The AutomtrEVO Driver

The AutomtrEVO driver connects to a network of Autometers power meters, typically manufactured between 2003 and 2009. Available for ObSys and Commanders.

This document relates to AutomtrEVO driver version 1.0

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

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Compatibility with the Autometers System

The AutomtrEVO driver allows North to interface with a network of Autometers power meters, typically manufactured between 2003 and 2009.

The driver connects, via an RS485 serial connection, to a network of up to 32 Autometers power meters.

Several Autometers compatible drivers are available. To interface with meters manufactured since 2009 use the Modbus driver. For meters manufactured prior to 2003, use the AutomtrJ driver.

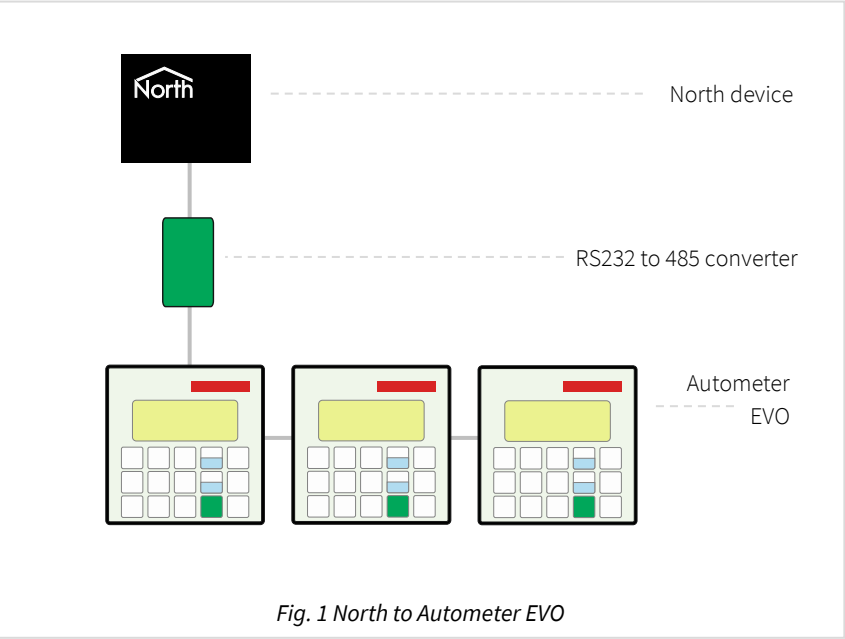

Fig. 1 North to Autometer EVO

Equipment

Autometers power meters, typically manufactured between 2003 and 2009, that are compatible with the driver include:

- EVO IC^3 metering and harmonic analysers
- IC990
- IC7
- IC9
- IC970

Values

The driver can typically access the following values:

- Voltage
- Current
- Power
- Energy
- Frequency
- Harmonics

Prerequisites

Configure each of the Autometers power meters using the DIP-switches located on the rear of the Modbus cassette. Set the following parameters:

- Baud rate: 9600
- Protocol: Modbus
- Wire mode: 2 wire
- Modbus type: RTU
- 4 wire parity: n/a
- Format mode: ASCII

An RS232-485 adapter is required and must be set to 9600 baud, 10 data bits.

Using the Driver

On ObSys, the AutomtrEVO driver is pre-installed. On Commander, the driver is available to download in the file 'Bank 12 AutomtrEVO.cdm'. On all of these North devices, you can use the driver to create an interface Autometers. Once started, you will need to set up the driver before it can communicate with the Autometers power meters.

Making the Cable

Connect the North device COM port to an RS232 to RS485 adapter.

Using the RS485 cable specification (Fig. 2), connect the RS485 adapter to the Autometers meter's communication cassette.

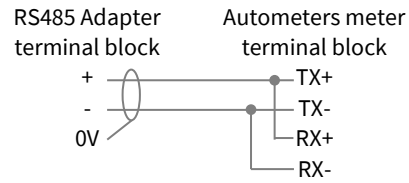

Fig. 2 RS485 adapter to Autometers cable

RS485 adapters are available from North, order code MISC/RS232/485.

Starting the Interface

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

- → **Start Engineering** your North device using ObSys
- → Navigate to **Configuration, Interfaces,** and set a unused **Interface** to 'AutomtrEVO' to start the particular interface
- → Navigate to the top-level of your North device, then rescan it.

The driver setup object (Mc), labelled **AutomtrEVO Setup**, should now be available. If this object is not available, check an interface licence is available and the driver is installed.

Setting up the Driver

To set up the driver, follow these steps:

- → Navigate to the **AutomtrEVO Setup** object (Mc). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
- → Set the **RS232 Com Port** (RS.COM) to select which serial port on the North Device is connected to the Autometers network.

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 Engineer.

Each object is specified below, along with its sub-objects.

Example Object Reference

An example of a reference to an object in the same device: the Autometers Network (S1) contains Meter 1 (M1), which contains L1 Voltage Details (G11), which itself contains a Current Value (RO.V) that itself contains a Select object (S). Therefore, the complete object reference is 'S1.G11.RO.V'.

An example of a reference to an object in a different device: the IP network object (IP) contains Default Commander object (CDIP), which contains the object above (S1.G11.RO.V') – therefore the complete object reference is 'IP.CDIP. S1.G11.RO.V'.

Device Top-Level Objects

When an interface is started using the AutomtrEVO driver, the objects below become available within the top-level object of the device. For example, if interface 1 is started, then the object references 'M1' and 'S1' become available.

Description	Reference	Type
AutomtrEVO Setup Set up the AutomtrEVO driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: On the Commander platform this will be *[CDM v20\AutomtrEVO v10]* On the ObSys platform this will be *[OSM v20\AutomtrEVO v10]*
Autometer Network Access Autometers system connected to interface *c* (*c* is the interface number)	S*c*	Variable Container: *[Autometers]*

AutomtrEVO Driver Setup

Object Type: *[OSM v20\AutomtrEVO v10]*
Object Type: *[CDM v20\AutomtrEVO v10]*

The AutomtrEVO driver contains the following objects:

Description	Reference	Type
RS232 COM Port	RS.COM	Obj\Num: 0…8; Adjustable
System Label	DL	Obj\Text: 20 chars; Adjustable

Autometers System

Object Type: *[Autometers]*

The Autometers Network contains the following objects:

Description	Reference	Type
Meter *y* The meter address, *y*, is in the range 1…63	M*y*	Fixed container: *[Autometers\EVO]*

Autometers Meter

Object Type: *[Autometers\EVO]*

A Meter contains the following objects:

Description	Reference	Type
Software Version (Engine)	R0.V	Obj\Num
Software Version (Comms)	R1.V	Obj\Num
Software Version (Display)	R2.V	Obj\Num
Serial No	R3.V	Obj\Num
Meter No	R4.V	Obj\Num
Primary VT Ratio	R5.V	Obj\Float
Secondary VT Ratio	R6.V	Obj\Float
Primary CT Ratio	R7.V	Obj\Float
Secondary CT Ratio	R8.V	Obj\Float
Primary NT Ratio	R9.V	Obj\Float
Secondary NT Ratio	R10.V	Obj\Float
L1 Voltage	R11.V	Obj\Float
L1 Voltage Details	G11	Fixed Container: *[Autometers\EVO\Valueset]*
L2 Voltage	R16.V	Obj\Float
L2 Voltage Details	G16	Fixed Container: *[Autometers\EVO\Valueset]*
L3 Voltage	R21.V	Obj\Float
L3 Voltage Details	G21	Fixed Container: *[Autometers\EVO\Valueset]*
L1-L2 Voltage	R26.V	Obj\Float
L1-L2 Voltage Details	G26	Fixed Container: *[Autometers\EVO\Valueset]*
L2-L3 Voltage	R31.V	Obj\Float
L2-L3 Voltage Details	G31	Fixed Container *[Autometers\EVO\Valueset]*
L3-L1 Voltage	R36.V	Obj\Float
L3-L1 Voltage Details	G36	Fixed Container: *[Autometers\EVO\Valueset]*
L1 Amps	R41.V	Obj\Float
L1 Amps Details	G41	Fixed Container: *[Autometers\EVO\Valueset]*
L2 Amps	R46.V	Obj\Float
L2 Amps Details	G46	Fixed Container: *[Autometers\EVO\Valueset]*
L3 Amps	R51.V	Obj\Float
L3 Amps Details	G51	Fixed Container: *[Autometers\EVO\Valueset]*
Total Amps	R56.V	Obj\Float
Total Amps Detail	G56	Fixed Container: *[Autometers\EVO\Valueset]*
Neutral Amps	R61.V	Obj\Float

Description	Reference	Type
Neutral Amps Details	G61	Fixed Container: *[Autometers\EVO\Valueset]*
Amps Max Demand Details	G66	Fixed Container: *[Autometers\EVO\MDset]*
L1 Power KW	R71.V	Obj\Float
L1 Power KW Details	G71	Fixed Container: *[Autometers\EVO\Valueset]*
L2 Power KW	R76.V	Obj\Float
L2 Power KW Details	G76	Fixed Container: *[Autometers\EVO\Valueset]*
L3 Power KW	R81.V	Obj\Float
L3 Power KW Details	G81	Fixed Container: *[Autometers\EVO\Valueset]*
Total Power KW	R86.V	Obj\Float
Total Power KW Details	G86	Fixed Container: *[Autometers\EVO\Valueset]*
Total Power Max Demand	G91	Fixed Container: *[Autometers\EVO\MDPset]*
L1 Apparent Power KVA	R98.V	Obj\Float
L1 Apparent Power KVA	G98	Fixed Container: *[Autometers\EVO\Valueset]*
L2 Apparent Power KVA	R103.V	Obj\Float
L2 Apparent Power KVA	G103	Fixed Container: *[Autometers\EVO\Valueset]*
L3 Apparent Power KVA	R108.V	Obj\Float
L3 Apparent Power KVA	G108	Fixed Container: *[Autometers\EVO\Valueset]*
Total Apparent Power KVA	R113.V	Obj\Float
Total Apparent Power KVA	G113	Fixed Container: *[Autometers\EVO\Valueset]*
Total Apparent Power Max Demand	G118	Fixed Container: *[Autometers\EVO\MDPset]*
L1 Reactive Power KVAR	R125.V	Obj\Float
L1 Reactive Power KVAR	G125	Fixed Container: *[Autometers\EVO\Valueset]*
L2 Reactive Power KVAR	R10V	Obj\Float
L2 Reactive Power KVAR	G130	Fixed Container: *[Autometers\EVO\Valueset]*
L3 Reactive Power KVAR	R135.V	Obj\Float
L3 Reactive Power KVAR	G135	Fixed Container: *[Autometers\EVO\Valueset]*
Total Reactive Power KVAR	R140.V	Obj\Float
Total Reactive Power KVAR	G140	Fixed Container: *[Autometers\EVO\Valueset]*
Total Reactive Power Max Demand KVAR	G145	Fixed Container: *[Autometers\EVO\MDPset]*
L1 Power Factor	R152.V	Obj\Float
L2 Power Factor	R153.V	Obj\Float
L3 Power Factor	R154.V	Obj\Float
Total Power Factor	R155.V	Obj\Float
Import Energy KWHr	R156.V	Obj\Float
Import Reactive Energy KVAHr	R157.V	Obj\Float
Import Apparent Energy KVARHr	R158.V	Obj\Float
Export Energy KWHr	R159.V	Obj\Float
Export Reactive Energy KVARHr	R160.V	Obj\Float
Amps Energy Ahr	R161.V	Obj\Float

Description	Reference	Type
Frequency Hz	R162.V	Obj\Float
L1 Voltage Harmonics Details	G163	Fixed Container: *[Autometers\EVO\Hset]*
L2 Voltage Harmonics Details	G163	Fixed Container: *[Autometers\EVO\Hset]*
L3 Voltage Harmonics Details	G231	Fixed Container: *[Autometers\EVO\Hset]*
L1 Voltage Harmonics Details	G265	Fixed Container: *[Autometers\EVO\Hset]*
L2 Voltage Harmonics Details	G299	Fixed Container: *[Autometers\EVO\Hset]*
L3 Voltage Harmonics Details	G333	Fixed Container: *[Autometers\EVO\Hset]*
Neutral Current Harmonics Details	G367	Fixed Container: *[Autometers\EVO\Hset]*
Relay Outputs Available	R401.V	Obj\Num
Relay Outputs Assigned	R402.V	Obj\Num
4-20mA Outputs Available	R403.V	Obj\Num
4-20mA Outputs Assigned	R404.V	Obj\Num
Date Year	R628.V	Obj\Float
Date Month	R629.V	Obj\Float
Date Day	R630.V	Obj\Float
Time Hours	R631.V	Obj\Float
Time Minutes	R632.V	Obj\Float
Time Seconds	R633.V	Obj\Float

Value Details

Object Type: *[Autometers\EVO\Valueset]*

A Value Details contains the following objects:

Description	Reference	Type
Current Value	R0.V	Obj\Float
Maximum Value	R1.V	Obj\Float
Minimum Value	R2.V	Obj\Float
Alarm Maximum	R3.V	Obj\Float
Alarm Minimum	R4.V	Obj\Float

Max Demand Details

Object Type: *[Autometers\EVO\MDSet]*

A Max Demand Details contains the following objects

Description	Reference	Type
Period (mins)	R0.V	Obj\Num
Current Value	R1.V	Obj\Float
Current Value Maximum	R2.V	Obj\Float
Minutes into Period	R3.V	Obj\Num
Seconds into Period	R4.V	Obj\Num

Max Power Demand Details

Object Type: *[Autometers\EVO\MDPSet]*

A Max Power Demand contains the following objects:

Description	Reference	Type
Period (mins)	R0.V	Obj\Num
Current Value	R1.V	Obj\Float
Current Value Maximum	R2.V	Obj\Float
Minutes into Period	R3.V	Obj\Num
Seconds into Period	R4.V	Obj\Num
Pulse Value	R5.V	Obj\Num
Pulse Period (ms)	R6.V	Obj\Num

Harmonics Details

Object Type: *[Autometers\EVO\Hset]*

A Harmonics Details contains the following objects:

Description	Reference	Type
Crest Factor	R0.V	Obj\Float
Total Distortion	R1.V	Obj\Float
1st Harmonic	R2.V	Obj\Float
3rd Harmonic	R3.V	Obj\Float
5th Harmonic	R4.V	Obj\Float
7th Harmonic	R5.V	Obj\Float
9th Harmonic	R6.V	Obj\Float
11th Harmonic	R7.V	Obj\Float
13th Harmonic	R8.V	Obj\Float
15th Harmonic	R9.V	Obj\Float
17th Harmonic	R10.V	Obj\Float
19th Harmonic	R11.V	Obj\Float
21st Harmonic	R12.V	Obj\Float
23rd Harmonic	R13.V	Obj\Float
25th Harmonic	R14.V	Obj\Float
27th Harmonic	R15.V	Obj\Float
29th Harmonic	R16.V	Obj\Float
31st Harmonic	R17.V	Obj\Float
33rd Harmonic	R18.V	Obj\Float
35th Harmonic	R19.V	Obj\Float
37th Harmonic	R20.V	Obj\Float
39th Harmonic	R21.V	Obj\Float
41st Harmonic	R22.V	Obj\Float
43rd Harmonic	R23.V	Obj\Float
45th Harmonic	R24.V	Obj\Float
47th Harmonic	R25.V	Obj\Float
49th Harmonic	R26.V	Obj\Float
51st Harmonic	R27.V	Obj\Float
53rd Harmonic	R28.V	Obj\Float
55th Harmonic	R29.V	Obj\Float
57th Harmonic	R30.V	Obj\Float
59th Harmonic	R31.V	Obj\Float
61st Harmonic	R32.V	Obj\Float
63rd Harmonic	R33.V	Obj\Float

Driver Versions

Version	Build Date	Details
1.0	13/07/2005	Driver released

Next Steps…

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

North Building Technologies Ltd
+44 (0) 1273 694422
support@northbt.com
www.northbt.com

Author: LH
Checked by: JF

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