Application Note: Autometers

This application note describes how to integrate a Autometers modbus energy meters with North.

Please read the *Modbus Driver Manual*, and *Commander Manual* or *ObSys Manual* alongside this document, available from *www.northbt.com*

Contents

Compatibility with the Autometers System

Interface to an Autometers modbus energy meter using the North Modbus driver.

The driver connects to Autometers energy meters via an RS485 network. Multiple energy meters can be networked.

Autometers meters released since 2009, supporting Autometers protocol V6, are compatible with the North Modbus driver.

Meters released prior to 2009, require a different North driver – EVOIC3, IC990, IC7, IC9 use the AutomtrEVO driver; and IC models released prior to 2003 use the AutomtrJ driver.

Equipment

This application note documents Autometers energy meters with a Modbus RS485 output (Autometers protocol V6).

Values

The driver can typically access the following values:

- Voltage
- Frequency
- Current
- Power
- Max/Min
- Harmonic

Prerequisites

Each Autometers energy meter's RS485 Modbus parameters should be set. Each meter must have a unique address on the RS485 network. Set all meters with the same baud rate and parity.

If available, set meters to use Modbus RTU, and IEEE floating-point modes.

An RS232-485 adapter is required and should be set to match the communication parameters of the meters – baud rate; even/odd parity = 11 bits, no parity = 10 bits.

This application note is based on information available in Autometers Modbus Protocol Specification rev. 6.2.14.

Using the Driver

On ObSys and Commander, the Modbus driver is pre-installed. Using all of these North devices, you can use the driver to create an interface to a Modbus system. Once started, you will need to set up the driver before it can communicate with the Autometers system.

The Modbus driver uses zero licence units.

Starting the Interface

💻 To start an interface using the Modbus driver, follow these steps:

- → **Start Engineering** your North device using ObSys
- → Navigate to **Configuration, Interfaces,** and set an unused **Interface** to 'Modbus' to start the particular interface
- → Navigate to the top-level of your North device and re-scan it

The driver setup object (Mc), labelled **Modbus Setup**, should now be available.

Setting up the Driver

💻 To set up the driver, follow these steps:

- → Navigate to the **Modbus Setup** object (M*c*). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
- → Navigate to **Modbus Serial Setup** and set **Modbus Serial Mode** to 'Client'
- → Set **RS232 COM Port** to select the serial port number on the North device the Autometers meters are connected to
- → Set **Baud Rate** and **Byte Format** to match the configuration of the meters
- → Navigate to **Serial Client Setup**, and set **Default Device Type** to 'Autometer'.

Checking Communications

Scanning the Modbus System will respond with the connected Autometers meters. You can check the interface is communicating by viewing values within a meter.

Object Specifications

Once an interface is started, one or more extra objects become available within the top-level object of the device. As with all North objects, each of these extra objects may contain sub-objects, (and each of these may contain sub-objects, and so on) – the whole object structure being a multi-layer hierarchy. It is possible to navigate around the objects using the ObSys Engineering Software.

Refer to the *Modbus Driver Manual* for a complete list of objects for this interface.

Modbus System

Object Type: *[Modbus]*

The Modbus system contains objects to access the Modbus client devices available.

Description	Reference	Type
Address *x* The unit address, *x,* can be in the range 1…247	A*x*	Fixed container, one of the following: Autometers meter *[Modbus\Autometer]* Default Modbus Device *[Modbus\Default]*

Autometers meter

Object Type: [Modbus\Autometers]

An Autometers energy meter contains the following objects.

Description	Reference	Type
Voltage L1 (V)	N16.J	Obj\Float
Voltage L2 (V)	N18.J	Obj\Float
Voltage L3 (V)	N20.J	Obj\Float
Voltage Max L1 (V)	N22.J	Obj\Float
Voltage Max L2 (V)	N24.J	Obj\Float
Voltage Max L3 (V)	N26.J	Obj\Float
Voltage Min L1 (V)	N28.J	Obj\Float
Voltage Min L2 (V)	N30.J	Obj\Float
Voltage Min L3 (V)	N32.J	Obj\Float
Voltage Max Alarm Setting L1 (V)	N34.J	Obj\Float
Voltage Max Alarm Setting L2 (V)	N36.J	Obj\Float
Voltage Max Alarm Setting L3 (V)	N38.J	Obj\Float
Voltage Min Alarm Setting L1 (V)	N40.J	Obj\Float
Voltage Min Alarm Setting L2 (V)	N42.J	Obj\Float
Voltage Min Alarm Setting L3 (V)	N44.J	Obj\Float
Voltage L1-L3 (V)	N48.J	Obj\Float
Voltage L3-L2 (V)	N50.J	Obj\Float
Voltage L2-L1 (V)	N52.J	Obj\Float
Voltage Max L1-L3 (V)	N54.J	Obj\Float
Voltage Max L3-L2 (V)	N56.J	Obj\Float
Voltage Max L2-L1 (V)	N58.J	Obj\Float
Voltage Min L1-L3 (V)	N60.J	Obj\Float
Voltage Min L3-L2 (V)	N62.J	Obj\Float
Voltage Min L2-L1 (V)	N64.J	Obj\Float
Voltage Max Alarm Setting L1-L3 (V)	N66.J	Obj\Float
Voltage Max Alarm Setting L3-L2 (V)	N68.J	Obj\Float
Voltage Max Alarm Setting L2-L1 (V)	N70.J	Obj\Float
Voltage Min Alarm Setting L1-L3 (V)	N72.J	Obj\Float
Voltage Min Alarm Setting L3-L2 (V)	N74.J	Obj\Float
Voltage Min Alarm Setting L2-L1 (V)	N76.J	Obj\Float
Frequency (Hz)	N78.J	Obj\Float
Voltage Crest Factor L1	N512.J	Obj\Float
Voltage Crest Factor L2	N514.J	Obj\Float
Voltage Crest Factor L3	N516.J	Obj\Float
Voltage Harmonic Total Distortion L1 (%)	N518.J	Obj\Float
Voltage Total Harmonic Distortion L2 (%)	N520.J	Obj\Float
Voltage Total Harmonic Distortion L3 (%)	N522.J	Obj\Float
Voltage 1st Harmonic L1 (%)	N528.J	Obj\Float
Voltage 3rd Harmonic L1 (%)	N530.J	Obj\Float
Voltage 5th Harmonic L1 (%)	N532.J	Obj\Float
Voltage 7th Harmonic L1 (%)	N534.J	Obj\Float
Voltage 9th Harmonic L1 (%)	N536.J	Obj\Float
Voltage 11th Harmonic L1 (%)	N538.J	Obj\Float
Voltage 13th Harmonic L1 (%)	N540.J	Obj\Float
Voltage 15th Harmonic L1 (%)	N542.J	Obj\Float
Voltage 17th Harmonic L1 (%)	N544.J	Obj\Float
Voltage 19th Harmonic L1 (%)	N546.J	Obj\Float

Description	Reference	Type
Voltage 21st Harmonic L1 (%)	N548.J	Obj\Float
Voltage 23rd Harmonic L1 (%)	N550.J	Obj\Float
Voltage 25th Harmonic L1 (%)	N552.J	Obj\Float
Voltage 27th Harmonic L1 (%)	N554.J	Obj\Float
Voltage 29th Harmonic L1 (%)	N556.J	Obj\Float
Voltage 31th Harmonic L1 (%)	N558.J	Obj\Float
Voltage 33rd Harmonic L1 (%)	N560.J	Obj\Float
Voltage 35th Harmonic L1 (%)	N562.J	Obj\Float
Voltage 37th Harmonic L1 (%)	N564.J	Obj\Float
Voltage 39th Harmonic L1 (%)	N566.J	Obj\Float
Voltage 41st Harmonic L1 (%)	N568.J	Obj\Float
Voltage 43rd Harmonic L1 (%)	N570.J	Obj\Float
Voltage 45th Harmonic L1 (%)	N572.J	Obj\Float
Voltage 47th Harmonic L1 (%)	N574.J	Obj\Float
Voltage 49th Harmonic L1 (%)	N576.J	Obj\Float
Voltage 51st Harmonic L1 (%)	N578.J	Obj\Float
Voltage 53rd Harmonic L1 (%)	N580.J	Obj\Float
Voltage 55th Harmonic L1 (%)	N582.J	Obj\Float
Voltage 57th Harmonic L1 (%)	N584.J	Obj\Float
Voltage 59th Harmonic L1 (%)	N586.J	Obj\Float
Voltage 61st Harmonic L1 (%)	N588.J	Obj\Float
Voltage 63rd Harmonic L1 (%)	N590.J	Obj\Float
Voltage 1st Harmonic L2 (%)	N592.J	Obj\Float
Voltage 3rd Harmonic L2 (%)	N594.J	Obj\Float
Voltage 5th Harmonic L2 (%)	N596.J	Obj\Float
Voltage 7th Harmonic L2 (%)	N598.J	Obj\Float
Voltage 9th Harmonic L2 (%)	N600.J	Obj\Float
Voltage 11th Harmonic L2 (%)	N602.J	Obj\Float
Voltage 13th Harmonic L2 (%)	N604.J	Obj\Float
Voltage 15th Harmonic L2 (%)	N606.J	Obj\Float
Voltage 17th Harmonic L2 (%)	N608.J	Obj\Float
Voltage 19th Harmonic L2 (%)	N610.J	Obj\Float
Voltage 21st Harmonic L2 (%)	N612.J	Obj\Float
Voltage 23rd Harmonic L2 (%)	N614.J	Obj\Float
Voltage 25th Harmonic L2 (%)	N616.J	Obj\Float
Voltage 27th Harmonic L2 (%)	N618.J	Obj\Float
Voltage 29th Harmonic L2 (%)	N620.J	Obj\Float
Voltage 31th Harmonic L2 (%)	N622.J	Obj\Float
Voltage 33rd Harmonic L2 (%)	N624.J	Obj\Float
Voltage 35th Harmonic L2 (%)	N626.J	Obj\Float
Voltage 37th Harmonic L2 (%)	N628.J	Obj\Float
Voltage 39th Harmonic L2 (%)	N630.J	Obj\Float
Voltage 41st Harmonic L2 (%)	N632.J	Obj\Float
Voltage 43rd Harmonic L2 (%)	N634.J	Obj\Float
Voltage 45th Harmonic L2 (%)	N636.J	Obj\Float
Voltage 47th Harmonic L2 (%)	N638.J	Obj\Float
Voltage 49th Harmonic L2 (%)	N640.J	Obj\Float
Voltage 51st Harmonic L2 (%)	N642.J	Obj\Float
Voltage 53rd Harmonic L2 (%)	N644.J	Obj\Float
Voltage 55th Harmonic L2 (%)	N646.J	Obj\Float
Voltage 57th Harmonic L2 (%)	N648.J	Obj\Float
Voltage 59th Harmonic L2 (%)	N650.J	Obj\Float
Voltage 61st Harmonic L2 (%)	N652.J	Obj\Float
Voltage 63rd Harmonic L2 (%)	N654.J	Obj\Float
Voltage 1st Harmonic L3 (%)	N656.J	Obj\Float

Description	Reference	Type
Voltage 3rd Harmonic L3 (%)	N658.J	Obj\Float
Voltage 5th Harmonic L3 (%)	N660.J	Obj\Float
Voltage 7th Harmonic L3 (%)	N662.J	Obj\Float
Voltage 9th Harmonic L3 (%)	N664.J	Obj\Float
Voltage 11th Harmonic L3 (%)	N666.J	Obj\Float
Voltage 13th Harmonic L3 (%)	N668.J	Obj\Float
Voltage 15th Harmonic L3 (%)	N670.J	Obj\Float
Voltage 17th Harmonic L3 (%)	N672.J	Obj\Float
Voltage 19th Harmonic L3 (%)	N674.J	Obj\Float
Voltage 21st Harmonic L3 (%)	N676.J	Obj\Float
Voltage 23rd Harmonic L3 (%)	N678.J	Obj\Float
Voltage 25th Harmonic L3 (%)	N680.J	Obj\Float
Voltage 27th Harmonic L3 (%)	N682.J	Obj\Float
Voltage 29th Harmonic L3 (%)	N684.J	Obj\Float
Voltage 31th Harmonic L3 (%)	N686.J	Obj\Float
Voltage 33rd Harmonic L3 (%)	N688.J	Obj\Float
Voltage 35th Harmonic L3 (%)	N690.J	Obj\Float
Voltage 37th Harmonic L3 (%)	N692.J	Obj\Float
Voltage 39th Harmonic L3 (%)	N694.J	Obj\Float
Voltage 41st Harmonic L3 (%)	N696.J	Obj\Float
Voltage 43rd Harmonic L3 (%)	N698.J	Obj\Float
Voltage 45th Harmonic L3 (%)	N700.J	Obj\Float
Voltage 47th Harmonic L3 (%)	N702.J	Obj\Float
Voltage 49th Harmonic L3 (%)	N704.J	Obj\Float
Voltage 51st Harmonic L3 (%)	N706.J	Obj\Float
Voltage 53rd Harmonic L3 (%)	N708.J	Obj\Float
Voltage 55th Harmonic L3 (%)	N710.J	Obj\Float
Voltage 57th Harmonic L3 (%)	N712.J	Obj\Float
Voltage 59th Harmonic L3 (%)	N714.J	Obj\Float
Voltage 61st Harmonic L3 (%)	N716.J	Obj\Float
Voltage 63rd Harmonic L3 (%)	N718.J	Obj\Float
Current L1 (A)	N80.J	Obj\Float
Current L2 (A)	N82.J	Obj\Float
Current L3 (A)	N84.J	Obj\Float
Current Neutral (A)	N86.J	Obj\Float
Current Total (A)	N88.J	Obj\Float
Current Max L1 (A)	N90.J	Obj\Float
Current Max L2 (A)	N92.J	Obj\Float
Current Max L3 (A)	N94.J	Obj\Float
Current Max Neutral (A)	N96.J	Obj\Float
Current Max Total (A)	N98.J	Obj\Float
Current Min L1 (A)	N100.J	Obj\Float
Current Min L2 (A)	N102.J	Obj\Float
Current Min L3 (A)	N104.J	Obj\Float
Current Min Neutral (A)	N106.J	Obj\Float
Current Min Total (A)	N108.J	Obj\Float
Current Max Alarm Setting L1 (A)	N110.J	Obj\Float
Current Max Alarm Setting L2 (A)	N112.J	Obj\Float
Current Max Alarm Setting L3 (A)	N114.J	Obj\Float
Current Max Alarm Setting Neutral (A)	N116.J	Obj\Float
Current Max Alarm Setting Total (A)	N118.J	Obj\Float
Current Min Alarm Setting L1 (A)	N120.J	Obj\Float
Current Min Alarm Setting L2 (A)	N122.J	Obj\Float
Current Min Alarm Setting L3 (A)	N124.J	Obj\Float
Current Min Alarm Setting Neutral (A)	N126.J	Obj\Float

Description	Reference	Type
Current Min Alarm Setting Total (A)	N128.J	Obj\Float
Period maximum demand for amps (A)	B130.B	Obj\Num
Present maximum demand for amps (A)	N132.J	Obj\Float
Minutes into demand period (mins)	B134.B	Obj\Num
Seconds into demand period (secs)	B136.B	Obj\Num
Current Crest Factor L1	N768.J	Obj\Float
Current Crest Factor L2	N770.J	Obj\Float
Current Crest Factor L3	N772.J	Obj\Float
Current Crest Factor Neutral	N774.J	Obj\Float
Current Total Harmonic Distortion L1 (%)	N776.J	Obj\Float
Current Total Harmonic Distortion L2 (%)	N778.J	Obj\Float
Current Total Harmonic Distortion L3 (%)	N780.J	Obj\Float
Current Total Harmonic Distortion Neutral (%)	N782.J	Obj\Float
Current 1st Harmonic L1 (%)	N784.J	Obj\Float
Current 3rd Harmonic L1 (%)	N786.J	Obj\Float
Current 5th Harmonic L1 (%)	N788.J	Obj\Float
Current 7th Harmonic L1 (%)	N790.J	Obj\Float
Current 9th Harmonic L1 (%)	N792.J	Obj\Float
Current 11th Harmonic L1 (%)	N794.J	Obj\Float
Current 13th Harmonic L1 (%)	N796.J	Obj\Float
Current 15th Harmonic L1 (%)	N798.J	Obj\Float
Current 17th Harmonic L1 (%)	N800.J	Obj\Float
Current 19th Harmonic L1 (%)	N802.J	Obj\Float
Current 21st Harmonic L1 (%)	N804.J	Obj\Float
Current 23rd Harmonic L1 (%)	N806.J	Obj\Float
Current 25th Harmonic L1 (%)	N808.J	Obj\Float
Current 27th Harmonic L1 (%)	N810.J	Obj\Float
Current 29th Harmonic L1 (%)	N812.J	Obj\Float
Current 31st Harmonic L1 (%)	N814.J	Obj\Float
Current 33rd Harmonic L1 (%)	N816.J	Obj\Float
Current 35th Harmonic L1 (%)	N818.J	Obj\Float
Current 37th Harmonic L1 (%)	N820.J	Obj\Float
Current 39th Harmonic L1 (%)	N822.J	Obj\Float
Current 41st Harmonic L1 (%)	N824.J	Obj\Float
Current 43rd Harmonic L1 (%)	N826.J	Obj\Float
Current 45th Harmonic L1 (%)	N828.J	Obj\Float
Current 47th Harmonic L1 (%)	N830.J	Obj\Float
Current 49th Harmonic L1 (%)	N832.J	Obj\Float
Current 51st Harmonic L1 (%)	N834.J	Obj\Float
Current 53rd Harmonic L1 (%)	N836.J	Obj\Float
Current 55th Harmonic L1 (%)	N838.J	Obj\Float
Current 57th Harmonic L1 (%)	N840.J	Obj\Float
Current 59th Harmonic L1 (%)	N842.J	Obj\Float
Current 61st Harmonic L1 (%)	N844.J	Obj\Float
Current 63rd Harmonic (%)	N846.J	Obj\Float
Current 1st Harmonic L2 (%)	N848.J	Obj\Float
Current 3rd Harmonic L2 (%)	N850.J	Obj\Float
Current 5th Harmonic L2 (%)	N852.J	Obj\Float
Current 7th Harmonic L2 (%)	N854.J	Obj\Float
Current 9th Harmonic L2 (%)	N856.J	Obj\Float
Current 11th Harmonic L2 (%)	N858.J	Obj\Float

Description	Reference	Type
Current 13th Harmonic L2 (%)	N860.J	Obj\Float
Current 15th Harmonic L2 (%)	N862.J	Obj\Float
Current 17th Harmonic L2 (%)	N864.J	Obj\Float
Current 19th Harmonic L2 (%)	N866.J	Obj\Float
Current 21st Harmonic L2 (%)	N868.J	Obj\Float
Current 23rd Harmonic L2 (%)	N870.J	Obj\Float
Current 25th Harmonic L2 (%)	N872.J	Obj\Float
Current 27th Harmonic L2 (%)	N874.J	Obj\Float
Current 29th Harmonic L2 (%)	N876.J	Obj\Float
Current 31st Harmonic L2 (%)	N878.J	Obj\Float
Current 33rd Harmonic L2 (%)	N880.J	Obj\Float
Current 35th Harmonic L2 (%)	N882.J	Obj\Float
Current 37th Harmonic L2 (%)	N884.J	Obj\Float
Current 39th Harmonic L2 (%)	N886.J	Obj\Float
Current 41st Harmonic L2 (%)	N888.J	Obj\Float
Current 43rd Harmonic L2 (%)	N890.J	Obj\Float
Current 45th Harmonic L2 (%)	N892.J	Obj\Float
Current 47th Harmonic L2 (%)	N894.J	Obj\Float
Current 49th Harmonic L2 (%)	N896.J	Obj\Float
Current 51st Harmonic L2 (%)	N898.J	Obj\Float
Current 53rd Harmonic L2 (%)	N900.J	Obj\Float
Current 55th Harmonic L2 (%)	N902.J	Obj\Float
Current 57th Harmonic L2 (%)	N904.J	Obj\Float
Current 59th Harmonic L2 (%)	N906.J	Obj\Float
Current 61st Harmonic L2 (%)	N908.J	Obj\Float
Current 63rd Harmonic L2 (%)	N910.J	Obj\Float
Current 1st Harmonic L3 (%)	N912.J	Obj\Float
Current 3rd Harmonic L3 (%)	N914.J	Obj\Float
Current 5th Harmonic L3 (%)	N916.J	Obj\Float
Current 7th Harmonic L3 (%)	N918.J	Obj\Float
Current 9th Harmonic L3 (%)	N920.J	Obj\Float
Current 11th Harmonic L3 (%)	N922.J	Obj\Float
Current 13th Harmonic L3 (%)	N924.J	Obj\Float
Current 15th Harmonic L3 (%)	N926.J	Obj\Float
Current 17th Harmonic L3 (%)	N928.J	Obj\Float
Current 19th Harmonic L3 (%)	N930.J	Obj\Float
Current 21st Harmonic L3 (%)	N932.J	Obj\Float
Current 23rd Harmonic L3 (%)	N934.J	Obj\Float
Current 25th Harmonic L3 (%)	N936.J	Obj\Float
Current 27th Harmonic L3 (%)	N938.J	Obj\Float
Current 29th Harmonic L3 (%)	N940.J	Obj\Float
Current 31st Harmonic L3 (%)	N942.J	Obj\Float
Current 33rd Harmonic L3 (%)	N944.J	Obj\Float
Current 35th Harmonic L3 (%)	N946.J	Obj\Float
Current 37th Harmonic L3 (%)	N948.J	Obj\Float
Current 39th Harmonic L3 (%)	N950.J	Obj\Float
Current 41st Harmonic L3 (%)	N952.J	Obj\Float
Current 43rd Harmonic L3 (%)	N954.J	Obj\Float
Current 45th Harmonic L3 (%)	N956.J	Obj\Float
Current 47th Harmonic L3 (%)	N958.J	Obj\Float
Current 49th Harmonic L3 (%)	N960.J	Obj\Float
Current 51st Harmonic L3 (%)	N962.J	Obj\Float
Current 53rd Harmonic L3 (%)	N964.J	Obj\Float
Current 55th Harmonic L3 (%)	N966.J	Obj\Float
Current 57th Harmonic L3 (%)	N968.J	Obj\Float

Description	Reference	Type
Current 59th Harmonic L3 (%)	N970.J	Obj\Float
Current 61st Harmonic L3 (%)	N972.J	Obj\Float
Current 63rd Harmonic L3 (%)	N974.J	Obj\Float
Current 1st Harmonic Neutral (%)	N976.J	Obj\Float
Current 3rd Harmonic Neutral (%)	N978.J	Obj\Float
Current 5th Harmonic Neutral (%)	N980.J	Obj\Float
Current 7th Harmonic Neutral (%)	N982.J	Obj\Float
Current 9th Harmonic Neutral (%)	N984.J	Obj\Float
Current 11th Harmonic Neutral (%)	N986.J	Obj\Float
Current 13th Harmonic Neutral (%)	N988.J	Obj\Float
Current 15th Harmonic Neutral (%)	N990.J	Obj\Float
Current 17th Harmonic Neutral (%)	N992.J	Obj\Float
Current 19th Harmonic Neutral (%)	N994.J	Obj\Float
Current 21st Harmonic Neutral (%)	N996.J	Obj\Float
Current 23rd Harmonic Neutral (%)	N998.J	Obj\Float
Current 25th Harmonic Neutral (%)	N1000.J	Obj\Float
Current 27th Harmonic Neutral (%)	N1002.J	Obj\Float
Current 29th Harmonic Neutral (%)	N1004.J	Obj\Float
Current 31st Harmonic Neutral (%)	N1006.J	Obj\Float
Current 33rd Harmonic Neutral (%)	N1008.J	Obj\Float
Current 35th Harmonic Neutral (%)	N1010.J	Obj\Float
Current 37th Harmonic Neutral (%)	N1012.J	Obj\Float
Current 39th Harmonic Neutral (%)	N1014.J	Obj\Float
Current 41st Harmonic Neutral (%)	N1016.J	Obj\Float
Current 43rd Harmonic Neutral (%)	N1018.J	Obj\Float
Current 45th Harmonic Neutral (%)	N1020.J	Obj\Float
Current 47th Harmonic Neutral (%)	N1022.J	Obj\Float
Current 49th Harmonic Neutral (%)	N1024.J	Obj\Float
Current 51st Harmonic Neutral (%)	N1026.J	Obj\Float
Current 53rd Harmonic Neutral (%)	N1028.J	Obj\Float
Current 55th Harmonic Neutral (%)	N1030.J	Obj\Float
Current 57th Harmonic Neutral (%)	N1032.J	Obj\Float
Current 59th Harmonic Neutral (%)	N1034.J	Obj\Float
Current 61st Harmonic Neutral (%)	N1036.J	Obj\Float
Current 63rd Harmonic Neutral (%)	N1038.J	Obj\Float
Power L1 (KW)	N144.J	Obj\Float
Power L2 (KW)	N146.J	Obj\Float
Power L3 (KW)	N148.J	Obj\Float
Power Total (KW)	N150.J	Obj\Float
Power Max L1 (KW)	N152.J	Obj\Float
Power Max L2 (KW)	N154.J	Obj\Float
Power Max L3 (KW)	N156.J	Obj\Float
Power Max Total (KW)	N158.J	Obj\Float
Power Min L1 (KW)	N160.J	Obj\Float
Power Min L2 (KW)	N162.J	Obj\Float
Power Min L3 (KW)	N164.J	Obj\Float
Power Min Total (KW)	N166.J	Obj\Float
Power max Alarm Settings L1 (KW)	N168.J	Obj\Float
Power Max Alarm Settings L2 (KW)	N170.J	Obj\Float
Power Max Alarm Settings L3 (KW)	N172.J	Obj\Float
Power Max Alarm Settings Total (KW)	N174.J	Obj\Float
Power Min Alarm Settings L1 (KW)	N176.J	Obj\Float
Power Min Alarm Settings L2 (KW)	N178.J	Obj\Float
Power Min Alarm Settings L3 (KW)	N180.J	Obj\Float
Power Min Alarm Settings Total (KW)	N182.J	Obj\Float

Description	Reference	Type
Period for maximum demand total power (min)	N184.J	Obj\Float
Present demand for total power (KW)	N186.J	Obj\Float
Maximum value for maximum demand total power (KW)	N188.J	Obj\Float
Minutes into maximum demand for total power (mins)	N190.J	Obj\Float
Seconds into maximum demand for total power (secs)	N192.J	Obj\Float
Pulse period for power (KWHr)	N194.J	Obj\Float
Pulse period for power (ms)	N196.J	Obj\Float
Apparent Power L1 (KVA)	N208.J	Obj\Float
Apparent Power L2 (KVA)	N210.J	Obj\Float
Apparent Power L3 (KVA)	N212.J	Obj\Float
Apparent Power Total (KVA)	N214.J	Obj\Float
Apparent Power Max L1 (KVA)	N216.J	Obj\Float
Apparent Power Max L2 (KVA)	N218.J	Obj\Float
Apparent Power Max L3 (KVA)	N220.J	Obj\Float
Apparent Power Max Total (KVA)	N222.J	Obj\Float
Apparent Power Min L1 (KVA)	N224.J	Obj\Float
Apparent Power Min L2 (KVA)	N226.J	Obj\Float
Apparent Power Min L3 (KVA)	N228.J	Obj\Float
Apparent Power Min Total (KVA)	N230.J	Obj\Float
Apparent Power Max Alarm Settings L1 (KVA)	N232.J	Obj\Float
Apparent Power Max Alarm Settings L2 (KVA)	N234.J	Obj\Float
Apparent Power Max Alarm Settings L3 (KVA)	N236.J	Obj\Float
Apparent Power Max Alarm Settings Total (KVA)	N238.J	Obj\Float
Apparent Power Min Alarm Settings L1 (KVA)	N240.J	Obj\Float
Apparent Power Min Alarm Settings L2 (KVA)	N242.J	Obj\Float
Apparent Power Min Alarm Settings L3 (KVA)	N244.J	Obj\Float
Apparent Power Min Alarm Settings Total (KVA)	N246.J	Obj\Float
Period for maximum demand total power (min	B248.B	Obj\Num
Present demand for total apparent power (KVA)	N250.J	Obj\Float
Maximum value for maximum demand total apparent power (KVA)	N252.J	Obj\Float
Minutes into maximum demand period for total apparent power (mins)	B254.B	Obj\Num
Seconds into maximum demand period for total apparent power (secs)	B256.B	Obj\Num
Pulse value for apparent power (KVAHr)	N258.J	Obj\Float
Pulse period for apparent power (ms)	B260.B	Obj\Num
Reactive Power L1 (KVAR)	N272.J	Obj\Float
Reactive Power L2 (KVAR)	N274.J	Obj\Float
Reactive Power L3 (KVAR)	N276.J	Obj\Float
Reactive Power Total (KVAR)	N278.J	Obj\Float
Reactive Power Max L1 (KVAR)	N280.J	Obj\Float

Description	Reference	Type
Reactive Power Max L2 (KVAR)	N282.J	Obj\Float
Reactive Power Max L3 (KVAR)	N284.J	Obj\Float
Reactive Power Max Total (KVAR)	N286.J	Obj\Float
Reactive Power Min L1 (KVAR)	N288.J	Obj\Float
Reactive Power Min L2 (KVAR)	N290.J	Obj\Float
Reactive Power Min L3 (KVAR)	N292.J	Obj\Float
Reactive Power Min Total (KVAR)	N294.J	Obj\Float
Reactive Power Max Alarm Settings L1 (KVAR)	N296.J	Obj\Float
Reactive Power Max Alarm Settings L2 (KVAR)	N298.J	Obj\Float
Reactive Power Max Alarm Settings L3 (KVAR)	N300.J	Obj\Float
Reactive Power Max Alarm Settings Total (KVAR)	N302.J	Obj\Float
Reactive Power Min Alarm Settings L1 (KVAR)	N304.J	Obj\Float
Reactive Power Min Alarm Settings L2 (KVAR)	N306.J	Obj\Float
Reactive Power Min Alarm Settings L3 (KVAR)	N308.J	Obj\Float
Reactive Power Min Alarm Settings Total (KVAR)	N310.J	Obj\Float
Period for maximum demand total reactive power (min)	B312.B	Obj\Num
Present demand for total reactive power (KVAR)	N314.J	Obj\Float
Maximum value for maximum demand period for total reactive power (KVAR))	N316.J	Obj\Float
Minutes into maximum demand period for total reactive power (mins)	B318.J	Obj\Num
Seconds into maximum demand period for total reactive power (secs)	B320.J	Obj\Num
Pulse value for reactive power (KVAHr)	N322.J	Obj\Float
Pulse period for reactive power (ms)	B324.B	Obj\Num
Power Factor L1	N336.J	Obj\Float
Power Factor L2	N338.J	Obj\Float
Power Factor L3	N340.J	Obj\Float
Power Factor Total	N342.J	Obj\Float
Import Energy (KWHr)	N352.J	Obj\Float
Import Reactive Energy (KVAHr)	N354.J	Obj\Float
Import Apparent Energy (KVAHr)	N356.J	Obj\Float
Export Energy (KVAHr)	N358.J	Obj\Float
Export Reactive Energy (KVAHr)	N360.J	Obj\Float
Amps Energy (AHr)	N362.J	Obj\Float
Import Energy Rate 1 (KWHr)	N2000.J	Obj\Float
Import Energy Rate 2 (KWHr)	N2002.J	Obj\Float
Import Energy Rate 3 (KWHr)	N2004.J	Obj\Float
Import Energy Rate 4 (KWHr)	N2006.J	Obj\Float
Channel 1 Active Energy (KWHr)	N2008.J	Obj\Float
Channel 2 Active Energy (KWHr)	N2010.J	Obj\Float
Channel 3 Active Energy (KWHr)	N2012.J	Obj\Float
Channel 4 Active Energy (KWHr)	N2014.J	Obj\Float
Channel 5 Active Energy (KWHr)	N2016.J	Obj\Float
Channel 6 Active Energy (KWHr)	N2018.J	Obj\Float
Channel 7 Active Energy (KWHr)	N2020.J	Obj\Float

Description	Reference	Type
Channel 8 Active Energy (KWHr)	N2022.J	Obj\Float
Total Active Energy (KWHr)	N2024.J	Obj\Float
Primary VT ratio (n)	B0.B	Obj\Num
Secondary VT ratio (n)	B1.B	Obj\Num
Primary VT ratio (n)	B2.B	Obj\Num
Secondary VT ratio (n)	B3.B	Obj\Num
Primary VT ratio (n)	B4.B	Obj\Num
Secondary VT ratio (n)	B5.B	Obj\Num
Total Amps (A)	N1536.J	Obj\Float
Total Power (KW)	N1538.J	Obj\Float
Total Apparent Power (KVA)	N1540.J	Obj\Float
Total Reactive Power (KVAR)	N1542.J	Obj\Float
Total Power Factor	N1544.J	Obj\Float
Total Voltage Harmonic Distortion L1 (%)	N1546.J	Obj\Float
Total Voltage Harmonic Distortion L2 (%)	N1548.J	Obj\Float
Total Voltage Harmonic Distortion L3 (%)	N1550.J	Obj\Float
Total Current Harmonic Distortion L1 (%)	N1552.J	Obj\Float
Total Current Harmonic Distortion L2 (%)	N1554.J	Obj\Float
Total Current Harmonic Distortion L3 (%)	N1556.J	Obj\Float
Total Current Harmonic Distortion Neutral (%)	N1558.J	Obj\Float
Total Active Energy (KWHr)	N1560.J	Obj\Float
Import Register Gas (KW)	N1280.J	Obj\Float
Import Register Water (L)	N1282.J	Obj\Float
Import Register Heat (KW)	N1284.J	Obj\Float
Change Modbus Slave Address Number	N1316.B	Obj\Float

Document Versions

Version	Issue Date	Details
1.0	06/01/2022	Document released

Next Steps…

If you require help, contact support on 01273 694422 or visit *www.northbt.com/support*

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