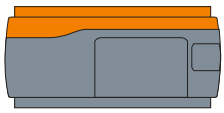
The TrendIQ Driver



The TrendIQ driver connects to a Trend Control Systems BMS (building management system). The driver can read and adjust values within controllers on the local LAN, as well as those across a Trend internetwork. Available for Commander and ObSys.

This document relates to TrendIQ driver version 1.2

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

Contents

Compatibility with the Trend System

The TrendIQ driver allows North to interface with a Trend Control Systems BMS (building management system). The driver can read and adjust values within controllers on the local LAN, as well as those across a Trend internetwork. Trend controllers can send alarms to the North device.

The driver connects, via an RS232 serial connection, to a Trend Communication Node Controller (CNC) (Fig. 1) or to the local supervisor port of a Trend IQ controller (Fig. 2).

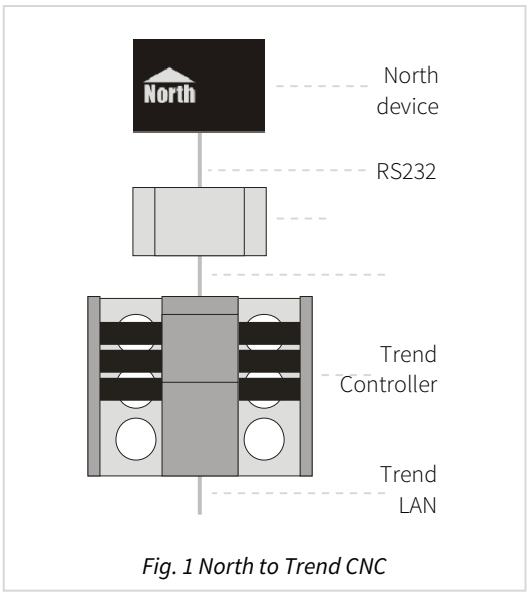


Fig. 1 North to Trend CNC

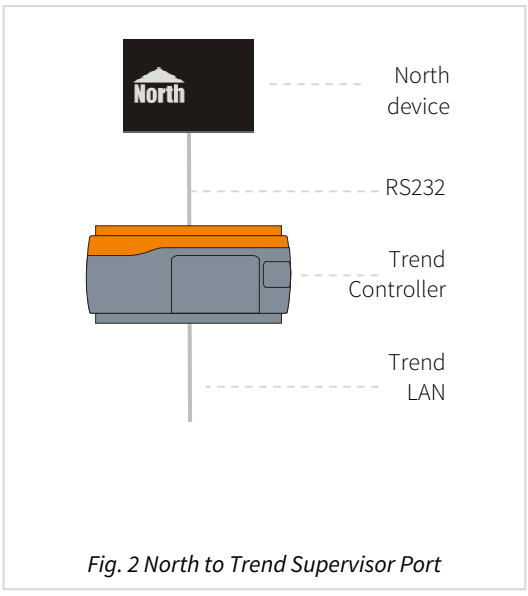


Fig. 2 North to Trend Supervisor Port

Equipment

Trend controllers compatible with the driver include:

- IQ70s and IQ90s
- IQ100s, IQ131s and IQ151s
- IQ220s, IQ240s and IQ251s
- IQ3s
- Other Trend products

Values

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

- Analogues
- Calendars
- Digital Inputs
- Drivers
- Knobs
- Sensors
- Switches
- Time Zones
- Config
- Digital nodes
- Plots
- Functions blocks

Trend controllers can send alarms to the TrendIQ driver – a controller must be configured to send alarms to the CNC's address (or address 2 to mean the local supervisor port.)

Prerequisites

If connecting to a Trend supervisor port, confirm how the port is configured - 'virtual CNC' or 'direct-connect'.

Using the Driver

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

Making the Cable

Using the following RS232 cable specification, connect the North device COM port to the Trend Communication Node Controller (CNC) (Fig. 3) or Trend supervisor port (Fig. 4). Connector types at each end of the cable are shown.

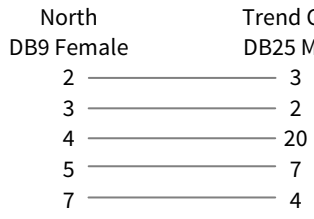


Fig. 3 North to Trend CNC cable

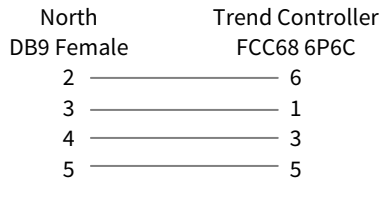


Fig. 4 North to Trend controller cable

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

Cables are available from North, order code CABLE/TRENDIQ/DB25 and CABLE/TRENDIQ/FCC68.

Starting the Interface

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

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

The driver setup object (Mc), labelled **Trend 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 **Trend 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 number on the North device the Trend system is connected to.
- → Set **Baud rate** (RS.BR) to match that of the CNC or Supervisor Port. These typically support 9600, or 19200.
- → If you have connected using the Trend supervisor port, and it is not set up as a virtual CNC, then set **Direct Connect to Controller** to 'Yes'. This will limit access to the local controller.

Checking Communications

You can check the interface is communicating by scanning in the Trend LAN and viewing values within a Trend controller.

Alarms

When the Trend system sends an alarm to the driver, the driver sends a North-format alarm to the device's alarm processing. The driver supports Text Alarms (F8-FE), Critical Alarms (FF), and Text Messages (f*x*).

Format

North-format alarms contain six text fields. The TrendIQ driver places the following information into these fields, depending on the message type.

Text Alarms

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

Point – *Controller identifier* + *Item label* (within Trend text alarm)

Condition – *Item condition* (within Trend text alarm)

Priority – '3'

Date & Time – from Trend alarm (except seconds set to 00)

Critical Alarms

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

Point – *Text* from Trend alarm (if blank, then 'Unknown Point')

Condition – *Text* from Trend alarm

Priority – '2'

Date & Time – from Trend alarm (except year from North device, and seconds set to 00)

Text Messages

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

Point – '???'

Condition – *Text* from Trend message, limited to 72 chars

Priority – '2'

Date & Time – from North device

Examples

System	Point	Condition	Priority	Date	Time
TrendIQ System	OS21 Floor1 Sensor A	High Alarm Occurred	3	04/01/12	14:22:00
TrendIQ System	Boiler Room	Alarm Cleared	3	04/01/12	14:22:00
TrendIQ System	GEN1 Outside Air Temp	Fault Occurred	3	01/04/12	14:23:00

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 Trend System object (S1) contains Outstation 11 object (O11), which contains a Date and Time object (TIME) - therefore, the complete object reference is 'S1.O11.TIME'.

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.O11.TIME) – therefore the complete object reference is 'IP.CDIP.S1.O11.TIME'.

Device Top-Level Objects

When an interface is started using the TrendIQ 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
Trend Setup Set up the TrendIQ driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: Within Commander: *[CDM v20\TrendIQ v12]* Within ObSys: *[OSM v20\TrendIQ v12]*
Trend System Access Trend system connected to interface *c* (*c* is the interface number)	S*c*	Either a Variable Container : *[TrendIQ]* Or if in direct connect mode, a Fixed Container: *[TrendIQ\IQ7x]* *[TrendIQ\IQ9x]* *[TrendIQ\IQ9x+]* *[TrendIQ\IQ10x]* *[TrendIQ\IQ21x]* *[TrendIQ\IQ22x]* *[TrendIQ\IQ23x]* *[TrendIQ\IQ24x]* *[TrendIQ\IQ100]* *[TrendIQ\IQ111]* *[TrendIQ\IQ131]* *[TrendIQ\IQ151]* *[TrendIQ\IQ210]* *[TrendIQ\IQ220]* *[TrendIQ\IQ233]* *[TrendIQ\IQ241]* *[TrendIQ\IQ246]* *[TrendIQ\IQ250]* *[TrendIQ\IQ251]* *[TrendIQ\IQ3xcite]*

Trend Setup

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

The Trend Setup object contains the following sub-objects:

Description	Reference	Type
RS232 COM Port	RS.COM	Obj\Num; Range: 1…8; Adjustable
Baud Rate A Trend supervisor port supports baud rates of 1200, 4800, or 9600 A Trend CNC supports baud rates of 1200, 9600, or 19200	RS.BR	Obj\Num; Adjustable
System Label Label displayed when scanning the system, and used within alarms	DL	Obj\Text; Max. 20 chars; Adjustable
Trend PIN The Trend PIN is sent to the Trend System when adjusting values	PIN	Obj\Num; Range: 0…9999; Adjustable
Direct Connect to Controller If set to yes, indicates to the driver that there is only a single Trend controller	DC	Obj\NoYes; Adjustable
Busy with Configuration Mode If yes, driver has blocked general object requests. It does this when configuration requests are being performed with any of the Trend Controllers – as controllers do not respond to requests when in configuration mode	CB	Obj\NoYes

Trend System

Object Type: *[TrendIQ]*

The Trend System object is a variable container, and contains a list of Trend controller sub-objects. Scan the object to view the controllers available.

Description	Reference	Type
Outstation Label The outstation number, *x,* is the range 1,4…116. If the outstation is accessed via a Trend Inter-network, the object is prefixed with L*a*, where *a* is in the LAN number in the range 1,4..116 (e.g. L23O20 represents Outstation 20 on LAN 23)	O*x* or L*a*O*x*	Fixed Container: one of the following *TrendIQ\IQ7x]* *[TrendIQ\IQ9x]* *[TrendIQ\IQ9x+]* *[TrendIQ\IQ10x]* *[TrendIQ\IQ21x]* *[TrendIQ\IQ22x]* *[TrendIQ\IQ23x]* *[TrendIQ\IQ24x]* *[TrendIQ\IQ100]* *[TrendIQ\IQ111]* *[TrendIQ\IQ131]* *[TrendIQ\IQ151]* *[TrendIQ\IQ210]* *[TrendIQ\IQ220]* *[TrendIQ\IQ233]* *[TrendIQ\IQ241]* *[TrendIQ\IQ246]* *[TrendIQ\IQ250]* *[TrendIQ\IQ251]* *[TrendIQ\IQ3xcite]*

Trend IQ7x

Object Type: *[TrendIQ\IQ7x]*

The Trend IQ7x Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…12	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…12	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…8	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…6	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…6	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone 1	Z1	Fixed Container: *[TrendIQ\Zone v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ9x

Object Type: *[TrendIQ\IQ9x]*

The Trend IQ9x Controller is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…12	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…12	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…6	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…6	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…6	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ9x+

Object Type: *[TrendIQ\IQ9x+]*

The Trend IQ9x+ Controller is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…32	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…12	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…12	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…25	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ10x

Object Type: *[TrendIQ\IQ10x]*
Object Type: *[TrendIQ\IQ10x+]*

A Trend IQ10x Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…32	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…32	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…12	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…25	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ21x

Object Type: *[TrendIQ\IQ21x]*

A Trend IQ21x Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…12	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…12	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…8	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ22x

Object Type: *[TrendIQ\IQ22x]*

The Trend IQ22x Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…32	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…32	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…12	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number, x, is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ23x

Object Type: *[TrendIQ\IQ23x]*

The Trend IQ23x Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…48	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…48	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…32	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ24x

Object Type: *[TrendIQ\IQ24x]*

The Trend IQ24x Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…48	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…48	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…32	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ100

Object Type: *[TrendIQ\IQ100]*

The Trend IQ100 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…32	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…32	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…12	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…25	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ111

Object Type: *[TrendIQ\IQ111]*
Object Type: *[TrendIQ\IQ111+]*

The Trend IQ111 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…32	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…32	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…12	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…25	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ131

Object Type: *[TrendIQ\IQ131]*
Object Type: *[TrendIQ\IQ131+]*

The Trend IQ131 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…32	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…32	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…12	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…25	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ151

Object Type: *[TrendIQ\IQ151]*
Object Type: *[TrendIQ\IQ151+]*

The Trend IQ151 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…48	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…48	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…32	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ210

Object Type: *[TrendIQ\IQ210]*

The Trend IQ210 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…12	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…12	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…8	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ220

Object Type: *[TrendIQ\IQ220]*

The Trend IQ220 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…32	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…32	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…12	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ233

Object Type: *[TrendIQ\IQ233]*

The Trend IQ233 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…48	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…48	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…32	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ241

Object Type: *[TrendIQ\IQ241]*

The Trend IQ241 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…96	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…96	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…64	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…60	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…60	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ246

Object Type: *[TrendIQ\IQ246]*

The Trend IQ246 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…48	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…48	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…32	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ250

Object Type: *[TrendIQ\IQ250]*

The Trend IQ250 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…48	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…48	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…32	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node number *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…30	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…20	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ251

Object Type: *[TrendIQ\IQ251]*

The Trend IQ251 Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, where *x* is in the range 1…96	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, where *x* is in the range 1…96	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, where *x* is in the range 1…64	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Analog Node *x* The analog node *x*, where *x* is in the range 0…255.	A*x*	Fixed Container: *[TrendIQ\Analog v20]*
Digital Byte *x* The digital byte number *x*, where *x* is in the range 0…505	B*x*	Fixed Container: *[TrendIQ\Digital v20]*
Knob *x* The knob number *x*, where *x* is in the range 1…60	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, where *x* is in the range 1…60	W*x*	Fixed Container: *[TrendIQ\Switch v20]*
Zone *x* The zone number *x*, where *x* is in the range 1…5	Z*x*	Fixed Container: *[TrendIQ\Zone v20]*
Calendar *x* The calendar number *x*, where *x* is in the range 1…20	E*x*	Fixed Container: *[TrendIQ\Calendar v20]*
Configuration mode	CONF	Obj\Stream

Trend IQ3excite

Object Type: *[TrendIQ\IQ3excite]*
Object Type: *[TrendIQ\IQ3excite96]*

The Trend IQ3excite Controller object is a fixed container, and contains the following sub-objects:

Description	Reference	Type
Identifier Label displayed when scanning the system, and used within alarms	R.D	Obj\Text; Max. 14 chars
Controller Information General information including type	R.C	Obj\Text
Date and Time Current date and time	TIME	Obj\DateTime; Adjustable
Sensor *x* The sensor number *x*, is in the range 1…96	S*x*	Fixed Container: *[TrendIQ\Sensor v20]*
Digital Input *x* The digital input number *x*, is in the range 1…96	I*x*	Fixed Container: *[TrendIQ\Diginput v20]*
Driver *x* The driver number *x*, is in the range 1…64	D*x*	Fixed Container: *[TrendIQ\Driver v20]*
Knob *x* The knob number *x*, is in the range 1…60	K*x*	Fixed Container: *[TrendIQ\Knob v20]*
Switch *x* The switch number *x*, is in the range 1…60	W*x*	Fixed Container: *[TrendIQ\Switch v20]*

Notes

The IQ3 must be configured to contain the objects you require, unlike the older IQ2 devices.

Analog Node

Object Type: *[TrendIQ\Analog v20]*

A Trend analogue node represents a value from the Analogue Array, and contains the following sub-object:

Description	Reference	Type
Value Value of the node	V	Obj\Float; Adjustable
Status The status byte contains 8 bits of alarm information, using chars I and O	S	Obj\Text; Max length is 8

Calendar

Object Type: *[TrendIQ\Calendar v20]*

A Calendar object represents a holiday calendar within a controller, and contains the following sub-objects:

Description	Reference	Type
Use Determines when to use the calendar	U	Obj\ENum; Adjustable 0=Null, 1=Next, 2=Every
Start Day	S	Obj\Num; Adjustable; in the range 0..31
Start Month	O	Obj\Num; Adjustable; in the range 0..12
End Day	E	Obj\Num; Adjustable; in the range 0..31
End Month	T	Obj\Num; Adjustable; in the range 0..12
Zone 1	F	Obj\ENum; Adjustable 0=No Occ, 1=Normal, 2=SpecDay1, 3=SpecDay2, 4=SpecDay3, 5=SpecDay4, 6=SpecDay5
Zone 2	G	Obj\ENum; Adjustable 0=No Occ, 1=Normal, 2=SpecDay1, 3=SpecDay2, 4=SpecDay3, 5=SpecDay4, 6=SpecDay5
Zone 3	H	Obj\ENum; Adjustable 0=No Occ, 1=Normal, 2=SpecDay1, 3=SpecDay2, 4=SpecDay3, 5=SpecDay4, 6=SpecDay5
Zone 4	I	Obj\ENum; Adjustable 0=No Occ, 1=Normal, 2=SpecDay1, 3=SpecDay2, 4=SpecDay3, 5=SpecDay4, 6=SpecDay5
Zone 5	J	Obj\ENum; Adjustable 0=No Occ, 1=Normal, 2=SpecDay1, 3=SpecDay2, 4=SpecDay3, 5=SpecDay4, 6=SpecDay5

Digital Byte

Object Type: *[TrendIQ\Digital v20]*

A Trend Digital node represents a byte from the Digital Array, and contains the following sub-object:

Description	Reference	Type
State *b* State of bit *b*, where *b* is in the range 0…7	S*b*	Obj\OffOn; Adjustable

Digital Input

Object Type: *[TrendIQ\DigInput v20]*

A Digital Input object represents a digital input within a controller, contains the following sub-objects:

Description	Reference	Type
Label Label used within alarms	$	Obj\Text; Max. 20 chars; Adjustable
State The state of the actual input	Sb	Obj\OffOn
Required State The state that will not cause an alarm	Rb	Obj\OffOn; Adjustable
Hours Run	H	Obj\Float
Number of Starts	N	Obj\Num

Driver

Object Type: [TrendIQ\Driver v20]

A Driver object represents a Driver module within a controller, and contains the following sub-objects:

Description	Reference	Type
Label Label used within alarms	$	Obj\Text; Max. 20 chars; Adjustable
Hours Run	H	Obj\Float
Number of Starts	N	Obj\Num

Knob

Object Type: *[TrendIQ\Knob v20]*

A Knob object represents a Knob module within a controller.

A Knob module holds a user-adjustable value. The user is allowed to set the value of the knob anywhere within a specified range. If adjustment requires a PIN, then the driver issues the PIN.

The Knob object contains the following sub-objects:

Description	Reference	Type
Label Label used within alarms	$	Obj\Text; Max. 20 chars; Adjustable
Units	%	Obj\Text; Max. 4 chars; Adjustable
Value Current value of knob	V	Obj\Float; Range: - 999999.99… 999999.99; Adjustable
Top of Range Limit for adjusting value	T	Obj\Float; Range: - 999999.99… 999999.99; Adjustable
Bottom of Range Limit for adjusting value	B	Obj\Float; Range: - 999999.99… 999999.99; Adjustable

Sensor

Object Type: *[TrendIQ\Sensor v20]*

A Trend Sensor object represents a Trend Sensor module within the controller, and contains the following sub-objects:

Description	Reference	Type
Label Label used within alarms	$	Obj\Text; Max. 20 chars; Adjustable
Units	%	Obj\OffOn; Max. 4 chars; Adjustable
Value Current value of sensor	V	Obj\Float; Range: -10000…10000
High Alarm limit The High Alarm limit is used by the Sensor to generate alarm messages	H	Obj\Float; Range: -10000…10000; Adjustable
Low Alarm limit The Low Alarm limit is used by the Sensor to generate alarm messages	L	Obj\Float; Range: -10000…10000; Adjustable
Log If set up within the controller, the log/plot of the value	V.LOG	Obj\Log

Switch

Object Type: *[TrendIQ\Switch v20]*

A Switch object represents a Switch module within a controller.

A Switch module holds user-adjustable digital states. The user is allowed to set the value anywhere within a specified range. If adjustment requires a PIN, then the driver issues the PIN.

A Switch object contains the following sub-objects:

Description	Reference	Type
Label Label used on displays	$	Obj\Text; Max. 20 chars; Adjustable
State Current state of switch	Sb	Obj\OffOn; Adjustable

Zone

Object Type: *[TrendIQ\Zone v20]*

A Zone object represents a zone timer within the controller. A zone timer has start-stop times for each day of a standard week, as well as start-stop times for each day of the current (or approaching) week. This allows start-stop control of various areas of plant to be controlled using the current time and date.

A Zone object contains the following sub-objects:

Description	Reference	Type
Standard Day *x* Times The day number *x*, where *x* is in the range 1…7, and 1=Monday, 2=Tuesday, … 7=Sunday	SD*x*	Obj\Times; Max. 3 on-off periods; Adjustable
Current Day *x* Times The day number *x*, where *x* is in the range 1…7, and 1=Monday, 2=Tuesday, … 7=Sunday	CD*x*	Obj\Times; Max. 3 on-off periods; Adjustable

Driver Versions

Version	Build Date	Details
1.0	28/02/1996	Driver released
1.1	30/11/1997	Added CONF object
1.1	08/09/1999	Added LOGB object for LogView support
1.2	08/02/2000	Added zone objects – Z#.CD, Z#.SD# Added ':' type support Added direct connect mode
1.2	21/05/2001	Fixed problem with critical alarm corrupting PIN
1.2	27/06/2012	Released for Commander

Next Steps…

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

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