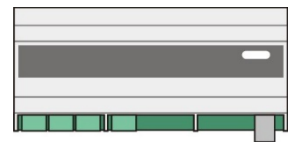




# The Helvar Driver

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The Helvar driver interfaces, via an IP network, to a Helvar lighting system containing Digidim and Imagine routers. Available for Commander and ObSys.

This document relates to Helvar driver version 1.0

Please read the *Commander Manual* or *ObSys Manual* alongside this document, available from [www.northbt.com](http://www.northbt.com)

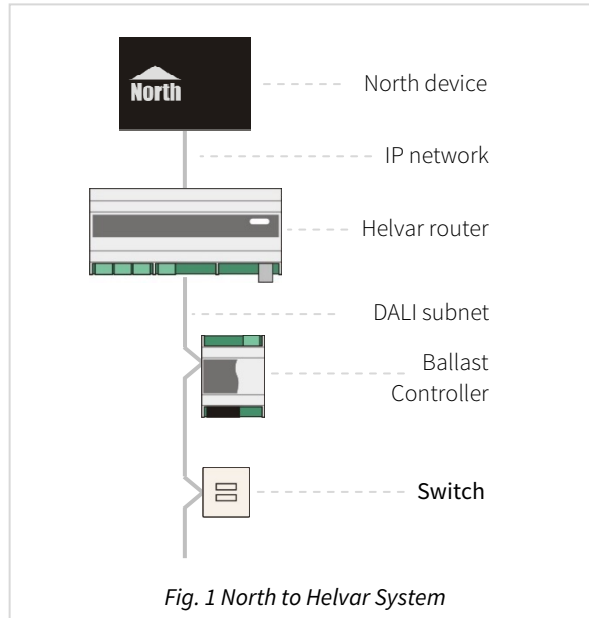
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# Compatibility with the Helvar System

The Helvar driver allows North products to interface with a Helvar lighting system.

The driver connects to an IP network (Fig. 1), and can access a workgroup containing up to 100 Helvar Digidim and Imagine routers. Depending on the router model, each can support sub-networks of DALI, S-Dim, and DMX512-A lighting devices.



## Equipment

Helvar routers that are compatible with the driver include:

- Digidim subnet router (905) – 1 x DALI subnet (64 devices)
- Digidim network router (910) – 2 x DALI subnets (128 devices)
- Imagine network router (920) – 2 x DALI subnets (128 devices), 1 x S-Dim subnet (128 devices), and 1 x DMX subnet (252 devices)

Lighting devices compatible with the driver, once connected to the router, include:

- Electronic ballasts controllers
- Light and PIR sensors
- User interfaces – touchscreen, switches, scene selection
- Dimmers
- Relay units
- Input units

## Values

Depending on the type of lighting devices connected, the driver can typically access the following values:

- Current light level (%)
- Load (W)
- Set output level (%)
- Set scene
- Sensor value
- Input state
- Device fault state

## Prerequisites

Use Helvar Designer software to configure system and assign IP addresses to the routers.

The driver only sends requests to one of the Helvar routers; you will require the IP address of this.

If you are connecting to the Helvar router via a firewall, then the driver will require bi-directional access on UDP port 50001.

# Using the Driver

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

## Starting the Interface

- 📖 To start an interface using the Helvar driver, follow these steps:
  - **Start Engineering** your North device using ObSys
  - Navigate to **Configuration, Interfaces**, and set an unused **Interface** to 'Helvar' to start the interface
  - Navigate to the top-level of your North device and re-scan it

The driver setup object (Mc), labelled **Helvar 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 **Helvar Setup** object (Mc). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
  - Set the **Helvar Interface IP Address** object (HI) to the IP address of a Helvar router

## Checking Communications

You can check that the interface is communicating by reading the **Device Communicating** object (DS). A value of 'yes' indicates the driver has connected to, and is communicating with the Helvar system.

# 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 Helvar lighting system object (S1) contains Cluster 1 (C1), which contains Router 101 (R101). Within this router, there is Subnet 1 (S1), which contains a device at address 10 (D10). The Lighting Level object for this device is LL. Therefore, the object reference will be 'S1.C1.R101.S1.D10.LL'.

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.C1.R101.S1.D10.LL) – therefore the complete object reference is 'IP.CDIP.S1.C1.R101.S1.D10.LL'.

## Device Top-Level Objects

When an interface is started using the Helvar 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
<b>Helvar Setup</b> Set up the Helvar driver, started on interface <i>c</i> ( <i>c</i> is the interface number)	Mc	Fixed Container: On the Commander platform this will be <i>[CDM v20\Helvar v10]</i> On the ObSys platform this will be <i>[OSM v20\Helvar v10]</i>
<b>Helvar System</b> Access Helvar system connected to interface <i>c</i> ( <i>c</i> is the interface number)	Sc	Variable Container: <i>[Helvar v10\System v10]</i>

# Helvar Driver Setup

Object Type: [OSM v20\Helvar v10]

Object Type: [CDM v20\Helvar v10]

The Helvar driver contains the following objects:

Description	Reference	Type
<b>Label</b> Label displayed when scanning the system	DL	Obj\Text; Max. 20 chars; Adjustable
<b>Helvar Router IP Address</b>	HIP	Obj\IP; Adjustable
<b>Fade Time (seconds)</b> The fade time used when controlling an output level or selecting a scene	FT	Obj\Float; Adjustable Range: 1...600 s
<b>Device Communicating</b> Indicates the driver has received a response from the Helvar router	DS	Obj\NoYes
<b>Debug Enable</b> This will store additional debug information in the record file. Use this option only when instructed by North Support	DM	Obj\NoYes; Adjustable

# Helvar System

Object Type: *[Helvar v10\System v10]*

Within a Helvar lighting system, the collection of routers that work together is called a Workgroup. The driver can access information from a single Workgroup.

The IP address of a router is divided into three distinct parts in the format *n.n.x.y* – *n* is the prefix number, *x* is the Cluster ID, and *y* is the Member ID.

The Cluster ID is essentially the IP subnet of the router, represented by the value of the third octet. For example, a router with the IP address 192.168.1.16 belongs to the Cluster ID '1'.

The Member ID is the fourth octet of the routers IP address. For example, a router with the IP address 192.168.1.16 belongs to the Member ID '16'.

The Helvar system contains objects to access Clusters (sets of routers) and configured Groups (Gx). Scan the object to find the Clusters and Groups available:

Description	Reference	Type
<b>Cluster <i>a</i></b> The Cluster ID, <i>a</i> , is in the range 1...253. This number usually matches the third part of the router's IP address	<i>Ca</i>	Variable Container: <i>[Helvar v10\Cluster v10]</i>
<b>Group <i>y</i></b> The group number, <i>y</i> , is in the range 1...16383	<i>Gy</i>	Fixed Container: <i>[Helvar v10\Group v10]</i>



# Helvar Clusters

Object Type: *[Helvar v10\Cluster v10]*

A cluster is a collection of Helvar routers that work together. In small systems of typically less than 30 routers, then only one cluster is used. On larger systems, then a multi-cluster system is used.

Description	Reference	Type
<b>Router <i>b</i></b> The router or cluster member ID, <i>b</i> , is in the range 1...254. This number usually matches the last part of the router's IP address	<i>Rb</i>	Variable Container: <i>[Helvar v10\Router v10]</i>

# Helvar Routers

Object Type: *[Helvar v10\Router v10]*

A Helvar router connects Digidim control devices (control panels, input units, and sensors) to Helvar control gear (dimmers, relay units, ballasts, etc.)

Helvar routers are available with the following subnet configurations:

- Digidim 905 router – 1 x DALI subnet
- Digidim 910 router – 2 x subnets
- Imagine 920 router – 2 x DALI, 1 x S-Dim, and 1 x DMX subnets

Description	Reference	Type
<b>Subnet c</b> The subnet number, c, is in the range 1...4	Sc	Variable Container: <i>[Helvar v10\Subnet v10]</i>

# Helvar Subnet

Object Type: *[Helvar v10\Subnet]*

Each Helvar subnet supports devices using one of the following protocols: DALI, S-Dim or DMX. Digidim routers only support DALI devices, and Imagine routers support all three protocols.

The number of devices supported on each subnet depends on the protocol used:

- DALI – 64 devices
- S-Dim – 128 devices in the range 1...252
- DMX – 252 devices

A Helvar Subnet contains the following objects:

Description	Reference	Type
<b>Device Name</b> The device address, <i>x</i> , is in the range 1...255	D <i>x</i>	Fixed container, can be one of the following: Digidim Input device <i>[Helvar v10\Devices\DDinput]</i> S-Dim Input device <i>[Helvar v10\Devices\SDinput]</i> DMX Input device <i>[Helvar v10\Devices\DMXin]</i> Digidim Output device <i>[Helvar v10\Devices\DDoutput]</i> S-Dim Output device <i>[Helvar v10\Devices\SDoutput]</i> DMX Output device <i>[Helvar v10\Devices\DMXout]</i> Digidim Sensor device <i>[Helvar v10\Devices\DDsensor]</i> S-Dim Sensor device <i>[Helvar v10\Devices\SDsensor]</i> Digidim Screen device <i>[Helvar v10\Devices\DDscreen]</i> S-Dim Screen device <i>[Helvar v10\Devices\SDscreen]</i> Digidim Advanced device <i>[Helvar v10\Devices\DDadv]</i> S-Dim Advanced device <i>[Helvar v10\Devices\SDadv]</i> DALI general device <i>[Helvar v10\Devices\DALIgeneral]</i> DMX general device <i>[Helvar v10\Devices\DMXgeneral]</i>

# Helvar Input Device

Object Type: [Helvar v10\Devices\DDinput]

Object Type: [Helvar v10\Devices\SDinput]

Object Type: [Helvar v10\Devices\DMXin]

Object Type: [Helvar v10\Devices\100]

Object Type: [Helvar v10\Devices\110]

Object Type: [Helvar v10\Devices\111]

Object Type: [Helvar v10\Devices\121]

Object Type: [Helvar v10\Devices\122]

Object Type: [Helvar v10\Devices\124]

Object Type: [Helvar v10\Devices\125]

Object Type: [Helvar v10\Devices\126]

Object Type: [Helvar v10\Devices\170]

A Helvar input-type device contains the following objects, depending on its function:

Description	Reference	Type
<b>Input</b>	I	Obj\Num
<b>Subinput <math>x</math></b> The sub-input number, $x$ , is in the range 1...8	SI $x$	Obj\Num
<b>Device Fault</b>	FS	Obj\NoYes
<b>Fault Details</b>	FD	Fixed Container: <i>[Helvar v10\FaultDetails]</i>

# Helvar Output Device

- Object Type: [Helvar v10\Devices\DDoutput]
- Object Type: [Helvar v10\Devices\SDoutput]
- Object Type: [Helvar v10\Devices\DMXout]
- Object Type: [Helvar v10\Devices\DALI0]
- Object Type: [Helvar v10\Devices\DALI1]
- Object Type: [Helvar v10\Devices\DALI2]
- Object Type: [Helvar v10\Devices\DALI3]
- Object Type: [Helvar v10\Devices\DALI4]
- Object Type: [Helvar v10\Devices\DALI5]
- Object Type: [Helvar v10\Devices\DALI6]
- Object Type: [Helvar v10\Devices\DALI7]
- Object Type: [Helvar v10\Devices\DALI8]
- Object Type: [Helvar v10\Devices\DALI9]
- Object Type: [Helvar v10\Devices\410]
- Object Type: [Helvar v10\Devices\416S]
- Object Type: [Helvar v10\Devices\425S]
- Object Type: [Helvar v10\Devices\444]
- Object Type: [Helvar v10\Devices\450]
- Object Type: [Helvar v10\Devices\452]
- Object Type: [Helvar v10\Devices\455]
- Object Type: [Helvar v10\Devices\458C]
- Object Type: [Helvar v10\Devices\458D]
- Object Type: [Helvar v10\Devices\458O]
- Object Type: [Helvar v10\Devices\458S]
- Object Type: [Helvar v10\Devices\460]
- Object Type: [Helvar v10\Devices\472]
- Object Type: [Helvar v10\Devices\474C]
- Object Type: [Helvar v10\Devices\474R]
- Object Type: [Helvar v10\Devices\490]
- Object Type: [Helvar v10\Devices\494]
- Object Type: [Helvar v10\Devices\498]
- Object Type: [Helvar v10\Devices\HES9202000]

A Helvar output-type device contains the following objects, depending on its function:

Description	Reference	Type
<b>Current Light Level (%)</b>	LL	Obj\Num; Range: 0...100
<b>Level (%)</b> Write to this object to directly adjust the output light level	L	Obj\Num: 0...100; Adjustable
<b>Proportional Level (%)</b> Write to this object to adjust the current light level proportionally against its current Level	PL	Obj\Num: -100...100; Adjustable
<b>Power</b>	P	Obj\Num
<b>Block y Scene</b> The Block number, y, is in the range 1...8. See <i>Scene numbers and blocks</i> below	By.S	Obj\Num: 1...16; Adjustable
<b>Device Fault</b>	FS	Obj\NoYes
<b>Fault Details</b>	FD	Fixed Container: [Helvar v10\FaultDetails]

# Helvar Sensor Device

Object Type: [Helvar v10\Devices\DDsensor]

Object Type: [Helvar v10\Devices\SDsensor]

Object Type: [Helvar v10\Devices\301]

Object Type: [Helvar v10\Devices\302]

Object Type: [Helvar v10\Devices\311]

Object Type: [Helvar v10\Devices\312]

Object Type: [Helvar v10\Devices\HES92020S]

A Helvar sensor-type device contains the following objects, depending on its function:

Description	Reference	Type
<b>Input</b>	I	Obj\Num
<b>Subinput <math>x</math></b> The sub-input number, $x$ , is in the range 1...8	SI $x$	Obj\Num
<b>Device Fault</b>	FS	Obj\NoYes
<b>Fault Details</b>	FD	Fixed Container: [Helvar v10\FaultDetails]

# Helvar Screen Device

Object Type: *[Helvar v10\Devices\DDscreen]*

Object Type: *[Helvar v10\Devices\SDscreen]*

A Helvar screen-type device contains the following objects, depending on its function:

Description	Reference	Type
<b>Input</b>	I	Obj\Num
<b>Subinput <math>x</math></b> The sub-input number, $x$ , is in the range 1...8	SI $x$	Obj\Num
<b>Device Fault</b>	FS	Obj\NoYes
<b>Fault Details</b>	FD	Fixed Container: <i>[Helvar v10\FaultDetails]</i>

# Helvar Advanced Device

- Object Type: [Helvar v10\Device\DDadv]
- Object Type: [Helvar v10\Device\SDadv]
- Object Type: [Helvar v10\Devices\DALIgeneral]
- Object Type: [Helvar v10\Devices\DMXgeneral]
- Object Type: [Helvar v10\Devices\804]
- Object Type: [Helvar v10\Devices\924]
- Object Type: [Helvar v10\Devices\935]
- Object Type: [Helvar v10\Devices\939]
- Object Type: [Helvar v10\Devices\942]
- Object Type: [Helvar v10\Devices\Amb4]
- Object Type: [Helvar v10\Devices\HES92060]
- Object Type: [Helvar v10\Devices\HES92220]
- Object Type: [Helvar v10\Devices\HES98180]

A Helvar advanced-type device contains the following objects, depending on its function:

Description	Reference	Type
<b>Current Light Level (%)</b>	LL	Obj\Num: 0...100
<b>Level (%)</b> Write to this object to directly adjust the output light level	L	Obj\Num: 0...100; Adjustable
<b>Proportional Level (%)</b> Write to this object to adjust the current light level proportionally against its current Level	PL	Obj\Num: -100...100; Adjustable
<b>Power</b>	P	Obj\Num
<b>Input</b>	I	Obj\Num
<b>Subinput x</b> The sub-input number, x, is in the range 1...8	SIx	Obj\Num
<b>Block y Scene</b> The Block number, y, is in the range 1...8. See <i>Scene numbers and blocks</i> below	By.S	Obj\Num: 1...16; Adjustable
<b>Device Fault</b>	FS	Obj\NoYes
<b>Fault Details</b>	FD	Fixed Container: [Helvar v10\FaultDetails]



# Fault Details

Object Type: [Helvar v10\FaultDetails]

The Helvar Fault Details list shows whether any of the listed faults are currently active. It contains the following error state objects:

Description	Reference	Type
<b>Fault is Disabled</b>	B1	Obj\NoYes
<b>Fault is Lamp Failure</b>	B2	Obj\NoYes
<b>Fault is Missing</b>	B3	Obj\NoYes
<b>Fault is Faulty</b>	B4	Obj\NoYes
<b>Fault is Refreshing</b>	B5	Obj\NoYes
<b>Fault is Em Resting</b>	B9	Obj\NoYes
<b>Fault is In Emergency</b>	B11	Obj\NoYes
<b>Fault is In Prolong</b>	B12	Obj\NoYes
<b>Fault is In Function Test</b>	B13	Obj\NoYes
<b>Fault is In Duration Test</b>	B14	Obj\NoYes
<b>Fault is DT Pending</b>	B16	Obj\NoYes
<b>Fault is FT Pending</b>	B17	Obj\NoYes
<b>Fault is Battery Failed</b>	B18	Obj\NoYes
<b>Fault is Em Inhibited</b>	B21	Obj\NoYes
<b>Fault is Em FT Requested</b>	B22	Obj\NoYes
<b>Fault is Em DT Requested</b>	B23	Obj\NoYes
<b>Fault is Em Unknown State</b>	B24	Obj\NoYes
<b>Fault is Over temperature</b>	B25	Obj\NoYes
<b>Fault is Over current</b>	B26	Obj\NoYes
<b>Fault is Comms Error</b>	B27	Obj\NoYes
<b>Fault is Severe Error</b>	B28	Obj\NoYes
<b>Fault is Bad Reply</b>	B29	Obj\NoYes
<b>Fault is Device Mismatch</b>	B31	Obj\NoYes

# Group

Object Type: [Helvar v10\Group v10]

The Group object contains objects to control light levels of devices in pre-configured groups. Each device can be assigned to a group or multiple groups. The following objects are available:

Description	Reference	Type
<b>Level (%)</b> Write to this object to directly adjust the output light level	LL	Obj\Num: 0...100
<b>Proportional Level Control (%)</b> Write to this object to adjust the current light level proportionally against the current Level	PL	Obj\NoYes; Adjustable; Range: -100...100
<b>Block y Scene</b> The Block number, y, is in the range 1...8. See <i>Scene numbers and blocks</i> below	By.S	Obj\Num: 1...16; Adjustable;

## Scene numbers and blocks

A scene is a set of lighting levels. A scene could be assigned to a button so that, when the button is pressed, the levels defined in that scene are set. For example, scene 1 could set the levels to 30% and scene 2 could set the levels to 70%.

Each device can be assigned to a scene block.

There are 16 scenes in a scene block, defined as follows:

- 1-12 On scenes
- 13 Automatic off (controlled by PIR)
- 14 Transition (minimum level) scene
- 15-16 Manual off (button press)

Scene numbers are used to uniquely identify each scene in each group. There can be a total of 128 scenes in each group (16 scenes x 8 scene blocks).

# Driver Versions

Version	Build Date	Details
1.0	01/03/2014	Driver released

## Next Steps...

If you require help, contact support on 01273 694422 or visit [www.northbt.com/support](http://www.northbt.com/support)



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Document issued 16/07/2015.