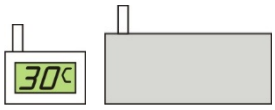
The Meaco Driver



The Meaco driver connects to a Meaco radio telemetry environmental monitoring system for museums and historic houses. Available for Commander and ObSys.

This document relates to Meaco driver version 1.2

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

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Compatibility with the Meaco System

The Meaco driver allows North to interface with a Meaco radio telemetry environmental monitoring system for museums and historic houses.

The driver connects to a Meaco receiver, via DB9 serial connection port (Fig. 1). Each transmitter sends its values periodically, which are then stored by the driver.

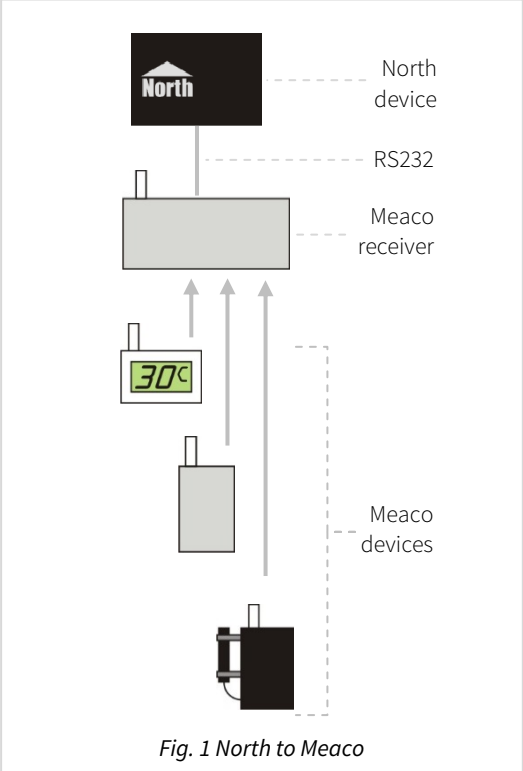

Fig. 1 North to Meaco

Equipment

The full range of Meaco transmitters is compatible with the driver, including:

- STX (temperature and humidity)
- SLTX (temperature, humidity, lux and UV)
- HTX with HygroClip sensor (temperature and humidity)
- HLTX with HygroClip sensor (temperature, humidity, lux and UV)

Values

Depending on the type of Meaco sensor, typically the following values are available:

- Temperature (°C)
- Relative humidity (%)
- Illuminance/Light level (lux)
- UV level (µW/lm)
- Sensor battery low

Prerequisites

Using the DIP switch inside the Meaco receiver, set to ‘Meaco mode’. Set baud rate to 2400 or 9600, the driver will auto-baud before re-configuring to 19200 baud.

Using the Driver

On ObSys, the Meaco driver is pre-installed. On Commander, the driver is available to download in the file 'Bank15 Meaco.cdm'. On all of these North devices, you can use the driver to create an interface to a Meaco system. Once started, you will need to set up the driver before it can communicate with the Meaco system.

Making the Cable

Using the RS232 cable supplied with the Meaco receiver, connect to the North device COM port.

The RS232 cable specification (Fig. 2), with connector types at each end of the cable, is shown.

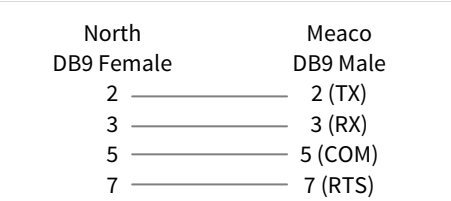

Fig. 2 North to Meaco cable

Previous versions of the driver connected pin 4, instead of pin 7, from the North device to pin 7 of Meaco.

The maximum RS232 cable length is 15m and should be as short possible.

Starting the Interface

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

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

The driver setup object (Mc), labelled **Meaco 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 **Meaco Setup** object (Mc). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
- Set **RS232 Com port** to the port number of the North device you are connecting to Meaco
- From **Sensor Configuration**, set the **Data Format** then configure each **Channel**
- From **Network Setup**, for each **Address** present on the radio network set **Sensor Type**

Checking Communications

You can check that the interface is communicating by reading the **Comms Online** object (DS). A value of 'Yes' indicates the driver has connected to, and is communicating with the Meaco receiver.

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.

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 Meaco System (S1) contains a sensor at address 76 (A76) with channel 1 value (C1.V). Therefore, the object reference will be 'S1.A76.C1.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.A76.C1.V) – therefore the complete object reference is 'IP.CDIP.S1.A76.C1.V'.

Device Top-Level Objects

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

Description	Reference	Type
Meaco Setup Set up the Meaco driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: On the Commander platform this will be *[CDM v20\Meaco v12]* On the ObSys platform this will be *[OSM v20\Meaco v12]*
Meaco System Access Meaco system connected to interface *c* (*c* is the interface number)	S*c*	Variable Container: *[Meaco v12]*

Meaco Setup

Object Type: *[OSM v20\Meaco v12]*
Object Type: *[CDM v20\Meaco v12]*

The Meaco driver contains the following objects:

Description	Reference	Type
RS232 Com Port	RS.COM	Obj\Num; Range: 1…8; Adjustable
System Label Label displayed when scanning the system	DL	Obj\Text: 20 chars; Adjustable
Sensor Timeout (mins) If a sensor does not send its values within this timeout period, then the value held by the driver is considered out of date	TO	Obj\Num: 0…1440; Adjustable
Comms Online Shows if communication with the Meaco system has been established	DS	Obj\NoYes
Reset Deletes all sensor values held by the driver. Use this when changing or removing sensors from the network	RST	Obj\NoYes; Adjustable
Network Setup Assign sensors to a particular sensor type, and provide a label	N	Fixed container: On the Commander platform this will be *[CDM v20\Meaco v12\Net]* On the ObSys platform this will be *[OSM v20\Meaco v12\Net]*
Sensor Types Define additional sensor types with decode formula to match those installed on your network	ST	Fixed container: On the Commander platform this will be *[CDM v20\Meaco v12\Sensors]* On the ObSys platform this will be *[OSM v20\Meaco v12\Sensors]*

Network Setup

Object Type: *[OSM v20\Meaco v12\Net]*
Object Type: *[CDM v20\Meaco v12\Net]*

The Meaco driver's network setup contains the following objects:

Description	Reference	Type
Address *x* The sensor address, *x*, is in the range 0…255	A*x*	Fixed container: On the Commander platform this will be *[CDM v20\Meaco v12\Net\Addr]* On the ObSys platform this will be *[OSM v20\Meaco v12\Net\Addr]*

Network Address Setup

Object Type: *[OSM v20\Meaco v12\Net\Addr]*
Object Type: *[CDM v20\Meaco v12\Net\Addr]*

The Meaco driver's network address setup contains the following objects:

Description	Reference	Type
Label	L	Obj\Text: 20 chars; Adjustable
Sensor type Choose from a pre-defined or user-defined sensor type. Add user-defined types to the driver's Sensor Configuration	ST	Obj\ENum: 1…13; Adjustable Values: 1=Type 1, 2=Type 2, 3=Type 3, 4=Type 4, 5=Type 5, 6=Type 6, 7=Type 7, 8=Type 8, 9=Type 9, 10=Type 10, 11=HTX (temp/hum), 12=STX (temp/hum), 13=Lux/UV
Sensor available Shows if values from the Meaco sensor have been received	S	Obj\NoYes

Sensor Types

Object Type: *[OSM v20\Meaco v12\Sensors]*
Object Type: *[CDM v20\Meaco v12\Sensors]*

The driver contains pre-defined types for HTX, STX and Lux/UV sensors. Use the Meaco sensor types object to configure additional user-defined sensors.

Sensor Types contains the following objects.

Description	Reference	Type
Type *x: label* The sensor type, *x*, is in the range 1…10	T*x*	Fixed container: On the Commander platform this will be *[CDM v20\Meaco v12\Sensors\Type]* On the ObSys platform this will be *[OSM v20\Meaco v12\Sensors\Type]*

Sensor Type Setup

Object Type: *[OSM v20\Meaco v12\Sensors\Type]*
Object Type: *[CDM v20\Meaco v12\Sensors\Type]*

A Meaco sensor can include up to eight channels of data. Use this object to set up a new sensor type with data format and formula to decode each channel available. The following objects are available:

Description	Reference	Type
Label	L	Obj\Text: 20 chars; Adjustable
Data Format Set to the format of data sent by the sensor. All current sensors use 16bit formats	DT	Obj\ENum; Adjustable Values: 0=16-bit word, 1=16-bit decimal, 2=12-bit temp/hum, 3=8-bit UV
Channel *x: label* The channel number, *x*, is in the range 1…8	C*x*	Fixed container: On the Commander platform this will be *[CDM v20\Meaco v12\Sensors\Chan]* On the ObSys platform this will be *[OSM v20\Meaco v12\Sensors\Chan]*

Sensor Channel Setup

Object Type: *[OSM v20\Meaco v12\Sensors\Chan]*
Object Type: *[CDM v20\Meaco v12\Sensors\Chan]*

The Meaco sensor channel setup allows sensor data to be converted into a value with engineering units.

The module can convert the number into an object value using the formula:

```
real-value = (M x sensor-value) + A
```

The Meaco sensor channel setup contains the following objects:

Description	Reference	Type
Label	L	Obj\Text: 9 chars; Adjustable
Units	U	Obj\Text: 7 chars; Adjustable
Multiplication value	M	Obj\Float; Adjustable
Addition value	A	Obj\Float; Adjustable

Meaco System

Object Type: *[Meaco v12]*

A Meaco system contains the following objects:

Description	Reference	Type
Sensor label The sensor address, x, is in the range 0…255. The *Sensor label* is as configured in the driver's Network Setup. Note that some multi-sensors take two addresses (i.e. address for temp/hum, then next address for lux/UV)	A*x*	Fixed container: *[Meaco v12\Addr]*

Sensor

Object Type: *[Meaco v12\Addr]*

A Meaco sensor contains the following objects:

Description	Reference	Type
Label As configured in the driver's Network Setup	L	Obj\Text: 20chars
Battery Low Indicates sensor is reporting a low battery	BA	Obj\NoYes
Sensor Online Indicates sensor has reported value within Sensor Timeout period	S	Obj\NoYes
Chan *x* The channel number, *x*, is in the range 1…8	C*x*	Fixed container: *[Meaco v12\Chan]*

Sensor Channel

Object Type: *[Meaco v12\Chan]*

A Meaco sensor channel contains the following objects:

Description	Reference	Type
Label As set in the driver's Sensor Configuration	L	Obj\Text: 9 chars
Value	V	Obj\Float
Units	U	Obj\Text: 7 chars
Last updated Time the sensor last reported value	DT	Obj\DateTime

Driver Versions

Version	Build Date	Details
1.0	16/11/1999	Driver released
1.1	26/11/1999	V1.1 released Mod: Added formula objects
1.2	8/11/2013	V1.2 released Mod: complete re-design based on new protocol. Note: Driver will wipe data when updating from previous version. Mod: Driver will now auto-baud then re-configure receiver for higher baud rate. Mod: New Sensor Types configuration replaces formula

Next Steps…

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

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