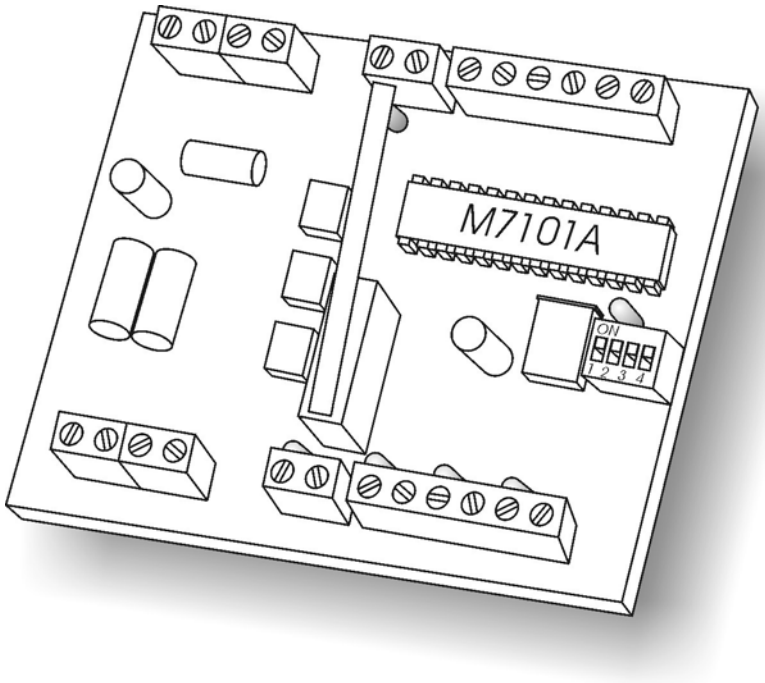
Product Engineering Guide
ZIP Module 7101A

Introduction

With the decrease of large programmable controllers and the increase of 'fixed function' controllers being used in buildings there is a growing need for a cost effective way of picking up extra inputs and outputs. ZiP is a modular data acquisition system. It is designed to operate either within a control panel or stand-alone.

A 'ZIP System' is a collective term for the connection of ZIP Modules, ZIPNet, and a ZIPMaster. Some ZIP Modules link together in a 'daisy chain' style using PowerZIP connectors, while others have power and ZIPNet connections built in. A module with built in power and ZIPNet connections is the M7101A.

ZIP M7101A



(87mm x 72mm)

The ZIP M7101A is North Building Technologies' door access module. It is normally wired to a reader and a magnetic-lock (referred to as a Lock in this document). There are also terminal blocks for the wiring of various volt-free switches for monitoring door and requesting the door to open. The ZIP M7101A has tamper switches for monitoring the lid of the enclosure, or an external switch if it is to be mounted within a secondary enclosure.

When the module is connected with power running through it, the green LED beside the Address Switch should be permanently on or flashing. The flashing shows the module is working properly, and as soon as the master has started to communicate with the module the LED will remain continuously lit.

Engineering

Step 1 – Power down ZIP System

Before connecting the ZIP M7101A to the ZIPNet, turn off the power to the Zip System.

Step 2 – Set the ZIP Module's Address

Set the ZIP Module's unique address using the Address Switch. The address of a module must be in the range of 0-15.

Step 3 – Connecting the 12V power supply

Connect a 12VDC @ 1A power supply to one side of the ZIP M7101A. See section ***'Power Supply and Network'***

Step 4 – Connecting the ZIP Net

Using RS485 cable connect the ZIP M7101A to your ZIPMaster. See section ***'Power Supply and Network'***

Step 5 – Connect External Hardware

Wire the Reader, Lock, Request to Exit button and Door contact to the ZIP Module. The M7101A has a 12VDC output for powering the Lock.

Note: Additionally, the External Tamper should be connected at this point if required. For further information on the External Hardware see the *M7101 Product Installation Guide*

Step 6 – Power up ZIP System, including the M7101A

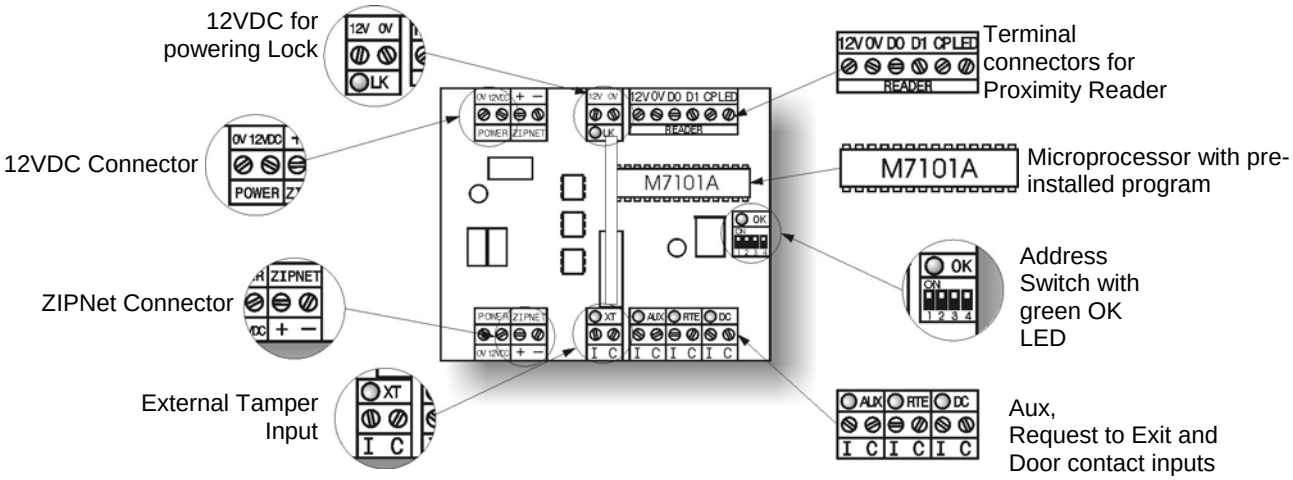
When power is re-applied, the green LED beside the address switch should flash on and off to show the module is working properly. As soon as the master is communicating with the module, the LED will remain continuously lit. If the module fails to communicate with the master the LED will continue to flash.

Step 7 – Object Engineering

Use object-engineering software to access your ZIPMaster and set up the objects within the M7101A.

For greater detail see the relative sections in ***'M7101A Objects'.***

Data from your ZIP Module can now be accessed to test that it is functioning correctly.



Address Switch

The Address Switch allows the module address to be set. There are 16 different addresses available, set with different combinations of the 4 switches labelled 1 to 4. Up is on and down is off.

Module Address	Switch Position			
	1	2	3	4
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

Module Address	Switch Position			
	1	2	3	4
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

Examples

With the Address Switch set with 1=on, 2=off, 3=on, 4=off, the modules address will be 5.

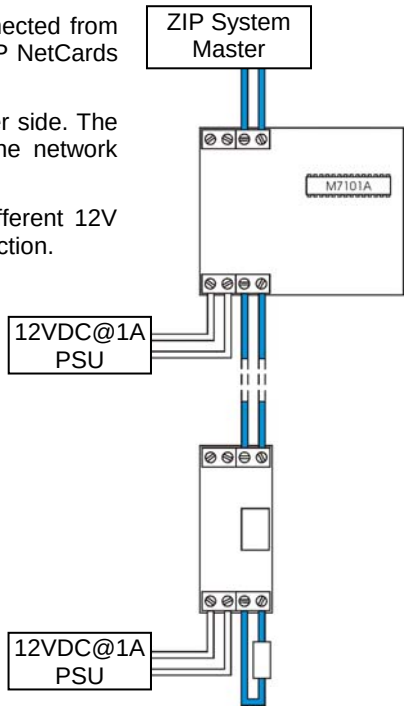
With the Address Switch set with 1=on, 2=off, 3=off, 4=on, the modules address will be 9.

Power Supply and Network

The ZIP M7101A must have a power supply of 12VDC @ 1A, which can be connected from either side. The 12V-power supply can also be linked to further ZIP M7101A or ZIP NetCards on the ZIPNet, but each card must have 1A.

Like the power supply, the ZIPNet from the ZipMaster can be connected from either side. The last ZIP module on the ZIPNet may require a terminator of 125ohms across the network connectors.

With the ZIPNet having a maximum length of 1000m, ZIP modules can have different 12V power supplies. The ZIP M7101A's ZIPNet is isolated, simplifying power supply selection.



M7101A Objects

Once the door access hardware has been correctly wired in to the module and the 12VDC power has been connected to the ZIP System, access your ZIP Master using Object Engineering software and set up the objects within the M7101A.

Reader CR

The Reader provides the M7101A with Tokens (from a Wiegand input) to compare with the User List in the TokenMax Object. The Last Token Object can be used during engineering to find out the token on a card.
The Reader Object has the following objects that require engineering:

Label: The label is used in alarm generation.
Enable: If the Reader is not enabled then the Lock will not be released when a valid card is present.
Area/Access level: The Area/Access level is a two digit number in the range of 11 to 87. The first digit refers to the Privilege area; the second refers to the level of access within the Privilege area. (With 7 being the highest, 1 being the lowest)
TokenMax Object:* For the Reader to function it needs to have the reference of a TokenMax device. The ZipMaster has a TokenMax User list (object reference of DT) that has up to 4 users. Alternatively a TokenMax device could be present elsewhere, which can have a maximum of 2000 users.

- **If no TokenMax object is specified in the Card Reader set up, all tokens will be referred to the ZipMasters' internal User List DT**.

Token Conversion: Allow the engineer the decide if the token is read in its raw data for (none) or in the decimal format (26bit)
Alarm Priority: Alarm Priority has a scale from 1 to 9 (1 being the highest, 9 being the lowest). If no priority is set then an alarm will not be generated when a card is present.
Last Token: The Last Token object doesn't require engineering, but is a record of the Token from the last card presented to the Reader. This can aid the engineering of a "user" within a TokenMax.

Lock Override LO

The Lock Override can be written to from an external system so the door can be opened without any intervention from the door controller.
The Lock Override Object has the following objects that require engineering:

Label: The label is used in alarm generation.
State: The state doesn't require engineering but can be written to by other objects to disable the Lock.

Door Contact DC

The Door Contact will monitor the open\closed state of the door. The Door Monitor object uses the Door Contact object to generate Normal, Held and Forced alarms.
The Door Contact Object has the following objects that require engineering:

Label: The label is used in alarm generation.
State: The state doesn't require engineering.
Destination Object: The Destination Object doesn't require engineering for the operation of the M7101A, but if an object reference is applied then a 1 to 0 value is generated on change of state.

***Alarm Priority**: Alarm Priority has a scale from 1 to 9 (1 being the highest, 9 being the lowest). If no priority is set then an alarm will not be generated when the door is opened.*

Alarm Delay: The Alarm Delay specifies how long Door Contact has to be in a *change of state* before an alarm is generated.
Alarm Condition – Closed: If 'no Alarm Condition – Closed' is specified then an alarm is not generated for door closed state.
Alarm Condition – Open: If 'no Alarm Condition – Open' is specified then an alarm is not generated for door open state.

Tamper TMP

Once the Tamper is engineered it will generate an alarm every time the lid of the M7101A enclosure is removed. If the module is to be mounted inside a secondary enclosure, the External Tamper input can be connected.
The Tamper Object has the following objects that require engineering:

Label: The label is used in alarm generation.
State: The state doesn't require engineering.
Destination Object: The Destination Object doesn't require engineering for the operation of the M7101A, but if an object reference is applied then a 1 to 0 value is generated on change of state.

***Alarm Priority**: Alarm Priority has a scale from 1 to 9 (1 being the highest, 9 being the lowest). If no priority is set then an alarm will not be generated for a Tamper.*

Alarm Delay: The Alarm Delay specifies how long Tamper contact has to be in a *change of state* before an alarm is generated.

Alarm Condition – Closed: If 'no Alarm Condition – Closed' is specified then an alarm is not generated for Tamper closed state.

Alarm Condition – Open: If 'no Alarm Condition – Open' is specified then an alarm is not generated for Tamper open state.

Request to Exit RTE

The Request should be wired to a normally open switch. When pressed it will release the Lock without the need to present a valid token.
The Request to Exit Object has the following objects that require engineering:

Label: The label is used in alarm generation.
State: The state doesn't require engineering.
Destination Object: The Destination Object doesn't require engineering for the operation of the M7101A, but if an object reference is applied then a 1 to 0 value is generated on change of state.

***Alarm Priority**: Alarm Priority has a scale from 1 to 9 (1 being the highest, 9 being the lowest). If no priority is set then an alarm will not be generated for a Request to Exit.*

Alarm Delay: The Alarm Delay specifies how long Request to Exit contact has to be in a *change of state* before an alarm is generated.
Alarm Condition – Pressed: If 'no Alarm Condition – Pressed' is specified then an alarm is not generated when the RTE button is pressed.
Alarm Condition – Released: If 'no Alarm Condition – Released' is specified then an alarm is not generated when the RTE button is released.

AUX Exit AUX

The AUX Exit Object does not require engineering for the M7101A to operate but can be used for an Aux Request to Exit:

Label: The label is used in alarm generation.
State: The state doesn't require engineering.
Destination Object: The Destination Object doesn't require engineering for the operation of the M7101A, but if an object is reference applied then a 1 to 0 value is generated on change of state.

***Alarm Priority**: Alarm Priority has a scale from 1 to 9 (1 being the highest, 9 being the lowest). If no priority is set then an alarm will not be generated for AUX.*

Alarm Delay: The Alarm Delay specifies how long AUX contact has to be in a *change of state* before an alarm is generated.
Alarm Condition – Pressed: 'If no Alarm Condition' – Pressed is specified then an alarm is not generated when the AUX button is pressed.
Alarm Condition – Released: 'If no Alarm Condition' – Released is specified then an alarm is not generated when the AUX button is released.

Lock Timer LT

The Lock Timer Object has the following objects that require engineering:

Label: The label is used in alarm generation.
Value (seconds): The Value disables the Lock for a period of time when either a valid card is present or when the RTE or AUX is pressed.

Door Timer DT

The Door Timer Object has the following objects that require engineering:

Label: The label is used in alarm generation.
Value (seconds): The Value is used in alarm generation and is a value for how long the door can remain open.

Door Monitor DM

The Door Monitor Object has the following objects that require engineering:

Label: The label is used in alarm generation.
State: The state doesn't require engineering.
Destination Object: The Destination Object doesn't require engineering for the operation of the M7101A, but if an object reference is applied then a 1 to 0 value is generated on change of state.

***Alarm Priority**: Alarm Priority has a scale from 1 to 9 (1 being the highest, 9 being the lowest). If no priority is set then an alarm will not be generated when the door is opened.*

Alarm Delay: The Alarm Delay specifies how long Door Monitor has to be in a *change of state* before an alarm is generated.
Alarm Condition – Normal: If 'no Alarm Condition – Normal' is specified then an alarm is not generated for the door when it is in the normal state.
Alarm Condition – Held: If 'no Alarm Condition – Held' is specified then an alarm is not generated if the door is held open.

Alarm Condition – Forced: If 'no Alarm Condition – Forced' is specified then an alarm is not generated if the door is forced open.

Lock LK

The Lock Object has the following objects that require engineering:

Label: The label is used in alarm generation.
State: The state doesn't require engineering.
Destination Object: The Destination Object doesn't require engineering for the operation of the M7101A, but if an object reference is applied then a 1 to 0 value is generated on *change of state*.

***Alarm Priority**: Alarm Priority has a scale from 1 to 9 (1 being the highest, 9 being the lowest). If no priority is set then an alarm will not be generated when the door is opened.*

Alarm Delay: The Alarm Delay specifies how long Lock has to be in a *change of state* before an alarm is generated.
Alarm Condition – Off: If 'no Alarm Condition – Off' is specified then an alarm is not generated when the Lock is de-energised.
Alarm Condition – On: If 'no Alarm Condition – On' is specified then an alarm is not generated when the Lock is energised.

Once the M7101A Objects have been engineered data from your ZIP Module can be accessed to test that it is functioning correctly.