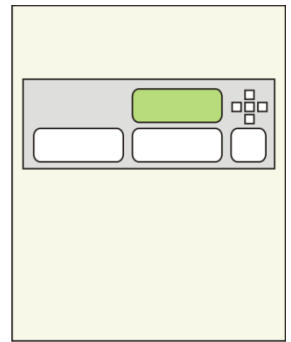


The Advanced4000 Driver



The Advanced4000 driver connects to the Advanced Electronics range of fire detection panels. Available for Commander and ObSys.

This document relates to Advanced4000 driver version 1.1 to 1.2

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

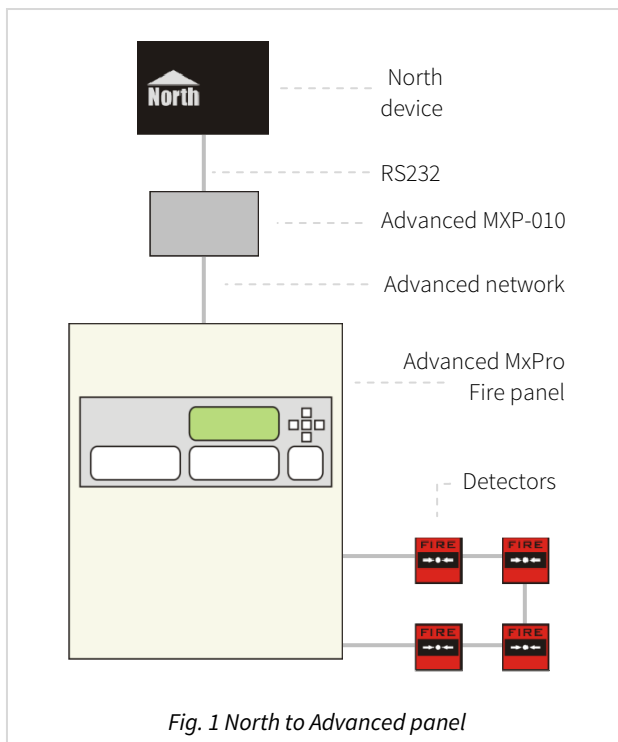
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Compatibility with the Advanced System

The Advanced4000 driver allows North to interface with an Advanced Electronics fire detection system.

The driver connects to an Advanced MXP-010 or MXP-510 network interface (Fig. 1), and can communicate with up to 200 MxPro panels.



Equipment

Advanced Electronics fire control panels compatible with the driver include:

- MxPro 4 series
- MxPro 5 series
- MX4000 series
- MX5000 series

Apollo Discovery, Hochiki ESP, Argus Vega and Nittan Evolution devices are supported.

Values

The driver can typically access the following values:

- Reset panel
- Sounders
- External alarm
- System state
- Panel state
- Loop state
- Loop device state
- Sub-address state
- Zone state
- Damper state

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

Fire control panels can send alarms to the Advanced4000 driver.

Prerequisites

An Advanced network interface panel is required. For MxPro 4 networks use an MXP-010, for MxPro 5 networks use an MXP-510.

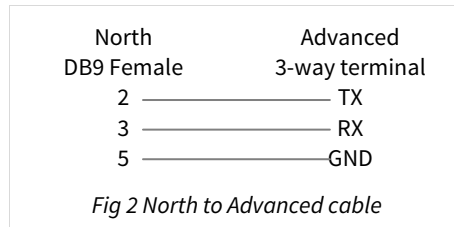
Each Advanced panel, including the network interface, must be configured with its own address and the address of the next panel on the network. This can be configured from the panel or using the Advanced configuration software.

Using the Driver

On ObSys and Commander, the Advanced4000 driver is pre-installed. On all of these North devices, you can use the driver to create an interface to Advanced. Once started, you will need to set up the driver before it can communicate with the Advanced system.

Making the Cable

Using the RS232 cable specification (Fig. 2), connect the North device COM port to the Advanced network interface port. Connector types at each end of the cable are shown.



The maximum RS232 cable length is 15m.

Cables are available from North, order code CABLE/ADVANCED4000.

Starting the Interface

- 📄 To start an interface using the Advanced4000 driver, follow these steps:
 - **Start Engineering** your North device using ObSys
 - Navigate to **Configuration, Interfaces**, and set an unused **Interface** to 'Advanced4000' to start the particular interface
 - Navigate to the top-level of your North device and re-scan it

The driver setup object (Mc), labelled **Advanced 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 **Advanced Setup** object (Mc). 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 Advanced panel is connected to.
 - Set the **Baud Rate** (RS.BR) to match that of the Advanced network interface. This is 38400 (default), or 19200 baud.
 - Set the **Connected panel address** (ADDR) to match the address of the Advanced network interface.

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 Advanced system.

If a 'network node missing' fault is present, then the driver will be unable to scan for available panels on the network. Check that each panel, including the network interface panel, has been configured with the address of the next network node in the loop.

Alarms

When the Advanced 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 Advanced4000 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
Advanced System	Panel 1 Loop 1 Dev 3.2 Zone 2	Fire	1	01/03/13	14:29:48
Advanced System	Panel 1 Loop 1 Dev 3.2 Zone 2	Reset	1	01/03/13	14:35:12
Advanced System	Panel 1 Loop 2 Dev 16 Zone 1	Isolated	2	11/03/13	14:26:26
Advanced System	Panel 1 Loop 2 Dev 16 Zone 1	De-Isolated	2	11/03/13	14:32:02
Advanced System	Panel 2 Loop 3 Dev 1 Zone 16	Pre-Alarm	1	10/04/13	13:06:59
Advanced System	Panel 2 Loop 3 Dev 1 Zone 16	Normal	1	10/04/13	14:17:35
Advanced System	Panel 2 Loop 1 Dev 10 Zone 3	Device Missing	3	10/04/13	14:21:00
Advanced System	Panel 2 Loop 1 Dev 10 Zone 3	Normal	3	10/04/13	14:30:43
Advanced System	Panel 1 Battery	Supply Fault	3	16/04/13	07:16:19
Advanced System	Panel 1 Battery	Normal	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.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:

Condition	Priority
Evacuate	1
Fire	1
Reset	1 (see note)
Alarm 1	2
Alarm 2	2
Alarm 3	2
Isolated	2
De-Isolated	2
Group Isolated	2
Group De-Isolated	2
Outputs Isolated	2
Outputs De-Isolated	2
Pre-Alarm	2
Record	2
Security Alert	2
Supervisory	2
Tamper	2
Zone Isolated	2
Zone De-Isolated	2
Backup Battery Low	3
Battery Fault	3
Communications Lost	3
Communications Regained	3
Config Memory Fault	3
Control	3
Corrupt Data	3
Device Dirty	3
Device Fault	3
Device Missing	3
Device Replaced	3
Display Fault	3
Double Address	3
Duplicate Zone	3
Earth Fault	3
Fail to Close	3
Fail to Open	3
Fatal Fault	3

Condition	Priority
FT Network Fault	3
High Resistance Fault	3
Input Fault	3
Main Battery Low	3
Mode Failed	3
Mute	3
Network Lost	3
Network Node Missing	3
New Device	3
Normal	3 (see note)
Not Commissioned	3
Open Circuit	3
Overload	3
Program Memory Fault	3
Resound	3
RTC Fault	3
Service Required	3
Short Circuit	3
Signal Strength Fault	3
Silence	3
Sounder Fault	3
Sounder Missing	3
Supply Fault	3
Too High	3
Too Low	3
Type Change	3
Unable to Calibrate	3
CPU Reset	4
Delay Mode Off	4
Delay Mode On	4
Device Slightly Dirty	4
FSD Door Open	4
Isolator Open	4
Keylock Operated	4
Out of Paper	4
Test	4

Notes

The condition 'Reset' is used to indicate a cleared latching alarm, and 'Normal' for a cleared non-latching alarm. Both of these alarm conditions will use the priority of the original alarm.

'Communications' alarms all use the Point field 'System'.

Some alarm conditions may only be sent when connected to the MXP-510 interface of an MxPro 5 network.

The priority number depends on the event type from the panel:

- 1 – fire and evacuate events
- 2 – pre-alarm, security, isolation, and technical events
- 3 – fault events
- 4 – status events

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 Advanced 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 Advanced4000 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
Advanced Setup Set up the Advanced4000 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\Advanced4000 v12]</i> On the ObSys platforms this will be <i>[OSM v20\Advanced4000 v12]</i>
Advanced System Access Advanced system connected to interface <i>c</i> (<i>c</i> is the interface number)	Sc	Variable Container: <i>[Advanced4000 v12]</i>

Advanced Driver Setup

Object Type: [OSM v20\Advanced4000 v12]

Object Type: [CDM v20\Advanced4000 v12]

Object Type: [OSM v20\Advanced4000 v11]

Object Type: [CDM v20\Advanced4000 v11]

The Advanced4000 driver contains the following objects:

Description	Reference	Type
RS232 COM Port	RS.COM	Obj\Num: 1...8; Adjustable
Baud rate	RS.BR	Obj\Num; Adjustable Values: 19200, 38400
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...200; 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
Ignore Isolations Enable to ignore isolation events from the system. This provides more event storage for fire and fault conditions.	II	Obj\NoYes; Adjustable
Load labels from panel Driver requests and stores device/sub-device labels configured in system. This setting does not affect the Alarm Point field content. Not available in driver version 1.1.	LL	Obj\NoYes; Adjustable
Label storage available Device labels from the system are stored by the driver. Limited storage is available. Not available in driver version 1.1.	LC	Obj\Num: 0...4032
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...500
Reset driver Clears the internal database and re-establishes communication with the Advanced system.	RST	Obj\NoYes; Adjustable

Advanced System

Object Type: *[Advanced v12]*

Object Type: *[Advanced v11]*

The Advanced system is a network of Advanced fire detection panels. It contains objects to view the status of the whole system (P), and access information from each connected panel (Px).

Description	Reference	Type
Zone & System Summary	P	Fixed container: <i>[Advanced4000 v12\System]</i>
Panel x Panel number, x, can be in the range 1...200	Px	Fixed container: <i>[Advanced4000 v12\Panel]</i> Note: an eight loop panel is presented as two panels with four loops

Zone and Summary Information

Object Type: [Advanced4000 v12\System]

Object Type: [Advanced4000 v11\System]

The Zone and System Summary object contains zone, group, and network-wide status for the Advanced 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: [Advanced4000 v12\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
External Fire Triggers a fire condition on the panel	XF	Obj\OffOn; Adjustable only
External Alarm Triggers an alarm condition on the panel	XA	Obj\OffOn; Adjustable only
Zone x The zone number, x, is in the range: 1...1000 for MxPro 4 panels 1...2000 for MxPro 5 panels.	Zx	Fixed container: [Advanced4000 v12\Zone]
Isolate Group y The output group number, y, is in the range 1...200	Gy.l	Obj\NoYes; Adjustable only

Advanced Panel

Object Type: *[Advanced4000 v12\Panel]*

Object Type: *[Advanced4000 v11\Panel]*

An Advanced panel contains the following objects:

Description	Reference	Type
Commands Contains objects for resetting latched events, silencing sounders and muting panel buzzer	A	Fixed container: <i>[Advanced4000 v12\Actions]</i>
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, <i>x</i> , is typically in the range 0..4. If a loop offset is configured in the panel then <i>x</i> is in the range offset...(offset+4). Loop 0 is used for panel I/O. An 8-loop panel consists of two 4-loop panels, with the second panels loop number in the range 5..8.	Lx	Fixed container: <i>[Advanced4000 v12\Loop]</i>

Zone

Object Type: [Advanced4000 v12\Zone]

Object Type: [Advanced4000 v11\Zone]

An Advanced zone contains the following objects:

Description	Reference	Type
Label	L	Obj\Text: 32 chars
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. Can be written to in order to isolate or de-isolate a zone	C1	Obj\NoYes; Adjustable Not adjustable in driver version 1.1.
Zone Devices in Fault	C2	Obj\NoYes
Zone Devices in Pre-Alarm	C3	Obj\NoYes
Zone Devices in Fire	C4	Obj\NoYes
Isolate Zone Devices Replaced by object C1 above.	I	Obj\NoYes; Adjustable

Commands

Object Type: [Advanced4000 v12\Actions]

Object Type: [Advanced4000 v11\Actions]

The Advanced panel commands object contains the following objects:

Description	Reference	Type
Reset Panel Performs a reset on the panel	R	Obj\NoYes; Adjustable only
Sounders Silences or re-sounds sounders	S	Obj\OffOn; Adjustable
Buzzer Silence the panel buzzer	B	Obj\OffOn; Adjustable only

Loop

Object Type: [Advanced4000 v12\Loop]

Object Type: [Advanced4000 v11\Loop]

An Advanced 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 <i>x</i> or device label The device address, <i>x</i> , range depends on the device manufacturer: Hochiki devices – 1...127 Apollo devices – 1...126 Argus Vega – 1...240 Nittan – 1...254	Dx	Fixed container: [Advanced4000 v12\Device]

Device

Object Type: *[Advanced4000 v12\Device]*

Object Type: *[Advanced4000 v11\Device]*

An Advanced loop device contains the following objects. Refer to documentation on the specific device for information on sub address usage.

Description	Reference	Type
Label Only available if Load Labels from panel is set within driver setup. Not available in driver version 1.1 and earlier.	L	Obj\Text: 26 chars
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 written to in order to isolate or de-isolate the device.	C1	Obj\NoYes; Adjustable Not adjustable in driver version 1.1.
Device in Fault	C2	Obj\NoYes
Device in Pre-Alarm	C3	Obj\NoYes
Device in Fire	C4	Obj\NoYes
Damper active See note below	C5	Obj\NoYes
Output Control state of an output device	O	Obj\OffOn; Adjustable only
Isolate Devices Replaced by object C1 above.	I	Obj\NoYes; Adjustable
Sub address x or Label The sub address number, x, is in the range 0...7	Sx	Fixed Container: <i>[Advanced4000 v12\SubDev]</i>

Damper Interface Devices

Damper interface devices (MXP-046) contain three sub-addresses:

Damper open (sub address 0) – use object S0.C5

Damper closed (sub address 1) – use object S1.C5

Damper fault (sub address 2) – use object C2

Alarms can be sent by a damper interface, North-format alarms are sent with the following Condition field:

Alarm Condition Field	Notes
Control	Sub address indicates damper open/closed event
Fail to Open	
Fail to Close	
Supply Fault	
Normal	Clears fault or open/closed event

If you are using relay outputs to control dampers, then the damper state is not available directly. Instead, read the zone or loop-device state for the inputs that will cause a damper activation.

Sub Address

Object Type: [Advanced4000 v12\SubDev]

Object Type: [Advanced4000 v11\SubDev]

An Advanced sub address contains the following objects.

Description	Reference	Type
Label Only available if Load Labels from panel is set within driver setup. Not available in driver version 1.1 and earlier.	L	Obj\Text: 26 chars
Alarm State	C	Obj\Enum: 0...4; Where: 0=Ok, 1=Isolated, 2=Fault, 3=Pre-Alarm, 4=Fire
OK	C0	Obj\NoYes
Isolated Indicates whether this device is isolated. Can be written to in order to isolate or de-isolate the device	C1	Obj\NoYes; Adjustable Not adjustable in driver version 1.1.
Fault	C2	Obj\NoYes
Pre-Alarm	C3	Obj\NoYes
Fire	C4	Obj\NoYes
Damper	C5	Obj\OffOn
Output Control state of an output device	O	Obj\OffOn; Adjustable only
Isolate Replaced by object C1 above.	I	Obj\NoYes; Adjustable
Device Type Only available if Load Labels from panel is set within driver setup.	TY	Obj\Num: 0...34 See note 1
Analogue Value	A	Obj\Text: 7 chars Value depends on device type

Notes

1 The following device types are reported by the panel.

Device Type	Description	Device Type	Description
0	Unknown device	18	Carbon monoxide (fire)
1	Ionisation smoke	19	Carbon monoxide (gas sensor)
2	Optical smoke	20	Flame detector
3	Multi	21	Switch (monitored)
4	Heat	22	Ionisation smoke
5	Zone monitor	23	Optical smoke
6	Call point (MCP)	24	Multi
7	Temperature sensor	25	Heat
8	Volts	26	Double address
9	Volts	27	Beacon
10	Volts	28	Multi heat
11	Switch	29	Rate of rise heat
12	Sounder	30	Optical smoke
13	Monitored relay	31	Flame
14	Relay	32	Input
15	Monitor	33	Input
16	Current	34	Sensor
17	Current		

Driver Versions

Version	Build Date	Details
1.0	22/3/2004	Driver released
1.1	6/10/2010	<p>Modified driver to use new C objects</p> <p>Alarm point and condition field changes.</p> <p>Added background check to monitor panel</p> <p>New Zone & System Summary object (P)</p> <p>New driver objects for DS, RST, ADDR, II and SC</p> <p>Maximum events increased to 450</p> <p>Updated to protocol issue 2b</p>
1.2	4/12/2013	<p>Fixed issue with byte-stuffing CRC (caused occasional duplicate alarms)</p> <p>New damper state object (C5) for device</p> <p>New analogue value (A) object for device</p> <p>New option to load labels (and device type) from system. New objects LL and LC within driver, and L and TY within device.</p> <p>Alarm point now includes panel number when using detector label option.</p> <p>Alarm condition field changes</p> <p>Isolate objects P.Zx.I, Px.Lx.Dx.I and Px.Lx.Dx.Sx.I depreciated and replaced writing to object C1.</p> <p>When a device in fault is subsequently isolated, driver now clears fault state, to report just the isolation state. This matches panel's operation. Can be disabled by using driver object ICF.</p> <p>Modified initialisation</p> <p>Maximum events increased to 500</p> <p>Updated for protocol issue 3 compatibility</p> <p>Baud rate initialized at 38400.</p>
1.2	5/8/2014	<p>Added more alarm conditions from protocol issue 3</p> <p>If device is an MCP, alarm point now includes this</p> <p>Default driver object LL to No</p>

Next Steps...

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



North Building Technologies Ltd
 +44 (0) 1273 694422
 support@northbt.com
 www.northbt.com

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Author: JF
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