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 2.0

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.

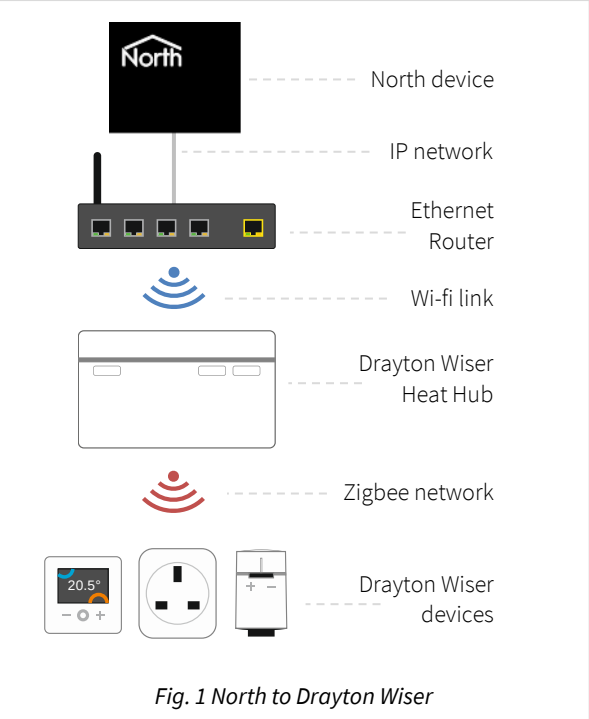

Fig. 1 North to Drayton Wiser

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 an electrical switch
- Electrical Heat Switch (called **Heat Actuators** in this document) – for switching electric heaters based on room temperature
- Underfloor Heating Controller (called **UFH Controller** in this document) – for controlling up to 6 relays of underfloor heating

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.

Hot Water Channels

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

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.

Heat Actuators

Heat actuators are used to switch on/off electrical heaters (think electric radiators), based on the temperature in a room.

UFH Controllers

These can control up to 6 areas of underfloor heating, and are typically used to control an underfloor heating manifold. They have extra outputs to enable local pumps, valves, or even boilers.

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

DraytonWiser Setup

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

The DraytonWiser driver contains the following objects:

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

DraytonWiser System

Object Type: *[DraytonWiser v20]*

The DraytonWiser System contains the following objects:

Description	Reference	Type
System Information about the system, including the Heat Hub	S	Fixed container: *[DraytonWiser v20\System]*
Heating channel *x* Information about a heat channel *x*, where *x* is in the range 1...4	H*x*	Fixed container: *[DraytonWiser v20\Heat]*
Hot Water channel *x* Information about a hot water channel *x*, where *x* is in the range 1...2	W*x*	Fixed container: *[DraytonWiser v20\Water]*
Room *x* Information about a room *x*, where *x* is in the range 1...32	R*x*	Fixed container: *[DraytonWiser v20\Room]*
Valve *x* Information about Smart valve *x*, where *x* is in the range 1...32	V*x*	Fixed container: *[DraytonWiser v20\Valve]*
RoomStat *x* Information about Room thermostat *x*, where *x* is in the range 1...16	S*x*	Fixed container: *[DraytonWiser v20\Stat]*
SmartPlug *x* Information about Smart Plug *x*, where *x* is in the range 1...10	P*x*	Fixed container: *[DraytonWiser v20\Plug]*
Heat Actuator *x* Information about Heat Actuator *x*, where *x* is in the range 1..16	A*x*	Fixed container: *[DraytonWiser v20\Act]*
UFH Controller *x* Information about UFH Controller *x*, where *x* is in the range 1…2	U*x*	Fixed container: *[DraytonWiser v20\UFH]*
Device *x* Extra information about device *x* (Valve, RoomStat, or Plug) on the system, where *x* is in the range 1...32	D*x*	Fixed container: *[DraytonWiser v20\Device]*

System

Object Type: *[DraytonWiser v20\System]*

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

Description	Reference	Type
System Version The current mode of the system	SV	Obj\Text; Max.chars: 32; Read-only
Mode The current mode of the system	M	Obj\ENum; Where: 0=Off, 1=Cool, 2=Heat, 3=EmergHeat
Override Type The system-wide Override	OT	Obj\ENum; Adjustable Where: 0=None, 2=Away, 4=Boost
Away Setpoint Setpoint to use when Override Type is set to Away	ASP	Obj\Float; Adjustable
Away Affects HotWater Whether the Away override disabled Hot Water	AAW	Obj\NoYes; Adjustable
Eco Mode Enable	EM	Obj\NoYes
Comfort Mode Enable	CM	Obj\NoYes
Boiler Control The boiler control method, depending on the Hub's physical link to the boiler	BCT	Obj\ENum; Where: 0=Relay, 1=OpenTherm; 2=OpenThermDig
Boiler Fuel Type The boiler fuel type – set at install	BFT	Obj\ENum; Where: 0=Gas, 1=Oil, 2=Electric, 3=Solid, 4=Bio
Boiler Cycle Rate	BCR	Obj\ENum; Where: 0=CPH_2, 1=CPH_3, 2=CPH_6, 3=CPH_12
Heating Button Override Whether the Heating Button has been pressed on the Hub	HBO	Obj\NoYes
Hot Water Button Override Whether the Hot Water Button has been pressed on the Hub	WBO	Obj\NoYes
Cloud Connection Status State of connection from Hub to Cloud link	CCS	Obj\Enum; Read-only; Where 0=Unknown, 1=Connected

Heating Channel

Object Type: [DraytonWiser v20\Heat]

The Heating Channel object contains information about a heating channel

Description	Reference	Type
Id Id number of the heat channel	ID	Obj\Num
Label The heating channel label	L	Obj\Text; Max.chars: 30
Associated Rooms Object References of Rooms in this Channel	RI	Obj\Text; Max.chars:127
Associated UFH Controllers-Areas Object References of UFH Controller-Areas in this channel	UI	Obj\Text; Max.chars:127
Relay State Whether any of the rooms are calling for heat	RS	Obj\OffOn

Hot Water Channel

Object Type: [DraytonWiser v20\Water]

The Hot Water object contains information about a water channel.

Description	Reference	Type
Mode	M	Obj\Enum Where: 0=Auto, 1=Manual
Setpoint	SP	Obj\Float
Heating State	HS	Obj\OffOn
Relay State Whether the hot water channel is calling for heat	RS	Obj\OffOn
Schedule Id The Id of the schedule that controls the Hot Water channel	CI	Obj\Num
Override Type	OT	Obj\ENum; Adjustable Where: 0=None, 1=Manual, 2=Away, 3=EcoIQ, 4=Boost, 5=Cancel
Override Setpoint When this object is written, the driver automatically sets the Override Type object to 'Manual'	OSP	Obj\Float; Adjustable
Day Profile x Day profile for day *x*, where *x* is in the range 1...7 where: 0=Monday, 1=Tuesday, 2=Wednesday, 3=Thursday, 4=Friday, 5=Saturday, 6=Sunday	Px	Obj\Profile; Adjustable; Max.Points: 4

Room

Object Type: [DraytonWiser v20\Room]

The Room object contains information about a room

Description	Reference	Type
Label	L	Obj\Text; Max.chars: 30
Mode	M	Obj\ENum Where: 0=Auto, 1=Manual
Current Temp	T	Obj\Float; Dps:1; Read-only
Current Setpoint	SP	Obj\Float; Dps:1; Read-only
Window Detect Active	WA	Obj\NoYes; Read-only
Windows State	WS	Obj\NoYes; Read-only
Demand Percentage of demand from this room	PD	Obj\Num; Read-only; Range: 0…100
Schedule Id The Id of the schedule that is used to control the room	CI	Obj\Num
Smart Valve Id *x* 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 The Id of the Room Stat used to control the room	SI	Obj\Num
Override Type	OT	Obj\ENum; Adjustable Where: 0=None, 1=Manual, 2=Away, 3=EcoIQ, 4=Boost, 5=Cancel
Override Setpoint When this object is written, the driver automatically sets the Override Type object to 'Manual'	OSP	Obj\Float; Dps:1; Adjustable
Day Profile x Day profile for day *x*, where *x* is in the range 1...7 where: 0=Monday, 1=Tuesday, 2=Wednesday, 3=Thursday, 4=Friday, 5=Saturday, 6=Sunday	Px	Obj\Profile; Adjustable; Max.Points: 4
Associated RoomStats Object References of RoomStats in this Room	SI	Obj\Text; Max.chars:127
Associated Valves Object References of Valves in this Room	VI	Obj\Text; Max.chars:127
Associated Actuators Object References of Heat Actuators in this Room	AI	Obj\Text; Max.chars:127
Associated Underfloor Relays Object References of Underfloor Controllers-Relays in this Room	UI	Obj\Text; Max.chars:127

Valve

Object Type: [DraytonWiser v20\Valve]

The Valve object contains information about a smart radiator thermostat.

Description	Reference	Type
Mounted Orientation Orientation of the Valve	MO	Obj\ENum; ; Read-only Where: 0=Vertical, 1=Horizontal
Temperature Current temperature being read by the valve	T	Obj\Float; Dps:1; Read-only
Setpoint Current setpoint that the valve is controlling to	SP	Obj\Float; Dps:1; Read-only
Demand % Percentage demand by the Valve	DP	Obj\Num; Read-only
Windows Open Does the temperature change imply a window has been opened	WS	Obj\NoYes; Read-only

RoomStat

Object Type: [DraytonWiser v20\Stat]

The RoomStat object contains information about a smart room thermostat.

Description	Reference	Type
Temperature Current temperature being read by the RoomStat	T	Obj\Float; Dps:1; Read-only
Humidity Current humidity being measured by the RoomStat	H	Obj\Float; Dps:1; Read-only
Setpoint Current setpoint that the RoomStat is controlling to	SP	Obj\Float; Dps:1; Read-only

Smart Plug

Object Type: [DraytonWiser v20\Plug]

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

Description	Reference	Type
Label	L	Obj\Text; Max.chars: 30
Mode	M	Obj\ENum; Where: 0=Auto, 1=Manual
Manual State	MS	Obj\OffOn
Output State	OS	Obj\NoYes; Adjustable
Away Action Does the main Override Type affect this plug	AA	Obj\Enum; Adjustable Where 0=Off; 1=NoChange
Current Sum Delivered	CSD	Obj\Num; Read-only
Instantaneous Demand	ISM	Obj\Num; Read-only
Day Profile x Day profile for day *x*, where *x* is in the range 1...7 where: 0=Monday, 1=Tuesday, 2=Wednesday, 3=Thursday, 4=Friday, 5=Saturday, 6=Sunday	Px	Obj\Profile; Adjustable; Max.Points: 4

Heat Actuator

Object Type: [DraytonWiser v20\Act]

The Heat Actuator object contains information about an electric heat actautor.

Description	Reference	Type
Output Type Type of output to control	OT	Obj\ENum; ; Read-only Where: 0=Relay, 1=PilotWire
Monitored Temperature Current temperature being monitored by the actuator	MT	Obj\Float; Dps:1; Read-only
Setpoint Current setpoint that the actuator is controlling to	SP	Obj\Float; Dps:1; Read-only
Current Sum Delivered	CSD	Obj\Num; Read-only
Instantaneous Demand	ISM	Obj\Num; Read-only

UFH Controller

Object Type: [DraytonWiser v20\UFH]

The UFH Controller object contains information about an Underfloor heat Controller.

Description	Reference	Type
Label Label of this Underfloor Controller	L	Obj\Text; Max.chars: 30; Read-only
Is Full Strip Is this a full strip?	IFS	Obj\NoYes; Read-only
Dew Detected Is temperature and humidity indicative of Dew?	DD	Obj\NoYes; Read-only
Monitored Temperature Current temperature being monitored by the actuator	MT	Obj\Float; Dps:1; Read-only
Minimum Heat Floor Temp	FTN	Obj\Float; Dps:1; Read-only
Maximum Heat Floor Temp	FTX	Obj\Float; Dps:1; Read-only
Relay *x* Polarity Polarity of Relay *x*, where *x* is in the range 1…6	R*x*.P	Obj\NoYes; Read-only
Relay *x* Demand % Demand percentage of Relay *x*, where *x* is in the range 1…6	R*x*.DP	Obj\Num; Read-only

Device

Object Type: [DraytonWiser v20\Device]

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

Description	Reference	Type
Product Type	T	Obj\ENum ; Read-only Where: 0=Ctrlr, 1=iTRV,2=RoomStat, 3=Relay, 4=UFH, 5=Plug, 6=HeatAct, 7=LActr, 8=Unknown
Battery Voltage	BV	Obj\Float; Read-only
Battery Level	BL	Obj\ENum; Read-only Where: 0=Normal, 1=Full, 2=TwoThirds, 3=OneThird, 4=Low, 5=Critical
Hub Rx Quality Quality of comms received by the Hub from the device	CRQ	Obj\Num; Read-only
Hub Rx Level Level of comms received by the Hub from the device	CRL	Obj\Num; Read-only
Device Rx Quality Quality of comms received by the Device from the Hub	DRQ	Obj\Num; Read-only
Device Rx Level Level of comms received by the Device from the Hub	DRL	Obj\Num; Read-only

Driver Versions

Version	Build Date	Details
1.0	27/04/2021	Driver released
2.0	27/04/2024	Version 2 released, supporting UFH, Elec. Heat Actuators, and other enhancements

Next Steps…

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

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