# The DraytonWiser Driver


The DraytonWiser driver interfaces to a Drayton Wiser temperature control system. Available for Commander and ObSys.

This document relates to DraytonWiser driver version 1.0

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

# Contents

# Compatibility with the Drayton Wiser System

The DraytonWiser driver allows North to interface with a Drayton Wiser heating control system.

The driver connects, via an Ethernet/Wi-fi network, to a single Wiser Heat Hub that acts as the heart of the Wiser system. Commander requires an Ethernet-Wi-Fi router to link to the Wi-Fi-only Wiser Hub.

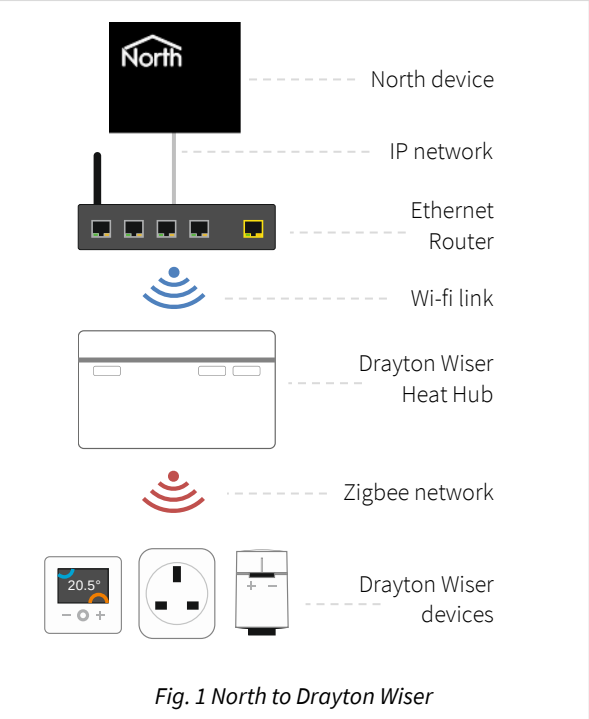


*Fig. 1 North to Drayton Wiser*

## Equipment

Drayton Wiser products compatible with the driver include:

- Heat Hub[R] (called **Hub** in this document) – main controller of the Wiser system
- Smart Radiator Thermostat (called **Valve** in this document)– a battery-powered temperature sensor/valve controller
- Smart Room Thermostat (called **RoomStat** in this document) – optional battery-powered temperature sensor/setpoint display
- Smart Plug (called **Plug** in this document) – acts as a signal booster and a switch

## Values

Depending on the type of Wiser equipment connected to the Hub, the driver can typically access the following values:

- Room setpoint and temperature
- Valve setpoint and temperature
- RoomStat temperature and humidity
- Room schedules
- Hot water schedules
- Device battery states
- Hub button & LED statuses

# Prerequisites

## Wiser Secret

The driver needs to know the authorisation code ('secret') of the Hub before the Hub will respond to any communications.

The secret can be found by following these steps:

- Put the Hub into Setup mode by single-pressing it's Setup button. This starts the Setup LED flashing, creates a Wiser Heat Hub Wi-Fi network, and sets the Hub to IP address 192.168.8.1
- On a Wi-Fi-enabled PC, search for and join the 'WiserHeatXXX' Wi-Fi network. (XXX is random)
- Using a browser, request the file: '192.168.8.1/secret/' - this should return a string of 128 characters
- Copy the first 64 characters and the 2nd 64 characters into the DraytonWiser Setup objects
- Return the Hub to operation by pressing the Setup button once more – the Setup LED should be solid Green (or Red if unable to talk to the Drayton cloud)

## IP address

The driver also needs to know the IP address of the Hub. As the Hub always uses DHCP, it is safest to reserve the IP address allocated to the Hub in your DHCP Server.

# System Overview

## Heat Hub

Each Drayton Wiser system starts with a Hub. These are available in a variety of options: 1 heating channel; 1 heating channel + hot water channel; 2 heating channels + 1 hot water channel; etc., depending on the number of relays needed to control the main heat sources.

The Hub can send data to Drayton's cloud services, and can be controlled by the Wiser App.

## Heating Channels

Each heating channel controls a physical relay output to enable the heat source (boiler, pump, and/or valve).

A heating channel contains up to 16 rooms. If any of the rooms associated with the channel require heating, the channel relay is used to enable the heat source.

## Rooms, Valves, and RoomStats

A room contains up to four smart radiator Valves - to control water flow through radiators within the room. Each Valve contains a temperature sensor – the room can use the valve temperatures to decide whether the room needs heating

A room can have an optional RoomStat which act as an alternative to the temperature sensors in the valves. It can also be used to view and adjust the room's setpoint.

Each room has a schedule for each day of the week.

## Hot Water Channels

Each hot water channel has a physical relay output to enable the heat source (boiler, pump and/or valve).

Each hot water channel has a schedule for each day of the week.

## Smart Plugs

Plugs act as signal boosters for the Wiser radio system (they form part of the mesh network).

Plugs have a schedule for each day of the week. They can be overridden locally and remotely.

# Using the Driver

On ObSys and Commander, the DraytonWiser driver is pre-installed. On these North devices, you can use the driver to create an interface to Drayton Wiser. Once started, you will need to configure the driver before it can communicate with the Drayton system.

## Starting the Interface

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

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

The driver setup object (Mc), labelled **DraytonWiser 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 **DraytonWiser Setup** object (Mc). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
- Set the **IP Address** object (IA) to the IP address of the Drayton Wiser Heat Hub
- Set **Secret 1** to the first 64 characters of the Wiser 'secret', and **Secret 2** to the second 64 characters.

## Checking Communications

When a request if made to the Drayton system, every valid response causes the **Comms Ok** flag to be set to 'Yes'. Five successive failures cause the Comms Ok to be set to 'No'.

# 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 is 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 DraytonWiser system object (S1) contains a room 2 (R2), which contains a Current Temperature (T) object. Therefore, the object reference will be 'S1.R2.T'.

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.R2.T) – therefore the complete object reference is 'IP.CDIP.S1.R2.T'.

## Device Top-Level Objects

When an interface is started using the DraytonWiser 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 |
|---|---|---|
| **DraytonWiser Setup**<br>Set up the DraytonWiser driver, started on interface *c* (*c* is the interface number) | M*c* | Fixed Container:<br>On the Commander platform this will be<br>*[CDM v20\DraytonWiser v10]*<br>On the ObSys platform this will be<br>*[OSM v20\DraytonWiser v10]* |
| **DraytonWiser System**<br>Access Drayton Wiser system connected to interface *c* (*c* is the interface number) | S*c* | Variable Container:<br>*[DraytonWiser v10]* |

# DraytonWiser Setup

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

The DraytonWiser driver contains the following objects:

| Description | Reference | Type |
|---|---|---|
| **Device Label**<br>Label displayed when scanning the system object | DL | Obj\Text; Max. 20 chars; Adjustable |
| **IP Address**<br>IP address of the Heat Hub | SIA | Obj\IP; Adjustable |
| **Secret 1**<br>First 64 characters of the Wiser 'secret' | S1 | Obj\Text; Max. 64 chars; Adjustable |
| **Secret 2**<br>Second 64 characters of the Wiser 'secret' | S2 | Obj\Text; Max. 64 chars; Adjustable |
| **Comms Ok**<br>Whether the Heat Hub responded to previous requests | DE | Obj\NoYes; Read-only |

# DraytonWiser System

Object Type: *[DraytonWiser v10]*

The DraytonWiser system contains the following objects:

| Description | Reference | Type |
|---|---|---|
| **System**<br>Information about the system, including the Heat Hub | S | Fixed container:<br>*[DraytonWiser v10\System]* |
| **Heating channel *x***<br>Information about a heat channel *x*, where *x* is in the range 1...4 | H*x* | Fixed container:<br>*[DraytonWiser v10\Heat]* |
| **Hot Water channel *x***<br>Information about a hot water channel *x*, where *x* is in the range 1...2 | W*x* | Fixed container:<br>*[DraytonWiser v10\Water]* |
| **Room *x***<br>Information about a room *x*, where *x* is in the range 1...32 | R*x* | Fixed container:<br>*[DraytonWiser v10\Room]* |
| **Valve *x***<br>Information about Smart valve *x*, where *x* is in the range 1...32 | V*x* | Fixed container:<br>*[DraytonWiser v10\Valve]* |
| **RoomStat *x***<br>Information about Room thermostat *x*, where *x* is in the range 1...16 | S*x* | Fixed container:<br>*[DraytonWiser v10\Stat]* |
| **SmartPlug *x***<br>Information about Smart Plug *x*, where *x* is in the range 1...10 | P*x* | Fixed container:<br>*[DraytonWiser v10\Plug]* |
| **Device *x***<br>Extra information about device *x* (Valve, RoomStat, or Plug) on the system, where *x* is in the range 1...32 | D*x* | Fixed container:<br>*[DraytonWiser v10\Device]* |
| **Schedule *x***<br>Information about the schedule *x*, where *x* is in the range 1...32, 100...1001, 2000...2009 | C*x* | Fixed container:<br>*[DraytonWiser v10\Schedule]* |

# System

Object Type: *[DraytonWiser v10\System]*

The System object contains information about the Drayton Wiser system, including the overall Mode.

| Description | Reference | Type |
|---|---|---|
| **Mode**<br>The current mode of the system | M | Obj\ENum;<br>Where: 0=Off, 1=Cool, 2=Heat, 3=EmergHeat |
| **Override Type**<br>The system-wide Override | OT | Obj\ENum; Adjustable<br>Where: 0=None, 2=Away, 4=Boost |
| **Eco Mode** | EM | Obj\NoYes |
| **Boiler Control**<br>The boiler control method, depending on the Hub's physical link to the boiler | BCT | Obj\ENum;<br>Where: 0=Relay, 1=OpenTherm; 2=OpenThermDig |
| **Boiler Fuel Type**<br>The boiler fuel type – set at install | BFT | Obj\ENum;<br>Where: 0=Gas, 1=Oil, 2=Electric, 3=Solid, 4=Bio |
| **Boiler Cycle Rate** | BCR | Obj\ENum;<br>Where: 0=CPH_2, 1=CPH_3, 2=CPH_6, 3=CPH_12 |
| **Heating Button Override**<br>Whether the Heating Button has been pressed on the Hub | HBO | Obj\NoYes |
| **Hot Water Button Override**<br>Whether the Hot Water Button has been pressed on the Hub | WBO | Obj\NoYes |

# Heating Channel

Object Type: [DraytonWiser v10\Heat]

The Heating Channel object contains information about a heating channel

| Description | Reference | Type |
|---|---|---|
| **Id**<br>Id number of the heat channel | ID | Obj\Num |
| **Label**<br>The heating channel label | L | Obj\Text; Max.chars: 30 |
| **Room *x***<br>Id of member *x*, where *x* is in the range 1...16 | R*x* | Obj\Num; |
| **Relay State**<br>Whether any of the rooms are calling for heat | RS | Obj\OffOn |

# Hot Water Channel

Object Type: [DraytonWiser v10\Water]

The Hot Water object contains information about a water channel.

| Description | Reference | Type |
|---|---|---|
| **Id** | ID | Obj\Num |
| **Mode** | M | Obj\Enum<br>Where: 0=Auto, 1=Manual |
| **Setpoint** | SP | Obj\Float |
| **Heating State** | HS | Obj\OffOn |
| **Relay State**<br>Whether the hot water channel is calling for heat | RS | Obj\OffOn |
| **Schedule Id**<br>The Id of the schedule that controls the Hot Water channel | CI | Obj\Num |
| **Override Type** | OT | Obj\ENum; Adjustable<br>Where: 0=None, 1=Manual, 2=Away, 3=EcoIQ, 4=Boost, 5=Cancel |
| **Override Setpoint**<br>When this object is written, the driver automatically sets the Override Type object to 'Manual' | OSP | Obj\Float; Adjustable |

# Room

Object Type: [DraytonWiser v10\Room]

The Room object contains information about a room

| Description | Reference | Type |
|---|---|---|
| **Id** | ID | Obj\Num |
| **Label** | L | Obj\Text; Max.chars: 30 |
| **Mode** | M | Obj\ENum<br>Where: 0=Auto, 1=Manual |
| **Current Temp** | T | Obj\Float |
| **Current Setpoint** | SP | Obj\Float |
| **Window Detect Active** | WA | Obj\NoYes |
| **Windows State** | WS | Obj\NoYes |
| **Schedule Id**<br>The Id of the schedule that is used to control the room | CI | Obj\Num |
| **Smart Valve Id *x***<br>The Id of the smart valves in use with this Room, where *x* is in the range 1...4 | VI*x* | Obj\Num |
| **Room Stat Id**<br>The Id of the Room Stat used to control the room | SI | Obj\Num |
| **Override Type** | OT | Obj\ENum; Adjustable<br>Where: 0=None, 1=Manual, 2=Away, 3=EcoIQ, 4=Boost, 5=Cancel |
| **Override Setpoint**<br>When this object is written, the driver automatically sets the Override Type object to 'Manual' | OSP | Obj\Float; Adjustable |

## Valve

Object Type: [DraytonWiser v10\Valve]

The Valve object contains information about a smart radiator thermostat.

| Description | Reference | Type |
|---|---|---|
| **Id**<br>Device Id of the Valve | ID | Obj\Num |
| **Mounted Orientation** | MO | Obj\ENum;<br>Where: 0=Vertical, 1=Horizontal |
| **Temperature** | T | Obj\Float |
| **Setpoint** | SP | Obj\Float |
| **Demand %** | DP | Obj\Num |
| **Windows Open** | WS | Obj\NoYes |

## RoomStat

Object Type: [DraytonWiser v10\Stat]

The RoomStat object contains information about a smart room thermostat.

| Description | Reference | Type |
|---|---|---|
| **Id**<br>Device Id of the Room Stat | ID | Obj\Num |
| **Temperature**<br>Temperature measured by the RoomStat | T | Obj\Float |
| **Humidity**<br>Humidity measured by the RoomStat | H | Obj\Float |
| **Setpoint** | SP | Obj\Float |
| **Demand %** | DP | Obj\Num |

## Smart Plug

Object Type: [DraytonWiser v10\Plug]

The Smart Plug object contains information about a smart plug switch.

| Description | Reference | Type |
|---|---|---|
| **Id**<br>Device Id of the Smart Plug | ID | Obj\Num |
| **Label** | L | Obj\Text; Max.chars: 30 |
| **Mode** | M | Obj\ENum;<br>Where: 0=Auto, 1=Manual |
| **Manual State** | MS | Obj\OffOn |
| **Output State** | OS | Obj\NoYes; Adjustable |
| **Schedule Id**<br>The Id of the schedule that is used to control the plug | CI | Obj\Num |

# Device

Object Type: [DraytonWiser v10\Device]

The Device object contains extra information about a device (Valve, Stat or Plug)

| Description | Reference | Type |
|---|---|---|
| **Id** | ID | Obj\Num |
| **Product Type** | T | Obj\ENum;<br>Where: 0=Ctrlr, 1=iTRV,2=RStat, 3=Relay, 4=UFH, 5=Plug, 6=HActr, 7=LActr |
| **Battery Voltage** | BV | Obj\Float |
| **Battery Level** | BL | Obj\ENum;<br>Where: 0=Normal, 1=Full, 2=TwoThirds, 3=OneThird, 4=Low, 5=Critical |
| **Recent Reception** | RR | Obj\NoYes |

# Schedule

Object Type: [DraytonWiser v10\Schedule]

The Device object contains extra information about a device (Valve, Stat or Plug)

| Description | Reference | Type |
|---|---|---|
| **Id** | ID | Obj\Num |
| **Day Profile *x***<br>Day profile for day *x*, where *x* is in the range 1...7 where:<br>0=Monday, 1=Tuesday, 2=Wednesday, 3=Thursday, 4=Friday, 5=Saturday, 6=Sunday | D*x* | Obj\Profile; Adjustable |

# Driver Versions

| Version | Build Date | Details |
|---|---|---|
| 1.0 | 27/04/2021 | Driver released |

## Next Steps…

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

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Document issued 22/12/2022.