

## SIXNET IPm DNP V3.00 Device Profile Document

**DNP V3.00**

### **DEVICE PROFILE DOCUMENT**

(Also see Implementation Table in user manual)

Vendor Name: **SIXNET**

Device Name: **IPm-based Open Controllers and RTUs**

Highest DNP Level Supported:  
(many DNP Level 3 functions supported)  
For Requests:           **Level 2**  
For Responses:         **Level 2**

Device Function:  
 Master  
 **Slave**

Notable objects, functions and/or qualifiers supported in addition to the Highest DNP Level Supported (the complete list is described in the attached table):

**All Static Object function code 1 (read) requests with request qualifier codes 00, 01 (start-stop), 07, 08 (limited quantity) and 17, 28 (index) are supported. Static Object requests received with qualifiers 00, 01, 06, 07, 17 or 28 will be responded with qualifiers 00 or 01.**

**Function code 1 (read) for Binary Inputs (Object 1, variations 1 and 2) and Binary Outputs (Object 10, variations 1 and 2) has been added.**

**Function code 1 (read) for Binary Counters (Object 20, variations 1-8) and Frozen Binary Counters (Object 21, variations 1-12) are supported.**

**Function code 1 (read) for Counter Change Events (object 22, variations 1-8) and 32-bit and Frozen Counter Change Events (object 23, variations 1-8) are supported. Counter and Frozen Counter change events requests with request qualifier codes 06 (all) and 07, 08 (limited quantity) are supported. Requests are responded with qualifiers 17 or 28.**

**Short floating point and Long Floating point support for Analog Inputs (Object 30, variations 5 and 6; Object 31, variations 7 and 8; Object 32, variations 5 to 8, Object 33; variations 5 to 8) and Analog Outputs (Object 40: variation 3 and 4) added.**

**Function code 1 (read) for Analog Inputs (Object 30, variations 1-5) and Frozen Analog Inputs (Object 31, variations 1-7) are supported.**

**Function code 1 (read) for Analog Change Events (object 32, variations 0-5 and 7) and Frozen Analog Change Events (object 33, variations 0-5 and 7) are supported. Analog and Frozen Analog change events requests with request qualifier codes 06 (all) and 07, 08 (limited quantity) are supported. Requests are responded with qualifiers 17 or 28.**

**Function code 1 (read) for Analog Output Status (Object 40, all variations) are supported**

**Functions codes 3, 4, 5, and 6 for 32-Bit Analog Output Block (Object 41, variation 1), qualifiers 00, 01 (start-stop), 07, 08 (limited quantity) and 17, 28 (index) has been added.**

**Requests for functions codes 3, 4, 5 and 6 with qualifiers 00, 01 (start-stop) and 07, 08 (limited quantity) for 16-Bit Analog Output Block (Object 41, variation 2) are supported.**

**Function code 1 (Read) of Device Time and Date (Object 50, variation 1) is supported.**

**Function codes 20 (Enbl. Unsol.) and 21 (Dsbl. Unsol), qualifier 06 (no range, or all) for Class Data 1-3 (Object 60 , variations 2-4) are supported.**

**Function code 1 (read) for Device Internal Indicators (Object 80, variation 1), qualifiers 00, 01 (start-stop), are supported**

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|   |   |                                   |                                   |   |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |
|---|---|-----------------------------------|-----------------------------------|---|-----------------------------------|---|-------------------------|---|-----------------------------------|-----------------------------------|---------------------------------------|---------------------|-------------------------------|-----------------------------------|-----------------------------------|---|-------------------------|---|-----------------------------------|-----------------------------------|---------------------------------------|
| Maximum Data Link Frame Size (octets):<br>Transmitted: <b>292</b><br>Received: <b>292</b>   | Maximum Application Fragment Size (octets):<br>Transmitted: <b>2048</b><br>Received: <b>2048</b>  |                                   |                                   |   |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |
| Maximum Data Link Re-tries:<br><input type="checkbox"/> None<br><input type="checkbox"/> Fixed at<br><input checked="" type="checkbox"/> <b>Configurable, range 0 to 255</b>  | Maximum Application Layer Re-tries:<br><input type="checkbox"/> None<br><input checked="" type="checkbox"/> <b>Configurable, range 0 to 255</b><br>(Fixed is not permitted) |                                   |                                   |   |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |
| Requires Data Link Layer Confirmation:<br><input type="checkbox"/> Never<br><input type="checkbox"/> Always<br><input type="checkbox"/> Sometimes If 'Sometimes', when?<br><input checked="" type="checkbox"/> <b>Configurable, Via SIXNET I/O Tool Kit configuration add-on for the DNP3 Slave Driver</b>  |   |                                   |                                   |   |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |
| Requires Application Layer Confirmation:<br><input type="checkbox"/> Never<br><input type="checkbox"/> Always (not recommended)<br><input checked="" type="checkbox"/> <b>When reporting Event Data (Slave devices only)</b><br><input type="checkbox"/> When sending multi-fragment responses (Slave devices only)<br><input type="checkbox"/> Sometimes If 'Sometimes', when?<br><input checked="" type="checkbox"/> <b>Configurable</b> If 'Configurable', how? <b>SIXNET I/O Tool Kit</b>   |   |                                   |                                   |   |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |
| Timeouts while waiting for:<br><table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">Data Link Confirm</td> <td style="width: 12.5%;"><input type="checkbox"/> None</td> <td style="width: 12.5%;"><input type="checkbox"/> Fixed at</td> <td style="width: 12.5%;"><input type="checkbox"/> Variable</td> <td style="width: 12.5%;"><input checked="" type="checkbox"/> <b>Configurable</b></td> </tr> <tr> <td>Complete Appl. Fragment</td> <td><input checked="" type="checkbox"/> <b>None</b></td> <td><input type="checkbox"/> Fixed at</td> <td><input type="checkbox"/> Variable</td> <td><input type="checkbox"/> Configurable</td> </tr> <tr> <td>Application Confirm</td> <td><input type="checkbox"/> None</td> <td><input type="checkbox"/> Fixed at</td> <td><input type="checkbox"/> Variable</td> <td><input checked="" type="checkbox"/> <b>Configurable</b></td> </tr> <tr> <td>Complete Appl. Response</td> <td><input checked="" type="checkbox"/> <b>None</b></td> <td><input type="checkbox"/> Fixed at</td> <td><input type="checkbox"/> Variable</td> <td><input type="checkbox"/> Configurable</td> </tr> </table> Others<br>Attach explanation if 'Variable' or 'Configurable' was checked for any timeout:<br><b>Configurable via SIXNET I/O Tool Kit configuration Tool add-on for the DNP3 Slave Driver</b> |   | Data Link Confirm                 | <input type="checkbox"/> None     | <input type="checkbox"/> Fixed at                       | <input type="checkbox"/> Variable | <input checked="" type="checkbox"/> <b>Configurable</b> | Complete Appl. Fragment | <input checked="" type="checkbox"/> <b>None</b> | <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable | <input type="checkbox"/> Configurable | Application Confirm | <input type="checkbox"/> None | <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable | <input checked="" type="checkbox"/> <b>Configurable</b> | Complete Appl. Response | <input checked="" type="checkbox"/> <b>None</b> | <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable | <input type="checkbox"/> Configurable |
| Data Link Confirm   | <input type="checkbox"/> None   | <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable | <input checked="" type="checkbox"/> <b>Configurable</b> |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |
| Complete Appl. Fragment   | <input checked="" type="checkbox"/> <b>None</b>   | <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable | <input type="checkbox"/> Configurable                   |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |
| Application Confirm   | <input type="checkbox"/> None   | <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable | <input checked="" type="checkbox"/> <b>Configurable</b> |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |
| Complete Appl. Response   | <input checked="" type="checkbox"/> <b>None</b>   | <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable | <input type="checkbox"/> Configurable                   |                                   |   |                         |   |                                   |                                   |                                       |                     |                               |                                   |                                   |   |                         |   |                                   |                                   |                                       |

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Sends/Executes Control Operations:

|                         |  |   |                                    |                                       |
|-------------------------|--|---|------------------------------------|---------------------------------------|
| WRITE Binary Outputs    | <input checked="" type="checkbox"/> <b>Never</b> | <input type="checkbox"/> Always                   | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| SELECT/OPERATE          | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| DIRECT OPERATE          | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| DIRECT OPERATE - NO ACK | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| Count > 1               | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| Pulse On                | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| Pulse Off               | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| Latch On                | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| Latch Off               | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| Queue                   | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |
| Clear Queue             | <input type="checkbox"/> Never                   | <input checked="" type="checkbox"/> <b>Always</b> | <input type="checkbox"/> Sometimes | <input type="checkbox"/> Configurable |

Attach explanation if 'Sometimes' or 'Configurable' was checked for any operation.

All functions are accepted and executed as Latch On and Latch Off.

#### FILL OUT THE FOLLOWING ITEM FOR MASTER DEVICES ONLY:

Expects Binary Input Change Events:

- Either time-tagged or non-time-tagged for a single event
- Both time-tagged and non-time-tagged for a single event
- Configurable (attach explanation)

#### FILL OUT THE FOLLOWING ITEMS FOR SLAVE DEVICES ONLY:

Reports Binary Input Change Events when no specific variation requested:

- Never
- Only time-tagged
- Only non-time-tagged
- Configurable to send one or the other**

Reports time-tagged Binary Input Change Events when no specific variation requested:

- Never
- Binary Input Change With Time
- Binary Input Change With Relative Time
- Configurable**

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|  |  |
|--|--|
| <p>Sends Unsolicited Responses:</p> <p><input type="checkbox"/> Never</p> <p><input checked="" type="checkbox"/> <b>Configurable</b></p> <p><input type="checkbox"/> Only certain objects</p> <p><input type="checkbox"/> Sometimes (attach explanation)</p> <p><input checked="" type="checkbox"/> <b>ENABLE/DISABLE UNSOLICITED Function codes supported</b></p> | <p>Sends Static Data in Unsolicited Responses:</p> <p><input checked="" type="checkbox"/> <b>Never</b></p> <p><input type="checkbox"/> When Device Restarts</p> <p><input type="checkbox"/> When Status Flags Change</p> <p>No other options are permitted.</p>  |
| <p>Default Counter Object/Variation:</p> <p><input type="checkbox"/> No Counters Reported</p> <p><input checked="" type="checkbox"/> <b>Configurable (The default variation is configurable)</b></p> <p><input checked="" type="checkbox"/> <b>Default Object: Both 20 and 21 reported</b></p> <p><input type="checkbox"/> Point-by-point list attached</p>        | <p>Counters Roll Over at:</p> <p><input type="checkbox"/> No Counters Reported</p> <p><input type="checkbox"/> Configurable (attach explanation)</p> <p><input type="checkbox"/> 16 Bits</p> <p><input checked="" type="checkbox"/> <b>32 Bits</b></p> <p><input type="checkbox"/> Other Value: _____</p> <p><input type="checkbox"/> Point-by-point list attached</p> |
| <p>Sends Multi-Fragment Responses:      <input checked="" type="checkbox"/> <b>Yes</b>   <input type="checkbox"/> No</p>   |  |