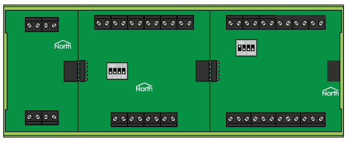


Zip Manual

Control systems need connections to the real world – inputs to measure the environment and outputs to control equipment. Zip is North’s measurement and control system.

This document relates to the complete range of Zip products and the ZipMaster driver version 1.1

Please read the *Zip Tutorial* alongside this document, available from *www.northbt.com*

Contents

What is Zip?

Control systems need connections to the real world – inputs to measure the environment, and outputs to control equipment. Zip is North’s measurement and control system.

Zip modules perform the actual measurement and control, and are available with different capabilities to match the building’s requirements. Some provide general-purpose inputs for measuring, such as volt-free contacts, thermistors, and 0-10 volt analogues. Some provide general-purpose outputs for control, including relays, switched 12-volt digitals, and 0-10 volt analogues. Some perform a particular fixed-function, such as controlling door-access or displaying text.

Zip uses a network to connect all the modules together, so the engineer can distribute the modules where they are needed within a building. Fixed-function modules connect directly to the network, and general-purpose modules share a connection using a Network Card.

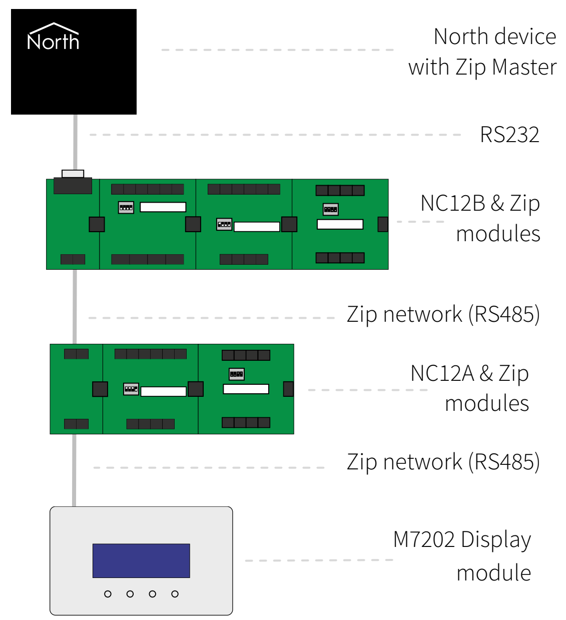


Fig. 1 Zip system

The Zip network is the link between the modules and the controller, called Zip Master. Any North device, such as Commander or ObSys, can be the Zip Master for a network.

In addition, because the controller is a North device, the engineer can employ North’s interface technology to link the Zip system to other external systems, including BACnet and Modbus.

Zip Modules

A range of different Zip modules is available. Some provide general-purpose inputs and outputs, and some perform a particular fixed-function such as controlling door-access or displaying text. The engineer chooses which they need, and where to place them within the building.

General-purpose Modules

Zip's general-purpose modules make panel design and construction simple, and give the engineer most control over the inputs and outputs.

General-purpose modules clip together to form a single DIN-rail mounting block (Fig. 2) with the right amount of input and output for a control panel. They also save panel wiring, with up to four modules sharing the network and power connections of a Zip network card.

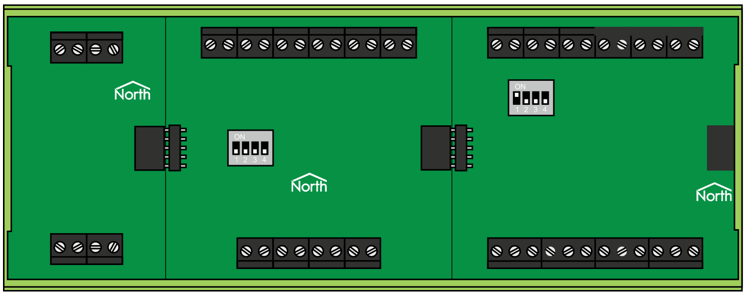


Fig. 2 Zip general-purpose modules with network card

Fixed-function Modules

Common problems can be solved easily with Zip's fixed-function modules – these perform straight from the box, and require no cause-and-effect engineering. Modules include the M7101 door controller, and M7202 user display.

Fixed-function modules have a built-in network card, and so connect directly to the Zip network and power supply.

Zip Network

Zip modules connect to the North device with Zip Master over a shared network. RS485 forms the base of this network, which is a two-wire bus that can span up to one kilometre end-to-end. Up to 16 Zip modules and a North device can sit anywhere along the network.

To improve reliability even more, Zip modules are optically isolated from the network. This protects local equipment from high voltage spikes caused by lightning, and simplifies electrical installation.

Zip Master

The ZipMaster driver turns any North device, such as Commander or ObSys, into a Zip controller, to provide control to the Zip modules.

The North device also contains our interface technology, ObVerse cause-and-effect language, and easy-to-use web services. Alongside Zip, the North device can work as a stand-alone controller, or as part of a larger control and monitoring solution.

Quick Start

Assemble Modules

💻 To plug the Zip general-purpose modules together, follow these steps:

- → Remove the Zip components from their packaging and check the contents. Each Zip module comes supplied with a length of pre-assembled carrier and a clip for attaching to DIN-rail. Each Zip network card is additionally supplied with two end caps.
- → Plug together the plastic carrier, except one end-cap. Make sure the DIN-rail clips are spaced evenly.
- → Carefully slide the Zip network card into the carrier so its five-way socket is ready for the next module to plug into it.
- → Carefully slide the first Zip module into the carrier, so its five-way plug fits into the network card's socket.
- → Carefully slide the next modules into the carrier, so their five-way plug fits into the previous modules socket. Each network card supports up to four modules.
- → Carefully add the final end-cap to the carrier, ensuring that it is fits smoothly over the end of the last module.

Connect the Zip Network

Using two-wire twisted-pair cable, connect the ZIPNET terminals together to form a single-line bus.

The Zip network is polarity-dependent – the positive wire attaches to the positive terminals marked '+', and the negative wire attaches to the negative terminals marked '-' (Fig. 4).

Follow the guidelines detailed in the *Zip Network* section below.

Connect to Zip Master

A Zip NC12B network card is required to provide an RS232 connection to the North device. Connect the COM ports using an RS232 DB9 extension cable, as described in the *Making the Cable* section later in this manual.

Set Module Addresses

Configure each Zip module on the network with a unique address in the range 0 to 15. Set this address using the DIP-switch, as described in the *Address Switch* section later in this manual.

Apply Power

Zip's power connector is polarity dependent. Use a regulated 12V DC power supply, and allow 1A for each network card and fixed-function module.

The network card POWER OK light, and module OK light will illuminate green to indicate a healthy power. Refer to *OK Light* section for more details

A blinking OK light on a module indicates no communication with the Zip Master. Check the Zip network cable.

Hardware

Standard Module Size

Zip general-purpose modules and network cards each have the following standard dimensions (Fig. 3). Zip fixed-function modules vary in size; refer to the *Zip Modules* section below for their dimensions.

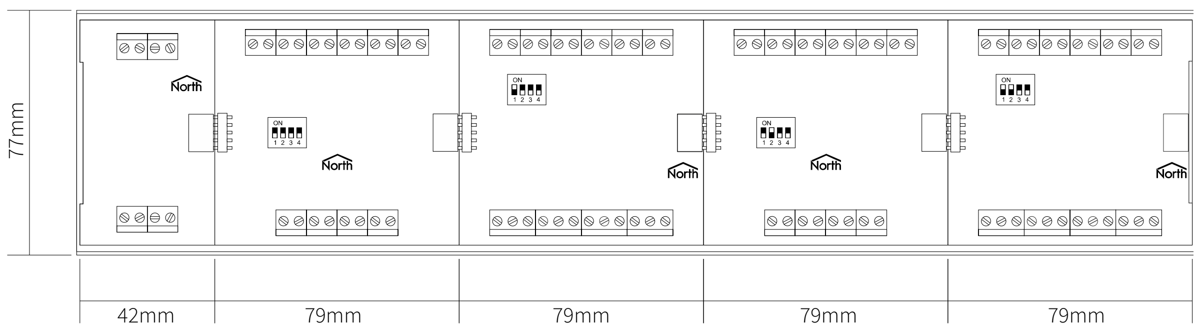


Fig. 3 Dimensions of Zip general-purpose modules and network card

The total width for a network card and a maximum of four Zip modules will be:
42mm + (4 x 79mm) + (2 x 2mm) = 362mm

Green Carrier

Zip modules and network cards, with the exception of display modules, are supplied with plug-together green carrier. The carrier can be clipped onto standard symmetrical ‘top hat’ type (TS35) or asymmetrical G-type (TS32) DIN-rail.

Power

Zip modules typically require a regulated 12V DC (±5%) power supply. General-purpose modules are supplied power by the connected network card, which itself requires a 12V DC 1A supply. Refer to the *Zip Modules* section below for the power requirements of network cards and fixed-function modules.

Zip Network

The Zip network is polarity-dependent with one positive and one negative wire. Over the whole network, the positive wire attaches to the positive terminals marked '+', and the negative wire attaches to the negative terminals marked '-' on the ZIPNET connector (Fig. 4).

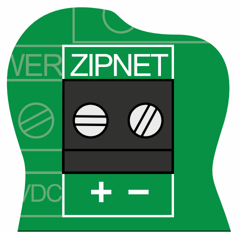


Fig. 4 Zip network connection

The Zip network must be wired as a single-line bus with only two ends (Fig. 5). Do not use star or ring wiring topologies, T-junctions, or spurs (Fig. 6). Termination resistance is typically not required. Avoid running network cables parallel to power cables, especially if they carry large currents or the power is switched frequently.

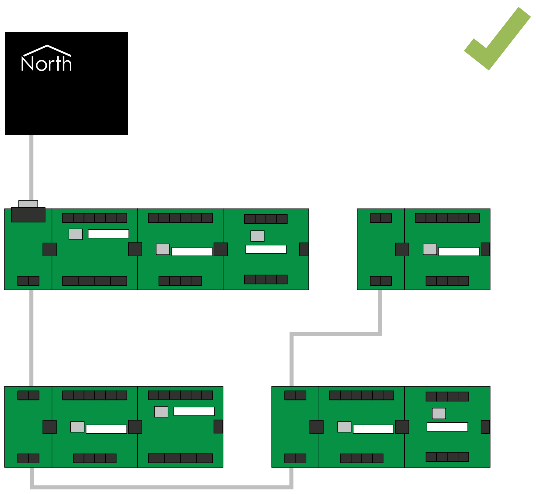


Fig. 5 Correctly wired Zip network

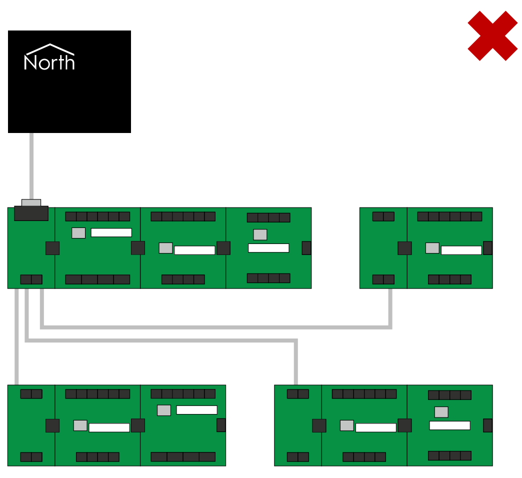


Fig. 6 Incorrectly wired Zip network

Recommended cables for wiring the Zip network are Belden 8761, Alpha Wire 2401C, or similar shielded twisted-pair cable (minimum 22AWG).

Address Switch

Each Zip module must have a unique address on the Zip network. Using the module's binary address switches S1 to S4, set an address in the range 0 to 15 using the table shown right.

For example, to set the module to address 9 then position the switches S1: On, S2: Off, S3: Off, S4: On (Fig. 7).

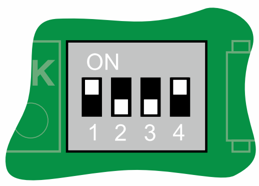


Fig. 7 Zip module at address 9

The order of the addresses on the network doesn't matter, but it makes sense to work to some plan.

Address	S1	S2	S3	S4
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off
7	On	On	On	Off
8	Off	Off	Off	On
9	On	Off	Off	On
10	Off	On	Off	On
11	On	On	Off	On
12	Off	Off	On	On
13	On	Off	On	On
14	Off	On	On	On
15	On	On	On	On

OK Light

Each Zip module indicates, typically using a green OK light (Fig. 8), if it is powered and communicating reliably with Zip Master:

On – module power is healthy, and it is communicating with Zip Master.

Blinking – module power is healthy, but it has not received a valid message from Zip Master. Check the network connection.

Off – problem with the module power. Check the power supply

Fig. 8 Zip OK light

If a module cannot maintain reliable communications with Zip Master, after 30 seconds it will generally drive its outputs to a default state, which is off or 0V.

Zip Modules

M7001A Digital Input Module

The M7001A is a general-purpose module with eight digital inputs (Fig. 9).

The module needs to connect to a network card or module via the five-way plug for access to power and Zip network.

The carrier supports the module's circuit board, and plugs into the carrier of connected modules.

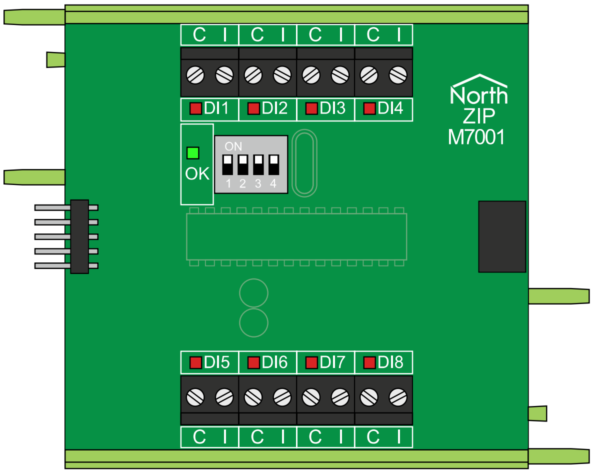


Fig. 9 Zip M7001A

Digital Inputs

There are eight volt-free digital inputs, labelled DI1…DI8.

Each input has a two-way connector labelled **C** (common) and **I** (input). Each input also has a red LED, which lights when the contact closes. Each input senses the state of the contact and counts state changes (open-to-closed). Change rates up to 25Hz can be sensed (changes faster than this are taken to be noise).

Connect the digital input to a volt-free mechanical contact, e.g. switch, push button, relay output, pulse output meter, etc.

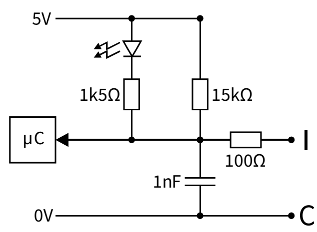


Fig. 10 Zip M7001A Digital Input

See '*Using Digital Inputs*' for more details.

Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7001A Module* object of the connected North device.

Specification

Order code	ZIP/M7001A
Input-output summary	8 x digital inputs
Digital input	Volt-free
Connectors	8 x removable, 5.08mm pitch. Up to 2.5mm^2 conductor
Zip network	From network card
Power supply	From network card (12V DC at 1A)
Dimensions (WxH)	Standard module size: 79 x 77 mm
Mounting	Green carrier on DIN-rail

M7002A Digital Input Relay Output Module

The M7002 is a general-purpose module with six digital inputs and four relay outputs (Fig. 11).

The module needs to connect to a network card or module via the five-way plug for access to power and Zip network.

The carrier supports the module's circuit board, and plugs into the carrier of connected modules.

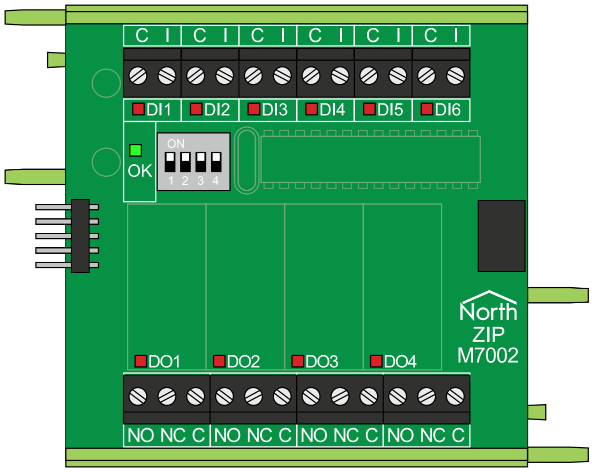


Fig. 11 Zip M7002A

Digital Inputs

There are six volt-free digital inputs, labelled DI1…DI6.

Each input has a two-way connector labelled **C** (common) and **I** (input). Each input also has a red LED, which lights when the contact closes. Each input senses the state of the contact and counts state changes (open-to-closed). Change rates up to 25Hz can be sensed (changes faster than this are taken to be noise).

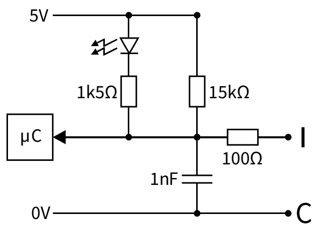


Fig. 12 Zip M7002A Digital Input

Connect the digital input to a volt-free mechanical contact, e.g. switch, push button, relay output, pulse output meter, etc.

See '*Using Digital Inputs*' for more details.

Relay Outputs

There are four relay outputs, labelled DO1…DO4.

Each output has a three-way connector labelled **NO** (normally open), **NC** (normally closed) and **C** (common). When the output is set to 'Off' or the module has no power, the relay is de-energised connecting C and NC. When the output is set to 'On', the relay energises connecting C and NO, and lighting the red LED.

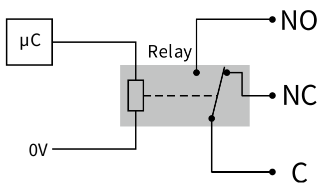


Fig. 13 Zip M7002A Relay Output

Each relay is rated 240V AC/28V DC at 10A resistive load. If higher loads are required, the relay can switch an external contactor.

Connect the relay, for example, in-line with the power supply to an appropriate load such as a fan motor, motorised valve, lighting circuit, etc.

See '*Using Relay Outputs*' for more details.

Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7002A Module* object of the connected North device.

Specification

Order code	ZIP/M7002A
Input-output summary	6 x digital inputs, 4 x relay outputs
Digital input	Volt-free
Relay output	Maximum 10A load at 240VAC/28V DC
Connectors	9 x removable. 5.08mm pitch. Up to 2.5mm^2 conductor
Zip network	From network card
Power supply	From network card (12V DC at 1A)
Dimensions (WxH)	Standard module size: 79 x 77 mm
Mounting	Green carrier on DIN-rail

M7004A Universal Input Output Module

The M7004 is a general-purpose module with six universal inputs and four universal outputs (Fig. 14).

The module needs to connect to a network card or module via the five-way plug for access to power and Zip network.

The carrier supports the module's circuit board, and plugs into the carrier of connected modules.

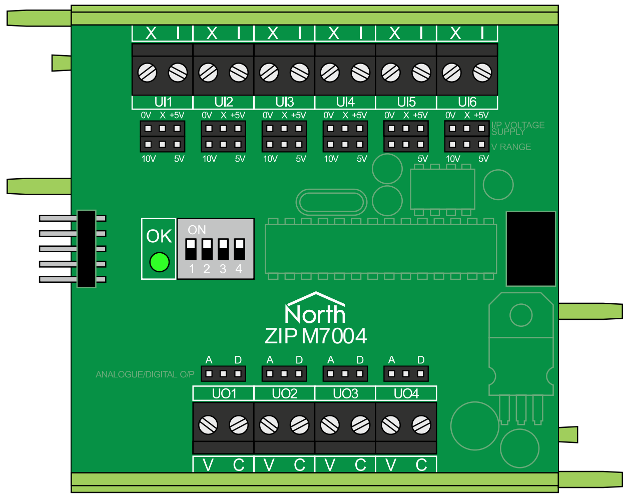


Fig. 14 Zip M7004A

Universal Inputs (Type A)

There are six universal inputs, labelled UI1…UI6.

Each input has a two-way connector labelled **X** (external) and **I** (input), and two jumpers. Use the top jumper to select the output voltage at connector X: 0V (left position) or 5V DC (right position). Use the bottom jumper to select the measurement range of the input signal voltage connected to I: 5V (right position) or 10V DC (left position).

Connect the universal input to a range of sensors types, including 0-10V sensors, 0-5V sensors, thermistors (10K3A type), and volt-free contacts such as relays and switches. When the 0-10V range is selected, and an external 500Ω resistor is connected, they can also measure 0-20mA sensors (active type only). The 0-5V range, along with two external 1kΩ resistors, can provide monitored digital inputs (which sense contact states and connection faults).

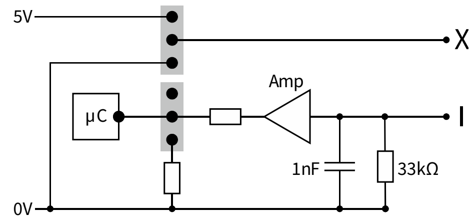


Fig. 15 Zip M7004A Universal Input

See '*Using Universal Inputs'* for more details.

Universal Outputs

There are four universal outputs, labelled UO1…UO4.

Each output has a two-way connector labelled **V** (voltage) and **C** (common). Use the jumper to select the output type: A (analogue, left position), or D (digital, right position). Analogue outputs generate a variable voltage in the range 0-10V DC at 10mA, while digital outputs switch 12V DC at 50mA on the V connector.

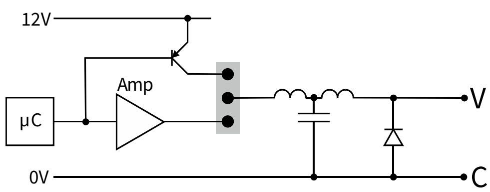


Fig. 16 Zip M7004A Universal Output

Connect the universal output to 0-10V DC motorised valve, 0-10V input on a variable frequency drive, 12V DC coil on an external relay, 12V DC indication lamp, etc.

See '*Using Universal Outputs'* for more details.

Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7004A Module* object of the connected North device.

Specification

Order code	ZIP/M7004A
Input-output summary	6 x universal inputs (type A), 4 x universal outputs
Universal input	10-bit resolution
Universal output	Analogue mode: 0-10V DC at 10mA
	Digital mode: 12V DC at 50mA
Connectors	10 x removable. 5.08mm pitch. Up to 2.5mm^2 conductor
Zip network	From network card
Power supply	From network card (12V DC at 1A)
Dimensions (WxH)	Standard module size: 79 x 77 mm
Mounting	Green carrier on DIN-rail

M7006A Universal Input Relay Output Module

The M7006 is a general-purpose module with six universal inputs and four relay outputs. It also has low-power 12V DC output (Fig. 17).

The module needs to connect to a network card or module via the five-way plug for access to power and Zip network.

The carrier supports the module's circuit board, and plugs into the carrier of connected modules.

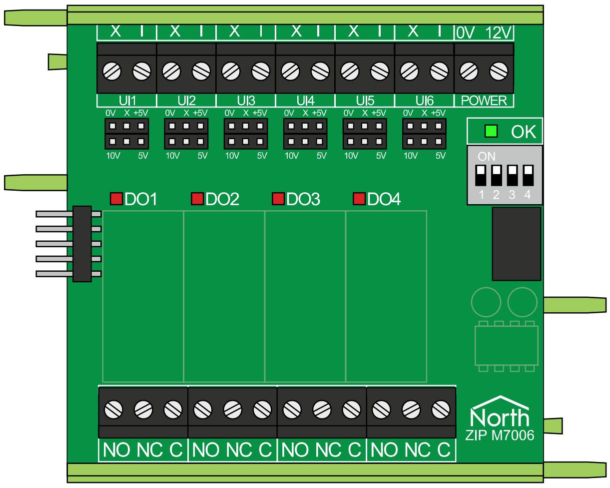


Fig. 17 Zip M7006A

Universal Inputs (Type A)

There are six universal inputs, labelled UI1…UI6.

Each input has a two-way connector labelled **X** (external) and **I** (input), and two jumpers. Use the top jumper to select the output voltage at connector X: 0V (left position) or 5V DC (right position). Use the bottom jumper to select the measurement range of the input signal voltage connected to I: 5V (right position) or 10V DC (left position).

Connect the universal input to a range of sensors types, including 0-10V sensors, 0-5V sensors, thermistors (10K3A type), and volt-free contacts such as relays and switches. When the 0-10V range is selected, and an external 500Ω resistor is connected, they can also measure 0-20mA sensors (active type only). The 0-5V range, along with two external 1kΩ resistors, can provide monitored digital inputs (which sense contact states and connection faults).

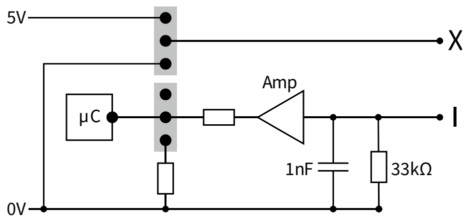


Fig. 18 Zip M7006A Universal Input

See '*Using Universal Inputs*' for more details.

Relay Outputs

There are four relay outputs, labelled DO1…DO4.

Each output has a three-way connector labelled **NO** (normally open), **NC** (normally closed) and **C** (common). When the output is set to 'Off' or the module has no power, the relay is de-energised connecting C and NC. When the output is set to 'On', the relay energises connecting C and NO, and lighting the red LED.

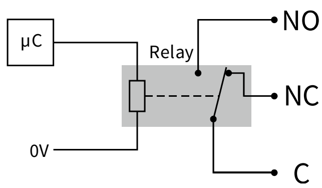


Fig. 19 Zip M7006A Relay Output

Each relay is rated 240V AC/28V DC at 10A resistive load. If higher loads are required, the relay can switch an external contactor.

Connect the relay, for example, in-line with the power supply to an appropriate load such as a fan motor, motorised valve, lighting circuit, etc.

See '*Using Relay Outputs*' for more details.

12V Power Output

There is one 12V power output, labelled POWER.

This output has a two-way connector labelled **0V** and **12V**. The output provides 12V DC at 50mA.

Use the output to power an external device, such as a sensor.

Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7006A Module* object of the connected North device.

Specification

Order code	ZIP/M7006A
Input-output summary	6 x universal inputs (type A), 4 x universal outputs, 1 x 12V DC output
Universal input	10-bit resolution
Universal output	Analogue mode: 0-10V DC at 10mA
	Digital mode: 12V DC at 50mA
Power output	12V DC at 50mA
Connectors	11 x removable. 5.08mm pitch. Up to 2.5mm^2 conductor
Zip network	From network card
Power supply	From network card (12V DC at 1A)
Dimensions (WxH)	Standard module size: 79 x 77 mm
Mounting	Green carrier on DIN-rail

M7012A Mixed Input Output Module

The M7012 is a general-purpose module with a mix of different input-output capabilities. It has 3 digital inputs, 2 universal inputs, 2 relay outputs, and 2 analogue outputs (Fig. 20).

The module needs to connect to a network card or module via the five-way plug for access to power and Zip network.

The carrier supports the module's circuit board, and plugs into the carrier of connected modules.

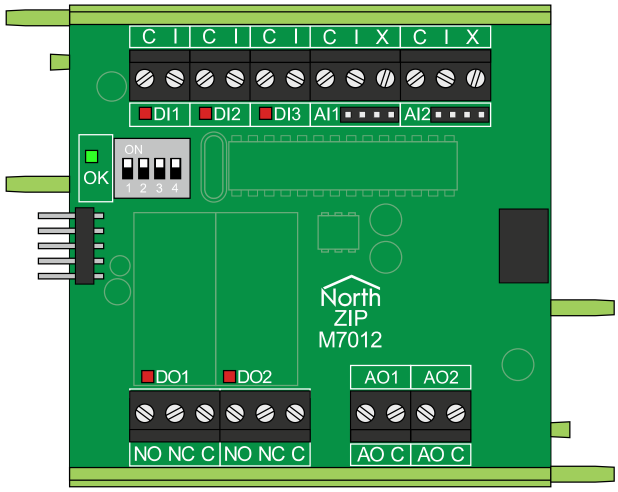


Fig. 20 Zip M7012A

Digital Inputs

There are three volt-free digital inputs, labelled DI1…DI3.

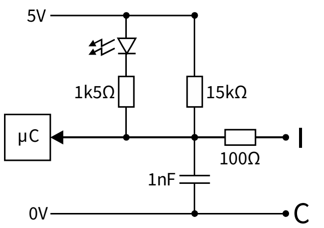


Fig. 21 Zip M7012A Digital Input

Each input has a two-way connector labelled **C** (common) and **I** (input). Each input also has a red LED, which lights when the contact closes. Each input senses the state of the contact and counts state changes (open-to-closed). Change rates up to 25Hz can be sensed (changes faster than this are taken to be noise).

Connect the digital input to a volt-free mechanical contact, e.g. switch, push button, relay output, pulse output meter, etc.

See '*Using Digital Inputs'* for more details.

Universal Inputs (Type B)

There are two universal inputs, labelled AI1…AI2.

Each input has a three-way connector labelled **C** (common), **I** (input) and **X** (excitation), and a jumper. The X connector supplies 5V DC (with respect to C). Use the jumper to select the measurement range of the input signal voltage connected to I: 20mA (left position), 5V (middle position), or 10V (right position).

Connect the universal input to a range of sensors types, including 0-10V sensors, 0-5V sensors, thermistors (10K3A type), 0-20mA sensors, and volt-free contacts. The 0-5V range, along with two external 1kΩ resistors, can provide monitored digital inputs (which sense contact states and connection faults).

See *'Using Universal Inputs'* for more details.

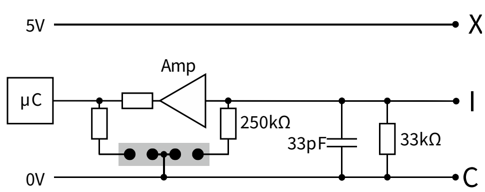


Fig. 22 Zip M7012A Universal Input

Relay Outputs

There are two relay outputs, labelled DO1…DO2.

Each output has a three-way connector labelled **NO** (normally open), **NC** (normally closed) and **C** (common). When the output is set to 'Off' or the module has no power, the relay is de-energised connecting C and NC. When the output is set to 'On', the relay energises connecting C and NO, and lighting the red LED.

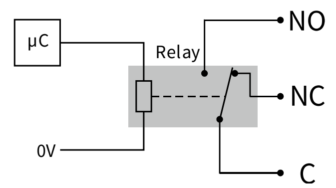


Fig. 23 Zip M7012A Relay Output

Each relay is rated 240V AC/28V DC at 10A resistive load. If higher loads are required, the relay can switch an external contactor.

Connect the relay, for example, in-line with the power supply to an appropriate load such as a fan motor, motorised valve, lighting circuit, etc.

See '*Using Relay Outputs'* for more details.

Analogue Outputs

There are two analogue outputs, labelled AO1…AO2.

Each output has a two-way connector labelled **AO** (voltage) and **C** (common). Each output generates a variable voltage in the range 0-10V DC at 10mA on the AO connector.

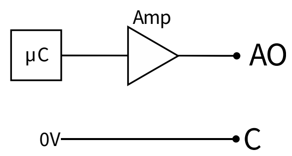


Fig. 24 Zip M7012A Analogue Output

Connect the analogue output to 0-10V DC motorised valve, 0-10V input on a variable frequency drive, etc.

See *'Using Analogue Outputs'* for more details.

Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7012A Module* object of the connected North device.

Specification

Order code	ZIP/M7012A
Input-output summary	3 x digital inputs, 2 x universal inputs (type B), 2 x relay outputs, 2 x analogue outputs
Digital input	Volt-free
Universal input	10-bit resolution
Relay output	Maximum 10A load at 240V AC or 28V DC
Analogue output	0-10V DC at 10mA
Connectors	9 x removable. 5.08mm pitch. Up to 2.5mm^2 conductor
Zip network	From network card
Power supply	From network card (12V DC at 1A)
Dimensions (WxH)	Standard module size: 79 x 77 mm
Mounting	Green carrier on DIN-rail

M7101A Door Controller Module

The M7101A is a fixed-function module providing door-access control (Fig. 25). Working with the North device's security server, it opens the lock when users identify themselves to the connected card reader.

The card reader supports the Wiegand interface, a common standard used with proximity card, magnetic-stripe card, and keypad readers.

There is a request-to-exit button input, and an auxiliary-exit input to allow other systems to unlock the door in emergencies.

Connecting a door contact switch allows the module to monitor for related events, such as a door held open or door forced.

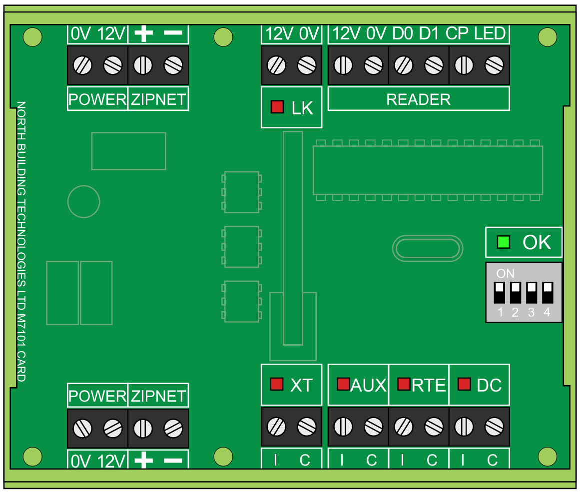


Fig. 25 Zip M7101A

The module can monitor the security of its enclosure using either the on-board switch or external tamper input.

The module has connectors for power and Zip network.

Card Reader

There is one Wiegand-compatible card reader connector, labelled READER.

The reader has a six-way connector labelled **12V** and **0V** (power output), **D0** and **D1** (data), **CP** (card present input, optional), and **LED** (LED control output, optional). Connector LED is an open collector output.

Connect a card reader supporting the Wiegand protocol, and that outputs data with less than 128 bits. The reader should require 12V DC power at 100mA.

When a user presents a card to the reader, the Zip Master checks the card's unique number is acceptable to the North device's Security Server. If the card number is valid, connector LED is pulled to 0V for a short period, and the door unlocked.

Lock Output

There is one lock control output, labelled LK.

The output has a two-way connector labelled **12V** and **0V**. When the output is set to 'on', the red LED lights and 12V DC at 500mA is output to lock the door.

Connect the lock output to a magnetic lock (fail-safe type), if connecting a fail-secure lock then an inverting relay is necessary.

When a user presents a valid card, the module de-energises the lock for a definable period. After this period, the lock re-energises (even though it might still be open). The module de-energises the lock immediately either of the exit inputs is closed, and continues to de-energise the lock (for the lock period) once they are opened again.

Exit-Request Inputs

There are two volt-free exit-request inputs, labelled RTE (request-to-exit) and AUX (auxiliary-exit).

Each input has a two-way connector labelled **I** (input), and **C** (common). Each input has a red LED, which lights when the contact closes. When the contact closes, the module de-energises the lock.

Connect the request-to-exit input to a volt-free mechanical contact, like a door release button. The user normally presses a request-to-exit button to open the door when they are leaving the secure area.

Connect the auxiliary-exit input to a volt-free output, e.g. a fire alarm system, to unlock the door when a fire alarm occurs.

The exit-request inputs are hard-wired to de-energise the lock. If Zip Master is communicating with the module, then it will additionally de-energise the lock for the lock timer period after releasing the input.

Door Contact

There is one volt-free door contact input, labelled DC.

The input has a two-way connector labelled **I** (input), and **C** (common). Each input has a red LED, which lights when the contact closes. The contacts should close when the door is closed.

The module monitors the door contact input, and may generate an alarm if someone forces the door open when energising the lock. It also checks how long the door is open after the lock is de-energised, and generates an alarm if this exceeds a pre-determined period.

Tamper Switch

There is an on-board tamper switch and one volt-free external tamper input, labelled XT.

The input has a two-way connector labelled **I** (input), and **C** (common). The input has a red LED, which lights when the contact closes. The contacts should close when the enclosure door is closed and secure.

Power

There are two 12V DC power connections, labelled POWER.

Each power connector has a two-way connector labelled **0V** and **12VDC**. Connect a regulated 12V DC (±5%) power supply, and allow 1A per M7101A module.

Use either connection to route the power in, and then optionally out via the second connection to another module. Ensuring the power supply is sufficient for all modules.

Zip Network

There are two isolated Zip network connections, labelled ZIPNET.

Each network connection has a two-way connector labelled **+** and **-**. Over the whole network, the positive wire attaches to the positive terminals marked '+', and the negative wire attaches to the negative terminals marked '-'.

Use both network connections to route the Zip network in from the previous module, and out to the next module to form a single-line bus.

Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7101A Module* object of the connected North device.

Specification

Order code	ZIP/M7101A
Input-output summary	1 x card reader, 1 x lock output, 2 x exit-request inputs, 1 x door contact input, 1 x tamper input
Card reader	Up to 128-bit Wiegand input, 12V DC output at 100mA
Lock output	12V DC at 500mA
Exit-request input	Volt-free
Door contact input	Volt-free
Tamper input	On-board switch, and volt-free
Connectors	Screw terminal block. Up to 1.5mm^2 conductor
Zip network	Polarity-dependent. In/Out connection
Power supply	Regulated 12V DC (±5%) at 1A. In/Out connection
Dimensions (WxH)	90 x 77 mm
Mounting	Green carrier on DIN-rail

M7202A Text Display Module

The M7202A is a fixed-function module with a four-line text display and four buttons (Fig. 26). It also has an input for a thermistor, and an output buzzer, to attract attention if necessary (Fig. 27).

The module has connectors for power and Zip network.

The module can either automatically display information from the North device's Essential Values, or can be controlled manually by an application, with each line of text under programmable control.

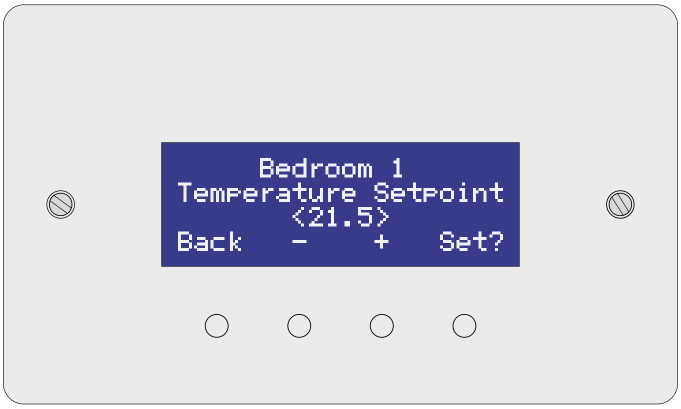


Fig. 26 Zip M7202A facia

In automatic mode, the display allows the user to navigate up and down within the list of Essential Value pages and objects. It also allows the user to adjust the object values.

The display fits into a 2-gang pattress or socket box to simplify installation.

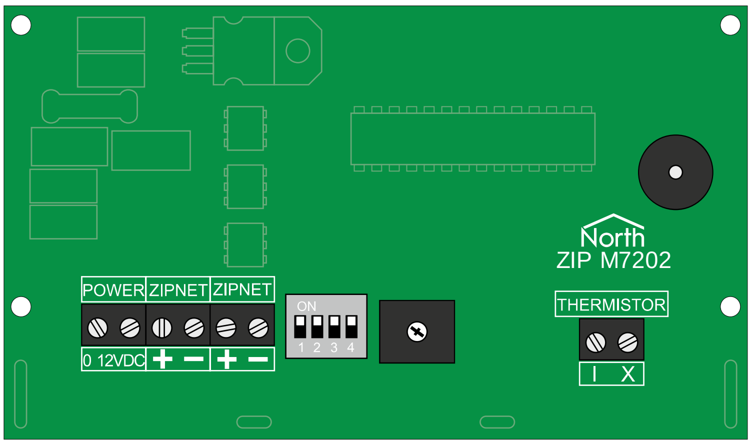


Fig. 27 Zip M7202A rear

Screen Contrast

If needed, adjust the screen-viewing angle using the rotary resistor on the rear of the module, next to the address switch.

Thermistor Input

There is one thermistor input, labelled THERMISTOR.

The input has a two-way connector labelled **I** (input) and **X** (excitation). The X connector supplies 10V DC (with respect to 0V).

Connect the input to a 10K3A thermistor.

Power

There is one 12V DC power input, labelled POWER.

The input has a two-way connector labelled **0V** and **12VDC**. Connect a regulated 12V DC (±5%) power supply, and allow 200mA per M7202A module.

Zip Network

There are two isolated Zip network connections, labelled ZIPNET.

Each network connection has a two-way connector labelled **+** and **-**. Over the whole network, the positive wire attaches to the positive terminals marked ‘+’, and the negative wire attaches to the negative terminals marked ‘-’.

Use both network connections to route the Zip network in from the previous module, and out to the next module to form a single-line bus.

Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7202A Module* object of the connected North device.

Specification

Order code	ZIP/M7202A
Input-output summary	1 x display, 4 x buttons, 1 x thermistor input, 1 x buzzer
Display	4x20 character, white text on blue back-lit
Thermistor input	10K3A thermistor
Facia	Silver anodized aluminium. Screw fixing pitch 120.6mm
Button	Silver anodized aluminium, 5mm dia. Pitch 18mm
Connectors	Screw terminal block. Up to 1.5mm^2 conductor
Zip network	Polarity-dependent. In/Out connection
Power supply	Regulated 12V DC (±5%) at 200mA
Dimensions in mm (WxHxD)	Front Facia: 146 x 86 x 4 Rear PCB board: 110 x 65 x 28
Mounting	2 screws, fitting 2-gang pattress or back box, minimum depth 30mm

M7203A LED Display Module

The M7203A is a LED display module with up to eight LED outputs and eight button inputs. It also has a green LED to indicate the module healthy state, and a digital auxiliary output (Fig. 28).

The module has connectors for power and Zip network.

Use this module to provide simple indication displays and acknowledgement in control panels. Rather than hard-wiring individual lamps and buttons to elsewhere in the panel, this module only needs one cut-out hole and a single 4-core cable from panel to door.

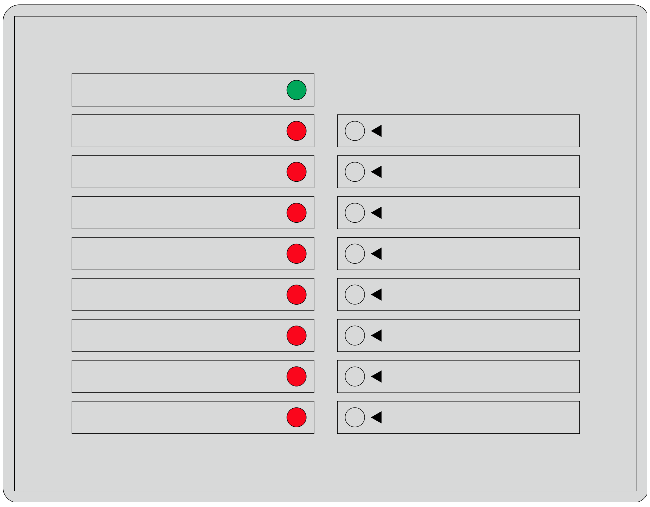


Fig. 28 Zip M7203A facia

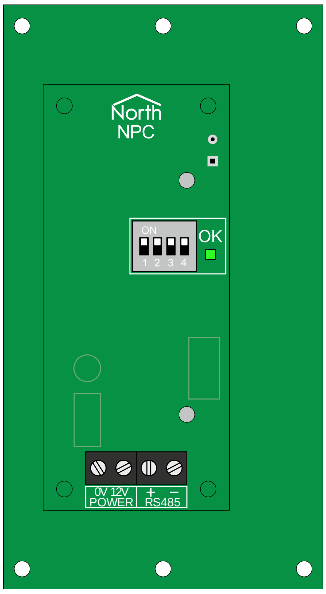


Fig. 29 Zip M7203A rear

The engineer determines the meaning and operation of the LEDs, along with and the function of the buttons.

Display Options

Customization options are available for the M7203A module, subject to a minimum order quantity. Select fewer LEDs or buttons, double-up LEDs for redundancy, choose a different facia, or specify facia artwork.

Digital Auxiliary Output

There is one digital auxiliary output.

The output does not have a connector, but uses a through-hole solder mount on the PCB. The mount is shown (Fig. 30) with 12V (square) and 0V (circle) terminals. When the output is set to 'on', 12V DC is output at up to 50mA.

Connect the output to a buzzer or low-power relay.

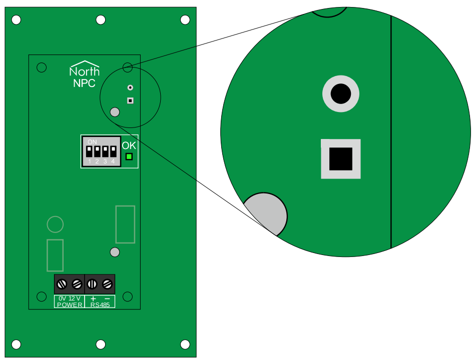


Fig. 30 Zip M7203A digital aux input location

Power

There is one 12V DC power input, labelled POWER.

The input has a two-way connector labelled **0V** and **12V**. Connect a regulated 12V DC (±5%) power supply, and allow 150mA per M7202A module.

Zip Network

There is one isolated Zip network connection, labelled ZIPNET.

The network connection has a two-way connector labelled **+** and **-**. Over the whole network, the positive wire attaches to the positive terminals marked '+', and the negative wire attaches to the negative terminals marked '-'.

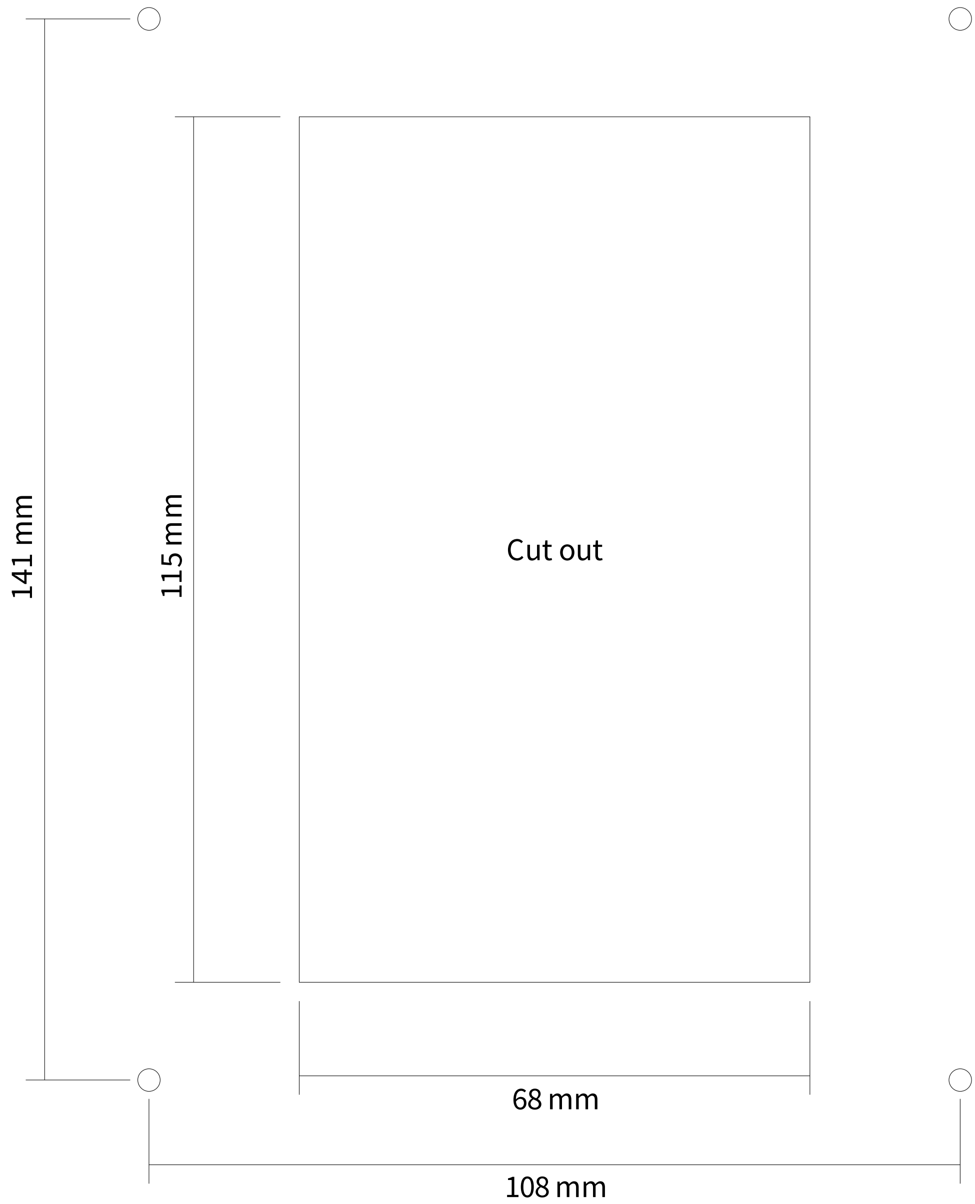
Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7203A Module* object of the connected North device.

Specification

Order code	ZIP/M7203A
Input-output summary	8 x LED outputs, 8 x button inputs, 1 x OK light, 1 x digital output (aux.)
LED output	Red 5mm dia. Pitch 10.5mm
Button input	Silver anodized aluminium, 5mm dia. Pitch 10.5mm
OK light	Green 5mm dia. See *OK Light* section
Digital output (aux.)	PCB through-hole solder mount. Open collector 12V DC output at 50mA
Facia	Silver anodized aluminium
Connectors	Screw terminal block. Up to 1.5mm^2 conductor
Zip network	Polarity-dependent
Power supply	Regulated 12V DC (±5%) at 150mA
Dimensions in mm (WxH)	Front Facia: 166 x 128 Rear PCB board: 60 x 110
Mounting	Panel cut-out with 4 x M3 holes. Allow 35mm depth See *panel mounting cut-out* below

Panel Mount Cut-out



M7204A Smart Switch

The M7204A Smart Switch is a touchscreen display module with rocker-style buttons. It has two inputs and two outputs. It is supplied with a hidden-screw brushed-steel cover (Fig. 31).

The Smart Switch can show two values at once. The user may adjust each value using the touchscreen or the rocker switch.

The user can scroll through pages of values using the touchscreen or rocker buttons. Overall, the module displays up to 20 values.

Fig. 31 Zip M7204A Smart Switch

The values can link to objects anywhere on the North system, including locally within the module itself, within the ZipMaster Commander, or within systems attached to the North system using integration technology.

The display colour palette is configurable, matching other decoration within the room. The idle and active brightness is configurable locally and remotely, allowing complete user control of the screen.

The input readings can be viewed locally, and are accessible by the Zip Master. The output can be controlled by the Zip Master, or can be controlled automatically by the module itself.

The module can be disconnected from the Zip network after configuration, to operate as a stand-alone controller.

The Smart Switch fits into a 2-gang pattress/back box to simplify installation.

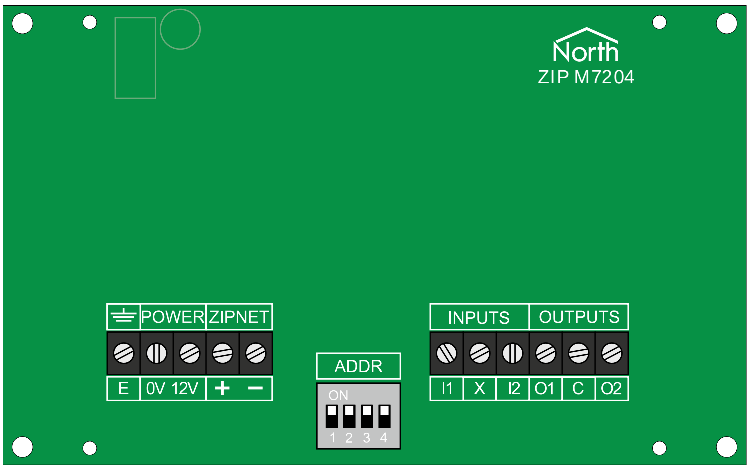


Fig. 32 Zip M7204A rear

Operation

The engineer preconfigures up to 20 values to appear on the display. Each value has a type, a label, as well as adjustment and alarm limits.

The display is usually idle – when it shows the first two values on a reduced-brightness screen.

When the user touches the display or presses a rocker switch, the screen becomes active, and the brightness increases. The up and down icons appear, and the next and previous page icons appear. If an operation is not possible, the icon will be shown dimmed

The display can show two values.

The user can adjust the value on the left side of the screen using the left rocker switch, or by pressing the up and down icons on the left side of the screen. The user can adjust the value on the right side of the screen using the right rocker switch, or by pressing the up and down icons on the right side of the screen.

If a value is engineered as non-adjustable, the up and down icons do not appear.

The user can view more values by pressing the previous page or next page icons.

If a value is outside acceptable conditions, (set using high and low limits,) the value is shown in the alert colour. The centre line of the display is shown in the alert colour, and the next or previous page icon will also be shown in the alert colour, to indicate a route

The user can access extra hidden values. Navigate to the final page of values, then press and hold the next page icon for 10 seconds, and more values appear.

The engineer can access extra setup values. Navigate to the last page of the hidden values, then press and hold the centre of the touchscreen for 10 seconds, and more values appear.

Display Palette

The display has many pre-programmed colour themes, to allow matching to typical colour-ways.

A colour theme comprises of four colours: background colour, text colour, button colour, and alert colour.

Theme 0 is special, in that the engineer can specify each of the four colours individually. Colours are selectable from a 65535-colour palette.

There are two brightness levels: active and idle. Each brightness level can be specified in a range: ‘0’ is off, and ‘9’ is the brightest.

Inputs

There are two inputs, labelled I1 and I2. Each can measure temperature using a 10K3A thermistor, or can sense a switch or relay.

Each input has a connector labelled **Ix** (input), and they share a common **X** (excitation). The X connector supplies 3.3V DC (with respect to 0V).

Both inputs have offsets for calibrating temperature readings.

Outputs

There are two output, labelled O1 and O2.

Each output has a connector labelled **Ox,** and they share a common 0V, labelled **C**. When an output is set to ‘on’, 12V DC (+- 10%) at 50mA becomes available to the 12VDC connector.

Connect the output to a low-powered 12VDC device such as a relay or a motorised valve.

Output 1 Control

Output 1 (O1) can be controlled in three different ways, depending on the setting of the Output 1 Mode:

Off – no automatic control performed. The input values are available to the Zip Master for use elsewhere. The output is driven ‘on’, unless Output 1 Enable is set to ‘No’, in which case the output is driven off.

Air – air temperature is used to control the output, using hysteresis. A required air temperature is specified (set by the Zip Master or the display user). If the current air temperature (from a thermistor connected to input I1) is lower that the required air temperature, the output is driven ‘on’; otherwise it is driven ‘off’. If Output 1 Enable is set to ‘No’, the output is driven ‘off’.

AirFloor – air temperature is used, along with floor temperature, to control the output using hysteresis. A required air temperature and a maximum floor temperature are specified (either by the Zip Master or the display user). If the current air temperature (from a thermistor connected to input I1) is lower that the required air temperature, *and* the current floor temperature (from a thermistor connected to input I2) is lower than the maximum floor temperature, the output is driven ‘on’; otherwise it is driven ‘off’. If Output 1 Enable is set to ‘No’, the output is driven ‘off’.

Output 2 Control

Output 2 (O2) is driven ‘on’, unless Output 2 Enable is set to ‘No’, in which case the output is driven ‘off’.

Power

There is one 12V DC power input, labelled POWER. The input is polarity-dependent, and has a two-way connector labelled **0V** and **12V**. Connect a regulated 12V DC (±5%) power supply, and allow 300mA per M7204A module.

This module must be earthed to protect against static electricity.

Zip Network

There is one isolated Zip network connection, labelled ZIPNET. The network connection has a two-way connector labelled **+** and **-**. Over the whole network, the positive wire attaches to the positive terminals marked ‘+’, and the negative wire attaches to the negative terminals marked ‘-’.

The module continues to operate and control when the Zip Network is disconnected.

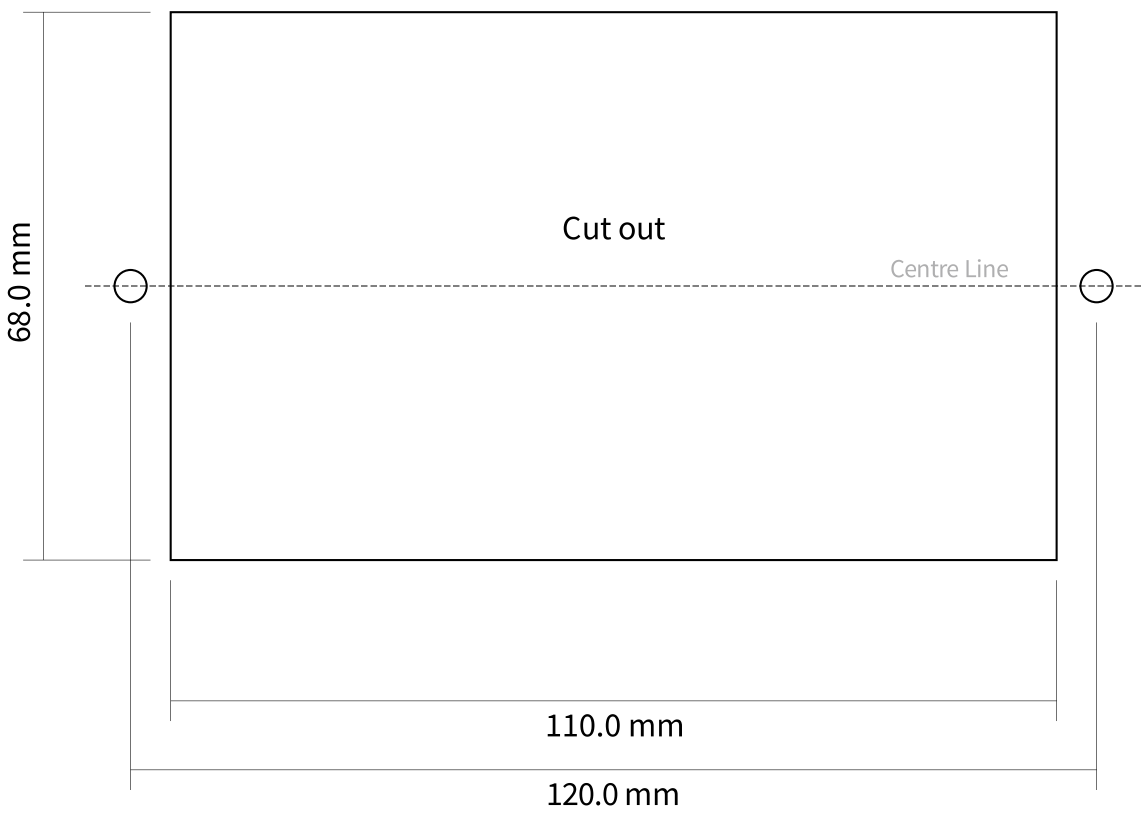
Objects

When Zip Master communicates with this module, its configuration and values are available in the *M7204A Module* object of the connected North device.

Specification

Order code	ZIP/M7204A
Input-output summary	Touch screen with rocker switches, 2 x thermistor inputs, 1 x digital output
Touch screen	3.5” 320x240 pixel TFT, 65536 colours, resistive touch
Rocker switches	Two, brushed stainless, isolated
Inputs	Two, 10K3A thermistor or switch compatible
Outputs	Two, open collector 12V DC digital at 50mA
Facia	Clip-on brushed stainless, isolated, matches Varilight Dimension range
Connectors	Screw terminal block, up to 1.5mm^2 conductor
Zip network	Polarity-dependent, isolated
Power supply	Regulated 12V DC (±5%) at 300mA
Dimensions in mm (WxHxD)	Front Facia: 146 x 85 x 4 Rear PCB board:108 x 68 x 25
Wall Mounting	Hidden screws, fitting 2 gang pattress/back box, minimum depth 30mm
Panel Mounting	Cut-out with 2 x M4 holes. Allow 35mm depth See *panel mounting cut-out* below

Panel Mount Cut-out



Zip Network Cards

NC12B Network Card

The NC12B network card connects a North device with Zip Master to the Zip network (Fig. 33). The network card provides power and Zip network for up to four general-purpose modules via the five-way socket.

The carrier supports the module's circuit board, and plugs into the carrier of connected modules.

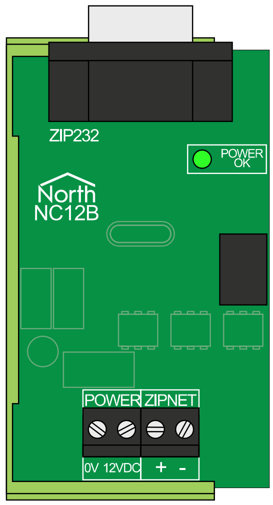


Fig. 33 Zip NC12B

Power

There is one 12V DC power input, labelled POWER.

The input has a two-way connector labelled **0V** and **12VDC**. Connect a regulated 12V DC (±5%) 1A power supply. This allows 250mA for each connected module. The **POWER OK** light will illuminate green to indicate a healthy power.

Zip Network

There is one isolated Zip network connection, labelled ZIPNET.

The network connection has a two-way connector labelled **+** and **-**. Over the whole network, the positive wire attaches to the positive terminals marked '+', and the negative wire attaches to the negative terminals marked '-'.

RS232

There is one RS232 port, labelled ZIP232.

This is a 9-way DCE port, supporting the following connected pins:

2	RXD – data from Zip network
3	TXD – data to Zip network
5	GND – the signal ground

Pins 1, 4, 6, 7, 8 and 9 are not connected.

Connect this to a North device's COM port as described in the *Making the Cable* section later in this manual.

Specification

Order code	ZIP/NC12B
Connectors	2 x removable, 5.08mm pitch, up to 2.5mm^2 conductor
Zip network	Polarity-dependent
Power supply	Regulated 12V DC (±5%) at 1A
Dimensions (WxH)	Standard network card size: 43 x 77 mm
Mounting	Green carrier on DIN-rail
Attached modules	Up to 4 x general-purpose Zip modules

NC12A Network Card

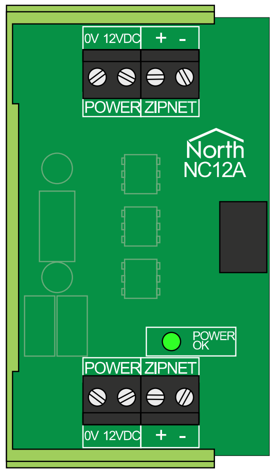


Fig. 34 Zip NC12A

The NC12A network card provides power and Zip network for up to four general-purpose modules via the five-way socket (Fig. 34).

Connect network cards together to form a single-line bus Zip network.

The carrier supports the module's circuit board, and plugs into the carrier of connected modules.

Power

There are two 12V DC power connections, labelled POWER.

Each power connector has a two-way connector labelled **0V** and **12VDC**. Connect a regulated 12V DC (±5%) 1A power supply. This allows 250mA for each connected module. The **POWER OK** light will illuminate green to indicate a healthy power.

Use either connection to route the power in, and then optionally out via the second connection to another network card. Ensuring the power supply is sufficient for all modules.

Zip Network

There are two isolated Zip network connections, labelled ZIPNET.

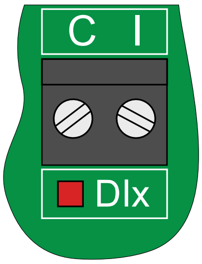
Each network connection has a two-way connector labelled **+** and **-**. Over the whole network, the positive wire attaches to the positive terminals marked '+', and the negative wire attaches to the negative terminals marked '-'.

Use both network connections to route the Zip network in from the previous module, and out to the next module to form a single-line bus.

Specification

Order code	ZIP/NC12A
Connectors	4 x removable, 5.08mm pitch, up to 2.5mm^2 conductor
Zip network	Polarity-dependent, two pairs for in daisy-chaining
Power supply	Regulated 12V DC (±5%) at 1A, two pairs for daisy-chaining
Dimensions (WxH)	Standard network card size: 43 x 77 mm
Mounting	Green carrier on DIN-rail
Attached modules	Up to 4 x general-purpose Zip modules

Using Digital Inputs



Digital Inputs are available on the following modules: M7001A, M7002A, M7012A.

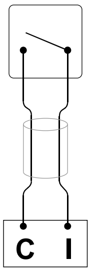
A digital input is used to sense the state of an external contact.

A digital input has two connectors: Common (C) and Input (I).

The digital input drives its connectors to very low voltages relative to itself (via the Zip module, the Zip Netcard, and the power supply). Therefore, whatever is attached to the digital input connectors should be isolated from other voltage systems. It should be 'volt-free'.

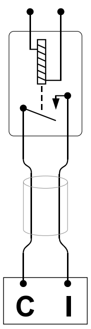
The digital input has an LED to indicate the state of the external contact. The LED lights when the contact is closed.

Switch sensing



The digital input senses when the Input and Common connectors are linked electrically by putting a very weak 5V on the Input connector, and a strong 0V on the common connector. Before the external switch closes its contact, the Input connector can float to 5V; when the switch contact is closed, the 0V of the Common connector overpowers the weak 5V, and forces the Input connector to 0V.

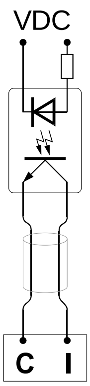
Relay sensing



A relay is a switch controlled using an electromagnetic coil. Typically, when the coil is unpowered, a spring holds the switch in one state (open or closed). When the coil is powered, the magnetic force overpowers the spring and changes the switch to the opposite state.

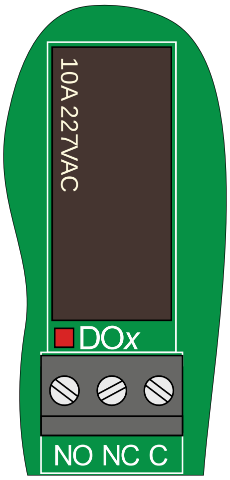
Some relays have normally-open contacts. These are open (i.e. not connected) when the coil is unpowered, and are closed (i.e. connected) when the coil is powered. Some relays have normally-closed connects, which open when the coil is powered. Some relays have both open and closed contacts.

Opto-isolator



An opto-isolator is a solid-state device that uses light to provide isolation between voltage systems. Internally the opto-isolator has two sides internally: the LED side and the transistor side. The LED side is connected to an external system, which supplies voltage to turn the LED on or off. The transistor side connects to the digital input. When the external system powers the LED, it lights, and the transistor then allows electricity to flow from its input (collector) to output (emitter).

Using Relay Outputs



Relay outputs are available on the following modules: M7002A, M7006A,M7012A.

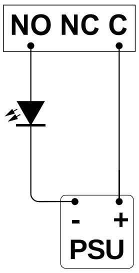
Relay outputs are used to control voltage in external circuits.

A relay output has a change-over relay, with Common (C), Normally-Open (NO) and Normally-Closed (NC) connectors. When the module has no power, the Common is connected to the Normally-Closed and disconnected from the Normally-Open. When energised, the Common disconnects from the Normally-Closed, and connects to the Normally-Open.

The Relay output is able to switch up to 277VAC @ 10A (resistive load) or 28VDC @ 10A (resistive load).

The Relay output has an LED to indicate that: the coil is powered; Common and Normally-Closed are disconnected; Common and Normally-Open are connected.

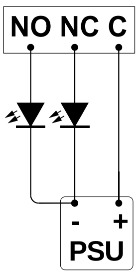
Switching on and off



The Common and the Normally-Open connector operate as an isolated switch to provide a switching function in an external circuit. The external circuit could, for example: provide voltage, via the relay, to an LED indicator; provide voltage to a change a contactor (a more powerful relay); or even provide voltage to power a heater.

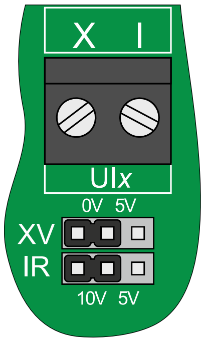
Remember that when the relay is not powered, or when the Zip module loses communications with the Zip Master, the Common disconnects from Normally-Open, and connects to Normally-Closed. Choose the particular pair to provide the ‘fail-safe’ function you need.

Dual switching



As the relay provides both Normally-Open and Normally-Closed contacts, it is possible to supply voltage to the Common connector, and use both Normally-Open and Normally-Closed contacts to energise different circuits. For example, the relay could switch power to either a red LED circuit or a green LED circuit.

Using Universal Inputs (Type A)



Universal inputs (Type A) are available on the following modules: M7004A, M7006A.

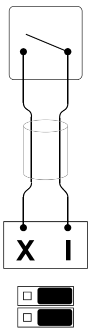
Universal inputs are used to sense analogue voltages and resistances.

Each universal input has two connectors: Excitation (X) and Input (I).

The Excitation Voltage (XV) applied to the connector is set using an on-board jumper, and can supply either 0V or 5V to the sensor. Typically, 0V is used to provide a common reference voltage to an active sensor, against which the sensor's output voltage is measured. Typically 5V is used to provide a working voltage to power a passive sensor, and the returning signal is measured to calculate a resistance within the sensor.

The Input Range (IR) of the sensor is set, again using an on-board jumper, to specify the range of the input voltage: 5 volts or 10 volts. Although the 10V option provides a larger measuring range, it has only half the precision of the 5V range – select 10V range only when necessary.

Switch



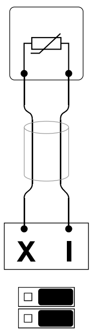
A switch either opens or closes a contact between a pair of cables.

Set the Excitation Voltage to '5V'. Set the Input Range to '5V', as the maximum voltage can be that provided by the excitation voltage. Set the ZipMaster Input Type to 'Digital'.

The Input connector has a weak 0V applied. When the switch is open, the Input connector is pulled to 0V. When the switch is closed, the 5V connects to the Input, overpowering the weak 0V.

The universal switch does not have the counting function of the digital input.

Thermistor



Thermistors (thermal resistors) come in a vast range of electrical characteristics, including their nominal resistance (at 25°C) and their curve characteristics (the way the resistance changes as the temperature changes).

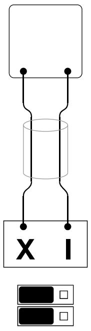
North support 10K3A thermistors directly. These have a resistance of 10KΩ at 25°C. This resistance matches the 33KΩ resistor on-board between the Input (I) connector and 0V, and matches the internal conversion tables of the universal input.

Set the Excitation Voltage jumper to '5V'. Set the Input Range jumper to '5V', as the maximum voltage can be that provided by the excitation voltage. Set the ZipMaster Input Type to 'Thermistor'.

The resistance of the thermistor in series with the 33KΩ produce voltage division – the divided voltage is measured by the universal input to determine the actual resistance of the thermistor (and hence the temperature).

It is possible, using our strategy language ObVerse, to perform curve-shaped rescaling. If the resistance over the range is suitable for use with our 33KΩ, this could be used with other types of thermistor. If in any doubt, ask North.

0-10V Signal

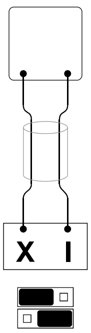


0-10V sensors are available to measure a range of characteristics and provide the result as a 0-10V signal. The sensors usually require power to operate, which may need to be 14V or more to allow them to produce a 10V signal.

Set the Excitation Voltage jumper to ‘0V’, to provide a reference voltage for the 0-10V signal. Set the Input Range jumper to ‘10V’, as the sensor may produce any voltage in the range 0-10V. Set the ZipMaster Input Type to ‘10V’.

Remember: the Zip power system and the device power system connect via the 0V reference voltage, which can cause problems. The safest way to work this is to ensure that both systems have isolated power supplies (SELV) that can float to match the shared 0V.

0-5V Signal

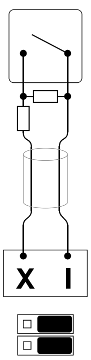


0-5V sensors are available to measure a range of characteristics and provide the result as a 0-5V signal. The sensors usually require power to operate, which may need to be 9V or more to allow them to produce a 5V signal.

Set the Excitation Voltage jumper to ‘0V’, to provide a reference voltage for the 0-5V signal. Set the Input Range jumper to ‘5V’, as the sensor may produce any voltage in the range 0-5V. Set the ZipMaster Input Type to ‘5V’.

Remember: the Zip power system and the device power system connect via the 0V reference voltage, which can cause problems. The safest way to work this is to ensure that both systems have isolated power supplies (SELV) that can float to match the shared 0V.

Monitored

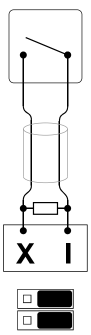


Monitored inputs are used when a switch state, along with any cable-shorts and cable-breaks, need to be monitored – perhaps for security or error-recovery purposes.

Set the Excitation Voltage jumper to ‘5V’. Set the Input Range jumper to ‘5V’, as the maximum voltage can be that provided by the excitation voltage. Set the ZipMaster Input Type to ‘Monitored’.

The universal input measures the resistance of the circuit. If the switch is closed, the resistance is 1KΩ. If the switch is open, the resistance is 2KΩ. If the cable is shorted together, the resistance is 0Ω. If the cable breaks, the resistance is ‘infinity’.

0-20mA Signal

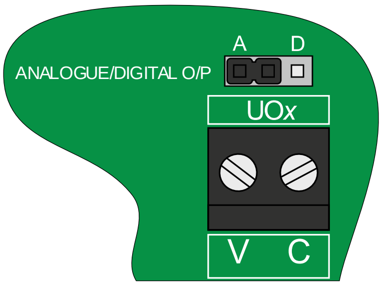


20mA current sensors are available to measure a range of characteristics, and provide the result as a 0-20mA signal, or as a 4-20mA signal. Some sensors are ‘active’, and produce a variable amount of current. Some sensors are ‘passive’, and just control the amount of current passing through them.

Set the Excitation Voltage jumper to ‘0V’. Set the Input Range jumper to ‘5V’. Set the ZipMaster Input Type to ‘20mA’. As the resistor is 250Ω, the 0-20mA current will produce a voltage of 0-5V, which is then measured.

Remember: the Zip power system and the sensor’s power system need to be connected by the OV reference voltage. The safest way to work this is to ensure that both systems have isolated power supplies (SELV) that can float to match the shared 0V.

Using Universal Outputs



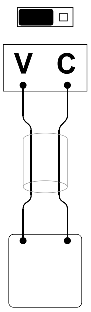
Universal Outputs are used as an analogue output in the range 0-10V, or as a switched 12VDC supply.

Universal outputs are available on the following modules: M7004A

Each universal output has two connectors: Common (C) and Voltage (V).

The Output Type of the output is set using an on-board jumper (OT), and be set to Analogue (A) or Digital (D).

0-10V Signal



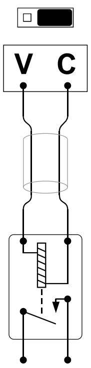
Some devices require a 0-10V signal to allow variable control of a characteristic. Examples include: water valves for controlling flow, light fittings to control lamp dimming.

Set the Output Type jumper to ‘A’. Set the ZipMaster Output Type to ‘10V’.

The Common connector is used as a reference voltage. The Voltage connector carries the controlled 0-10V signal at up to 5mA.

Remember: the Zip power system and the device power system connect via the 0V reference voltage, which can cause problems. The safest way to work this is to ensure that both systems have isolated power supplies (SELV) that can float to match the shared 0V.

12V Digital



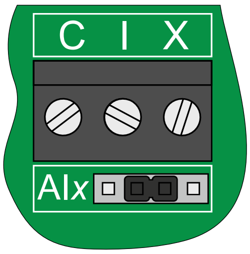
Some devices require 12VDC to power them. Examples include: small relays to provide switching, 12V LEDs and bulbs for indication.

Set the Output Type jumper to ‘D’. Set the ZipMaster Output Type to ‘Digital’.

The Common connector is used as the 0V. The Voltage connector carries the 12V at up to 100mA, depending on the power supply to the zip system.

Remember: the Zip output generated the voltage to power the external device, and so the device should have no other voltage system connected (unless via isolation)

Using Universal Inputs (Type B)



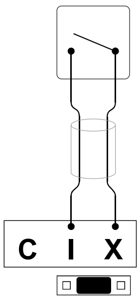
Universal inputs are used to sense analogue voltages and resistances.

Universal inputs (Type B) are available on the following modules: M7012A

Each universal input has three connectors: Common (C), Excitation (X) and Input (I). Each input also has a Input Type jumper (IT) to select the type of input.

The Excitation (X) connector supplies 5V, if necessary, to power the sensor. The Common (C) connector carries 0V, to act as a return for the 5V, as well as a reference voltage for the input.

Switch



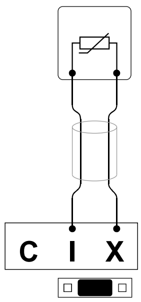
A switch either opens or closes a contact between a pair of cables.

Set the Input Type jumper to ‘5V’. Set the ZipMaster Input Type to ‘Digital’.

The Input connector has a weak 0V applied. When the switch is open, the Input connector is pulled to 0V. When the switch is closed, the 5V connects to the Input, overpowering the weak 0V.

The universal switch does not have the counting function of the digital input.

Thermistor



Thermistors (thermal resistors) come in a vast range of electrical characteristics, including their nominal resistance (at 25°C) and their curve characteristics (the way the resistance changes as the temperature changes).

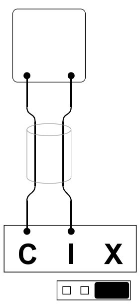
North support 10K3A thermistors directly. These have a resistance of 10KΩ at 25°C. This resistance matches the 33KΩ resistor on-board between the Input (I) connector and 0V, and matches the internal conversion tables of the universal input.

Set the Excitation Voltage jumper to ‘5V’. Set the Input Type jumper to ‘5V’, as the maximum voltage can be that provided by the excitation voltage. Set the ZipMaster Input Type to ‘Thermistor’.

The resistance of the thermistor in series with the 33KΩ produce voltage division – the divided voltage is measured by the universal input to determine the actual resistance of the thermistor (and hence the temperature).

It is possible, using our strategy language ObVerse, to perform curve-shaped rescaling. If the resistance over the range is suitable for use with our 33KΩ, this could be used with other types of thermistor. If in any doubt, ask North.

0-10V Signal

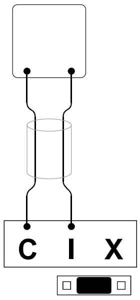


0-10V sensors are available to measure a range of characteristics and provide the result as a 0-10V signal. The sensors usually require power to operate, which may need to be 18V or more to allow them to produce a 10V signal.

Set the Excitation Voltage jumper to ‘0V’, to provide a reference voltage for the 0-10V signal. Set the Input Range jumper to ‘10V’, as the sensor may produce any voltage in the range 0-10V. Set the ZipMaster Input Type to ‘10V’.

Remember: the Zip power system and the device power system connect via the 0V reference voltage, which can cause problems. The safest way to work this is to ensure that both systems have isolated power supplies (SELV) that can float to match the shared 0V.

0-5V Signal

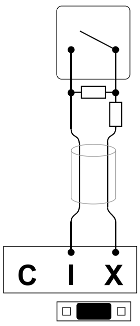


0-5V sensors are available to measure a range of characteristics and provide the result as a 0-5V signal. The sensors usually require power to operate, which may need to be 9V or more to allow them to produce a 5V signal.

Set the Excitation Voltage jumper to ‘0V’, to provide a reference voltage for the 0-5V signal. Set the Input Range jumper to ‘5V’, as the sensor may produce any voltage in the range 0-5V. Set the ZipMaster Input Type to ‘5V’.

Remember: the Zip power system and the sensor’s power system need to be connected by the OV reference voltage. The safest way to work this is to ensure that both systems have isolated power supplies (SELV) that can float to match the shared 0V.

Monitored

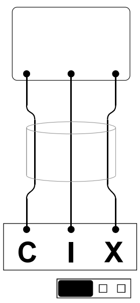


Monitored inputs are used when a switch state, along with any cable-shorts and cable-breaks, need to be monitored – perhaps for security or error-recovery purposes.

Set the Excitation Voltage jumper to ‘5V’. Set the Input Range jumper to ‘5V’, as the maximum voltage can be that provided by the excitation voltage. Set the ZipMaster Input Type to ‘Monitored’.

The universal input measures the resistance of the circuit. If the switch is closed, the resistance is 1KΩ. If the switch is open, the resistance is 2KΩ. If the cable is shorted together, the resistance is 0Ω. If the cable breaks, the resistance is ‘infinity’.

0-20mA Signal

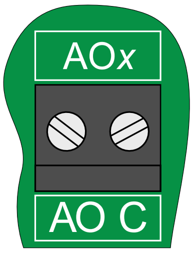


20mA current sensors are available to measure a range of characteristics, and provide the result as a 0-20mA signal, or as a 4-20mA signal. Some sensors are ‘active’, and produce a variable amount of current. Some sensors are ‘passive’, and just control the amount of current passing through them.

Set the Excitation Voltage jumper to ‘0V’. Set the Input Range jumper to ‘5V’. Set the ZipMaster Input Type to ‘20mA’. As the resistor is 250Ω, the 0-20mA current will produce a voltage of 0-5V to be measured.

Remember: the Zip power system and the device power system connect via the 0V reference voltage, which can cause problems. The safest way to work this is to ensure that both systems have isolated power supplies (SELV) that can float to match the shared 0V.

Using Analogue Outputs

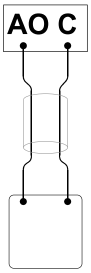


Analogue outputs are used to send 0-10V signals to other devices.

Analogue outputs are available on the following modules: M7012A.

Each analogue output has two connectors: Common (C) and Analogue Output (AO).

0-10V Signal



Some devices require a 0-10V signal to allow variable control of a characteristic. Examples include water valves for controlling flow, light fittings to control lamp dimming.

The Common connector is used as a reference voltage. The Voltage connector carries the controlled 0-10V signal at up to 5mA.

Remember: the Zip power system and the device power system connect via the 0V reference voltage, which can cause problems. The safest way to work this is to ensure that both systems have isolated power supplies (SELV) that can float to match the shared 0V.

The ZipMaster Driver

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

The ZipMaster driver uses zero licence units.

Making the Cable

Using the RS232 cable specification (Fig. 35), connect the North device COM port to the Zip NC12B network card. The diagram below shows the connector types at each end of the cable.

North DB9 Female		Zip DB9 Male
2	———	2
3	———	3
5	———	5

Fig. 35 North to Zip NC12B cable

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

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

Starting the Interface

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

→ **Start Engineering** your North device using ObSys

→ Navigate to **Configuration, Interfaces,** and set an unused **Interface** to 'ZipMaster' to start the particular interface

→ Navigate to the top-level of your North device and re-scan it

The driver setup object (M*c*), labelled **Zip Setup**, should now be available.

Setting up the Driver

To set up the driver, follow these steps:

→ Navigate to the **Zip Setup** object (M*c*). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'

→ Set the **COM Port** object (RS.COM) to select which serial port number on the North device the Zip network is connected

Checking Communications

You can check the interface is communicating by scanning the Zip System, and checking the **Module Information** object (M) within an individual Zip Module. The **Comms Ok** object (S) should be 'yes'.

Each Zip module also has a green OK light. When the light is on and not blinking, the interface is communicating with the module. Refer to *OK Light* for more details.

Alarms

When Zip Master detects an alarm, the driver sends a North-format alarm to the device's alarm processing.

Format

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

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

Point – depends on module type, see object specification below

Condition – depends on module type, see object specifications below

Priority – set using Alarm Priority object (P) within Zip input

Date & Time – from North device

Examples

System	Point	Condition	Priority	Date	Time
Zip System	Boiler Room Outside Air	Alarm	4	23/03/12	13:24:26
Zip System	Boiler Room Outside Air	Ok	4	23/03/12	13:24:45
Zip System	Boiler Room Door Contact	Closed	2	23/03/12	13:27:27
Zip System	Boiler Room Door Contact	Opened	2	23/03/12	13:29:05
Zip System	Boiler Room	Comms Fault	2	23/03/12	13:33:59
Zip System	Main Door	JTP - Valid	4	24/03/12	07:30:16
Zip System	Rear Door	JTP - Blocked	4	24/03/12	23:35:46
Zip System	Rear Door	No Reply from Security Server	4	25/03/12	02:22:12

Object Specifications

Once an interface has started, one or more extra objects become available within the top-level object of the device. 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 Zip System object (S2) contains Module 1 (M1), which contains Digital Input 2 (DI2), which contains a State (S) – therefore the complete object reference is 'S2.M1.DI2.S'.

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 (S2.M1.DI2.S) – therefore the complete object reference is 'IP.CDIP.S2.M1.DI2.S'.

Device Top-Level Objects

When an interface is started using the ZipMaster 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
Zip Setup Set up the ZipMaster driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: Within Commander: *[CDM v20\ZipMaster v11]* Within ObSys: *[OSM v20\ZipMaster v11]*
Zip System Zip system connected to interface *c* (*c* is the interface number)	S*c*	Variable Container: *[ZipMaster v11]*

ZipMaster Driver Setup

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

The ZipMaster driver contains the following objects:

Description	Reference	Type
COM Port	RS.COM	Obj\Num: 1…16; Adjustable
System Label Label displayed when scanning the system, and also used within alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
Max Device Address The maximum number of modules the ZipMaster automatically scans for	C	Obj\Num: 1…16; Adjustable
Default Tokens An optional small security token database for use with door control modules	DT	Fixed Container: *[ZipMaster v11\DefTkn v10]*

Default Tokens

Object Type: *[ZipMaster v11\DefTkn v10]*

This object holds access tokens for up to four users. Compatible Zip modules, such as the M7101 door controller, can be set to use these default tokens.

We recommend using the Security Server module within the North product rather than these default tokens. Security Server provides access for many more users.

Default Tokens contains the following objects:

Description	Reference	Type
Token *x* The token number, *x*, is in the range 1…4	T*x*	Fixed Container: *[ZipMaster v11\DefTkn v10\Tkn]*

Token

Object Type: *[ZipMaster v11\DefTkn v10\Tkn]*

This object holds the token and privilege level for a single user. It contains the following objects:

Description	Reference	Type
Token The token is usually the card number of the card belonging to the user	T	Obj\Text; Max. 20 chars; Adjustable
User Initials Used within alarm messages	N	Obj\Text; Max. 4 chars; Adjustable
Privilege Level	P	Obj\Num: 0…7; Adjustable Value: 0 is no access, 1 is the lowest privilege, and 7 is the highest

Zip System

Object Type: *[ZipMaster v11]*

A Zip System object is a variable container, which represents the Zip network. Scan the object to find the modules available. A system contains the following objects:

Description	Reference	Type
ZipModule *x* The Zip module address, x, is in the range 0…15	M*x*	Fixed container, depending on the module type: M7001A Module *[ZipMaster v11\M7001A v10]* M7002A Module *[ZipMaster v11\M7002A v10]* M7004A Module *[ZipMaster v11\M7004A v10]* M7006A Module *[ZipMaster v11\M7006A v10]* M7012A Module *[ZipMaster v11\M7012A v10]* M7101A Module *[ZipMaster v11\M7101A v10]* M7202A Module *[ZipMaster v11\M7202A v10]* M7203A Module *[ZipMaster v11\M7203A v10]* M7204A Module *[ZipMaster v11\M7204A v10]*

M7001A Module

Object Type: *[ZipMaster v11\M7001A v10]*

A *Zip M7001A* is a general-purpose module with the following input-output features:

- Eight digital inputs with override

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Digital Input *x* The input number, *x*, is in the range of 1…8	DI*x*	Fixed container: *[ZipMaster v11\BitIn v10\A]*

M7002A Module

Object Type: *[ZipMaster v11\M7002A v10]*

A *Zip M7002A* is a general-purpose module with the following input-output features:

- Six digital inputs with override
- Four relay outputs with override

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Digital Input *x* The input number, *x*, is in the range of 1…6	DI*x*	Fixed container: *[ZipMaster v11\BitIn v10\A]*
Digital Output *y* The output number, *y*, is in the range of 1…4	DO*y*	Fixed container: *[ZipMaster v11\BitOut v10\A]*

M7004A Module

Object Type: *[ZipMaster v11\M7004A v10]*

A *Zip M7004A* is a universal input output module with the following input-output features:

- Six scalable universal inputs (type A) with override – configurable for digital, monitored, 0-20mA, 0-5V DC, 0-10V DC, or thermistor (10K3A type) sensors
- Four scalable universal outputs with override – providing a digital or 0-10V DC output

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Universal Input *x* The input number, *x*, is in the range of 1…6	UI*x*	Fixed container: *[ZipMaster v11\WordIn v11\A]*
Universal Output *y* The output, *y*, is in the range of 1…4	UO*x*	Fixed container: *[ZipMaster v11\WordOut v11\A]*

M7006A Module

Object Type: *[ZipMaster v11\M7006A v10]*

A *Zip M7006A* is a universal input and relay output module, with the following input-output features:

- Six scalable universal inputs (type A) with override – suitable for a digital, monitored, 0-20mA, 0-5V DC, 0-10V DC, or thermistor (10K3A type) sensors
- Four relay outputs with override

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Universal Input *x* The input number, *x*, is in the range of 1…6	UI*x*	Fixed container: *[ZipMaster v11\WordIn v11\A]*
Digital Output *y* The output, *y*, is in the range of 1…4	DO*x*	Fixed container: *[ZipMaster v11\BitOut v10\A]*

M7012A Module

Object Type: *[ZipMaster v11\M7012A v10]*

A *Zip M7012A* is a mixed input output module with the following input-output features:

- Three digital inputs with override
- Two relay outputs with override
- Two scalable universal inputs (type B) with override – suitable for a digital, monitored, 0-20mA, 0-5V DC, 0-10V DC, or 10K3A thermistor sensors
- Two scalable 10V analogue outputs with override

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Digital Input *w* The input number, *w*, is in the range of 1…3	DI*w*	Fixed container: *[ZipMaster v11\BitIn v10\A]*
Digital Output *x* The output number, *x*, is in the range of 1…2	DO*x*	Fixed container: *[ZipMaster v11\BitOut v10\A]*
Analogue Input *y* The input number, *y,* is in the range of 1…2	AIy	Fixed container: *[ZipMaster v11\WordIn v11\A]*
Analogue Output *z* The output number, *z,* is in the range of 1…2	AO*z*	Fixed container: *[ZipMaster v11\WordOut v10\C]*

M7101A Module

Object Type: *[ZipMaster v11\M7101A v10]*

A *Zip M7101A* is a door-access controller module with the following input-output features:

- Wiegand card reader
- Lock output
- Door contact
- Two exit-request inputs
- Tamper switch

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Card Reader Configure the access level, security server object, and enable alarms	CR	Fixed container: *[ZipMaster v11\SecIn v10]*
Lock Override Manually lock and unlock the door	LO	Fixed container: *[ZipMaster v11\BitOut v10\BO]*
Door Contact Monitor the door contact state, and enable alarms	DC	Fixed container: *[ZipMaster v11\BitIn v10\CD]*
Tamper Monitor the door tamper state, and enable alarms	TMP	Fixed container: *[ZipMaster v11\BitIn v10\CD]*
Request to Exit Monitor the RTE input state, and enable alarms	RTE	Fixed container: *[ZipMaster v11\BitIn v10\CD]*
Aux Exit Monitor the AUX input state, and enable alarms	AUX	Fixed container: *[ZipMaster v11\BitIn v10\CD]*
Lock Timer Configure the duration that the door lock is energized for	LT	Fixed container: *[ZipMaster v11\WordOut v10\BT]*
Door Timer Configure the maximum duration that the door can remain open after access	DT	Fixed container: *[ZipMaster v11\WordOut v10\BT]*
Door Monitor Monitor the door contact state, and enable alarms	DM	Fixed container: *[ZipMaster v11\AlarmIn v10\D]*
Lock Monitor the door look state, and enable alarms	LK	Fixed container: *[ZipMaster v11\BitIn v10\C]*

M7202A Module

Object Type: *[ZipMaster v11\M7202A v10]*

A *Zip M7202A* is a four-line LCD display module with the following input-output features:

- Thermistor input – suitable for a 10K3A thermistor
- On-board audible buzzer output
- Four-line display with a four-button keyboard

A Zip M7202A display has two modes of operation – automatic or manual mode.

In automatic mode, the module will automatically display information from the connected North device's Essential Values. Just configure Keyboard (K) with the object reference.

In manual mode, another task can control aspects of the module – receiving a key press from the keyboard, and setting a line of text to display.

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Keyboard Set the operating mode, and Essential Values object	K	Fixed container: *[ZipMaster v11\DispIn v10\A]*
Line *x* In manual mode, set the display lines. The line number, *x,* is in the range of 1 (top)…4 (bottom)	L*x*	Fixed container: *[ZipMaster v11\TextOut v10\A]*
Backlight In manual mode, enable the display back light	BL	Fixed container: *[ZipMaster v11\BitOut v10\BE]*
Buzzer Enable the buzzer output	BZ	Fixed container: *[ZipMaster v11\BitOut v10\BE]*
Temperature Monitor the thermistor input, set the offset, and enable alarms.	AI	Fixed container: *[ZipMaster v11\WordIn v11\D]*

M7203A Module

Object Type: *[ZipMaster v11\M7203A v10]*

A *Zip M7203A* is a LED display module with the following input/output features:

- Up to eight button inputs
- Up to eight LED outputs, plus module OK light
- One digital auxiliary output

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Digital Input *i* Button available as a digital input, where *i* is in the range 1..8	DI*i*	Fixed container: *[ZipMaster v11\BitIn v10\A]*
Digital Output *o* LED available as a digital output, where *o* is in the range 1..8	DO*o*	Fixed container: *[ZipMaster v11\BitOut v10\A]*
Digital Aux Output Spare 12V DC output	DOS	Fixed container: *[ZipMaster v11\BitOut v10\A]*
Digital Output Test Setting this to On causes all LEDs to light	DOT	Fixed container: *[ZipMaster v11\BitOut v10\A]*

M7204A Module

Object Type: *[ZipMaster v11\M7204A v10]*

A *Zip M7204A* is a touch-screen display module with the following input/output features:

- Up to two thermistor inputs
- One digital output

The object allows the definition of the values that appear on the display, the colours used, and the control method used

It contains the following objects:

Description	Reference	Type
Module Information	M	Fixed container: *[ZipMaster v11\ModInfo v10]*
Variable *i* Contains the definition of a Variable value *i* which is presented to the user via the display, where *i* is in the range 1..20	V*i*	Fixed container: *[ZipMaster v11\VarValue v10\A]*
Display Parameters Contains a list of parameters to define the display, including colours and brightness levels	PA	Fixed container: *[ZipMaster v11\M7204A v10\BDPA]*
Control Parameters Contains a list of parameters to define the control that the module performs	PB	Fixed container: *[ZipMaster v11\M7204A v10\BDPB]*

Module Information

Object Type: *[ZipMaster v11\ModInfo v10]*

Each Zip module information object contains the following:

Description	Reference	Type
Label	L	Obj\Text: 20chars; Adjustable
Manufacturer Example: 'North'	M	Obj\Text
Module Type Example: 'M7004A v10'	T	Obj\Text
Comms Ok The Zip module is communicating (green LED solid)	S	Obj\NoYes
Last Restart	SD	Obj\DateTime
No. of Restarts Set value to '0' to reset counter	SC	Obj\Num: Range 0…65535; Adjustable
Alarm Priority Enables 'online/offline' alarms, see below	P	Obj\Num; Range 0..9; Adjustable Values: 0=no alarms are sent, 1…9=alarm priority (1 is the highest alarm priority, and 9 is the lowest)

Alarm Point and Condition Fields

Alarms can be sent by the module information object to indicate the comms ok state.

The ZipMaster driver places the following information into the North-format fields:

System – from Label object (L)

Condition – either 'Comms Fault' or 'Comms Ok'

Alarm Examples

System	Point	Condition	Priority	Date	Time
Zip System	Boiler Room	Comms Fault	2	23/03/12	13:33:59
Zip System	Boiler Room	Comms Ok	2	24/03/12	07:30:16

Door Monitor

Object Type: *[ZipMaster v11\AlarmIn v10\D]*

A door monitor object is a fixed container, representing the state of a door, and contains the following objects:

Description	Reference	Type
Label Used in alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
State State of the door	S	Obj\ENum: 0…2 Values: 0=Normal, 1=Held and 2=Forced
Alarm Priority Enables 'normal/held/forced' alarms, see below	P	Obj\Num; Range 0..9; Adjustable Values: 0=no alarms are sent, 1…9=alarm priority (1 is the highest alarm priority, and 9 is the lowest)
Alarm Delay (secs) Time that State should remain at the same value, before an alarm is sent	D	Obj\Num; Adjustable Range: 0…250 secs, 251=15mins, 252=30mins, 253=45mins, 254=1hr, 255=1hr15mins
Alarm Condition – Normal Used in alarm messages	C0	Obj\Text; 15 chars; Adjustable
Alarm Condition – Held Used in alarm messages	C1	Obj\Text; 15 chars; Adjustable
Alarm Condition - Forced Used in alarm messages	C2	Obj\Text; 15 chars; Adjustable

Alarm Point and Condition Field

The door monitor object can send alarms to indicate the door states: normal, door held, and door forced.

The ZipMaster driver places the following information into the North-format fields:

System – from Zip Module Label (M.L) and Label (L) objects

Condition – from Alarm Condition objects (C0, C1 and C2)

Alarm Examples

System	Point	Condition	Priority	Date	Time
Zip System	Rear Door Monitor	Held	2	23/03/12	13:27:27
Zip System	Rear Door Monitor	Normal	2	23/03/12	13:29:05

Digital Input with Override

Object Type: *[ZipMaster v11\BitIn v10\A]*

A digital input with override object is a fixed container, representing a real digital input, and contains the following sub-objects:

Description	Reference	Type
Label Used in alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
Hardware State Hardware input state	HS	Obj\OffOn
Invertor Enable If enabled, sets the State to the inverse of the Hardware State value	IE	Obj\NoYes; Adjustable
Override Enable If enabled, sets the State to the Override State value	OE	Obj\NoYes; Adjustable
Override State	OS	Obj\OffOn; Adjustable
State Calculated state of the Input	S	Obj\OffOn
Count Number of times Hardware State has changed from Off-to-On	C	Obj\Num; Range: 0…10,000,000; Adjustable
Destination Object Object reference of the object to set with the value of State, each time it changes.	DO	Obj\Obj; Adjustable
Destination Fails Count of successive failed attempts to set the Destination Object	DF	Obj\Num; Range: 0…9
Alarm Priority Enables 'off/on' alarms, see below	P	Obj\Num; Range: 0…9; Adjustable Values: 0=no alarms are sent, 1…9=alarm priority (1 is the highest alarm priority, and 9 is the lowest)
Alarm Delay (secs) Time that State should remain at the same value, before an alarm is sent	D	Obj\Num; Adjustable Range: 0…250 secs, 251=15mins, 252=30mins, 253=45mins, 254=1hr, 255=1hr15mins
Alarm Condition – Off Used in alarm messages	C0	Obj\Text; Max. 15 chars; Adjustable
Alarm Condition – On Used in alarm messages	C1	Obj\Text; Max. 15 chars; Adjustable

Alarm Point and Condition Field

The digital input object can send alarms to indicate the input states: on and off.

The ZipMaster driver places the following information into the North-format fields:

System – from Zip Module Label (M.L) and Label (L) objects

Condition – from Alarm Condition objects (C0 and C1)

Alarm Examples

System	Point	Condition	Priority	Date	Time
Zip System	Boiler Room Lockout	Occurred	2	23/03/12	13:27:27
Zip System	Boiler Room Lockout	Reset	2	23/03/12	13:29:05

On-Off Alarm Input

Object Type: *[ZipMaster v11\BitIn v10\C]*

An on-off alarm input object is a fixed container, representing an internal on-off state, and contains the following sub-objects:

Description	Reference	Type
Label Used in alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
State State of input	S	Obj\OffOn
Destination Object Object reference of the object to set with the value of State, each time it changes.	DO	Obj\Obj; Adjustable
Alarm Priority Enables ‘off/on’ alarms, see below	P	Obj\Num; Range: 0…9; Adjustable Values: 0=no alarms are sent, 1…9=alarm priority (1 is the highest alarm priority, and 9 is the lowest)
Alarm Delay (secs) Time that State should remain at the same value, before an alarm is sent	D	Obj\Num; Adjustable Range: 0…250 secs, 251=15mins, 252=30mins, 253=45mins, 254=1hr, 255=1hr15mins
Alarm Condition – Off Used in alarm messages	C0	Obj\Text; Max. 15 chars; Adjustable
Alarm Condition – On Used in alarm messages	C1	Obj\Text; Max. 15 chars; Adjustable

Alarm Point and Condition Field

The alarm input object can send alarms to indicate the input states: on and off.

The ZipMaster driver places the following information into the North-format fields:

System – from Zip Module Label (M.L) and Label (L) objects

Condition – from Alarm Condition objects (C0 and C1)

Alarm Examples

System	Point	Condition	Priority	Date	Time
Zip System	Back Room Contact Plate	On	2	23/03/12	13:27:27
Zip System	Back Room Contact Plate	Off	2	23/03/12	13:29:05

Closed-Open Alarm Input

Object Type: *[ZipMaster v11\BitIn v10\CD]*

A closed-open alarm input object is a fixed container, represents a door contact digital input, and contains the following objects:

Description	Reference	Type
Label Used in alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
State State of digital input	S	Obj\ENum: Range 0…1; Values: 0=Closed, 1=Open
Destination Object Object reference of the object to set with the value of State, each time it changes.	DO	Obj\Obj; Adjustable
Alarm Priority Enables 'closed/open' alarms, see below	P	Obj\Num; Range: 0…9; Adjustable Values: 0=no alarms are sent, 1…9=alarm priority (1 is the highest alarm priority, and 9 is the lowest)
Alarm Delay (secs) Time that State should remain at the same value, before an alarm is sent	D	Obj\Num; Adjustable Range: 0…250 secs, 251=15mins, 252=30mins, 253=45mins, 254=1hr, 255=1hr15mins
Alarm Condition – Closed Used in alarm messages	C0	Obj\Text; Max. 15 chars; Adjustable
Alarm Condition – Open Used in alarm messages	C1	Obj\Text; Max. 15 chars; Adjustable

Alarm Point and Condition Field

The closed-open alarm input object can send alarms to indicate the input states: closed and open.

The ZipMaster driver places the following information into the North-format fields:

System – from Zip Module Label (M.L) and Label (L) objects

Condition – from Alarm Condition objects (C0 and C1)

Alarm Examples

System	Point	Condition	Priority	Date	Time
Zip System	Back Room Door Contact	Open	5	23/03/12	13:27:27
Zip System	Back Room Door Contact	Closed	5	23/03/12	13:29:05

Digital Output with Override

Object Type: *[ZipMaster v11\BitOut v10\A]*

A digital output with override object is a fixed container, representing a real digital output, and contains the following sub-objects:

Description	Reference	Type
Label Used in alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
State State to output	S	Obj\OffOn; Adjustable
Override Enable If enabled, sets the Hardware State to the Override State value	OE	Obj\NoYes; Adjustable
Override State	OS	Obj\OffOn; Adjustable
Invertor Enable If enabled, sets the Hardware State to the inverse of the State value	IE	Obj\NoYes; Adjustable
Hardware State Calculated hardware output state	HS	Obj\OffOn

Enable Output

Object Type: *[ZipMaster v11\BitOut v10\BE]*

An enable output object is a fixed container, representing an enable option, and contains the following sub-objects:

Description	Reference	Type
Label	L	Obj\Text; Max. 20 chars; Adjustable
Enable Enable state of option	S	Obj\NoYes; Adjustable

Override Output

Object Type: *[ZipMaster v11\BitOut v10\BO]*

An override output object is a fixed container, representing an override output, and contains the following sub-objects:

Description	Reference	Type
Label	L	Obj\Text; Max. 20 chars; Adjustable
Override Override output state	S	Obj\NoYes; Adjustable

Display Keyboard

Object Type: *[ZipMaster v11\DispIn v10\A]*

A display keyboard object is a fixed container, represents the keyboard of a Zip display module, and contains the following sub-objects:

A Zip display has two modes of operation (M) – automatically display information from Essential Values, or manual operation.

In automatic mode, the module will use the Remote Object (RO) for the location of Essential Values to display. Specify the top-level of Essential Values, e.g. 'UD', or an individual page, e.g. 'UD.P1'

In manual mode, the module will use Remote Object (RO) to write the Key Pressed (V) value. This could be used with your own application.

Description	Reference	Type
Operating Mode	M	Obj\ENum: 0..1; Adjustable Values: 0=Automatic, 1=Manual
Remote Object In automatic mode, set to the object reference of Essential Values, e.g. 'UD' In manual mode, set the object reference to receive the Key Pressed value	DO	Obj\Obj; Adjustable
PIN In automatic mode, set the PIN required to make adjustments	P	Obj\Text; Max. 8 digits; Adjustable Value may be in the range 1 (left button)…3. For example: '12213';
New Alarm In automatic mode, an Alarm written to this object for will be displayed and sounds the buzzer. The buzzer can be silenced by the user from the keyboard	ALARM	Obj\Alarm; Adjustable
Key Pressed In manual mode, indicates the current button pressed by the user	V	Obj\Num; Range 0..4 0=NoButton, 1=LeftButton, 2=Centre Left Button, 3=CentreRight Button, 4=Right Button, 5=Both right-most buttons (causes reset in Automatic mode)

Access Card Reader

Object Type: *[ZipMaster v11\SecIn v10]*

An access card reader object is a fixed container, representing the card reader and validation functions within a door controller, and contains the following sub-objects:

Description	Reference	Type
Label Used in alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
Enable Enables card reader validation	E	Obj\NoYes; Adjustable
Area/Access Level The area and minimum access level required to open the door	AL	Obj\Num; Range: 11…99; Adjustable; The first digit specifies the security area that the door controls access to, and the second digit specifies the minimum access level within that area.
Security Server Object Set to the object reference of Security Server, e.g. 'TK' If no object is specified, card validation will be performed using the *Default Tokens* module	TO	Obj\Obj; Adjustable
Alarm Priority Enables alarms, see below	P	Obj\Num; Range 0..9; Adjustable Values: 0=no alarms are sent, 1…9=alarm priority (1 is the highest alarm priority, and 9 is the lowest)
Token Conversion Specify the card data format	TC	Obj\ENum; Range 0..3; Adjustable; Value: 0=None, 1=Standard 26-bit, 2=Cross Point 26-bit, 3=Reserved (KQ36)
Last Token Contains the last token presented to the card reader. Use this to assist in adding new tokens to the Security Server	LT	Obj\Text; Adjustable
Locator Enable Enables reporting to a Locator-style Security Server	LE	Obj\NoYes; Adjustable
Location If Locator operation is enabled, Area number into which this door allows access	LC	Obj\Num; Range: 0…9; Adjustable

Alarm Point and Condition Field

The access card reader object can send alarms when a user presents a token, indicating whether the Security Server (TO) successfully authenticated the token. The ZipMaster driver places the following information into the North-format fields:

System –from Zip Module Label (M.L) and Label (L) objects

Condition – see table below

The driver can send the following alarm conditions:

User Name – Valid	*User Name* - Blocked
Card - Refused	No Reply from Security Server

Alarm Examples

System	Point	Condition	Priority	Date	Time
Zip System	Rear Door Lock	John Smith - Valid	4	23/03/12	13:27:27
Zip System	Rear Door Lock	John Smith – Blocked	4	23/03/12	13:27:40
Zip System	Rear Door Lock	08876558124 – Refused	4	23/03/12	13:29:05

Text Output

Object Type: *[ZipMaster v11\TextOut v10\A]*

A text output object is a fixed container, representing a line of a text display, and contains the following sub-objects:

Description	Reference	Type
Label Not used	L	Obj\Text; Max. 20 chars; Adjustable
Value Text line to display	V	Obj\Text; Max. 20 chars; Adjustable

Scalable Universal Input with Override

Object Type: *[ZipMaster v11\WordIn v11\A]*

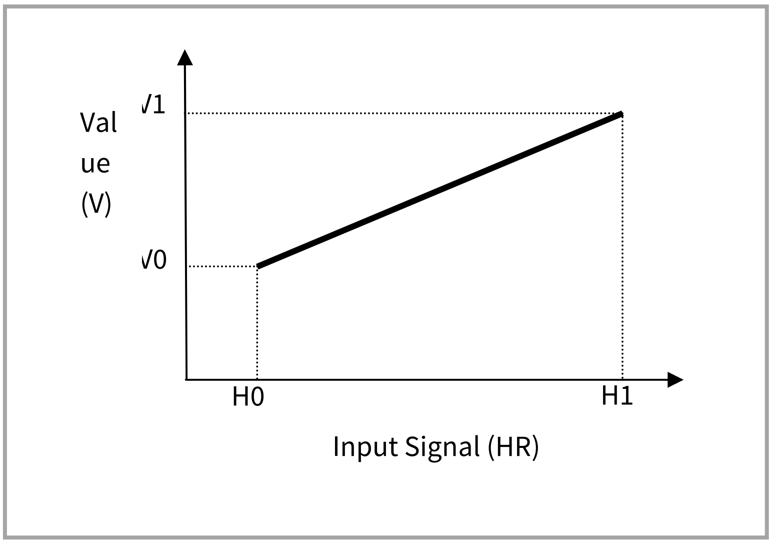
A scalable universal input with override object is a fixed container, representing a real universal input, and contains the following sub-objects:

Description	Reference	Type
Label Used in alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
Input Type Select input sensor type. Also set on-board jumpers to match input, refer to Zip Manual	T	Obj\ENum: Range 0…6; Adjustable Value: 0=5v, 1=10v, 2=20mA, 3=Thermistor; 4=Raw; 5=Digital; 6=Monitored
Input Signal from Hardware The hardware input value, depending on the Input Type	HR	Obj\Float: 0…20 Range depends on Input Type
Input Signal Low Limit See scaling calculation information below. Also used as lowest acceptable reading, below which the detector is in fault.	H0	Obj\Float: 0…20; Adjustable
Input Signal High Limit See scaling calculation information below. Also used as highest acceptable reading, above which the detector is in fault	H1	Obj\Float: 0…20; Adjustable
Value Low Limit See scaling calculation information below. For thermistor inputs, used to offset the thermistor input value (°C)	V0	Obj\Float: -10,000,000…10,000,000; Adjustable
Value High Limit See scaling calculation information below	V1	Obj\Float: -10,000,000…10,000,000; Adjustable
Override Enable If enabled, sets the Value to the Override Value	OE	Obj\NoYes; Adjustable
Override/Fault Value Used to set the Value when Override Enable is set, or if Input Reading is outside Scale range	OV	Obj\Float: -10,000,000…10,000,000; Adjustable
Value Precision Minimum change in Value before Value is re-written to Destination Object	HP	Obj\Float: 0…1,000.000; Adjustable
Value Calculated value of input in engineering units	V	Obj\Float Range: Scale 0 Value…Scale 1 Value
Destination Object Object reference of the object to set with the value of State, each time it changes.	DO	Obj\Obj; Adjustable
Destination Fails Count of successive failed attempts to set the Destination Object	DF	Obj\Num: 0…9
Alarm Low Limit If Value is less than this limit, then a low alarm status is reported	AL	Obj\Float: -10,000,000…10,000,000; Adjustable
Alarm High Limit If Value is greater than this limit, then a high alarm status is reported	AH	Obj\Float: -10,000,000…10,000,000; Adjustable

Description	Reference	Type
Alarm Status Calculated state using alarm low and high limits	AS	Obj\ENum: Range 0…4 Values: 0=Ok, 1=High Alarm, 2=Low Alarm, 3=Fault (i.e. Input Reading is outside Scale range), 4=Alarm
Alarm Priority Enables alarms, see below	P	Obj\Num; Range 0…9; Adjustable Values: 0=no alarms are sent, 1…9=alarm priority (1 is the highest alarm priority, and 9 is the lowest)
Alarm Delay (secs) Time that Alarm Status should be maintained before an alarm is sent	D	Obj\Num; Adjustable Range: 0…250 secs, 251=15mins, 252=30mins, 253=45mins, 254=1hr, 255=1hr15mins

Scaling Calculation

If the Input Type (T) is 5V, 10V, or 20mA, then the driver rescales the Input Signal (HR) using the Input Signal High/Low Limit objects (H0 and H1) and Value High/Low Limit objects (V0 and V1). It uses the following formula to calculate the Value (V).



V = (HR - H0) * (V1 - V0) / (H1 - H0) + V0

If Input Type (T) is raw, digital or monitored, then the driver does not perform scaling using the scale objects (H0, V0, H1, and V1).

If Input Type (T) is thermistor, then the driver does not perform scaling using the objects, but instead uses a pre-defined scale based on the curve of a 10K3A thermistor. However, the driver uses the Value Low Limit (V0) to offset the thermistor input value. The Value (V) is in the range -20…100°C.

Example Scaling Calculation

Consider a temperature sensor (not a thermistor) that provides a linear output signal in the range 0 to 1V DC. From the sensor's datasheet, the output is 0V at -30°C and 1V at +70°C with an actual operating range between -10°C and +60°C.

The scale is therefore 0.01V/°C, so we can calculate the actual output range as 0.2V at -10°C and 0.9V at +60°C.

To configure the universal input, set the Input Type (T) as '5V', Input Signal Low Limit (H0) to '0.2' and Input Signal High Limit (H1) to '0.9', then Value Low Limit (V0) to '-30' and Value High Limit (V1) to '60'. The Value (V) will then report the temperature from the sensor.

If the Input Signal (HR) is outside the range H0 to H1, the driver generates a fault alarm status, and sets the Value (V) to the Override/Fault Value (OV).

Alarm Point and Condition Field

The scalable universal input with override can send alarm messages to indicate changes in the alarm state. It places the following information into the North-format fields:

System – Zip Module Label (M.L) and Label (L) objects

Condition – see table below

The driver can send the following alarm conditions:

If Input Type (T) is 5v, 10v, or 20mA

Ok
High Alarm
Low Alarm
Fault

If Input Type (T) is Digital or Monitored

Ok
Fault
Alarm

Alarm Examples

System	Point	Condition	Priority	Date	Time
Zip System	Boiler Room Temperature	High Alarm	4	23/03/12	13:27:27
Zip System	Boiler Room Temperature	Ok	4	23/03/12	13:27:40
Zip System	Plant Room 15 Window Contact	Alarm	3	23/03/12	19:46:21

Thermistor Input

Object Type: *[ZipMaster v11\WordIn v11\D]*

A thermistor input object is a fixed container, representing a thermistor analogue input, and contains the following sub-objects:

Description	Reference	Type
Label Used in alarm messages	L	Obj\Text; Max. 20 chars; Adjustable
Value Temperature reading (°C)	V	Obj\Float; Range: -20…100°C
Offset Used to offset the thermistor input value	V0	Obj\Float: -100…100; Adjustable
Destination Object Object reference of the object to set with the value of Value, each time it changes.	DO	Obj\Obj; Adjustable
Destination Fails Count of successive failed attempts to set the Destination Object	DF	Obj\Num: 0…9
Alarm Status Calculated state using alarm low and high limits	AS	Obj\ENum: Range 0…4 Values: 0=Ok, 1=High Alarm, 2=Low Alarm, 3=Fault (i.e. Value is outside recognised range)
Alarm Priority Enables alarms, see below	P	Obj\Num; Range 0…9; Adjustable Values: 0=no alarms are sent, 1…9=alarm priority (1 is the highest alarm priority, and 9 is the lowest)
Alarm Delay (secs) Time that Alarm Status should be maintained before an alarm is sent	D	Obj\Num; Adjustable Range: 0…250 secs, 251=15mins, 252=30mins, 253=45mins, 254=1hr, 255=1hr15mins
Alarm Low Limit If Value is less than this limit, then a low alarm status is reported	AL	Obj\Float: -20…100; Adjustable
Alarm High Limit If Value is greater than this limit, then a high alarm status is reported	AH	Obj\Float: -20…100; Adjustable

Alarm Point and Condition Field

The thermistor input can send alarms to indicate changes in the alarm state. It places the following information into the North-format fields:

System – Zip Module Label (M.L) and Label (L) objects

Condition – see table below

The driver can send the following alarm conditions:

Ok
High Alarm
Low Alarm
Fault

Alarm Examples

System	Point	Condition	Priority	Date	Time
Zip System	Boiler Room Temperature	High Alarm	4	23/03/12	13:27:27
Zip System	Boiler Room Temperature	Ok	4	23/03/12	13:27:40

Adjustable Timer

Object Type: [ZipMaster v11\WordOut v10\BT]

An adjustable timer object is a fixed container, representing a timer duration value, and contains the following sub-objects:

Description	Reference	Type
Label	L	Obj\Text; Max. 20 chars; Adjustable
Time (seconds) Timer duration	V	Obj\Float: 0…8000.00

Scalable 10V Output with Override

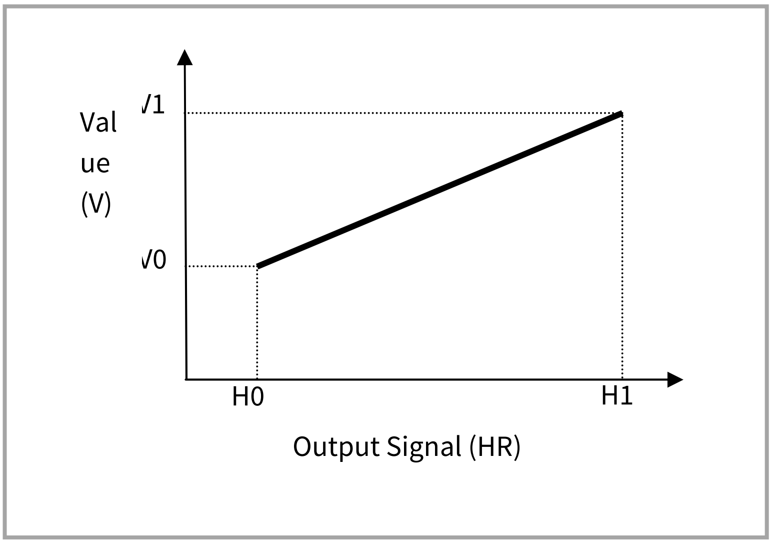
Object Type: [ZipMaster v11\WordOut v10\C]

A scalable 10V output with override object is a fixed container, representing a 0-10 volt analogue output, and contains the following sub-objects:

Description	Reference	Type
Label	L	Obj\Text; Max. 20 chars; Adjustable
Value Value to output in engineering units	V	Obj\Float: -10,000,000…10,000,000
Override Enable If enabled, sets the Output Reading to the Override Value	OE	Obj\NoYes; Adjustable
Override Value	OV	Obj\Float: -10,000,000…10,000,000; Adjustable
Value Low Limit See scaling calculation information below	V0	Obj\Float: -10,000,000…10,000,000; Adjustable
Value High Limit See scaling calculation information below	V1	Obj\Float: -10,000,000…10,000,000; Adjustable
Output Signal Low Limit See scaling calculation information below.	H0	Obj\Float: 0…10; Adjustable
Output Signal High Limit See scaling calculation information below.	H1	Obj\Float: 0…10; Adjustable
Output Signal to Hardware Calculated hardware output voltage	HR	Obj\Float: 0…10

Scaling Calculation

The driver scales the Value (V) using the following formula to calculate the Output Signal (HR):



HR = (V – V0) / (V1 – V0) * (H1 – H0) + H0

Example

Consider a motorized valve that accepts an input signal in the range 0 to 10V DC. From the valve's datasheet, the valve closes when its input voltage is 0V and opens at 10V.

To configure the output to use a percentage open value, set Value Low Limit (V0) to '0' and Value High Limit (v1) to '100', then set Output Signal Low Limit (H0) to '0' and Output Signal High Limit to '10'.

Other tasks can then use the Value (V) object to control the valve, with a value in the range 0 to 100.

Thermistor Setpoint

Object Type: [ZipMaster v11\WordOut v10\D]

A thermistor setpoint object is a fixed container, represents a setpoint for control, and contains the following sub-objects:

Description	Reference	Type
Label	L	Obj\Text; Max. 20 chars; Adjustable
Value Temperature setpoint	V	Obj\Float: 5…70; Adjustable
Override Enable If enabled, use the Override Value as the setpoint	OE	Obj\NoYes; Adjustable
Override Value	OV	Obj\Float: 5…70; Adjustable

Scalable Universal Output with Override

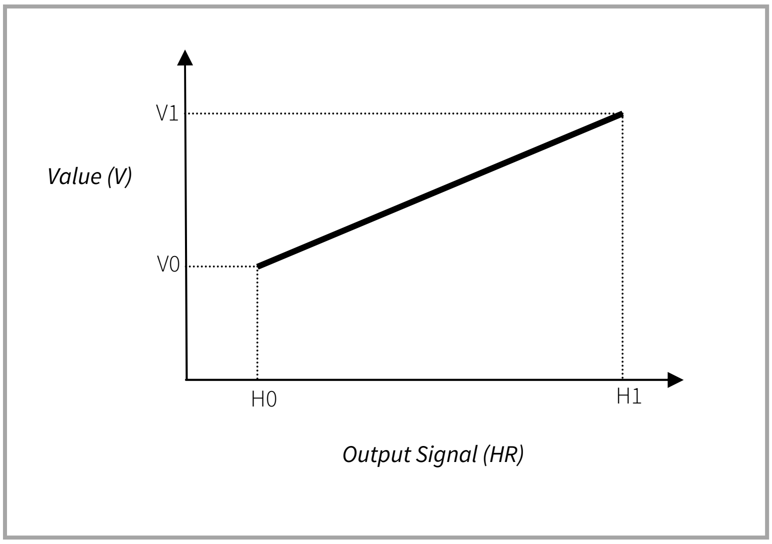
Object Type: *[ZipMaster v11\WordOut v11\A]*

A scalable universal output with override object is a fixed container, representing a real universal output, and contains the following objects:

Description	Reference	Type
Label	L	Obj\Text; Max. 20 chars; Adjustable
Output Type Select the output actuator type. Also set on-board jumpers to match output	T	Obj\ENum; Range 1,4,5; Adjustable Value: 1=10V, 4=Raw, 5=Digital
Value Value to output in engineering units	V	Obj\Float: -10,000,000…10,000,000
Override Enable Use the Override Value, rather than the Value, to calculate the output signal	OE	Obj\NoYes; Adjustable
Override Value When Override Enable is set to 'yes', the value to output in engineering units	OV	Obj\Float: -10,000,000…10,000,000; Adjustable
Value Low Limit See scaling diagram below.	V0	Obj\Float: -10,000,000…10,000,000; Adjustable
Value High Limit See scaling diagram below.	V1	Obj\Float: -10,000,000…10,000,000; Adjustable
Output Signal Low Limit See scaling diagram below.	H0	Obj\Float: 0…10; Adjustable
Output Signal High Limit See scaling diagram below.	H1	Obj\Float: 0…10; Adjustable
Output Signal to Hardware Calculated hardware output value, depending on the Output Type	HR	Obj\Float: 0…10

Scaling Calculation

If the Output Type (T) is 10V, then the Value (V) is scaled using the following formula to calculate the Output Signal (HR). If Override Enable (OE) is set to 'Yes', the Override Value (OV) is used instead on the



Value (V).

$$HR = (V - V0) / (V1 - V0) * (H1 - H0) + H0$$

Example

Consider a motorized valve that accepts an input signal in the range 0 to 10V DC. From the valve's datasheet, the valve is closed at 0V and open at 10V.

To configure the output to use a percentage open value, first set the Output Type (T) to '10V', then set Value Low Limit Value (V0) as '0' and High Limit Scale (V1) as '100', finally set Output Signal Low Limit (H0) as '0' and Output Signal High Limit (H1) as '10'.

The Value (V) is then used to control the valve, with a value in the range 0% to 100%.

Variable Value

Object Type: *[ZipMaster v11\VarValue v10\A]*

A variable value object is a fixed container, representing a value that the user can adjust using a display, and contains the following objects:

Description	Reference	Type
Label	L	Obj\Text; Max. 20 chars; Adjustable
Variable Type The type of the value, for formatting and adjustment purposes	T	Obj\ENum; Adjustable; where 0=NoYes, 1=OffOn, 2=Num, 3=Float, 4=ENum
Adjustable Whether the user can adjust the value with the display	A	Obj\NoYes; Adjustable
High Limit If the variable is of type Num or Float, the limit to which the user can increase the value using the display. If the variable is of type NoYes, OffOn, Num, or Float, and the value is above this limit, the value will be shown in the alert colour	VH	Obj\Float; Adjustable
Low Limit If the variable is of type Num or Float, the limit to which the user can decrease the value using the display. If the variable is of type NoYes, OffOn, Num, or Float, and the value is below this limit, the value will be shown in the alert colour	VL	Obj\Float; Adjustable
Alternatives If the variable is of type ENum, contains a list of alternative meanings,	EA	Obj\Text; Max. 31 chars; Adjustable
Decimal Places If the variable is of type Float, defines how many decimal places to include in the display, and defines increase and decrease amounts	D	Obj\ENum; Adjustable; where 0=None, 1=0.1 accuracy, 2=0.01 accuracy; 3=0.001 accuracy, 4=0.0001 accuracy, 5=0.5 accuracy
Value The current value of the variable	V	Obj\Text; Adjustable
Remote Object If specified, is the object reference of the remote value to read and write	DO	Obj\Obj; Adjustable
Remote Fails If a Remote Object is specified, this indicates consecutive reads or writes that have failed with the remote object	DF	Obj\Num; Range 0..9
Local Object If specified, is the object reference of a object local to the display itself. The object will read and write this local object. The object must be an object within the Display or Control Parameter objects, with a reference Px.yy	LO	Obj\Obj; Adjustable

M7204A Display Parameters

Object Type: *[ZipMaster v11\M7204A v10\BDPA]*

An M7204 Display Parameters object is a fixed container, containing parameters that affect the display of the M7204. It contains the following sub objects:

Description	Reference	Type
Theme 0 Text colour Text colour when theme 0 is selected	CA	Obj\WinClr; Adjustable
Theme 0 Background colour Background colour when theme 0 is selected	CB	Obj\WinClr; Adjustable
Theme 0 Button colour Button icon colour when theme 0 is selected	CC	Obj\WinClr; Adjustable
Theme 0 Alert colour Alert colour when theme 0 is selected	CD	Obj\WinClr; Adjustable
Colour Theme When set to ‘0’, the display uses the colours in the objects above. When set to any other value, the display uses values from a pre-defined table within the M7204A	BI	Obj\Num; Adjustable; Range 0..58
Brightness when Idle	BM	Obj\Num; Adjustable; Range 0..9, where 0 is off, 1 is dim, 9 is brightest
Brightness when Active	BM	Obj\Num; Adjustable; Range 0..9, where 0 is off, 1 is dim, 9 is brightest

M7204A Control Parameters

Object Type: *[ZipMaster v11\M7204A v10\BDPB]*

An M7204 Control Parameters object is a fixed container, containing parameters that affect the control aspects of the M7204. It contains the following sub objects:

Description	Reference	Type
Output 1 Mode	BA	Obj\ENum; Adjustable; where 0=None, 1=Air, 2=AirFloor
Output 1 Enable If Mode='None': controls the Output 1 state If Mode='Air' or 'AirFloor': if set to 'Yes', enables the control operation, which in turn controls the Output state; if set to 'No', Output state is set to 'Off'	BB	Obj\NoYes; Adjustable
Output 1 State State of hardware output O1	BU	Obj\OffOn
Air Temperature Reading from input I1, with Air Sensor Offset applied. See Note 1	FG	Obj\Float; Decimals: 1; Range: 0..40
Floor Temperature Reading from input I2, with Floor Sensor Offset applied. See Note 1	FH	Obj\Float; Range: 0..40
Air Setpoint	FB	Obj\Float; Adjustable; Range: 5..40
Floor Maximum	FC	Obj\Float; Adjustable; Range: 5..40
Input 1 Offset	FD	Obj\Float; Adjustable; Range: -10..10
Input 2 Offset	FE	Obj\Float; Adjustable; Range: -10..10
Output 2 Enable	BC	Obj\NoYes; Adjustable
Output 2 State State of hardware output O2	BV	Obj\OffOn

Notes

1. When open-circuit (i.e. When an open switch is connected), the input has a value of '0', before the offset is applied. When short-circuit (i.e. When a closed switch is connected), the input has a value '1', before the offset is applied.

Appendix A: Module Input-Output Summary

Model	Description	Universal Input	Digital Input	Thermistor Input	Button Input	Universal Output	Analogue Output	Relay Output	Digital Output	LED Output	Requires Net Card
M7001A	Digital input module		8								Yes
M7002A	Digital input relay output module		6					4			Yes
M7004A	Universal input output module	6				4					Yes
M7006A	Universal input relay output module	6						4			Yes
M7012A	Mixed input output module	2	3				2	2			Yes
M7101A	Door controller module		4						1		No
M7202A	Text display module			1							No
M7203A	LED display module				8				1	8	No
M7204A	Smart Switch display module			2	4				2		No

Appendix B: ZipMaster Driver Versions

Version	Build Date	Details
1.0	10/11/2000	Driver released
1.1	12/04/2005	Alarm Delay (for object type WordIn v10\A) now supports up to 1 hour
1.1	04/09/2006	Enhance display handling
1.1	18/07/2007	Compatible with OSS module in OBVEngine/ObVerse Process
1.1	17/12/2010	New hardware type handling
1.1	22/05/2012	Added destination fail objects to WordIn and BitIn types
1.1	8/10/2013	Improved module type checking before wiping objects when changing module Added support for Profile object type in display module Improved editing of Times object type in display module Resolved issue with powering off ZipMaster when a module is unresponsive
1.1	19/3/2014	Resolved issue with module at address 0 settings corruption when using a display module.
1.1	16/6/2014	Improved handling of message echo corruption from NC12B
1.1	9/9/2016	Resolved issue with ENum object type in display module: blank alternatives truncated list Added support for M7204A Smart Switch display module.
1.1	17/03/17	M7204: two outputs; larger choice of themes

Next Steps…

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

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