	VoltPhNVn	Ph-N Voltage Vn	V	Unsigned	x	x	x	x	x
8	VoltPhPhU12	Ph-Ph Voltage U12	V	Unsigned	x	x	x	x	x
9	VoltPhPhU23	Ph-Ph Voltage U23	V	Unsigned	x	x	x	x	x
10	VoltPhPhU31	Ph-Ph Voltage U31	V	Unsigned	x	x	x	x	x
11	VoltDC	DC Voltage	V	Signed	x	x	x	x	x
12	VoltDCRms	Rms DC Voltage	V	Unsigned	x	x	x	x	x
13	VoltDCRipple	Ripple DC Voltage	V	Unsigned	x	x	x	x	x
14	CurrentI1	Current I1	A	Unsigned	x	x	x	x	x
15	CurrentI2	Current I2	A	Unsigned	x	x	x	x	x
16	CurrentI3	Current I3	A	Unsigned	x	x	x	x	x
17	CurrentIdn	Current Idn	A	Unsigned	x				x
18	CurrentIpe	Current Ipe	A	Unsigned	x				x
19	CurrentIn	Current In	A	Unsigned	x	x	x	x	x
20	CurrentInba	Current Inba	%	Unsigned	x				x
21	CurrentIdir	Current Idir	A	Unsigned	x				x
22	Currentlinv	Current linv	A	Unsigned	x				x
23	CurrentIhom	Current Ihom	A	Unsigned	x				x
24	CurrentInb	Current Inb	%	Unsigned	x				x
25	CurrentDC	DC Current	A	Signed	x	x	x	x	x
26	CurrentDCRms	Rms DC Current	A	Unsigned	x	x	x	x	x
27	CurrentDCRipple	Ripple DC Current	A	Unsigned	x	x	x	x	x
28	PowerApparentNom	Nominal Apparent Power	VA	Unsigned	x				x
29	TotalPowerActive	Total Active Power	W	Signed	x	x	x	x	x
30	TotalPowerReactive	Total Reactive Power	VAR	Signed	x	x	x	x	x
31	TotalPowerApparent	Total Apparent Power	VA	Unsigned	x	x	x	x	x
32	TotalPowerFactor	Total Power Factor	-	Signed	x	x	x	x	x
33	TotalPowerFactorType	Total Power Factor Type	-	Unsigned	x	x	x	x	x
34	PowerActiveP1	P1 Active Power	W	Signed	x	x	x	x	x
35	PowerActiveP2	P2 Active Power	W	Signed	x	x	x	x	x
36	PowerActiveP3	P3 Active Power	W	Signed	x	x	x	x	x
37	PowerRActiveQ1	Q1 Reactive Power	VAR	Signed	x	x	x	x	x

Index	Object Name	Object Description	Unit	Type	Present + Timestamp	Present Min/Max + Timestamp	Average + Timestamp	Average Min/Max + Timestamp	Reset Min/Max
38	PowerRActiveQ2	Q2 Reactive Power	VAr	Signed	x	x	x	x	x
39	PowerRActiveQ3	Q3 Reactive Power	VAr	Signed	x	x	x	x	x
40	PowerApparentS1	S1 Apparent Power	VA	Unsigned	x	x	x	x	x
41	PowerApparentS2	S2 Apparent Power	VA	Unsigned	x	x	x	x	x
42	PowerApparentS3	S3 Apparent Power	VA	Unsigned	x	x	x	x	x
43	PowerFactorPF1	PF1 Power Factor	-	Signed	x	x	x	x	x
44	PowerFactorTypeSPF1	sPF1 Power Factor Type	-	Unsigned	x	x	x	x	x
45	PowerFactorPF2	PF2 Power Factor	-	Signed	x	x	x	x	x
46	PowerFactorTypeSPF2	sPF1 Power Factor Type	-	Unsigned	x	x	x	x	x
47	PowerFactorPF3	PF3 Power Factor	-	Signed	x	x	x	x	x
48	PowerFactorTypeSPF3	sPF1 Power Factor Type	-	Unsigned	x	x	x	x	x

Load curves table:

Index	Object Name	Object Description	Unit	Type	Present
49	LoadCurve_P+	Load Curve Positive Active Power	W	Unsigned	x
50	LoadCurve_P-	Load Curve Negative Active Power	W	Unsigned	x
51	LoadCurve_Q+	Load Curve Positive Reactive Power	VAr	Unsigned	x
52	LoadCurve_Q-	Load Curve Negative Reactive Power	VAr	Unsigned	x
53	LoadCurve_S	Load Curve Apparent Power	VA	Unsigned	x

Power Quality table:

Index	Object Name	Object Description	Unit	Type	Present + Timestamp	Present Min/Max + Timestamp	Harmonics 2 -> 10
54	THD_I1	THD I1	%	Unsigned	x	x	x
55	THD_I2	THD I2	%	Unsigned	x	x	x
56	THD_I3	THD I3	%	Unsigned	x	x	x
57	THD_In	THD In	%	Unsigned	x	x	x
58	THD_V1	THD V1	%	Unsigned	x	x	x
59	THD_V2	THD V2	%	Unsigned	x	x	x
60	THD_V3	THD V3	%	Unsigned	x	x	x
61	THD_U12	THD U12	%	Unsigned	x	x	x
62	THD_U23	THD U23	%	Unsigned	x	x	x
63	THD_U31	THD U31	%	Unsigned	x	x	x

Energy table:

Index	Object Name	Object Description	Unit	Type	Present + Timestamp	Energies Total + Partial + LastPartial	Energies Total Lagging/Leading
64	EA+	Positive Active Energy	Wh	Unsigned	x	x	
65	EA-	Negative Active Energy	Wh	Unsigned	x	x	
66	ER+	Positive Reactive Energy	VArh	Unsigned	x	x	x
67	ER-	Negative Reactive Energy	VArh	Unsigned	x	x	x
68	ES	Apparent Energy	VAh	Unsigned	x	x	

Multi fluid pulse meter table:

Index	Object Name	Object Description	Unit	Type	Present	Multifluid
69	MFF	Multi fluid meter	-	Signed	x	x

Analog Input/Output table:

Index	Object Name	Object Description	Unit	Type	Present	Average + Timestamp
70	AnaIn	Analog Input	-	Signed	x	x
71	AnaOut	Analog Output	-	Signed	x	x

Transfer Switch table:

Index	Object Name	Object Description	Unit	Type	Source Priority	Switch Fault Code	Last Switchover Cause	Genset relay state
72	Position	Transfer Switch Position	-	Unsigned	x	x	x	
73	StateSource_1	State of Source 1	-	Unsigned				X
74	StateSource_2	State of Source 2	-	Unsigned				x

1.5.4. Binary Input Object

These objects are neither dynamically creatable using CreateObject service nor deletable using DeleteObject service.

Such an object is part of a device object.

The way the OID is assigned to a Binary Input Object (instance number) is the following:

OID = LL00

- with LL = Index of the input of the device (starting at 1)

For example, Binary Input with OID 200 reflects Input of corresponding device.

1.5.4.1. Optional Properties

Property Identifier	ID	Type	Description	Write
Description	28	String	Measurement point Description	NO

1.5.4.2. Proprietary Properties

None

1.5.5. Binary Output Object

These objects are neither dynamically creatable using CreateObject service nor deletable using DeleteObject service.

Such an object is part of a device object.

The way the OID is assigned to a Binary Output Object (instance number) is the following:

OID = LL00

- with LL = Index of the output of the device (starting at 1)

For example, Binary Output with OID 200 reflects output 2 of corresponding device.

The Present Property is writable directly.

1.5.5.1. Optional Properties

Property Identifier	ID	Type	Description	Write
Description	28	String	Measurement point Description	NO

1.5.5.2. Proprietary Properties

None

1.6. Data Link Layer Options

- ☒ BACnet IP, (Annex J)
- ☐ BACnet IP, (Annex J), Foreign Device
- ☐ ISO 8802-3, Ethernet (Clause 7)
- ☐ ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ☐ ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) _____
- ☐ MS/TP master (Clause 9), baud rate(s): _____
- ☐ 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: _____
- ☐ BACnet/ZigBee (ANNEX O)
- ☐ Other: _____

1.7. 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

1.8. Networking Options

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

1.9. Network Security Options

- ☐ Non-secure Device - is capable of operating without BACnet Network Security
- ☐ Secure Device - is capable of using BACnet Network Security (NS-SD BIBB)
 - ☐ Multiple Application-Specific Keys:
 - ☐ Supports encryption (NS-ED BIBB)
 - ☐ Key Server (NS-KS BIBB)

1.10. Character Sets Supported

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

- ☒ ISO 10646 (UTF-8) ☐ IBM™/Microsoft™ DBCS ☐ ISO 8859-1
- ☐ ISO 10646 (UCS-2) ☐ ISO 10646 (UCS-4) ☐ JIS X 0208

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

This product is a communication gateway. It reflects all equipment connected to itself.

The gateway and its products are grouped behind a Network number. This Network number is initialized with some information coming from the Socomec Network Id of the Product. It can be changed by the user using the Socomec Easy Configuration Tool. The OID of the gateway itself is 100. Any equipment connected to the gateway is given an OID ranging from 100 to 247, according to its Modbus Address (OID = 100 + ModbusAddress).

Any modification of the gateway topology will be reflected to BACnet.

CORPORATE HQ CONTACT:
SOCOMEC SAS
1-4 RUE DE WESTHOUSE
67235 BENFELD, FRANCE

www.socomec.com



546539C