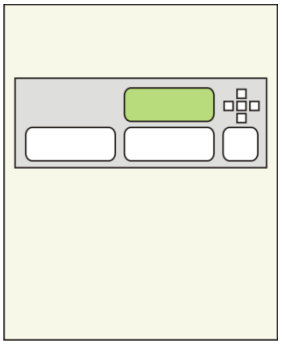

The Morley Driver

The Morley driver connects to the Morley-IAS ZX series of fire detection panels. Available for Commander and ObSys.

This document relates to Morley driver version 1.1

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

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Compatibility with the Morley ZX System

The Morley driver allows North to interface with a Morley-IAS ZX series fire detection system.

The driver connects to the Morley-IAS master control panel with a serial interface module (Fig. 1), and can communicate with up to 99 ZX series panels.

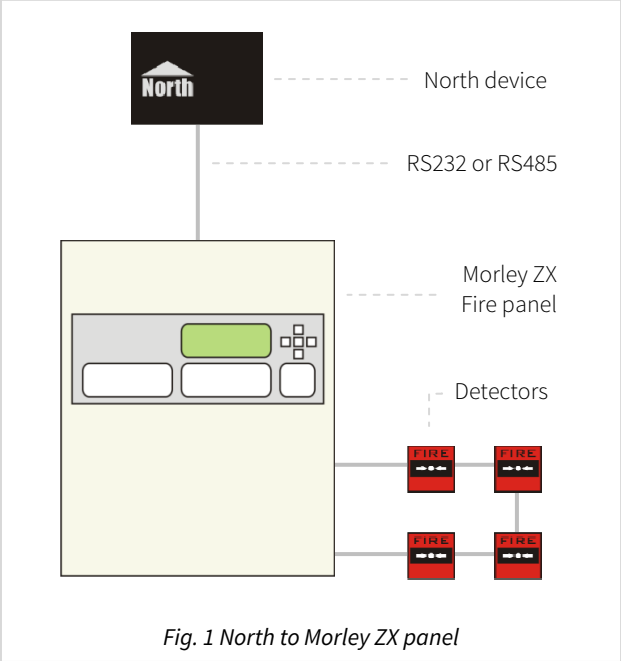

Fig. 1 North to Morley ZX panel

Equipment

Morley-IAS fire control panels compatible with the driver include:

- ZX1Se – single loop control panel
- ZX2Se – 1-2 loop control panel
- ZX5Se – 1-5 loop control panel

Apollo, Hochiki ESP, Morley-IAS, Nittan, and System Sensor devices are supported.

Values

The driver can typically access the following values:

- Reset system
- Sounders
- System state
- Panel state
- Loop state
- Loop device state
- Zone state

States for fire, pre-alarm, fault, and isolation conditions are available.

Fire control panels can send alarms to the Morley driver.

Prerequisites

Connection should be made to the Morley master control panel on the network. Connecting to a slave control panel will result in some fault conditions being unavailable.

The connected control panel requires an RS232 or RS485 module fitting into port B, the right-hand serial port. From the panel configuration menu, set Port B Protocol to number ‘0’ for standard Morley protocol.

If an RS232-485 adapter is used, this must be set to 9600 baud, 9 data bits.

Using the Driver

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

Making the Cable

RS232

Using the RS232 cable specification (Fig. 2), connect the North device COM port to the Morley ZX isolated RS232 serial module. Connector types at each end of the cable are shown.

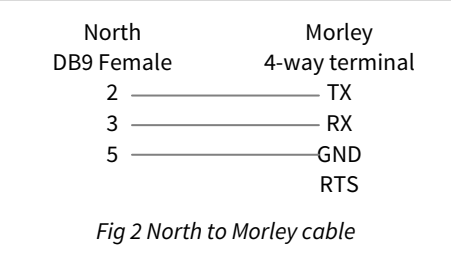

Fig 2 North to Morley cable

The maximum RS232 cable length is 15m.

Cables are available from North, order code CABLE/MORLEY.

RS485

Connect the North device COM port to an RS232 to RS485 adapter.

Using the RS485 cable specification (Fig. 3), connect the RS485 adapter to the Morley ZX RS485 serial module.

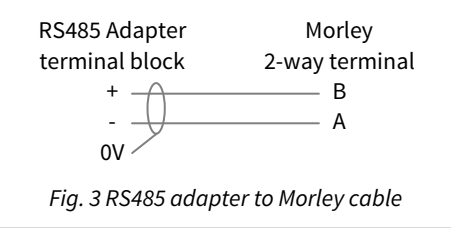

Fig. 3 RS485 adapter to Morley cable

RS485 adapters are available from North, order code MISC/RS232/485.

Starting the Interface

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

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

The driver setup object (Mc), labelled **Morley 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 **Morley Setup** object (M*c*). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
- → Set **RS232 COM Port** (RS.COM) to select the serial port number on the North device the Morley system is connected to.
- → Set the **Connected panel address** (ADDR) to match the address of the connected Morley ZX control panel.

Checking Communications

You can check that the interface is communicating by reading the **Comms Online** object (DS). A value of 'Yes' indicates the driver has connected to, and is communicating with the Morley system.

Alarms

When the Morley system reports an event to the driver, the driver sends a North-format alarm to the device's alarm processing.

Format

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

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

Point – see Point Field section below

Condition – see Condition and Priority Field section below

Priority – see Condition and Priority Field section below

Date & Time – from North device

Examples

System	Point	Condition	Priority	Date	Time
Morley System	Panel 1 Loop 1 Dev 3 Zone 2	Fire	1	01/03/13	14:29:48
Morley System	Panel 1 Loop 1 Dev 3 Zone 2	Fire Reset	1	01/03/13	14:35:12
Morley System	Panel 1 Loop 2 Dev 16 Zone 1	Isolated	2	11/03/13	14:26:26
Morley System	Panel 1 Loop 2 Dev 16 Zone 1	De-Isolated	2	11/03/13	14:32:02
Morley System	Panel 2 Loop 3 Dev 1 Zone 16	Pre-Alarm	1	10/04/13	13:06:59
Morley System	Panel 2 Loop 3 Dev 1 Zone 16	Pre-Alarm Cleared	1	10/04/13	14:17:35
Morley System	Panel 2 Loop 1 Dev 10 Zone 3	Device Missing	3	10/04/13	14:21:00
Morley System	Panel 2 Loop 1 Dev 10 Zone 3	Device Missing Cleared	3	10/04/13	14:30:43
Morley System	Panel 1	Supply Fault	3	16/04/13	07:16:19
Morley System	Panel 1	Supply Fault Cleared	3	18/04/13	10:23:42

Point Field

Selected by the **Alarm Point field** object (AT) within driver setup.

If 'PLD reference' option is selected, Point field can be:

Panel *a*

Panel *a* Loop *b*

Panel *a* Loop *b* Dev *c* Zone *d*

In addition, if the detector is a manual call point, then 'MCP' will be appended to the point field.

If 'Detector label' option is selected, Point Field contains:

Panel *a* + *device location* from the panel

In addition, 'Communications' alarms generated by the driver all contain the Point field:

System

Condition and Priority Field

The following alarm conditions can be sent by the driver:

Alarm Condition	Reset Condition	Priority
Evacuate	Evacuate Reset	1
Fire	Fire Reset	1
Group Isolated	Group De-Isolated	2
Isolated	De-Isolated	2
Outputs Isolated	Outputs De-Isolated	2
Pre-Alarm	Pre-Alarm Cleared	2
Sounders Isolated	Sounders De-Isolated	2
Zone Isolated	Zone De-Isolated	2
Zone Part Isolated	Zone Part De-Isolated	2
Battery Low	Battery Low Cleared	3
Communications Lost	Communications Regained	3
Corrupt Data	Corrupt Data Cleared	3
Device Dirty	Device Dirty Cleared	3
Device Missing	Device Missing Cleared	3
Dual Zone Fault	Dual Zone Fault Cleared	3
Dual Zone Supply Fault	Dual Zone Supply Fault Cleared	3
Duplicate Address	Duplicate Address Cleared	3
Earth Fault	Earth Fault Cleared	3
External Link Master Fault	External Link Master Fault Cleared	3
Loop Driver Fault	Loop Driver Fault Cleared	3
Loop Wiring Fault	Loop Wiring Fault Cleared	3
Memory Fault	Memory Fault Cleared	3
Monitored Input O/C	Monitored Input O/C Cleared	3
Monitored Input S/C	Monitored Input S/C Cleared	3
Needs Initialising	Needs Initialising Cleared	3
Not Commissioned	Not Commissioned Cleared	3
O/C Test Fail	O/C Test Fail Cleared	3
Primary Fault	Primary Fault Cleared	3
Secondary Fault	Secondary Fault Cleared	3
Slave Panel Corrupt Data	Slave Panel Corrupt Data Cleared	3
Slave Panel Fault	Slave Panel Fault Cleared	3
Sounder Fault	Sounder Fault Cleared	3
Sounder Open Circuit	Sounder Open Circuit Cleared	3
Sounder Short Circuit	Sounder Short Circuit Cleared	3
Supply Fault	Supply Fault Cleared	3
Too High	Too High Cleared	3
Too Low	Too Low Cleared	3
Type Change	Type Change Cleared	3
Unable to Calibrate	Unable to Calibrate Cleared	3
Zone Monitor Missing	Zone Monitor Missing Cleared	3
Zone Monitor O/C	Zone Monitor O/C Cleared	3
Zone Monitor S/C	Zone Monitor S/C Cleared	3
Commissioning Mode	Commissioning Mode Cleared	4
CPU Reset	CPU Reset Cleared	4
Delay Mode Off	Delay Mode On	4
Keypad Enabled	Keypad Disabled	4
MCP Interrupt Confirmed	MCP Interrupt Confirmed Cleared	4
MCP Interrupt Unconfirmed	MCP Interrupt Unconfirmed Cleared	4
Minor Plant Alert	Minor Plant Alert Cleared	4

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 Morley System (S1) contains Panel 1 (P1), which contains Loop 2 (L2), which has Device 22 (D22), which contains an alarm state (C). Therefore, the complete object reference will be 'S1.P1.L2.D22.C'.

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.P1.L2.D22.C) – therefore the complete object reference is 'IP.CDIP.S1.P1.L2.D22.C'.

Device Top-Level Objects

When an interface is started using the Morley 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
Morley Setup Set up the Morley driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: On the Commander platform this will be *[CDM v20\Morley v11]* On the ObSys platforms this will be *[OSM v20\Morley v11]*
Morley System Access Morley system connected to interface *c* (*c* is the interface number)	S*c*	Variable Container: *[Morley v11]*

Morley Driver Setup

Object Type: *[OSM v20\Morley v11]*
Object Type: *[CDM v20\Morley v11]*

The Morley driver contains the following objects:

Description	Reference	Type
RS232 COM Port	RS.COM	Obj\Num: 1…8; Adjustable
System Label Label displayed when scanning the system and within alarms	DL	Obj\Text: 20 Chars; Adjustable
Connected Panel Address Address of the connected network interface panel	ADDR	Obj\Num: 1…99; Adjustable
Single panel only Enable when only communicating with the attached master panel	LC	Obj\NoYes; Adjustable
Comms Online Indicates whether communication is established with the panel	DS	Obj\NoYes
Alarm Point field Selects source of the alarm message point field	AT	Obj\Enum: 0…1; Adjustable Values: 0=PLD reference, 1=Detector label
Event storage available Each event from the system must be remembered by the driver. **If no storage is available for a new event, the driver will not be able to remember it.**	SC	Obj\Num: 0…400
Reset driver Clears the internal database and re-establishes communication with the Morley system.	RST	Obj\NoYes; Adjustable

Morley System

Object Type: *[Morley v11]*

The Morley system is a network of Morley-IAS ZX fire control panels. It contains objects to view the status of the whole system (P), and access information from each connected panel (P*x*).

When a fire event is active on the system, fault and isolation events will not be updated until the fire is reset.

Description	Reference	Type
Zone & System Summary	P	Fixed container: *[Morley v11\System]*
Panel *x* Panel number, *x,* can be in the range 1…99	P*x*	Fixed container: Panel connected to the North device *[Morley v11\LocalPanel]* Networked panel *[Morley v11\Panel]*

Compatibility Objects

The Morley system also contains the following objects for compatibility with previous versions.

Description	Reference	Type
Comms State	CS	Obj\NoYes
Reset Performs a system reset	R	Obj\NoYes; Adjustable only
External Sounders Silences or re-sounds sounders	E	Obj\OffOn; Adjustable only
Evacuate Trigger an evacuate event	A	Obj\NoYes; Adjustable only
Mute Internal Sounder Mute the panel buzzer	S	Obj\NoYes; Adjustable only
Highest Value Fault	V1	Obj\ENum Value: 0=OK, 12=System fault, 13=Supply fault, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire
System Fault *b* The fault number, *b*, is in the range 12…22, where: 12=System fault, 13=Supply fault, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire	F*b*	Obj\NoYes

Zone and Summary Information

Object Type: *[Morley v11\System]*

The Zone and System Summary object contains zone, and network-wide status for the Morley system. Objects are also available to perform network-wide commands – reset, silence, etc. – and activate external fire or alarm conditions.

Description	Reference	Type
Commands Contains objects for resetting latched events, silencing sounders and muting panel buzzer	A	Fixed container: *[Morley v11\Actions]*
System Alarm State	C	Obj\ENum: 0…4; Where: 0=Ok, 1=Isolated, 2=Fault, 3=Pre-Alarm, 4=Fire
System OK	C0	Obj\NoYes
Isolations	C1	Obj\NoYes
Faults	C2	Obj\NoYes
Pre-Alarm	C3	Obj\NoYes
Fire	C4	Obj\NoYes
Delay Mode	M.D	Obj\OffOn
Test Mode	M.T	Obj\OffOn
Zone *x* The zone number, x, is in the range 1…200	Z*x*	Fixed container: *[Morley v11\System\Zone]*

Connected Morley Panel

Object Type: *[Morley v11\LocalPanel]*

The connected Morley panel contains the following objects:

Description	Reference	Type
Commands Contains objects for resetting latched events, silencing sounders and muting panel buzzer	A	Fixed container: *[Morley v11\Actions]*
Panel Alarm State	C	Obj\Enum: 0…4; Where: 0=Ok, 1=Isolated, 2=Fault, 3=Pre-Alarm, 4=Fire
Panel OK	C0	Obj\NoYes
Isolations	C1	Obj\NoYes
Faults	C2	Obj\NoYes
Pre-Alarm	C3	Obj\NoYes
Fire	C4	Obj\NoYes
Delay Mode	M.D	Obj\OffOn
Test Mode	M.T	Obj\OffOn
Display	D	Fixed container: *[Morley v11\LocalPanel\Display]*
Loop *x* The loop number, *x*, is in the range 1…5	L*x*	Fixed container: *[Morley v11\Loop]*
Zone *x* The zone number, x, is in the range 1…200	Z*x*	Fixed container: *[Morley v11\Panel\Zone]*

Compatibility Objects

The Morley panel also contains the following objects for compatibility with previous versions.

Description	Reference	Type
Highest Value Fault	V1	Obj\ENum Value: 0=OK, 12=System fault, 13=Supply fault, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire
Panel Fault *b* The fault number, *b*, is in the range 12…22, where: 12=System fault, 13=Supply fault, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire	F*b*	Obj\NoYes

Networked Morley Panel

Object Type: *[Morley v11\Panel]*

A networked Morley panel contains the following objects:

Description	Reference	Type
Panel Alarm State	C	Obj\Enum: 0…4; Where: 0=Ok, 1=Isolated, 2=Fault, 3=Pre-Alarm, 4=Fire
Panel OK	C0	Obj\NoYes
Isolations	C1	Obj\NoYes
Faults	C2	Obj\NoYes
Pre-Alarm	C3	Obj\NoYes
Fire	C4	Obj\NoYes
Loop *x* The loop number, *x*, is in the range 1…5	L*x*	Fixed container: *[Morley v11\Loop]*
Zone *x* The zone number, x, is in the range 1…200	Z*x*	Fixed container: *[Morley v11\Panel\Zone]*

Compatibility Objects

The Morley panel also contains the following objects for compatibility with previous versions.

Description	Reference	Type
Highest Value Fault	V1	Obj\ENum Value: 0=OK, 12=System fault, 13=Supply fault, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire
Panel Fault *b* The fault number, *b*, is in the range 12…22, where: 12=System fault, 13=Supply fault, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire	F*b*	Obj\NoYes

Commands

Object Type: *[Morley v11\Actions]*

The Morley system commands object contains the following objects:

Description	Reference	Type
Reset Panel Performs a system reset	R	Obj\NoYes; Adjustable only
Sounders Silences or re-sounds sounders	S	Obj\OffOn; Adjustable
Buzzer Mute the panel buzzer	B	Obj\OffOn; Adjustable
Evacuate Trigger an evacuate event	E	Obj\OffOn; Adjustable only

Zone

Object Type: *[Morley v11\Panel\Zone]*
Object Type: *[Morley v11\System\Zone]*

A Morley zone contains the following objects:

Description	Reference	Type
Zone Alarm State	C	Obj\Enum: 0…4; Where: 0=Ok, 1=Isolated, 2=Fault, 3=Pre-Alarm, 4=Fire
Zone OK	C0	Obj\NoYes
Zone Devices Isolated Indicates whether devices in this zone are isolated. Within a panel object, can be adjusted in order to isolate or de-isolate the zone	C1	Obj\NoYes; Adjustable within the panel object only
Zone Devices in Fault	C2	Obj\NoYes
Zone Devices in Pre-Alarm	C3	Obj\NoYes
Zone Devices in Fire	C4	Obj\NoYes

Compatibility Objects

A Morley zone also contains the following objects for compatibility with previous versions.

Description	Reference	Type
Highest Value Fault	V1	Obj\ENum Value: 0=OK, 12=System fault, 13=Supply fault, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire
Fault *b* The fault number, *b*, is in the range 12…22, where: 12=System fault, 13=Supply fault, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire	F*b*	Obj\NoYes
Isolate Zone	I	Obj\NoYes; Adjustable

Loop

Object Type: *[Morley v11\Loop]*

A Morley panel loop contains the following objects:

Description	Reference	Type
Loop Alarm State	C	Obj\Enum: 0…4; Where: 0=Ok, 1=Isolated, 2=Fault, 3=Pre-Alarm, 4=Fire
Loop OK	C0	Obj\NoYes
Isolations	C1	Obj\NoYes
Faults	C2	Obj\NoYes
Pre-Alarm	C3	Obj\NoYes
Fire	C4	Obj\NoYes
Device *x* The device address, *x,* range depends on the device manufacturer: Hochiki devices – 1…127 Apollo devices – 1…126 Morley-IAS – 1…199	D*x*	Fixed container: *[Morley v11\Device]*

Compatibility Objects

A Morley panel loop also contains the following objects for compatibility with previous versions.

Description	Reference	Type
Highest Value Fault	V1	Obj\ENum Value: 0=OK, 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire
Panel Fault *b* The fault number, *b*, is in the range 14…22, where: 14=Sounder fault, 15=Device fault, 16=Loop fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire	F*b*	Obj\NoYes

Device

Object Type: *[Morley v11\Device]*

A Morley loop device contains the following objects.

Description	Reference	Type
Device Alarm State	C	Obj\Enum: 0…4; Where: 0=Ok, 1=Isolated, 2=Fault, 3=Pre-Alarm, 4=Fire
Device OK	C0	Obj\NoYes
Device Isolated Indicates whether this device is isolated. Can be adjusted in order to isolate or de-isolate the device.	C1	Obj\NoYes; Adjustable
Device in Fault	C2	Obj\NoYes
Device in Pre-Alarm	C3	Obj\NoYes
Device in Fire	C4	Obj\NoYes

Compatibility Objects

A Morley loop device also contains the following objects for compatibility with previous versions.

Description	Reference	Type
Highest Value Fault	V1	Obj\ENum Value: 0=OK, 14=Sounder fault, 15=Device fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire
Panel Fault *b* The fault number, *b*, is in the range 14…22, where: 14=Sounder fault, 15=Device fault, 20=Devices Isolated, 21=Pre-Alarm, 22=Fire	F*b*	Obj\NoYes
Isolate Device	I	Obj\NoYes; Adjustable

Display

Object Type: *[Morley v11\LocalPanel\Display]*

A Morley display emulates the front display and keyboard on the connected panel.

Description	Reference	Type
Line *a* The line number, *a*, is in the range 1…2	L*a*	Obj\Text: 40chars
Keypress Simulate key press on panel	KEY	Obj\ENum: 0…90 Where: 0…9 = 0..9, A..M 10 = > 11 = < 12 = Change 13 = Yes 14 = No 15 = Enter 78…90 = N..Z

Driver Versions

Version	Build Date	Details
1.0	10/4/2002	Driver released
1.0	17/2/2004	Changed loop to fixed container, no longer scan
1.0	11/3/2004	Added object S to mute panel
1.0	1/8/2005	Increased event storage
1.0	19/11/2010	Resolved issue in reporting multiple events for a device
1.0	20/11/2011	Add driver object SC for event storage count Increased number of events polled from panel Improved error detection on checksum In alarms, remove extra spaces from detector label
1.1	20/11/2014	Driver now supports network of panels, replacing MorleyNet driver Improved polling from panel and detection of reset events Increased events available – alarm point and condition field changes. Modified driver to use new C objects New Zone & System Summary object (P) New driver objects DS, RST, and LC Maximum events increased to 400

Next Steps…

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

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