

DNP3 2004
Configuration / Interoperability Guide
Outstation Function

1. DNP3 Device Profile

1. DEVICE INFORMATION:	
1.1. Vendor Name:	
1.2. Device Name:	
1.3. Hardware Version:	1.4. Software Version:
1.5. Device Function: <input type="checkbox"/> Master <input checked="" type="checkbox"/> Outstation	1.6. Highest DNP Level Supported: For Requests: Level 2 For Responses: Level 2
1.7. Methods to set Configurable Parameters: <input type="checkbox"/> XML – May be written in an XML file <input type="checkbox"/> Terminal – ASCII Terminal Command Line <input checked="" type="checkbox"/> Software – Vendor software named <input type="checkbox"/> Direct – Keypad on device front panel <input type="checkbox"/> Factory – Specified when device is ordered <input checked="" type="checkbox"/> Protocol – Set via DNP3 (i.e. assign class) <input type="checkbox"/> Other – explain _____	1.8. Connections Supported: <input checked="" type="checkbox"/> Serial <input checked="" type="checkbox"/> TCP/IP <input checked="" type="checkbox"/> UDP <input type="checkbox"/> Other, explain _____ <i>If configurable, list methods: Configuration software</i>
1.9. Supports Collision Avoidance: <input checked="" type="checkbox"/> Never <input type="checkbox"/> Always (attach explanation) <i>If configurable, list methods: _____</i>	
1.10. Notable Additions:	
2. LINK LAYER CONFIGURATION:	
2.1. Data Link Address: <input type="checkbox"/> Fixed at _____ <input checked="" type="checkbox"/> Configurable, range 0 to 65519 <i>If configurable, list methods: Configuration software</i>	2.2. Source Address Validation: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If configurable, list methods: _____</i>

<p>2.3. Self Address Support using address 0xFFFC</p> <p><input checked="" type="checkbox"/> Yes (only allowed if configurable)</p> <p><input type="checkbox"/> No</p> <p><i>If configurable, list methods: Configuration software</i></p>	<p>2.4. Link Status Interval</p> <p><input type="checkbox"/> Not Supported</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input checked="" type="checkbox"/> Configurable, range 0 to 3600 seconds</p> <p><i>If configurable, list methods: Configuration software</i></p>
<p>2.5. Maximum number of octets Transmitted in a Data Link Frame:</p> <p><input checked="" type="checkbox"/> Fixed at 292</p> <p><input type="checkbox"/> Configurable, range _____ to _____</p> <p><i>If configurable, list methods: _____</i></p>	<p>2.6. Maximum number of octets that can be Received in a Data Link Frame:</p> <p><input checked="" type="checkbox"/> Fixed at 292</p> <p><input type="checkbox"/> Configurable, range _____ to _____</p> <p><i>Note: must be 292 for conformance</i></p> <p><i>If configurable, list methods: _____</i></p>
<p>2.7. Requires Data Link Layer Confirmation:</p> <p><input checked="" type="checkbox"/> Never</p> <p><input checked="" type="checkbox"/> Always</p> <p><input checked="" type="checkbox"/> Sometimes, explain Unsolicited responses</p> <p><i>If configurable, list methods: Configuration software</i></p>	<p>2.8. Maximum Data Link Retries:</p> <p><input type="checkbox"/> None</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input checked="" type="checkbox"/> Configurable, range 0 to 10</p> <p><i>If configurable, list methods: Configuration software</i></p>
<p>2.9. Data Link Layer Confirmation Timeout</p> <p><input type="checkbox"/> None</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input checked="" type="checkbox"/> Configurable, range 0.5 to 600 seconds</p> <p><input type="checkbox"/> Variable, explain _____</p> <p><i>If configurable, list methods: Configuration software</i></p>	
<p style="text-align: center;">3. APPLICATION LAYER CONFIGURATION:</p>	
<p>3.1. Maximum number of octets Transmitted in an Application Layer Fragment:</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input checked="" type="checkbox"/> Configurable, range 200 to 5000</p> <p><i>Note: if >2048, must be configurable</i></p> <p><i>If configurable, list methods: Configuration software</i></p>	<p>3.2. Maximum number of octets that can be Received in an Application Layer Fragment:</p> <p><input checked="" type="checkbox"/> Fixed at 2048</p> <p><input type="checkbox"/> Configurable, range _____ to _____</p> <p><i>Note: must be >= 249</i></p> <p><i>If configurable, list methods: _____</i></p>
<p>3.3. Requires Application Layer Confirmation:</p> <p><input checked="" type="checkbox"/> When reporting Event Data (Outstations only)</p> <p><input checked="" type="checkbox"/> When sending multi-fragment responses (Outstations only)</p> <p><input type="checkbox"/> Never (required for Masters)</p> <p><input type="checkbox"/> Always (not recommended)</p> <p><input type="checkbox"/> Sometimes, explain _____</p> <p><i>If configurable, list methods: _____</i></p>	<p>3.4. Maximum Application Layer Retries:</p> <p><input checked="" type="checkbox"/> None</p> <p><input type="checkbox"/> Configurable, range _____ to _____</p> <p><i>Note: Fixed is not permitted</i></p> <p><i>If configurable, list methods: _____</i></p>

3.5. Timeouts while waiting for:

Complete Appl. Fragment ☐ None ☐ Fixed at _____ ☐ Variable ☐ Configurable, range _____ to _____
 Complete Appl. Response (M) ☐ Fixed at _____ ☐ Variable ☐ Configurable, range _____ to _____
 Application Confirm (O) ☐ None ☐ Fixed at _____ ☐ Variable ☒ Configurable, range **0,5 to 60s**
 File Transfer completion (O) ☐ None ☒ Fixed at **30s** ☐ Variable ☐ Configurable, range _____ to _____
 Others _____

(M) - Master Only

(O) - Outstation Only

Note: Attach explanation if 'Variable' was checked for any timeout: **Uses fragment timeout**

If configurable, list methods: **Configuration software**

3.6. Sends/Executes Digital Control Operations:

SELECT/OPERATE	<input type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point
DIRECT OPERATE	<input checked="" type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point
DIRECT OPERATE – NO ACK	<input checked="" type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point
Pulse On	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point
Pulse Off	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point
Latch On	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point
Latch Off	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point
Trip/Close	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point
Count > 1	<input type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point
Cancel Currently Running Operation	<input checked="" type="checkbox"/> Never	<input type="checkbox"/> Always	<input type="checkbox"/> Per Point

If configurable, list methods: **Configuration software**

3.7. Sends/Executes Analog Control Operations:

SELECT/OPERATE	<input type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point
DIRECT OPERATE	<input checked="" type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point
DIRECT OPERATE – NO ACK	<input checked="" type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point
Count > 1	<input type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point
Cancel Currently Running Operation	<input checked="" type="checkbox"/> Never	<input type="checkbox"/> Always	<input type="checkbox"/> Per Point

If configurable, list methods: **Configuration software**

3.8. Objects supported in a single control request:

☐ CROB (Object Group 12) and Analog Output (Object Group 41) permitted together in a single message

Maximum number of objects allowed in a single control request for CROB (Object Group 12):

☒ Fixed at **10** ☐ Configurable, range _____ to _____

Maximum number of objects allowed in a single control request for Analog Outputs (Object Group 41):

☒ Fixed at **10** ☐ Configurable, range _____ to _____

If configurable, list methods: _____

3.9. Binary Output Control Points per index:

- ☒ One control point per index
☒ Two control points per index

If configurable, list methods: **Configuration software**

3.10. Sequential File Transfer Support

- ☐ File Authentication
☐ Append File Mode
☐ Custom Status Code Strings
☐ Permissions Support
☐ Multiple Blocks in a Fragment
Max Number of Files Open at one time:
☐ Delayed File Responses Supported
Default File Event Assigned Class:

☐ Class 1 ☐ Class2 ☐ Class3

If configurable, list methods: _____

If configurable, list methods: _____

If configurable, list methods: _____

If configurable, list methods: _____

If configurable, list methods: _____

If configurable, list methods: _____

If configurable, list methods: _____

If configurable, list methods: _____

4. FILL OUT THE FOLLOWING ITEM FOR MASTERS ONLY:

4.1. Master expects Outstation to send Binary Input Change Events:

- ☐ Expects either a time-tagged variation OR a non-time-tagged variation for a single event.
☐ Expects BOTH a time-tagged variation AND a non-time-tagged variation for a single event.

If configurable, list methods: _____

5. FILL OUT THE FOLLOWING ITEMS FOR OUTSTATIONS ONLY:

5.1. Interval to request Time Sync by setting IIN1.4

- ☐ Never
☐ Fixed at _____ seconds
☒ Configurable, range **10** to **100000** seconds

If configurable, list methods: _____

5.2. 1.6 Device Trouble Bit

- ☒ Never used
☐ Reason for setting _____

If configurable, list methods: _____

5.3. Maximum Time between Select and Operate:

- ☐ Not Applicable
☐ Fixed at _____ seconds
☒ Configurable, range **0,5** to **60** seconds

If configurable, list methods: **Configuration software**

5.4. REMOTE/LOCAL Control mode:

- | | | |
|-------------------------------------|-------------------------------------|------------------|
| Binary | Analog | |
| <input type="checkbox"/> | <input type="checkbox"/> | Not Applicable |
| <input type="checkbox"/> | <input type="checkbox"/> | Per Point |
| <input type="checkbox"/> | <input type="checkbox"/> | Per Object Group |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Global |

If configurable, list methods: **Configuration software hardware input**

<p>5.5. Event Buffer Organization: Explain how event buffers are arranged (per Object Group, per Class, single buffer, etc,) and provide their sizes: <i>If configurable, list methods: Configuration software</i></p>	<p>5.6. Event Buffer Overflow Behaviour <input type="checkbox"/> Discard the oldest event <input checked="" type="checkbox"/> Discard the newest event <input type="checkbox"/> Other (attach explanation) <i>If configurable, list methods: _____</i></p>		
<p>5.7. Sends Multi-Fragment Responses: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If configurable, list methods: _____</i></p>	<p>5.8. Settings preserved through a device reset: <input type="checkbox"/> Assign Class <input type="checkbox"/> Analog Deadbands <i>If configurable, list methods: _____</i></p>		
<p>5.9. Database Point Number Assignments <input type="checkbox"/> Fixed Point Map <input type="checkbox"/> Points can be uninstalled or disabled <input checked="" type="checkbox"/> Fully User Configurable <input type="checkbox"/> Other, explain _____ <i>If configurable, list methods: _____</i></p>			
<p>6. OUTSTATION UNSOLICITED RESPONSE SUPPORT:</p>			
<p>6.1. Unsolicited Response Mode: <input checked="" type="checkbox"/> Off <input checked="" type="checkbox"/> On (must be configurable) <i>If configurable, list methods: Configuration software</i></p>	<p>6.2. Sends Static Data in Unsolicited Responses: <input checked="" type="checkbox"/> No <input type="checkbox"/> Binary output status (Object 10 Variation 2) <input type="checkbox"/> Analog output status (Object 40 Variation 2). <i>If configurable, list methods: _____</i></p>		
<p>6.3. Unsolicited Response Trigger Conditions:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> Number of class 1 events: Number of class 2 events: Number of class 3 events: Total number of events : Max. amount of time after class 1 event (msec): Max. amount of time after class 2 event (msec): Max. amount of time after class 3 event (msec): Max. amount of time after any event (msec): 3600000 <input type="checkbox"/> Other: _____ </td> <td style="width: 50%; vertical-align: top;"> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ </div> <div> <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input checked="" type="checkbox"/> Configurable, range 0 to 500 <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range 0 to _____ </div> </div> </td> </tr> </table> <p><i>If configurable, list methods: Configuration software</i></p>		Number of class 1 events: Number of class 2 events: Number of class 3 events: Total number of events : Max. amount of time after class 1 event (msec): Max. amount of time after class 2 event (msec): Max. amount of time after class 3 event (msec): Max. amount of time after any event (msec): 3600000 <input type="checkbox"/> Other: _____	<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ </div> <div> <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input checked="" type="checkbox"/> Configurable, range 0 to 500 <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range 0 to _____ </div> </div>
Number of class 1 events: Number of class 2 events: Number of class 3 events: Total number of events : Max. amount of time after class 1 event (msec): Max. amount of time after class 2 event (msec): Max. amount of time after class 3 event (msec): Max. amount of time after any event (msec): 3600000 <input type="checkbox"/> Other: _____	<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ <input type="checkbox"/> Fixed at _____ </div> <div> <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input checked="" type="checkbox"/> Configurable, range 0 to 500 <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range _____ to _____ <input type="checkbox"/> Configurable, range 0 to _____ </div> </div>		

6.4. Unsolicited Response Timers:

Unsolicited Confirmation ☐ Variable ☒ Configurable, range ___ to ___
Unsolicited Holdoff Period ☐ None ☐ Fixed at ___ ☐ Variable ☒ Configurable, range ___ to ___
Offline Unsolicited Holdoff Period ☐ None ☐ Fixed at ___ ☐ Variable ☒ Configurable, range ___ to ___

Note: Attach explanation if 'Variable' was checked for any timeout

If configurable, list methods:

6.5. Number of Unsolicited Confirm timeouts to initiate an Offline Holdoff Period:

☒ Fixed at **0, 5, infinite**
☐ Configurable, range ___ to ___

If configurable, list methods:

7. OUTSTATION PERFORMANCE:

7.1. Time Accuracy

	Typical	Maximum
Time base drift over a 10 minute interval:	_____ms	_____ms
Internal Time Reference Error when set via DNP:	_____ms	_____ms
Delay Measurement error:	_____ms	_____ms
Response time:	_____ms	_____ms
Maximum time from start-up to IIN 1.4 assertion	_____ms	_____ms
Event Data Time-tag error for local I/O if different than (c) :		
Binary Input Change Events	_____ms	_____ms
Counter Change Events	_____ms	_____ms
Frozen Counter Change Events	_____ms	_____ms
Analog Change Events	_____ms	_____ms
Frozen Analog Change Events	_____ms	_____ms

8. RECORD INDIVIDUAL FIELD OUTSTATION PARAMETERS HERE:

8.1. Manufacturer Serial Number:

If configurable, list methods: _____

8.2. Location name or code:

If configurable, list methods: _____

8.3. Outstation Field ID Code/number string:

If configurable, list methods: _____

8.4. Outstation Name: _____

If configurable, list methods: _____

8.5. Master Data Link Address: _____

If configurable, list methods: _____

8.6. File Authentication:

Username: _____

Password: _____

If configurable, list methods: _____

2. Implementation Table

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
1	0	Binary Input – Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*		
1	1	Binary Input	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
1	2	Binary Input with Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
2	0	Binary Input Change – Any Variation	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
2	1	Binary Input Change without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
2	2	Binary Input Change with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
2	3	Binary Input Change with Relative Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
3	0	Double Bit Input – Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*		
3	1	Double Bit Input	1 (read)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
3	2	Double Bit Input with Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index)
4	0	Double Bit Input Change – Any Variation	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
4	1	Double Bit Input Change without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
4	2	Double Bit Input Change with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
4	3 (default – see note 1)	Double Bit Input Change with Relative Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
10	0	Binary Output Status – Any Variation	1 (read)	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*		
10	1	Binary Output	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129(response)	00, 01 (start-stop) 17, 28 (index)
10	2	Binary Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
12	1	Control Relay Output Block	3 (select) 4 (operate) 5 (direct op)	17, 28 (index)	129 (response)	echo of request
12	2	Pattern Control Block				

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
12	3	Pattern Mask				
20	0	Binary Counter – Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop) 06 (no range, or all) 17, 28 (index)		
			7 (freeze)* 8 (freeze noack)* 9 (freeze clear)* 10 (frz. cl. nack)*	00, 01 (start-stop)* 06 (no range, or all)* 07, 08 (limited qty)*		
20	1	32-Bit Binary Counter (with Flag)	1 (read)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
20	2	16-Bit Binary Counter (with Flag)	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
20	5	32-Bit Binary Counter without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
20	6	16-Bit Binary Counter without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	0	Frozen Counter – Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop)* 06 (no range, or all)* 07, 08 (limited qty)*		
21	1	32-Bit Frozen Counter (with Flag)	1 (read)	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	2	16-Bit Frozen Counter (with Flag)	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	5	32-Bit Frozen Counter with Time Of Freeze	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	6	16-Bit Frozen Counter with Time Of Freeze	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	9	32-Bit Frozen Counter without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	10	16-Bit Frozen Counter without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
22	0	Counter Change Event – Any Variation	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
22	1	32-Bit Counter Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
22	2	16-Bit Counter Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
22	5	32-Bit Counter Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
22	6	16-Bit Counter Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
23	0	Frozen Counter Event (Variation 0 is used to request default variation)	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
23	1	32-Bit Frozen Counter Event	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
23	2	16-Bit Frozen Counter Event	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
23	5	32-Bit Frozen Counter Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
23	6	16-Bit Frozen Counter Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
30	0	Analog Input - Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*		
30	1	32-Bit Analog Input	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	2	16-Bit Analog Input	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	3	32-Bit Analog Input without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	4	16-Bit Analog Input without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	5	short floating point	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)+	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	6	long floating point	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index – see note 1)
32	0	Analog Change Event – Any Variation	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
32	1	32-Bit Analog Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	2	16-Bit Analog Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	3	32-Bit Analog Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	4	16-Bit Analog Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	5	short floating point Analog Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	6	long floating point Analog Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	7	short floating point Analog Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	8	long floating point Analog Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
34	0	Analog Input Deadband (Variation 0 is used to request default variation)	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*		
34	1	16 bit Analog Input Deadband	1 (read)* 2 (write)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
34	2	32 bit Analog Input Deadband	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
			2 (write)*	17, 28 (index)*		
34	3	Short Floating Point Analog Input Deadband	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
			2 (write)*	17, 28 (index)*		
40	0	Analog Output Status (Variation 0 is used to request default variation)	1 (read)	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*		
40	1	32-Bit Analog Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
40	2	16-Bit Analog Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
40	3	short floating point Analog Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
40	4	short floating point Analog Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
41	1	32-Bit Analog Output Block	3 (select)* 4 (operate)* 5 (direct op)* 6 (dir. op, noack)*	17, 28 (index)*	129 (response)	echo of request
41	2	16-Bit Analog Output Block	3 (select) 4 (operate) 5 (direct op) 6 (dir. op, noack)*	17, 28 (index)	129 (response)	echo of request
41	3	short floating point Analog Output Block	3 (select)* 4 (operate)* 5 (direct op)* 6 (dir. op, noack)*	17, 28 (index)*	129 (response)	echo of request
41	4	long floating point Analog Output Block	3 (select)* 4 (operate)* 5 (direct op)* 6 (dir. op, noack)*	17, 28 (index)*	129 (response)	echo of request
50	0	Time and Date				
50	1	Time and Date	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 07 (limited qty = 1)* 08 (limited qty)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
			2 (write)	07 (limited qty = 1)		
50	3	Time and Date Last Recorded Time				
51	1	Time and Date CTO			129 (response) 130 (unsol. resp)	07 (limited qty) (qty = 1)
51	2	Unsynchronized Time and Date CTO			129 (response) 130 (unsol. resp)	07 (limited qty) (qty = 1)
52	1	Time Delay Coarse			129 (response)	07 (limited qty) (qty = 1)
52	2	Time Delay Fine			129 (response)	07 (limited qty) (qty = 1)

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
60	0	Not Defined				
60	1	Class 0 Data	1 (read)	06 (no range, or all)		
60	2	Class 1 Data	1 (read)	06 (no range, or all)		
			20 (enbl. unsol.)* 21 (dsbl. unsol.)* 22(assign class)*	06 (no range, or all)*		
60	3	Class 2 Data	1 (read)	06 (no range, or all)		
			20 (enbl. unsol.)* 21 (dsbl. unsol.)* 22(assign class)*	06 (no range, or all)*		
60	4	Class 3 Data	1 (read)	06 (no range, or all)		
			20 (enbl. unsol.)* 21 (dsbl. unsol.)* 22(assign class)*	06 (no range, or all)*		
70	0	File Event – Any Variation				
70	2	File Authentication				
70	3	File Command				
70	4	File Command Status				
70	5	File Transfer				
70	6	File Transfer Status				
70	7	File Descriptor				
80	1	Internal Indications	1 (read)*	00, 01 (start-stop)*	129 (response)	00, 01 (start-stop)
			2 (write)	00 (start-stop) index = 7		
110	string length	Octet String Object				
111	string length	Octet String Event Object				
112	string length	Virtual Terminal Output Block				
113	string length	Virtual Terminal Event Data				
		No Object (function code only)	13 (cold restart)*			
		No Object (function code only)	14 (warm restart)*			
		No Object (function code only)	24 (record current time)			

Note: * denotes function supplied through keyboard operator commands or special factory configuration.

DNP3 2004
Configuration / Interoperability Guide
MASTER Function

3. DNP3 Device Profile

9. DEVICE INFORMATION:	
9.1. Vendor Name:	
9.2. Device Name:	
9.3. Hardware Version:	9.4. Software Version:
9.5. Device Function: <input checked="" type="checkbox"/> Master <input type="checkbox"/> Outstation	9.6. Highest DNP Level Supported: For Requests: Level 2 For Responses: Level 3
9.7. Methods to set Configurable Parameters: <input type="checkbox"/> XML – May be written in an XML file <input type="checkbox"/> Terminal – ASCII Terminal Command Line <input checked="" type="checkbox"/> Software – Vendor software named <input type="checkbox"/> Direct – Keypad on device front panel <input type="checkbox"/> Factory – Specified when device is ordered <input type="checkbox"/> Protocol – Set via DNP3 (i.e. assign class) <input type="checkbox"/> Other – explain _____	9.8. Connections Supported: <input checked="" type="checkbox"/> Serial <input checked="" type="checkbox"/> TCP/IP <input checked="" type="checkbox"/> UDP <input type="checkbox"/> Other, explain _____ <i>If configurable, list methods: Configuration software</i>
9.9. Supports Collision Avoidance: <input checked="" type="checkbox"/> Never <input type="checkbox"/> Always (attach explanation) <i>If configurable, list methods: _____</i>	
9.10. Notable Additions:	

10. LINK LAYER CONFIGURATION:

<p>10.1. Data Link Address:</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input checked="" type="checkbox"/> Configurable, range 0 to 65519</p> <p><i>If configurable, list methods: Configuration software</i></p>	<p>10.2. Source Address Validation:</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><i>If configurable, list methods:</i></p>
<p>10.3. Self Address Support using address 0xFFFC</p> <p><input type="checkbox"/> Yes (only allowed if configurable)</p> <p><input checked="" type="checkbox"/> No</p> <p><i>If configurable, list methods:</i></p>	<p>10.4. Link Status Interval</p> <p><input checked="" type="checkbox"/> Not Supported</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input type="checkbox"/> Configurable, range to seconds</p> <p><i>If configurable, list methods:</i></p>
<p>10.5. Maximum number of octets Transmitted in a Data Link Frame:</p> <p><input checked="" type="checkbox"/> Fixed at 292</p> <p><input type="checkbox"/> Configurable, range _____ to _____</p> <p><i>If configurable, list methods: _____</i></p>	<p>10.6. Maximum number of octets that can be Received in a Data Link Frame:</p> <p><input checked="" type="checkbox"/> Fixed at 292</p> <p><input type="checkbox"/> Configurable, range _____ to _____</p> <p><i>Note: must be 292 for conformance</i></p> <p><i>If configurable, list methods: _____</i></p>
<p>10.7. Requires Data Link Layer Confirmation:</p> <p><input checked="" type="checkbox"/> Never</p> <p><input checked="" type="checkbox"/> Always</p> <p><input checked="" type="checkbox"/> Sometimes, explain Unsolicited responses</p> <p><i>If configurable, list methods: Configuration software</i></p>	<p>10.8. Maximum Data Link Retries:</p> <p><input type="checkbox"/> None</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input checked="" type="checkbox"/> Configurable, range 0 to 10</p> <p><i>If configurable, list methods: Configuration software</i></p>
<p>10.9. Data Link Layer Confirmation Timeout</p> <p><input type="checkbox"/> None</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input checked="" type="checkbox"/> Configurable, range 0.5 to 600 seconds</p> <p><input type="checkbox"/> Variable, explain _____</p> <p><i>If configurable, list methods: Configuration software</i></p>	

11. APPLICATION LAYER CONFIGURATION:

<p>11.1. Maximum number of octets Transmitted in an Application Layer Fragment:</p> <p><input type="checkbox"/> Fixed at _____</p> <p><input checked="" type="checkbox"/> Configurable, range 200 to 5000</p> <p><i>Note: if >2048, must be configurable</i></p> <p><i>If configurable, list methods: Configuration software</i></p>	<p>11.2. Maximum number of octets that can be Received in an Application Layer Fragment:</p> <p><input checked="" type="checkbox"/> Fixed at 2048</p> <p><input type="checkbox"/> Configurable, range _____ to _____</p> <p><i>Note: must be > = 249</i></p> <p><i>If configurable, list methods: _____</i></p>
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<p>11.3. Requires Application Layer Confirmation:</p> <p> <input type="checkbox"/> When reporting Event Data (Outstations only) <input type="checkbox"/> When sending multi-fragment responses (Outstations only) <input checked="" type="checkbox"/> Never (required for Masters) <input type="checkbox"/> Always (not recommended) <input type="checkbox"/> Sometimes, explain _____ </p> <p><i>If configurable, list methods:</i> _____</p>	<p>11.4. Maximum Application Layer Retries:</p> <p> <input checked="" type="checkbox"/> None <input type="checkbox"/> Configurable, range _____ to _____ </p> <p><i>Note: Fixed is not permitted</i></p> <p><i>If configurable, list methods:</i> _____</p>																																												
<p>11.5. Timeouts while waiting for:</p> <table style="width: 100%; border: none;"> <tr> <td>Complete Appl. Fragment</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"/> Configurable, range 0,5 to 60s</td> </tr> <tr> <td>Complete Appl. Response (M)</td> <td></td> <td><input type="checkbox"/> Fixed at _____</td> <td><input checked="" type="checkbox"/> Variable</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Application Confirm (O)</td> <td><input type="checkbox"/> None</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Variable</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>File Transfer completion (O)</td> <td><input type="checkbox"/> None</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Variable</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> </table> <p>Others _____</p> <p>(M) - Master Only (O) - Outstation Only</p> <p><i>Note: Attach explanation if 'Variable' was checked for any timeout: Uses fragment timeout</i></p> <p><i>If configurable, list methods: Configuration software</i></p>		Complete Appl. Fragment	<input type="checkbox"/> None	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Variable	<input checked="" type="checkbox"/> Configurable, range 0,5 to 60s	Complete Appl. Response (M)		<input type="checkbox"/> Fixed at _____	<input checked="" type="checkbox"/> Variable	<input type="checkbox"/> Configurable, range _____ to _____	Application Confirm (O)	<input type="checkbox"/> None	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Variable	<input type="checkbox"/> Configurable, range _____ to _____	File Transfer completion (O)	<input type="checkbox"/> None	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Variable	<input type="checkbox"/> Configurable, range _____ to _____																								
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<p>11.6. Sends/Executes Digital Control Operations:</p> <table style="width: 100%; border: none;"> <tr> <td>SELECT/OPERATE</td> <td><input checked="" type="checkbox"/> Never</td> <td><input checked="" type="checkbox"/> Always</td> <td><input type="checkbox"/> Per Point</td> </tr> <tr> <td>DIRECT OPERATE</td> <td><input checked="" type="checkbox"/> Never</td> <td><input checked="" type="checkbox"/> Always</td> <td><input type="checkbox"/> Per Point</td> </tr> <tr> <td>DIRECT OPERATE – NO ACK</td> <td><input checked="" type="checkbox"/> Never</td> <td><input type="checkbox"/> Always</td> <td><input type="checkbox"/> Per Point</td> </tr> <tr><td colspan="4"> </td></tr> <tr> <td>Pulse On</td> <td><input type="checkbox"/> Never</td> <td><input type="checkbox"/> Always</td> <td><input checked="" type="checkbox"/> Per Point</td> </tr> <tr> <td>Pulse Off</td> <td><input type="checkbox"/> Never</td> <td><input type="checkbox"/> Always</td> <td><input checked="" type="checkbox"/> Per Point</td> </tr> <tr> <td>Latch On</td> <td><input type="checkbox"/> Never</td> <td><input type="checkbox"/> Always</td> <td><input checked="" type="checkbox"/> Per Point</td> </tr> <tr> <td>Latch Off</td> <td><input type="checkbox"/> Never</td> <td><input type="checkbox"/> Always</td> <td><input checked="" type="checkbox"/> Per Point</td> </tr> <tr> <td>Trip/Close</td> <td><input type="checkbox"/> Never</td> <td><input type="checkbox"/> Always</td> <td><input checked="" type="checkbox"/> Per Point</td> </tr> <tr> <td>Count > 1</td> <td><input checked="" type="checkbox"/> Never</td> <td><input type="checkbox"/> Always</td> <td><input type="checkbox"/> Per Point</td> </tr> <tr> <td>Cancel Currently Running Operation</td> <td><input checked="" type="checkbox"/> Never</td> <td><input type="checkbox"/> Always</td> <td><input type="checkbox"/> Per Point</td> </tr> </table> <p><i>If configurable, list methods: Configuration software</i></p>		SELECT/OPERATE	<input checked="" type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point	DIRECT OPERATE	<input checked="" type="checkbox"/> Never	<input checked="" type="checkbox"/> Always	<input type="checkbox"/> Per Point	DIRECT OPERATE – NO ACK	<input checked="" type="checkbox"/> Never	<input type="checkbox"/> Always	<input type="checkbox"/> Per Point					Pulse On	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point	Pulse Off	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point	Latch On	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point	Latch Off	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point	Trip/Close	<input type="checkbox"/> Never	<input type="checkbox"/> Always	<input checked="" type="checkbox"/> Per Point	Count > 1	<input checked="" type="checkbox"/> Never	<input type="checkbox"/> Always	<input type="checkbox"/> Per Point	Cancel Currently Running Operation	<input checked="" type="checkbox"/> Never	<input type="checkbox"/> Always	<input type="checkbox"/> Per Point
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11.8. Objects supported in a single control request:

☐ CROB (Object Group 12) and Analog Output (Object Group 41) permitted together in a single message

Maximum number of objects allowed in a single control request for CROB (Object Group 12):

☒ Fixed at 1 ☐ Configurable, range _____ to _____

Maximum number of objects allowed in a single control request for Analog Outputs (Object Group 41):

☒ Fixed at 1 ☐ Configurable, range _____ to _____

If configurable, list methods: _____

11.9. Binary Output Control Points per index:

☒ One control point per index

☒ Two control points per index

*If configurable, list methods: **Configuration software***

11.10. Sequential File Transfer Support

☐ File Authentication

If configurable, list methods: _____

☐ Append File Mode

If configurable, list methods: _____

☐ Custom Status Code Strings

If configurable, list methods: _____

☐ Permissions Support

If configurable, list methods: _____

☐ Multiple Blocks in a Fragment

If configurable, list methods: _____

Max Number of Files Open at one time:

If configurable, list methods: _____

☐ Delayed File Responses Supported

If configurable, list methods: _____

Default File Event Assigned Class:

☐ Class 1 ☐ Class2 ☐ Class3

If configurable, list methods: _____

12. FILL OUT THE FOLLOWING ITEM FOR MASTERS ONLY:

12.1. Master expects Outstation to send Binary Input Change Events:

☒ Expects either a time-tagged variation OR a non-time-tagged variation for a single event.

☐ Expects BOTH a time-tagged variation AND a non-time-tagged variation for a single event.

If configurable, list methods: _____

13. FILL OUT THE FOLLOWING ITEMS FOR OUTSTATIONS ONLY:

13.1. Interval to request Time Sync by setting IIN1.4

☐ Never

☐ Fixed at _____ seconds

☐ Configurable, range _____ to _____ seconds

If configurable, list methods: _____

13.2. 1.6 Device Trouble Bit

☐ Never used

☐ Reason for setting _____

If configurable, list methods: _____

13.3. Maximum Time between Select and Operate:

☐ Not Applicable

☐ Fixed at _____ seconds

☐ Configurable, range _____ to _____ seconds

If configurable, list methods: _____

13.4. REMOTE/LOCAL Control mode:

Binary Analog

☐ ☐ Not Applicable

☐ ☐ Per Point

☐ ☐ Per Object Group

☐ ☐ Global

If configurable, list methods: _____

<p>13.5.Event Buffer Organization: Explain how event buffers are arranged (per Object Group, per Class, single buffer, etc,) and provide their sizes: <i>If configurable, list methods:</i>_____</p>	<p>13.6.Event Buffer Overflow Behaviour <input type="checkbox"/> Discard the oldest event <input type="checkbox"/> Discard the newest event <input type="checkbox"/> Other (attach explanation) <i>If configurable, list methods:</i>_____</p>																											
<p>13.7.Sends Multi-Fragment Responses: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If configurable, list methods:</i>_____</p>	<p>13.8.Settings preserved through a device reset: <input type="checkbox"/> Assign Class <input type="checkbox"/> Analog Deadbands <i>If configurable, list methods:</i>_____</p>																											
<p>13.9.Database Point Number Assignments <input type="checkbox"/> Fixed Point Map <input type="checkbox"/> Points can be uninstalled or disabled <input type="checkbox"/> Fully User Configurable <input type="checkbox"/> Other, explain _____ <i>If configurable, list methods:</i>_____</p>																												
<p>14.OUTSTATION UNSOLICITED RESPONSE SUPPORT:</p>																												
<p>14.1.Unsolicited Response Mode: <input type="checkbox"/> Off <input type="checkbox"/> On (must be configurable) <i>If configurable, list methods:</i>_____</p>	<p>14.2. Sends Static Data in Unsolicited Responses: <input type="checkbox"/> No <input type="checkbox"/> Binary output status (Object 10 Variation 2) <input type="checkbox"/> Analog output status (Object 40 Variation 2). <i>If configurable, list methods:</i>_____</p>																											
<p>14.3.Unsolicited Response Trigger Conditions:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Number of class 1 events:</td> <td style="width: 50%;"><input type="checkbox"/> Fixed at _____</td> <td style="width: 50%;"><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Number of class 2 events:</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Number of class 3 events:</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Total number of events :</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Max. amount of time after class 1 event (msec):</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Max. amount of time after class 2 event (msec):</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Max. amount of time after class 3 event (msec):</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Max. amount of time after any event (msec):</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Other: _____</td> </tr> </table> <p><i>If configurable, list methods:</i>_____</p>		Number of class 1 events:	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	Number of class 2 events:	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	Number of class 3 events:	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	Total number of events :	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	Max. amount of time after class 1 event (msec):	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	Max. amount of time after class 2 event (msec):	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	Max. amount of time after class 3 event (msec):	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	Max. amount of time after any event (msec):	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	<input type="checkbox"/> Other: _____		
Number of class 1 events:	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
Number of class 2 events:	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
Number of class 3 events:	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
Total number of events :	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
Max. amount of time after class 1 event (msec):	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
Max. amount of time after class 2 event (msec):	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
Max. amount of time after class 3 event (msec):	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
Max. amount of time after any event (msec):	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
<input type="checkbox"/> Other: _____																												
<p>14.4.Unsolicited Response Timers:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Unsolicited Confirmation</td> <td style="width: 33%;"><input type="checkbox"/> Variable</td> <td style="width: 33%;"><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Unsolicited Holdoff Period <input type="checkbox"/> None</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> <tr> <td>Offline Unsolicited Holdoff Period <input type="checkbox"/> None</td> <td><input type="checkbox"/> Fixed at _____</td> <td><input type="checkbox"/> Configurable, range _____ to _____</td> </tr> </table> <p><u>Note:</u> Attach explanation if 'Variable' was checked for any timeout <i>If configurable, list methods:</i>_____</p>		Unsolicited Confirmation	<input type="checkbox"/> Variable	<input type="checkbox"/> Configurable, range _____ to _____	Unsolicited Holdoff Period <input type="checkbox"/> None	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____	Offline Unsolicited Holdoff Period <input type="checkbox"/> None	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																		
Unsolicited Confirmation	<input type="checkbox"/> Variable	<input type="checkbox"/> Configurable, range _____ to _____																										
Unsolicited Holdoff Period <input type="checkbox"/> None	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										
Offline Unsolicited Holdoff Period <input type="checkbox"/> None	<input type="checkbox"/> Fixed at _____	<input type="checkbox"/> Configurable, range _____ to _____																										

14.5. Number of Unsolicited Confirm timeouts to initiate an Offline Holdoff Period:

- ☐ Fixed at
☐ Configurable, range _____ to _____

If configurable, list methods:

15. OUTSTATION PERFORMANCE:

15.1. Time Accuracy

	Typical	Maximum
Time base drift over a 10 minute interval:	_____ms	_____ms
Internal Time Reference Error when set via DNP:	_____ms	_____ms
Delay Measurement error:	_____ms	_____ms
Response time:	_____ms	_____ms
Maximum time from start-up to IIN 1.4 assertion	_____ms	_____ms
Event Data Time-tag error for local I/O if different than (c) :		
Binary Input Change Events	_____ms	_____ms
Counter Change Events	_____ms	_____ms
Frozen Counter Change Events	_____ms	_____ms
Analog Change Events	_____ms	_____ms
Frozen Analog Change Events	_____ms	_____ms

16. RECORD INDIVIDUAL FIELD OUTSTATION PARAMETERS HERE:

16.1. Manufacturer Serial Number:

If configurable, list methods: _____

16.2. Location name or code:

If configurable, list methods: _____

16.3. Outstation Field ID Code/number string:

If configurable, list methods: _____

16.4. Outstation Name: _____

If configurable, list methods: _____

16.5. Master Data Link Address: _____

If configurable, list methods: _____

16.6. File Authentication:

Username: _____

Password: _____

If configurable, list methods: _____

4. Implementation Table

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
1	0	Binary Input – Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*		
1	1	Binary Input	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
1	2	Binary Input with Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
2	0	Binary Input Change – Any Variation	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
2	1	Binary Input Change without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
2	2	Binary Input Change with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
2	3	Binary Input Change with Relative Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
3	0	Double Bit Input – Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*		
3	1	Double Bit Input	1 (read)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
3	2	Double Bit Input with Status	1 (read)*	00, 01 (start-stop) 06 (no range, or all) 17, 28 (index)	129 (response)	00, 01 (start-stop) 17, 28 (index)
4	0	Double Bit Input Change – Any Variation	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
4	1	Double Bit Input Change without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
4	2	Double Bit Input Change with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
4	3 (default – see note 1)	Double Bit Input Change with Relative Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
10	0	Binary Output Status – Any Variation	1 (read)	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*		
10	1	Binary Output	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129(response)	00, 01 (start-stop) 17, 28 (index)
10	2	Binary Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
12	1	Control Relay Output Block	3 (select) 4 (operate) 5 (direct op)	17, 28 (index)	129 (response)	echo of request
12	2	Pattern Control Block				

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
12	3	Pattern Mask				
20	0	Binary Counter – Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop) 06 (no range, or all) 17, 28 (index)		
			7 (freeze)* 8 (freeze noack)* 9 (freeze clear)* 10 (frz. cl. nack)*	00, 01 (start-stop)* 06 (no range, or all)* 07, 08 (limited qty)*		
20	1	32-Bit Binary Counter (with Flag)	1 (read)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
20	2	16-Bit Binary Counter (with Flag)	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
20	5	32-Bit Binary Counter without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
20	6	16-Bit Binary Counter without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	0	Frozen Counter – Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop)* 06 (no range, or all)* 07, 08 (limited qty)*		
21	1	32-Bit Frozen Counter (with Flag)	1 (read)	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	2	16-Bit Frozen Counter (with Flag)	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	5	32-Bit Frozen Counter with Time Of Freeze	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	6	16-Bit Frozen Counter with Time Of Freeze	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	9	32-Bit Frozen Counter without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
21	10	16-Bit Frozen Counter without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
22	0	Counter Change Event – Any Variation	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
22	1	32-Bit Counter Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
22	2	16-Bit Counter Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
22	5	32-Bit Counter Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
22	6	16-Bit Counter Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
23	0	Frozen Counter Event (Variation 0 is used to request default variation)	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
23	1	32-Bit Frozen Counter Event	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
23	2	16-Bit Frozen Counter Event	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
23	5	32-Bit Frozen Counter Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
23	6	16-Bit Frozen Counter Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
30	0	Analog Input - Any Variation	1 (read) 22 (assign class)*	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*		
30	1	32-Bit Analog Input	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	2	16-Bit Analog Input	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	3	32-Bit Analog Input without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	4	16-Bit Analog Input without Flag	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	5	short floating point	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)+	129 (response)	00, 01 (start-stop) 17, 28 (index)
30	6	long floating point	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index – see note 1)
32	0	Analog Change Event – Any Variation	1 (read)	06 (no range, or all) 07, 08 (limited qty)*		
32	1	32-Bit Analog Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	2	16-Bit Analog Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	3	32-Bit Analog Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	4	16-Bit Analog Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	5	short floating point Analog Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	6	long floating point Analog Change Event without Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	7	short floating point Analog Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
32	8	long floating point Analog Change Event with Time	1 (read)*	06 (no range, or all)* 07, 08 (limited qty)*	129 (response) 130 (unsol. resp)	17, 28 (index)
34	0	Analog Input Deadband (Variation 0 is used to request default variation)	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*		
34	1	16 bit Analog Input Deadband	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
			2 (write)*	17, 28 (index)*		
34	2	32 bit Analog Input Deadband	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
			2 (write)*	17, 28 (index)*		
34	3	Short Floating Point Analog Input Deadband	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
			2 (write)*	17, 28 (index)*		
40	0	Analog Output Status (Variation 0 is used to request default variation)	1 (read)	00, 01 (start-stop)* 06 (no range, or all) 17, 28 (index)*		
40	1	32-Bit Analog Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
40	2	16-Bit Analog Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
40	3	short floating point Analog Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
40	4	short floating point Analog Output Status	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 17, 28 (index)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
41	1	32-Bit Analog Output Block	3 (select)* 4 (operate)* 5 (direct op)* 6 (dir. op, noack)*	17, 28 (index)*	129 (response)	echo of request
41	2	16-Bit Analog Output Block	3 (select) 4 (operate) 5 (direct op) 6 (dir. op, noack)*	17, 28 (index)	129 (response)	echo of request
41	3	short floating point Analog Output Block	3 (select)* 4 (operate)* 5 (direct op)* 6 (dir. op, noack)*	17, 28 (index)*	129 (response)	echo of request
41	4	long floating point Analog Output Block	3 (select)* 4 (operate)* 5 (direct op)* 6 (dir. op, noack)*	17, 28 (index)*	129 (response)	echo of request
50	0	Time and Date				
50	1	Time and Date	1 (read)*	00, 01 (start-stop)* 06 (no range, or all)* 07 (limited qty = 1)* 08 (limited qty)*	129 (response)	00, 01 (start-stop) 17, 28 (index)
			2 (write)	07 (limited qty = 1)		
50	3	Time and Date Last Recorded Time				
51	1	Time and Date CTO			129 (response) 130 (unsol. resp)	07 (limited qty) (qty = 1)
51	2	Unsynchronized Time and Date CTO			129 (response) 130 (unsol. resp)	07 (limited qty) (qty = 1)
52	1	Time Delay Coarse			129 (response)	07 (limited qty) (qty = 1)
52	2	Time Delay Fine			129 (response)	07 (limited qty) (qty = 1)

OBJECT			REQUEST (Library may send)		RESPONSE (Library will parse)	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
60	0	Not Defined				
60	1	Class 0 Data	1 (read)	06 (no range, or all)		
60	2	Class 1 Data	1 (read)	06 (no range, or all)		
			20 (enbl. unsol.)* 21 (dsbl. unsol.)* 22(assign class)*	06 (no range, or all)*		
60	3	Class 2 Data	1 (read)	06 (no range, or all)		
			20 (enbl. unsol.)* 21 (dsbl. unsol.)* 22(assign class)*	06 (no range, or all)*		
60	4	Class 3 Data	1 (read)	06 (no range, or all)		
			20 (enbl. unsol.)* 21 (dsbl. unsol.)* 22(assign class)*	06 (no range, or all)*		
70	0	File Event – Any Variation				
70	2	File Authentication				
70	3	File Command				
70	4	File Command Status				
70	5	File Transfer				
70	6	File Transfer Status				
70	7	File Descriptor				
80	1	Internal Indications	1 (read)*	00, 01 (start-stop)*	129 (response)	00, 01 (start-stop)
			2 (write)	00 (start-stop) index = 7		
110	string length	Octet String Object				
111	string length	Octet String Event Object				
112	string length	Virtual Terminal Output Block				
113	string length	Virtual Terminal Event Data				
		No Object (function code only)	13 (cold restart)*			
		No Object (function code only)	14 (warm restart)*			

Note: * denotes function supplied through keyboard operator commands or special factory configuration.