



DIRIS Digiware

M-50/M-70 & D-50/D-70

BACnet Protocol Implementation
Conformance Statement

EN



www.socomec.com/en/diris-digiware

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|---|----------|
| 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.

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