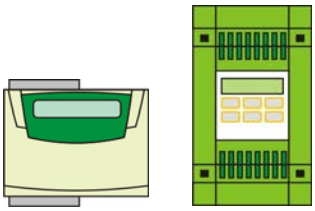
The Cylon Driver



The Cylon driver connects to a Cylon Controls BMS (building management system). The driver can read and adjust values within controllers on the local fieldbus network, as well as those across the wider UnitronUC32 network. Available for Commander and ObSys.

This document relates to Cylon driver version 1.2

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

Contents

Compatibility with the Cylon System

The Cylon driver allows North to interface with a Cylon Controls BMS (building management system). The driver can read and adjust values within controllers on the local fieldbus network, as well as those across the wider UnitronUC32 network.

The driver connects, via an RS232 serial connection, to a Cylon UC32.net (Fig. 1) or UCC4 (Fig. 2) communications controller.

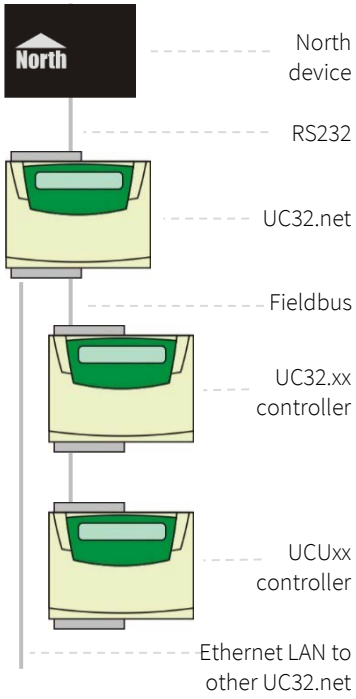


Fig. 1 North to Cylon

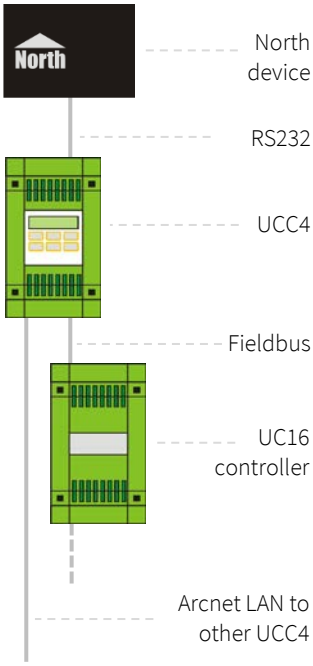


Fig. 2 North to Cylon Legacy Equipment

Equipment

Cylon Controls equipment compatible with the driver includes:

- Communication controllers – UC32.net
- Main plant controllers – UC32.8, UC32.16, and UC32.24
- Unitary controllers, including fan coil and VAV control – UCU8, UCU10, and UCU12
- Legacy equipment – UCC4 communication controller, and UC12, UC16 and UC24 unitary controllers

Values

Depending on the type of Cylon controllers connected, the driver can access the following values:

From a UC32.net or UCC4 communications controller:

- Local Globals
- Time Schedule Blocks
- Wide Input Globals
- Wide Output Globals

From a field controller:

- UCU Analogue Point Values
- UCU Digital Point States
- UC32 Analogue Point Values
- UC32 Digital Point States
- Data Logs (UCUxx and UCxx controllers only)

Using the Driver

On ObSys and Commander, the Cylon driver is pre-installed. On all of these North devices, you can use the driver to create an interface to Cylon. Once started, you will need to set up the driver before it can communicate with the Cylon Unitron32 system.

Making the Cable

Using the following RS232 cable specification, connect the North device COM port to the Cylon UC32.net service port. You can connect to the service port (port 1) using either the screw terminal (Fig. 3), or RJ45 (Fig. 4) connectors. Connector types at each end of the cable are shown.

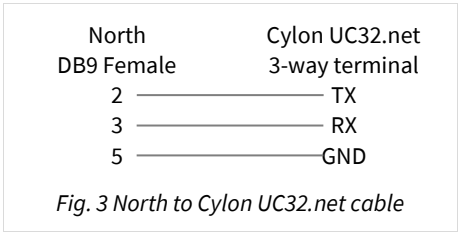


Fig. 3 North to Cylon UC32.net cable

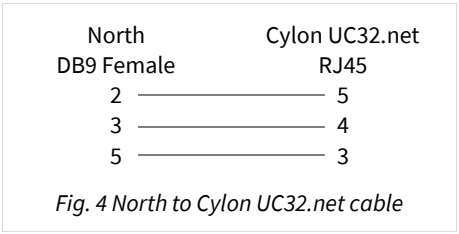


Fig. 4 North to Cylon UC32.net cable

Using the following RS232 cable specification, connect the North device COM port to the Cylon UCC4 port 1 (Fig. 5). Connector types at each end of the cable are shown.

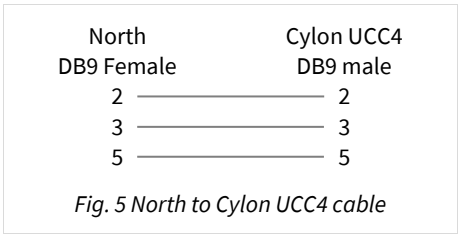


Fig. 5 North to Cylon UCC4 cable

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

Cables are available from North, order code CABLE/CYLON/TERM, CABLE/CYLON/RJ45 or CABLE/CYLON/DB9.

Starting the Interface

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

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

The driver setup object (Mc), labelled **Cylon 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 **Cylon Setup** object (Mc). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
- → Set **COM port** (RS.COM) to select which serial port on the North device the Cylon Controls system is connected.
- → Set **Baud rate** (RS.BR) to match that of the UC32.net service port.

Checking Communications

You can check the interface is communicating by scanning the **Cylon System** object. This will force the driver to scan the UnitronUC32 network for UC32.net communications controllers and their attached fieldbus networks.

Alarms

The driver monitors alarm queue 1 within the connected Cylon communications controller. When a new event is detected, the driver sends a North-format alarm to the device's alarm processing.

Format

North-format alarms contain six text fields. The Cylon driver places the following information into these fields:

System – copied from System Label object (DL) within driver setup

Point – See Point and Condition Field section below

Condition – See Point and Condition Field section below

Priority – From Cylon system, a number in the range 1…9

Date & Time – From originating Cylon controller

Examples

System	Point	Condition	Priority	Date	Time
Cylon System	Net 1 Ctrl 3 Analog 2	Alarm	2	19/06/14	13:00:00
Cylon System	Net 1 Ctlr 3 Digital 6	Alarm	2	19/06/14	14:22:00
Cylon System	Net 1 Ctlr 2	Status Alarm	1	19/06/14	15:01:23
Cylon System	Net 1 Ctrl 3 Analog 2	Ok	2	19/06/14	15:16:21
Cylon System	Net 1 Ctlr 3 Digital 6	Ok	2	19/06/14	15:17:03
Cylon System	Net 1	Fieldbus Alarm	3	19/06/14	18:36:54
Cylon System	Net 1 Ctrl 1 Ext Analog 24	Alarm	4	20/06/14	10:42:32
Cylon System	Net 1 Ctlr 1 Ext Digital 48	Alarm	5	20/06/14	10:56:12
Cylon System	Net 1 Ctrl 1 Ext Analog 24	Ok	4	20/06/14	12:32:20
Cylon System	Net 1 Ctlr 1 Ext Digital 48	Ok	5	20/06/14	12:42:16

Point and Condition Field

The following alarm conditions can be sent by the driver:

Point	Condition	Notes
Net x Ctlr x Ext Analog x	Alarm/Ok	UC32.xx extended analogue point
Net x Ctlr x Ext Digital x	Alarm/Ok	UC32.xx extended digital point
Net x Ctlr x Analog x	Alarm/Ok	UCUxx analogue point
Net x Ctlr x Digital x	Alarm/Ok	UCUxx digital point
Net x Ctlr x	Status Alarm	
Net x	Fieldbus Alarm/Fieldbus Ok	
Comm Ctlr x	LAN Alarm/LAN Ok	
Comm Ctlr x	Service Alarm	UC32.net service alarm

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 Cylon System object (S1) contains a fieldbus on UC32.net as address 2 (S2), which contains a field controller at address 4 (C4), which has an analogue point 16 value (A16.V) - therefore, the complete object reference is 'S1.S2.C4.A16.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.S2.C4.A16.V) – therefore the complete object reference is 'IP.CDIP.S1.S2.C4.A16.V'.

Device Top-Level Objects

When an interface is started using the Cylon 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
Cylon Setup Set up the Cylon driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: Within Commander: *[CDM v20\ Cylon v12]* Within ObSys: *[OSM v20\Cylon v12]*
Cylon System Access Cylon Unitron32 system connected to interface *c* (*c* is the interface number)	S*c*	Variable Container: *[Cylon\System]*

Cylon Setup

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

The Cylon Setup object contains the following sub-objects:

Description	Reference	Type
RS232 COM Port	RS.COM	Obj\Num; Range: 1…8; Adjustable
Baud Rate	RS.BR	Obj\Num; Adjustable Range: 1200, 2400, 9600, 14400, 19200, 38400
System Label Label displayed when scanning the system, and used within alarms	DL	Obj\Text; Max. 20 chars; Adjustable

Cylon System

Object Type: *[Cylon\System]*

The Cylon System object contains a list of communications controllers and the network of field controllers attached to them. Scan the object to view the controllers available.

Description	Reference	Type
Communication Controller x The UC32.net or UCC4 communication controller address, *x*, is in the range 1…254	U*x*	Fixed container: *[Cylon\UCC4 v12]*
Fieldbus *x* Network of field controllers attached to a communication controller (e.g. UC32.net). The communication controller address, *x*, is in the range 1…254	S*x*	Variable container: *[Cylon\Net]*

Communication Controller

Object Type: *[Cylon\UCC4 v12]*

A Communication Controller object is a UC32.net or UCC4 communication controller. This fixed container contains the following sub-objects:

Description	Reference	Type
Site Number	SN	Obj\Num; -1…32767
Software Version	SV	Obj\Text
Time	TIME	Obj\DateTime; Adjustable
Communication controllers on LAN Number of UC32.net on IP network, or UCC4 controllers on Arcnet	U.CT	Obj\Num: 0…255; Adjustable
Fieldbus controller count	C.CT	Obj\Num: 0…64; Adjustable
Reset count	RST.CT	Obj\Num: 0…65535
Fieldbus error count	SNE.CT	Obj\Num; 0…65535
Port *p* The port number, *p*, is in the range 1…3	P*p*	Fixed Container: *[Cylon\Port v12]*
Local Global Count	LG.CT	Obj\Num: 0…255; Adjustable
Local Global *g* Setup The local global index, *g*, is in the range 1…255	LG*g*	Fixed Container: *[Cylon\Local v12]*
Time Schedule Block *b* The time schedule block number, *b*, is in the range 1…480	SB*b*	Fixed Container: *[Cylon\Schedule v12]*
Time Schedule *c* – State The time schedule number, *c*, is in the range 1…255	SC*c*.S	Obj\OffOn
Wide Input Global Count	WI.CT	Obj\Num: 0…64; Adjustable
Wide Input Global *i* The wide input global index, *i,* is in the range 1…64	Wi*i*	Fixed Container: *[Cylon\WInput v12]*
Wide Output Global Count	WO.CT	Obj\Num: 0…64; Adjustable
Wide Output Global *o* The Wide Output index, *o*, is in the range 1…64	WO*o*	Fixed Container: *[Cylon\WOutput v12]*
Alarm Block String *z* The alarm block number, *z*, is in the range 1..255.	AS*z*	Obj\Text; Adjustable

Port

Object Type: *[Cylon\Port v12]*

A Port object contains sub-objects relating to a communication port on the UC32.net or UCC4:

Description	Reference	Type
Baud Rate	BR	Obj\Num; 3…192: Adjustable Range: 3=300, 6=600, 12=1200, 24=2400, 48=4800, 96=9600, 144=14400, 192=19200, 28=28800, 38=38400, 57=57600, 76=76800, 115=115200, 153=153600, 37=307200, 61=614400
Hardware Flow Control	HF	Obj\Enum: Adjustable 0=No flow control, 1=CTS/RTS, 2=Full

Local Global Setup

Object Type: *[Cylon\Local v12]*

A Cylon Local Global object contains parameters for sharing values between field controllers. The following objects are supported:

Description	Reference	Type
Type	T	Obj\Enum; 1…3: Adjustable 1=Analogue, 2=Digital, 3=Schedule
Service Period (seconds)	SP	Obj\Num; 0…255: Adjustable
Default Value	DV	Obj\Float: Adjustable
Source Controller or Schedule	S.CN	Obj\Num; 1…63, or 1…255: Adjustable
Source Point or Schedule Number	S.PN	Obj\Num; 1…255: Adjustable See note 1
Destination Field Controller	D.CN	Obj\Num; 1…63, 128=all: Adjustable
Destination Point	D.PN	Obj\Num; 1…255: Adjustable See note 1
Schedule On-Time Point	SN.P	Obj\Num; 0…255: Adjustable See note 1
Schedule Off-Time Point	SF.P	Obj\Num; 0…255: Adjustable See note 1

Notes

1. On a UC32.net controller, if the value reads 0 then it is too large for this field and is available at a different location. Contact North support for assistance.

Time Schedule Block

Object Type: *[Cylon\Schedule v12]*

The Cylon Time Schedule block object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Schedule Number	SC	Obj\Num: 1…255; Adjustable
Date	DT	Obj\Date
Monday Profile	D1	Obj\Times; Adjustable
Tuesday Profile	D2	Obj\Times; Adjustable
Wednesday Profile	D3	Obj\Times; Adjustable
Thursday Profile	D4	Obj\Times; Adjustable
Friday Profile	D5	Obj\Times; Adjustable
Saturday Profile	D6	Obj\Times; Adjustable
Sunday Profile	D7	Obj\Times; Adjustable

Wide Input Global

Object Type: *[Cylon\WInput v12]*

The Cylon Wide Input Global object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Type	T	Obj\Enum; 1…3: Adjustable 1=Analogue, 2=Digital, 3=Schedule
Value	V	Obj\Float
Default Value	DV	Obj\Float: Adjustable
Destination Field Controller	D.CN	Obj\Num; 1…63, 128=all: Adjustable
Destination Point	D.PN	Obj\Num; 1…255: Adjustable See note 1
Wide Global Number	X	Obj\Num; 1…255: Adjustable

Notes

1. On a UC32.net controller, if the value reads 0 then it is too large for this field and is available at a different location. Contact North support for assistance.

Wide Output Global

Object Type: *[Cylon\WOutput v12]*

The Cylon Wide Output Global object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Type	T	Obj\Enum; 1…3: Adjustable 1=Analogue, 2=Digital, 3=Schedule
Value	V	Obj\Float
Default Value	DV	Obj\Float: Adjustable
Source Field Controller or Schedule	S.CN	Obj\Num; 1…63 or 1…255: Adjustable
Source Point	S.PN	Obj\Num; 1…255: Adjustable See note 1
Wide Global Number	X	Obj\Num; 1…255: Adjustable

Notes

1. On a UC32.net controller, if the value reads 0 then it is too large for this field and is available at a different location. Contact North support for assistance.

Fieldbus

Object Type: *[Cylon\Net]*

A Fieldbus is a network of up to 63 Cylon field controllers connected to a UC32.net or UCC4 communication controller.

The Fieldbus object is a variable container, scan it to view the controllers available.

Description	Reference	Type
Controller *x* The fieldbus controller address, *x*, is in the range 1…63	C*x*	Fixed container, one of the following: UC32.xx main plant controllers *[Cylon\UC32.12]* *[Cylon\UC32.16]* *[Cylon\UC32.24]* UCUxx unitary controllers *[Cylon\UCU10VAV]* *[Cylon\UCU10FC]* *[Cylon\UCU8]* UCxx legacy equipment *[Cylon\UC24PG-R]* *[Cylon\UC16PG-R]* *[Cylon\UC12PG-R]* *[Cylon\UC8PG-R]*

Controller: UC32.xx

Object Type: *[Cylon\UC32.12]*
Object Type: *[Cylon\UC32.16]*
Object Type: *[Cylon\UC32.24]*

The Cylon UC32.xx includes the UC32.8, UC32.16 and UC32.24 main plant controllers.

This fixed container object contains the following:

Description	Reference	Type
Software Version	SV	Obj\Text
Time	TIME	Obj\DateTime; Adjustable
Service State	SS	Obj\OffOn
Online State	OS	Obj\OffOn
Module Count	M.CT	Obj\Num: 0…255; Adjustable
Crash Count	CSH.CT	Obj\Num: 0…65535
Reset Count	RST.CT	Obj\Num: 0…65535
Fieldbus Error Count	SNE.CT	Obj\Num; 0…65535
UCU Analogue Point *x* Value The analogue point number, *x*, is in the range 1…255	A*x*.V	Obj\Float: Adjustable
UCU Digital Point *x* State The digital point number, *x*, is in the range 1…255	D*x*.S	Obj\OffOn: Adjustable
Extended Analogue Point *y* Value The UC32 extended analogue point number, *y*, is in the range 1…1024	XA*y*.V	Obj\Float: Adjustable
Extended Digital Point *y* State The UC32 extended digital point number, *y*, is in the range 1…1024	XD*y*.S	Obj\OffOn: Adjustable

Controller: UCUxx

Object Type: *[Cylon\UCU10VAV]*
Object Type: *[Cylon\UCU10FC]*
Object Type: *[Cylon\UCU8FC]*
Object Type: *[Cylon\UCU8]*

The Cylon UCUxx includes the UCU8, UCU10 and UCU12 unitary controllers, and fan coil and VAV variants.

This fixed container object contains the following:

Description	Reference	Type
Software Version	SV	Obj\Text
Time	TIME	Obj\DateTime; Adjustable
Service State	SS	Obj\OffOn
Online State	OS	Obj\OffOn
Module Count	M.CT	Obj\Num: 0…255; Adjustable
Crash Count	CSH.CT	Obj\Num: 0…65535
Reset Count	RST.CT	Obj\Num: 0…65535
Fieldbus Error Count	SNE.CT	Obj\Num; 0…65535
UCU Analogue Point *x* Value The analogue point number, *x*, is in the range 1…255	A*x*.V	Obj\Float: Adjustable
UCU Digital Point *x* State The digital point number, *x*, is in the range 1…255	D*x*.S	Obj\OffOn: Adjustable
Data Log *d* The log number, d, is in the range 1…4	SLx.LOG	Obj\Log

Controller: UCxx

Object Type: *[Cylon\UC24PG-R]*
Object Type: *[Cylon\UC16PG-R]*
Object Type: *[Cylon\UC12PG-R]*
Object Type: *[Cylon\UC12EPG-R]*
Object Type: *[Cylon\UC8PG-R]*
Object Type: *[Cylon\UC800]*

The Cylon UCxx legacy equipment includes the UC12, UC16 and UC24 unitary controllers.

This fixed container object contains the following:

Description	Reference	Type
Software Version	SV	Obj\Text
Time	TIME	Obj\DateTime; Adjustable
Service State	SS	Obj\OffOn
Online State	OS	Obj\OffOn
Module Count	M.CT	Obj\Num: 0…255; Adjustable
Crash Count	CSH.CT	Obj\Num: 0…65535
Reset Count	RST.CT	Obj\Num: 0…65535
Fieldbus Error Count	SNE.CT	Obj\Num; 0…65535
UCU Analogue Point *x* Value The analogue point number, *x*, is in the range 1…255	A*x*.V	Obj\Float: Adjustable
UCU Digital Point *x* State The digital point number, *x*, is in the range 1…255	D*x*.S	Obj\OffOn: Adjustable
Data Log *d* The log number, d, is in the range 1…16	Lx.LOG	Obj\Log

Driver Versions

Version	Build Date	Details
1.0	4/11/98	Driver released
1.1	9/12/1999	Fixed problem with alarm polling corrupting value requests
1.1	2/5/2000	Corrected alarm scanning to use start rather than end time field
1.2	09/06/2004	Extended timeouts – required for slower large networks
1.2	24/10/2005	Added support for extended analogue and digital points for UC32.xx controllers
1.2	11/08/2007	Added support for UC32.xx alarms
1.2	21/08/2008	Fixed problem with alarm type 1 not decoding properly
1.2	25/01/2011	Fixed problem with writing to UCxx points causing FLT
1.2	19/6/2014	Updated labels to reflect UC32 range, including alarm point/condition fields.

Next Steps…

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

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