



**DNP3.0 Serial Master Protocol Details  
for  
KALKI Protocol Gateway/GatewayLite**

**Product User Guide**

Version – 1.0

**KALKI Communication Technologies Pvt.. Ltd.,**  
#147, 2nd Floor, 5th Main, 7th Sector,  
H.S.R. Layout, Bangalore,  
INDIA – 560034.  
Phone: 91-80-5721263  
<http://www.kalkitech.com>

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## 1. Introduction

The purpose of this document is to describe the functionalities of DNP3.0 serial Master protocol implemented in the Kalki Protocol Gateway / Kalki Substation GatewayLite. This will contain details of interoperability, configuration details & mapping of the data from some of the other slave protocols available in Kalki Protocol Gateway.

## 2. DNP V3.0 Device Profile

The following table provides a “Device Profile Document” in the standard format defined in the DNP 3.0 Subset Definitions Document. It is only a component of a total interoperability guide. The table, in combination with the Implementation Table provided in Section 3, and the Point List Tables provided in Section 4 should provide a complete configuration/interoperability guide for communicating with KSGL / KPG.

<h1 style="margin: 0;">DNP V3.00</h1> <h2 style="margin: 0;">DEVICE PROFILE DOCUMENT</h2>	
Vendor Name: <b>Kalki Communication Technologies Private Limited</b>	
Device Name: <b>KSGL and KPG</b>	
Highest DNP Level Supported:  For Requests: <b>Level 3</b> For Responses: <b>Level 3</b>	Device Function:  <input checked="" type="checkbox"/> <b>Master</b> <input type="checkbox"/> <b>Slave</b>
Notable objects, functions, and/or qualifiers supported in addition to the Highest DNP Levels Supported (the complete list is described in the attached table):  <b>Assign Class Function Code (FC 22) is supported for Binary Inputs and Analog Inputs</b> <b>The read function code for Object 50 (Time and Date), variation 1, is supported.</b> <b>Analog Input Deadbands, Object 34, variations 1 and 2, are supported.</b>	
Maximum Data Link Frame Size (octets):  Transmitted: <b>292</b> Received: <b>292</b>	Maximum Application Fragment Size (octets):  Transmitted: <b>2048</b> Received: <b>2048</b>
Maximum Data Link Re-tries:  <input type="checkbox"/> None <input type="checkbox"/> Fixed at _____ <input checked="" type="checkbox"/> <b>Configurable from 0 to 255</b>	Maximum Application Layer Re-tries:  <input checked="" type="checkbox"/> <b>None</b> <input type="checkbox"/> Configurable
Requires Data Link Layer Confirmation:  <input type="checkbox"/> Never <input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input checked="" type="checkbox"/> <b>Configurable as: Never, Only for multi-frame messages, or Always.</b>	

# DNP V3.00

## DEVICE PROFILE DOCUMENT

Requires Application Layer Confirmation:

- Never
- Always
- When reporting Event Data**
- When sending multi-fragment responses**
- Sometimes
- Configurable

Timeouts while waiting for:

- Data Link Confirm:       None    Fixed at \_\_\_\_\_    Variable    **Configurable**
- Complete Appl. Fragment:  **None**    Fixed at \_\_\_\_\_    Variable    Configurable
- Application Confirm:       **None**    Fixed at \_\_\_\_\_    Variable    Configurable
- Complete Appl. Response:  None    Fixed at \_\_\_\_\_    Variable    **Configurable**

Sends/Executes Control Operations:

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

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, target database may be designed to handle either or both.**

Sequential File Transfer Support:

Append File Mode	Yes	<input checked="" type="checkbox"/>	<b>No</b>
Custom Status Code Strings	Yes	<input checked="" type="checkbox"/>	<b>No</b>
Permissions Field	Yes	<input checked="" type="checkbox"/>	<b>No</b>
File Events Assigned to Class	Yes	<input checked="" type="checkbox"/>	<b>No</b>
File Events Poll Specifically	Yes	<input checked="" type="checkbox"/>	<b>No</b>
Multiple Blocks in a Fragment	Yes	<input checked="" type="checkbox"/>	<b>No</b>
Max Number of Files Open	<b>0</b>		

### 3. DNP V3.0 Implementation Table

The following table identifies which object variations, function codes, and qualifiers, which DNP 3.0 Slave supports in both request messages and in response messages. For static (non-change-event) objects, requests sent with qualifiers 00, 01, 06, 07, or 08, will be responded with qualifiers 00 or 01. Requests sent with qualifiers 17 or 28 will be responded with qualifiers 17 or 28. For change-event objects, qualifiers 17 or 28 are always responded.

In the table below, text shaded as **00, 01 (start stop)** indicates Subset Level 3 functionality (beyond Subset Level 2).

In the table below, text shaded as **07, 08 (limited qty)** indicates functionality beyond Subset Level 3.

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-s 06(no range, 07, 08(limited 17, 28(index)		
1	1	Binary Input	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)	129(respons	00, 01(start-s 17, 28(index see note 1)
1	2	Binary Input with Status	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)	129(respons	00, 01(start-s 17, 28(index see note 1)
2	0	Binary Input Change – Any Variation	1 (read)	06(no range, 07, 08(limited		
2	1	Binary Input Change without Time	1 (read)	06(no range, 07, 08(limited	129(respons 130(unsol. re	17, 28(index)
2	2	Binary Input Change with Time	1 (read)	06(no range, 07, 08(limited	129(respons 130(unsol. re	17, 28(index)
10	0	Binary Output Status – Any Variation	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)		
10	2	Binary Output Status	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)	129(respons	00, 01(start-s 17, 28(index see note 1)
12	1	Control Relay Output Block	3 (select) 4(operate) 5 (direct op) 6 (dir. op, noack)	17, 28(index)	129(respons	echo of request
30	0	Analog Input - Any Variation	1 (read) 22(assign c	00, 01(start-s 06(no range, 07, 08(limited 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)
30	3	32-Bit Analog Input without Flag	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)	129(respon	00, 01(start-s 17, 28(index see note 1)
30	4	16-Bit Analog Input without Flag	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)	129(respon	00, 01(start-s 17, 28(index see note 1)
30	5	short floating point	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)	129(respon	00, 01(start-s 17, 28(index see note 1)
32	0	Analog Change Event – Any Variation	1 (read)	06(no range, 07, 08(limited		
32	1	32-Bit Analog Change Event without Time	1 (read)	06(no range, 07, 08(limited	129(respons 130(unsol. re	17, 28(index)
32	2	16-Bit Analog Change Event without Time	1 (read)	06(no range, 07, 08(limited	129(respons 130(unsol. re	17, 28(index)
32	3	32-Bit Analog Change Event with Time	1 (read)	06(no range, 07, 08(limited	129(respons 130(unsol. re	17, 28(index)
32	4	16-Bit Analog Change Event with Time	1 (read)	06(no range, 07, 08(limited	129(respons 130(unsol. re	17, 28(index)
34	0	Analog Input Deadband (Variation 0 is used to request default variation)	1 (read)	06(no range, 07, 08(limited		
34	1	16 bit Analog Input Deadband	1 (read)	06(no range, 07, 08(limited	129(respons	00, 01(start-s 17, 28(index see note 2)
34	2	32 bit Analog Input Deadband	1 (read)	06(no range, 07, 08(limited	129(respons	00, 01(start-s 17, 28(index see note 2)
40	0	Analog Output Status (Variation 0 is used to request default variation)	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)		
40	2	16-Bit Analog Output Status	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)	129(respon	00, 01(start-s 17, 28(index see note 1)
40	3	short floating point Analog Output Status	1 (read)	00, 01(start-s 06(no range, 07, 08(limited 17, 28(index)	129(respons	00, 01(start-s 17, 28(index see note 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)
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
50	0	Time and Date	1 (read)	00, 01(start-stop) 06(no range, limited) 07, 08(limited qty) 17, 28(index)	129(response)	00, 01(start-stop) 17, 28(index) see note 1)
50	1	Time and Date	1 (read)  2 (write)	00, 01(start-stop) 06(no range, limited qty) 07(limited qty) 08(limited qty)	129(response)	00, 01(start-stop) 17, 28(index) see note 1)
52	2	Time Delay Fine			129(response)	07(limited qty (qty = 1))
60	0	Class 0, 1, 2, and 3 Data	1 (read)	06(no range, limited)		Class 0, 1, 2, and 3 Data
60	1	Class 0 Data	1 (read)	06(no range, limited)		
60	2	Class 1 Data	1 (read)  22 (assign class)	06(no range, limited)  06(no range, limited)		
60	3	Class 2 Data	1 (read)  22 (assign class)	06(no range, limited)  06(no range, limited)		
60	4	Class 3 Data	1 (read)  22 (assign class)	06(no range, limited)  06(no range, limited)		
80	1	Internal Indications	2 (write) (see note 2)	00(start-stop) index = 7		

**Note 1:** A Default variation refers to the variation responded when variation 0 is requested and/or in class 0, 1, 2, or 3 scans. Default variations are configurable from Easy Connect configuration utility.

**Note 2:** For static (non-change-event) objects, qualifiers 17 or 28 are only responded when a request is sent with qualifiers 17 or 28, respectively. Otherwise, static object requests sent with qualifiers 00, 01, 06, 07, or 08, will be responded with qualifiers 00 or 01. (For change-event objects, qualifiers 17 or 28 are always responded.)

**Note 3:** Writes of Internal Indications are only supported for index 7 (Restart IIN1-7)

## 4. Configuration Details

Configuration of KSG/L / KPG is done through the configuration utility named “EasyConnect”. The DNP3.0 serial master configuration is divided into 3 parts – channel configuration, node configuration & configuration of profile.

### 4.1. Channel Configurations

Channel configuration involves configuration of the following parameters.

#### 4.1.1. ChannelNumber

*Description:* Indicates the Unique Identification Number For Channel

*Default:* Depends up on the order of creation

*Range:* 1-4,8,16 (Depends upon converter model)

#### 4.1.2. Channel State

*Description:* Indicates Whether the Channel is active or not.

*Default:* 1

*Range:* 0 or 1.

#### 4.1.3. Channel Type

*Description:* Indicates the type of Channel

*Default:* RS232

*Range:* RS232/RS485

#### 4.1.4. Baud

*Description:* Indicates the baud Rate

*Default:* 9600

*Range:* 600-19200

#### **4.1.5. Data Bits**

*Description:* Indicates the number of Data Bits

*Default:* 8

*Range:* 7,8

#### **4.1.6. Stop Bits**

*Description:* Indicates the number of Stop Bits

*Default:* 1

*Range:* 1,2

#### **4.1.7. Parity**

*Description:* Indicates the parity Type

*Default:* Even

*Range:* Even, Odd, None

#### **4.1.8. Port**

*Description:* Indicates the name of the Port

*Default:* Com1.

*Range:* Com1-16.

#### **4.1.9. Flow Control**

*Description:* Indicates the type of flow control.

*Default:* None

*Range:* None, Hardware, Software

#### **4.1.10. CTS Delay**

*Description:* Indicates the delay between rising of CTS signal by the modem and starting of a new transmission

*Default:* 30

*Range:* 0-100milliseconds

#### **4.1.11. Post Transmission Delay**

*Description:* Indicates the delay between releasing of RTS and end of a transmission.

*Default:* 0 milliseconds

*Range:* 0-100 milliseconds

#### **4.1.12. Time Out**

*Description:* Indicates the application layer incremental timeout in milliseconds

*Default:* 30000 milliseconds

*Range:* 0-100000 milliseconds

#### **4.1.13. Frame Timeout**

*Description:* Indicates the maximum time to allow receiving an entire frame.

*Default:* 15000 milliseconds

*Range:* 0-50000 milliseconds

#### **4.1.14. Confirm Timeout**

*Description:* Maximum time to wait for a link layer confirmation.

*Default:* 2000 milliseconds

Range: 0-50000 milliseconds

#### **4.1.15. Link Layer Retries**

*Description:* Indicates the maximum number of retries.

*Default:* 3

Range: 0-10

#### **4.1.16. Link Confirm Mode**

*Description:* Specifies when to ask for link layer confirmations.

*Default:* Always.

Range: Never, Always

#### **4.1.17. Offline Poll Period**

*Description:* How often slave will try to reopen channel when it is offline (in milliseconds).

*Default:* 60000

Range: 30000 - 60000

### **4.2. Node Configurations**

#### **4.2.1. Node Number**

*Description:* Indicates the Unique Identification Number For Node

*Default:* Depends up on the order of creation.

Range: 1-64,128,256(Depends upon converter model).

#### **4.2.2. Node State**

*Description:* Indicates whether Node is active or not.

*Default:* 1

Range: 0 or 1.

#### **4.2.3. Slave Address**

*Description:* Address of the Slave Device (address of DNP3 slave inside the converter)

*Default:* 4

*Range:* 0-65534

#### **4.2.4. Master Address**

*Description:* Address of the external DNP3 master

*Default:* 1

*Range:* 0-65534

#### **4.2.5. Link Status Period**

*Description:* How often this device should perform link status requests

*Default:* 60000

*Range:* 300000-60000

#### **4.2.6. Time Sync Enabled**

*Description:* Specifies whether to enable time synchronization. (This will synchronize at startup by default)

*Default :* Enabled.

*Range:* Enable or Disable.

#### **4.2.7. Time Sync Type**

*Description:* Specifies when to synchronize. If interval is selected it will synchronize at startup and when time sync timer expires.

*Default:* End of INIT.

*Range:* End of INIT or Interval.

#### **4.2.8 Time Sync Interval**

*Description:* Specifies the interval for time synchronization.

*Default:* 60 sec.

*Range:* 60 – 1000 sec.

#### **4.2.9 Enable Auto Delay Calculation**

*Description:* Enables the automatic time delay calculation when synchronizing an equipment. This depends on baud rate selected.

*Default:* Enabled.

*Range:* Enable or Disable.

#### **4.2.10 Integrity Poll Enabled**

*Description:* Enables Integrity poll (this will issue integrity poll at restart, local and overflow by default.)

*Default :* Enabled

*Range :* Enable or Disable.

#### **4.2.11 Integrity Poll Type**

*Description:* Specifies when to give integrity polls. If interval is selected, it will give integrity poll at startup and when integrity poll timer expires.

*Default:* End of INIT

*Range:* End of INIT or Interval.

#### **4.2.12 Integrity Poll Interval**

*Description:* Specifies the interval for integrity poll.

*Default:* 60 sec.

*Range:* 60 – 1000 sec.

#### **4.2.13 Event Poll Enable**

*Description:* Enables event poll when class-1, 2 or 3 IIN bit set.

*Default:* Enable

*Range:* Enable or Disable.

#### **4.2.14 Enable Unsol at Startup**

*Description:* Automatically enables unsolicited events upon remote device startup.

*Default:* Disabled

*Range:* Enable or Disable.

#### **4.2.15 Class Poll Enable**

*Description:* This enables you to define separate poll periods for each class data and treat different object types / variation under different classes.

*Default:* Disabled

*Range:* Disable or Enable.

#### **4.2.16 Class 0 Poll Interval**

*Description:* Specifies the delay for class0 data poll.

*Default:* 10 sec.

*Range:* 1- 1000 sec

#### **4.2.17 Class 1 Poll Interval**

*Description:* Specifies the delay for class1 data poll.

*Default:* 10 sec.

Range: 1- 1000 sec

#### **4.2.18 Class 2 Poll Interval**

*Description:* Specifies the delay for class2 data poll.

*Default:* 10 sec.

Range: 1- 1000 sec

#### **4.2.19 Class 3 Poll Interval**

*Description:* Specifies the delay for class3 data poll.

*Default:* 10 sec.

Range: 1- 1000 sec

#### **4.2.20 Command Type**

*Description:* Specifies the command type for entire slave.

*Default:* Latch.

Range: Pulse, Latch, Relay.

#### **4.2.21 On Time**

*Description:* Valid only when CMD Type is pulse.

*Default:* 500 ms.

Range: 500 – 10000ms.

#### **4.2.22 Off Time**

*Description:* Valid only when CMD Type is pulse.

*Default:* 500 ms.

*Range:* 500 – 10000ms

#### **4.2.23 Execute Delay**

*Description:* Execute delay when command is select and auto execute type.

*Default :* 500 ms

*Range :* 500 – 10000 ms.

### **4.3. Profile Attributes**

#### **4.3.1. Object Types**

You can configure the different object types of DNP3.0 here. The following are major object types available for configuration.

- Binary Inputs
- Analog Inputs
- Binary Output Status
- Analog Output Status
- Binary Output Command
- Analog Output Command

#### **4.3.2. Point Number**

The point number represents the index of specific object type.

#### **4.3.3. No of Points**

This specifies the total number of points starting from the specific index.

## 5. Mapping Details from other protocols: -

This section gives detailed idea of the data types in other master protocols, which can be mapped, to specific DNP3.0 slave types.

<b>DNP3.0 master Types</b>	<a href="#"><u>DN-T1</u></a> <a href="#"><u>DN-T3</u></a>	<a href="#"><u>DN-T2</u></a> <a href="#"><u>DN-T4</u></a>	<a href="#"><u>DN-T5</u></a>	<a href="#"><u>DN-T6</u></a>
IEC101/ 104 slave types	<a href="#"><u>14-M1</u></a> <a href="#"><u>14-M2</u></a>	<a href="#"><u>14-M3</u></a> <a href="#"><u>14-M4</u></a> <a href="#"><u>14-M5</u></a> <a href="#"><u>14-M6</u></a> <a href="#"><u>14-M7</u></a> <a href="#"><u>14-M8</u></a>	<a href="#"><u>14-C1</u></a> <a href="#"><u>14-C2</u></a> <a href="#"><u>14-C3</u></a>	<a href="#"><u>14-C4</u></a> <a href="#"><u>14-C5</u></a> <a href="#"><u>14-C6</u></a> <a href="#"><u>14-C7</u></a>
IEC103 slave types	<a href="#"><u>103-T1</u></a> <a href="#"><u>103-T2</u></a>	<a href="#"><u>103-T3</u></a> <a href="#"><u>103-T4</u></a> <a href="#"><u>103-T9</u></a>	<a href="#"><u>103-T20</u></a>	--
Modbus slave types	<a href="#"><u>MB-T1</u></a> <a href="#"><u>MB-T2</u></a> <a href="#"><u>MB-T3</u></a> <a href="#"><u>MB-T4</u></a>	<a href="#"><u>MB-T5</u></a> <a href="#"><u>MB-T6</u></a>	<a href="#"><u>MB-T7</u></a> <a href="#"><u>MB-T8</u></a> <a href="#"><u>MB-T9</u></a> <a href="#"><u>MB-T10</u></a>	<a href="#"><u>MB-T11</u></a> <a href="#"><u>MB-T12</u></a>
DNP3.0 slave types	<a href="#"><u>DN-T1</u></a> <a href="#"><u>DN-T3</u></a>	<a href="#"><u>DN-T2</u></a> <a href="#"><u>DN-T4</u></a>	<a href="#"><u>DN-T5</u></a>	<a href="#"><u>DN-T6</u></a>
SPA slave types	<a href="#"><u>SP-T1</u></a> <a href="#"><u>SP-T2</u></a>	<a href="#"><u>SP-T3</u></a> <a href="#"><u>SP-T4</u></a>	<a href="#"><u>SP-T5</u></a> <a href="#"><u>SP-T6</u></a>	<a href="#"><u>SP-T7</u></a>
Courier slave types	<a href="#"><u>CR-T1</u></a>	<a href="#"><u>CR-T3</u></a>	<a href="#"><u>CR-T4</u></a>	<a href="#"><u>CR-T6</u></a>

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**IEC101/104 Type Details**

<b>IEC101/104 types</b>	<b>Type Details</b>
14_M1	Single Indication
14_M2	Double Indication
14_M3	Step position information
14_M4	Measured value, normalized value
14_M5	Measured value, Scaled value
14_M6	Measured value, short floating point value
14_M7	Integrated totals
14_M8	Bitstring of 32 bit
14_C1	Single command
14_C2	Double command
14_C3	Regulating step command
14_C4	Set point command, normalised value
14_C5	Set point command, Scaled value
14_C6	Set point command, short floating point value
14_C7	Set point command, Bitstring of 32 bit

<b>Modbus Type Details</b>		
<b>Modbus types</b>	<b>Type Details</b>	<b>Supported Formats</b>
MB-T1	Single Indication, Read Coil status	NA
MB-T2	Single Indication, Read Discrete inputs	NA
MB-T3	Double Indication, Read Coil status	NA
MB-T4	Double Indication, Read Discrete inputs	NA
MB-T5	Analog I/P, Read Input Registers	NA
MB-T6	Analog I/P, Read Holding Registers	Signed Single Register Unsigned Single Register Signed 32 bit Register ( lsw – msw ) Signed 32 bit Register ( msw – lsw ) Unsigned 32 bit Register ( lsw – msw ) Unsigned 32 bit Register ( msw – lsw ) Float ( lsw – msw ) Float ( msw – lsw ) Double
MB-T7	Single Command, Force single coil	NA
MB-T8	Single Command, Force multiple coils	NA
MB-T9	Double Command, Force single coil	NA
MB-T10	Double Command, Force multiple coils	NA
MB-T11	Analog O/P, Force single register	Signed Single Register Unsigned Single Register
MB-T12	Analog O/P, Force multiple registers	Signed Single Register Unsigned Single Register Signed 32 bit Register ( lsw – msw ) Signed 32 bit Register ( msw – lsw ) Unsigned 32 bit Register ( lsw – msw ) Unsigned 32 bit Register ( msw – lsw ) Float ( lsw – msw ) Float ( msw – lsw )

<b>IEC103 Type Details</b>	
<b>IEC103 types</b>	<b>Type Details</b>
103-T1	Time Tagged Message (103 TYPE = 1)
103-T2	Time Tagged Message With Relative Time(103 TYPE = 2)
103-T3	Measurands I (103 TYPE = 3)
103-T4	Time Tagged Measurands with Relative Time. (103 TYPE = 4)
103-T5	Identification (103 TYPE = 5)
103-T9	Measurands II (103 TYPE = 9)
103-T20	Write general commands (103 TYPE = 20)
103-T21	Directory

<b>DNP3.0 Type Details</b>	
<b>DNP3.0 types</b>	<b>Type Details</b>
DN-T1	Binary Input
DN-T2	Analog Input
DN-T3	Binary Output Status
DN-T4	Analog Output Status
DN-T5	Binary Output Command
DN-T6	Analog Output Command

**SPA Type Details**

<b>SPA types</b>	<b>Type Details</b>	<b>Supported Data Types</b>	<b>Supported Data Formats</b>	<b>Update Methods</b>
SP-T1	Single Indications	I, O, S, V, M, C	Bits, Hex, Real, Long Int	Polling , Events , polling & events
SP-T2	Double Indications	I, O, S, V, M, C	Bits, Hex, Real, Long Int	Polling , Events , polling & events
SP-T3	Analog Inputs	I, O, S, V, M, C	Bits, Hex, Real, Long Int	Polling
SP-T4	Pulse Counters	I, O, S, V, M, C	Bits, Hex, Real, Long Int	Polling
SP-T5	Object Commands	I, O, S, V, M, C	Bits, Hex, Real, Long Int	NA
SP-T6	Double Commands	I, O, S, V, M, C	Bits, Hex, Real, Long Int	NA
SP-T7	Analog Outputs	I, O, S, V, M, C	Bits, Hex, Real, Long Int	NA

<b>Courier Type Details</b>			
<b>Courier types</b>	<b>Type Details</b>	<b>Supported Data Formats</b>	<b>Update Methods</b>
CR-T1	Single Indications	NA	Polling , Events , polling & events
CR-T2	Double Indications	NA	Polling , Events , polling & events
CR-T3	Analog Inputs	UnsignedInteger (1Byte) – 24H UnsignedInteger (2Bytes) – 25H UnsignedInteger (4Bytes) – 26H SignedInteger (1Byte) – 28H SignedInteger (2Bytes) – 29H SignedInteger (4Bytes) – 2AH CourierNumber (4Bytes) – 2CH Extended Courier (6Bytes) --30 H IEEE floating Format (4Bytes)--34 H	Polling
CR-T4	Single Commands	Indexed String Courier Number	NA
CR-T5	Double Commands	Indexed String Courier Number Two bits setting command	NA
CR-T6	Analog Outputs	UnsignedInteger (1Byte) – 24H UnsignedInteger (2Bytes) – 25H UnsignedInteger (4Bytes) – 26H SignedInteger (1Byte) – 28H SignedInteger (2Bytes) – 29H SignedInteger (4Bytes) – 2AH CourierNumber (4Bytes) – 2CH Extended Courier (6Bytes) --30 H IEEE floating Format (4Bytes)--34 H	NA