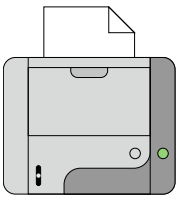
The Printer Driver



The Printer driver provides a serial printer output from a North device. The driver can send alarms and information to a printer or third-party device. Available for Commander and ObSys.

This document relates to Printer driver version 1.2 and 1.3

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

Contents

Compatibility with Printer System

The Printer driver provides a serial printer output from a North device. The driver can send alarms and information to a printer or third-party device.

The driver connects, via a serial RS232 connection, to a serial printer (Fig. 1).

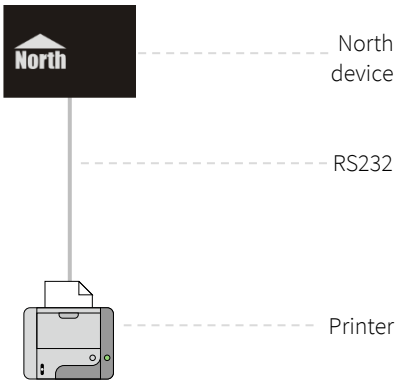


Fig. 1 North to serial printer

The AlmPrint driver is also available for ObServer to print alarms on a Windows page-based printer. The AlmEmail, GSMSMS, and ESPA444 drivers are also available as destinations to route alarms.

Equipment

The driver is compatible with serial printers fitted with an RS232 port, and third-party devices that can receive data formatted in fixed-width columns.

Additional formatting options are available for printers supporting Epson ESC/P commands.

Values

The Printer driver can route North-format alarms to a serial printer or third-party device.

In addition, any value sent to the driver will be printed.

Using the Driver

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

Making the Cable

The RS232 cable specification will depend on the printer used. Check product documentation to determine the cable required. Typically, connect the North device COM port to the serial printer RS232 port using a straight-through (Fig. 2) or null-modem cable (Fig. 3). Connector types at each end of the cable are shown.

The driver requires a CTS handshake signal from the printer (North pin 8) to indicate that it is on-line before sending any data. The driver also outputs an RTS signal to the printer (North pin 7) to indicate its presence.

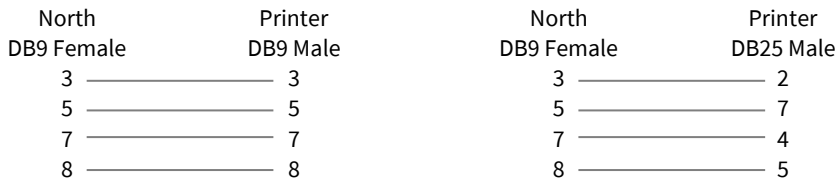


Fig. 2 North to printer straight-through cable

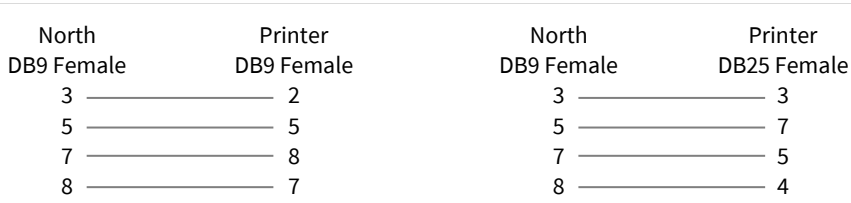


Fig. 3 North to printer null-modem cable

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

Note: Driver version 1.2 and earlier requires a DSR, rather than a CTS, handshake signal.

Starting the Interface

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

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

The driver setup object (Mc), labelled **Printer 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 **Printer 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** object (RS.COM) to select which serial port on the North device the printer is connected to
- → Set **Baud Rate** (RS.BR) and **Byte Format** (RS.BF) to match the printer
- → Navigate to the North device's **Alarm Delivery** object (AR), and add a **Destination** to send alarms to the Printer's **Alarm to print** object, e.g. S1.ALARM.

Checking Communications

You can check that the interface is communicating with the printer by reading the **Printer On-line** object (PON). A value of 'Yes' indicates the driver is receiving a CTS signal.

Set the **Print Test Page** object (TEST) to 'Yes' to send a test page to the printer. If the page does not print, and the **Printer On-line** object is 'Yes', then check the RS232 COM port, baud rate and byte format set in the driver match those set in the printer.

Printer Operation

The Printer driver can route North-format alarms and object values to a serial printer or third-party device.

Sending Alarms to a Printer

Set the driver's **Alarm Format**, **Use Mask** object (A.M) to 'No'. North-format alarms can be routed to the device's **Alarm to print** object (ALARM).

North-format alarms contain six fields: system, point, condition, priority number (*p*), date (*dd/mm/yy*) and time (*hh:mm:ss*). The driver will print an alarm as two lines of text in the following format:

```
dd/mm/yy hh:mm:ss ALARM Priority p from System
                Point Condition
```

Options are available within the Print Options object (P), to print alarms in a colour based on their priority on supported printers.

Examples

```
08/11/15 11:10:38 ALARM Priority 3 from Security
                  Room 2E105 Door Left Open

08/11/15 14:40:02 ALARM Priority 2 from Fire System
                  Panel 1 Zone 6 Isolated

08/11/15 14:49:45 ALARM Priority 3 from Environment
                  Server Room Temperature Alarm
```

Sending Values to a Printer

The driver will print any object value set in the device as a single line of text in the following format:

```
dd/mm/yy hh:mm:ss Object = Value
```

Example

The following will be sent to the printer when setting the object OAT with a value every hour.

```
11/08/15 11:10:00 OAT = 16

11/08/15 12:10:00 OAT = 17

11/08/15 13:10:00 OAT = 19
```

Sending Alarms to a Third-Party Device

Set the driver's **Alarm Format**, **Use Mask** object (A.M) to 'Yes'. This will format alarms in fixed-width columns on a single line.

Set the **Text Mask** (A.TM) with any base text or characters, including spaces, up to 120 characters long. The driver then positions the fields of a North-format alarm over this mask at the **Position** specified.

Example

Format the alarm into four columns with the following starting positions: system (1), point (22), condition (69), and priority (120). Do not include the date or time.

Here, we would set the Text Mask object with 120 spaces. Then set the positions of the six alarm fields as required, with date and time positions set to ‘0’.

Alarms would then be sent to a third-party device as follows, with columns starting at 1, 22, 69, and 120:

```
Security            Room 2E105                      Door Left Open              3

Fire System         Panel 1 Zone 6                  Isolated                    2

Environment         Server Room Temperature         Alarm                       3
```

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 Printer System (S1) contains a Print Test Page object (TEST) – therefore the complete object reference is 'S1.TEST'.

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

Device Top-Level Objects

When an interface is started using the Printer 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
Printer Setup Set up the Printer driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: On the Commander platform this will be *[CDM v20\Printer v13]* On the ObSys platform this will be *[OSM v20\Printer v13]*
Printer Device Access printer connected to interface *c* (*c* is the interface number)	S*c*	Fixed Container: *[Printer v13]*

Printer Setup

Object Type: *[OSM v20\Printer v13]*
Object Type: *[CDM v20\Printer v13]*
Object Type: *[OSM v20\Printer v12]*
Object Type: *[CDM v20\Printer v12]*

The Printer setup contains the following objects:

Description	Reference	Type
RS232 COM Port	RS.COM	Obj\Num; Range: 0…8; Adjustable
Baud Rate	RS.BR	Obj\Num; Adjustable Values: 4800, 9600, 19200, or 38400
Byte Format Sets the parity, data bits, and stop bits	RS.BF	Obj\ENum: 0..11; Adjustable See note 1
Blank Line Insert blank line between each alarm or value	BL	Obj\NoYes; Adjustable
Line Feed Insert line feed after each carriage return	CRLF	Obj\NoYes; Adjustable
Print Options	P	Fixed container: On the Commander platform this will be *[CDM v20\Printer v13\Print]* On the ObSys platform this will be *[OSM v20\Printer v13\Print]*
Alarm Format	A	Fixed container: On the Commander platform this will be *[CDM v20\Printer v13\Alarm]* On the ObSys platform this will be *[OSM v20\Printer v13\Alarm]*
Process Priority Only print alarms with a priority in the range 1 to this number. Object available in driver version 1.2 only	PP	Obj\Num: 1…9; Adjustable

Notes

1 Byte format can have the following values:

Value	Parity	Data bits	Stop bits
0	None	8	1
1	None	8	2
2	None	7	1
3	None	7	2
4	Odd	8	1
5	Odd	8	2
6	Odd	7	1
7	Odd	7	2
8	Even	8	1
9	Even	8	2
10	Even	7	1
11	Even	7	2

Print Options

Object Type: *[OSM v20\Printer v13\Print]*
Object Type: *[CDM v20\Printer v13\Print]*
Object Type: *[OSM v20\Printer v12\Print]*
Object Type: *[CDM v20\Printer v12\Print]*

This object contains options for printers supporting Epson ESC/P commands.

Description	Reference	Type
Disable ESC/P commands Epson ESC/P commands, when enabled, send ESC commands to set the printing colour and style	DE	Obj\NoYes; Adjustable
Colour of P1 alarms	C1	Obj\Enum; Adjustable Values: Black, Red, Blue, Violet, Yellow, Orange, Green
Colour of P2 alarms	C2	Obj\Enum; Adjustable Values: Black, Red, Blue, Violet, Yellow, Orange, Green
Colour of P3 alarms	C3	Obj\Enum; Adjustable Values: Black, Red, Blue, Violet, Yellow, Orange, Green
Colour of P4+ alarms	C4	Obj\Enum; Adjustable Values: Black, Red, Blue, Violet, Yellow, Orange, Green

Alarm Format

Object Type: *[OSM v20\Printer v13\Alarm]*
Object Type: *[CDM v20\Printer v13\Alarm]*
Object Type: *[OSM v20\Printer v12\Alarm]*
Object Type: *[CDM v20\Printer v12\Alarm]*

Alarm format contains objects to enable a mask to format alarms in fixed-width columns, used when sending to a third-party device.

Refer to the *Printer Operation* section for more details.

Description	Reference	Type
Use Mask Send alarms to device formatted in fixed-width columns using the settings below	M	Obj\NoYes; Adjustable
Text Mask Template to overlay alarm fields. A carriage return will be automatically inserted at the end. Non-printable characters can be inserted by placing the ASCII decimal code in square brackets, e.g. ESC = ASCII code 27 = [27]	TM	Obj\Text; 120 characters; Adjustable
Position of System Starting position (1…120) in Text Mask to overlay system field. Use 0 to disable	DL	Obj\Num: 0, 1…120; Adjustable
Position of Point Starting position (1…120) in Text Mask to overlay point field. Use 0 to disable	OL	Obj\Num: 0, 1…120; Adjustable
Position of Condition Starting position (1…120) in Text Mask to overlay condition field. Use 0 to disable	C	Obj\Num: 0, 1…120; Adjustable
Position of Priority Starting position (1…120) in Text Mask to overlay priority number. Priority requires 1 character. Use 0 to disable	P	Obj\Num: 0, 1…120; Adjustable
Position of Date Starting position (1…120) in Text Mask to overlay date. Date requires 8 characters. Use 0 to disable	D	Obj\Num: 0, 1…120; Adjustable
Position of Time Starting position (1…120) in Text Mask to overlay time. Time requires 8 characters. Use 0 to disable	T	Obj\Num: 0, 1…120; Adjustable

Printer Device

Object Type: *[Printer v13]*
Object Type: *[Printer v12]*

The printer device object contains the following. Refer to the *Printer Operation* section for further details on how to use these objects.

Description	Reference	Type
Printer On-line	PON	Obj\NoYes
Print Test Page	TEST	Obj\NoYes; Adjustable
Alarm to print North-format alarm to send to the printer or third-party device	ALARM	Obj\Alarm; Adjustable
Value to print Value to send to the printer or third-party device	*Any*	Obj\Text; Adjustable

Driver Versions

Version	Build Date	Details
1.2	1/12/2001	Added Process Priority option to re-routes alarms, and print based on priority. Added Epson ESC/P command support. Added alarm format options for Text Mask
1.2	26/07/2004	Improved print speed
1.2	25/04/2005	Resolved issue when decoding ASCII characters in Text Mask (A.TM)
1.2	6/10/2008	Process Priority (PP) no longer re-routes alarms
1.2	26/07/2013	Driver released for Commander
1.3	1/8/2015	Removed Process Priority object, no longer required with North device's Alarm Delivery module. Added default values for several objects. Driver now uses CTS/RTS handshaking for consistency across platforms. Improved reading of device objects.

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

Author: BS
Checked by: JF

Document issued 08/09/2022.