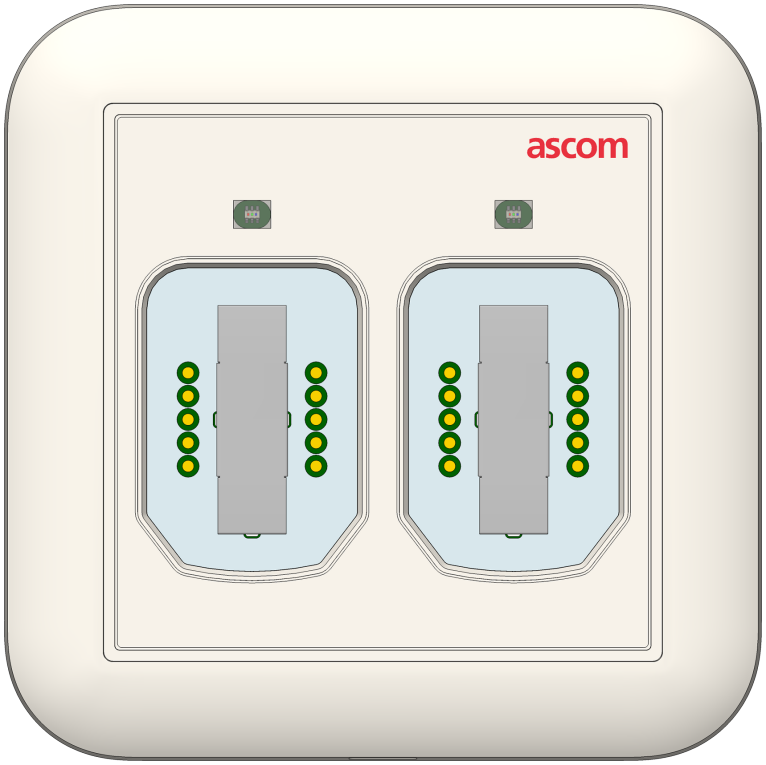
INSTALLATION GUIDE



External Input Module (NUMI2A-HE)

ascom

1 Introduction

1.1 Symbols

Important Safety Information

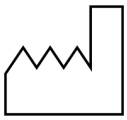
The External Input Module (NUMI2A) Installation Guide contains important instructions when installing and maintaining the NUMI2A. To ensure a safe working environment during the installation and operation of the NUMI2A, the following safety symbols appear throughout this document and on product labeling to indicate dangerous conditions, product information, and important safety instructions.

Read the manual for more information.

Caution: Use extreme caution and follow instructions carefully.

Pay particular attention to statements referred to by a note.

Separate collection for EEE (Electrical and Electronic Equipment)



Date/Time of Production

Name/Address of Manufacturer

Serial Number

RoHS China

Reference manufacturer catalogue number

Medical Device

Unique Device Identification

European Conformity Mark

UK Conformity Mark

AU Regulatory Mark

UL Certification Mark

1.2 Caution and Notes

WARNING: The Product must only be installed by trained authorized personnel. This includes Ascom/Partners staff and any other person specifically trained and explicitly authorized by Ascom. Without an explicit, direct authorization from Ascom, the healthcare organization staff are not authorized to perform installation procedures and/or to modify the Product configuration.

1.3 Description

The External Input module (NUMI2A) resides on the active room bus. The module has two Ascom SafeConnect sockets on the front face and two RGB LEDs (one above each socket).

1.4 Installation

The NUMI2A has an IP40 ingress protection. The areas where NUMI2As are to be installed must be clean, dry, and weatherproof. The walls should be finished (painted, wall papered, tiled, etc.) before the devices are installed. The length of stripped cable and the length of exposed copper wire shall conform to the installation instructions for each module that is to be connected.

2 Mounting

The base of the NUMI2A mounts to a backbox, or to a wall using a surface-mounting spacer (NUSP1-HE).

Caution: To prevent a fire hazard because of dust buildup inside the NUMI2A, regular inspections and/or cleaning of the NUMI2A are required.

Caution: Take proper measures to avoid spreading dust and other particles when applying maintenance to an NUMI2A that is mounted inside a clinical area.

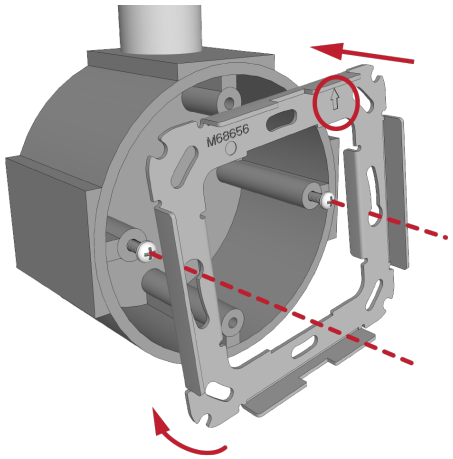
2.1 Mount the NUMI2A onto a backbox

To attach an adapter to a backbox:

1. For EU-style or UK-style backboxes, loosen the screws from the backbox so that approximately 5 mm extend out from the backbox and the heads of the screws can pass through the keyhole slots on the adapter plate.

   The screw distance for the backboxes must be 60 mm (2.36 in.).

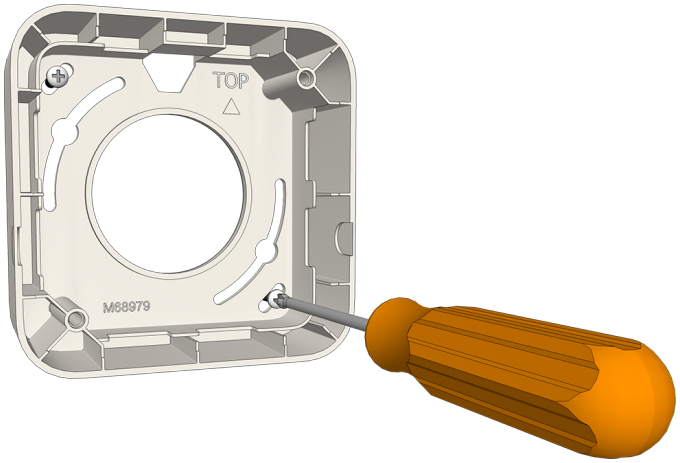
2. Place the adapter (with the arrow facing up, see below) over the backbox and ensure that it is level, and then tighten the screws.



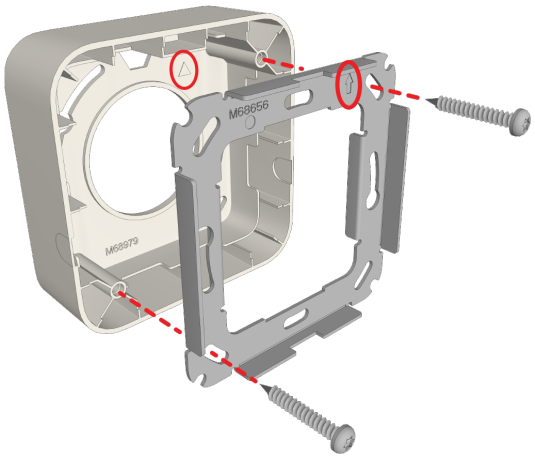
2.2 Mount the NUMI2A onto a spacer

To attach an adapter to a spacer (NUSP1–HE):

1. Place the spacer against a flat wall and orient it so that “TOP” (printed on the inside of the spacer) is pointing up and that the spacer is level. Use a leveling device to check, if necessary.



2. Using the spacer as a template, mark two holes for the screws using the outer fitting holes located in the corners of the spacer.
3. Remove the spacer and drill screw holes for the screws that will be used, such as wood, concrete, or drywall screws, or screws with anchors.
4. Remove the knockouts in the spacer for the cable wires.
5. Place the spacer over the holes, insert the screws, and then tighten.
6. Place the adapter over the spacer ensuring that it fits inside the spacer's housing.



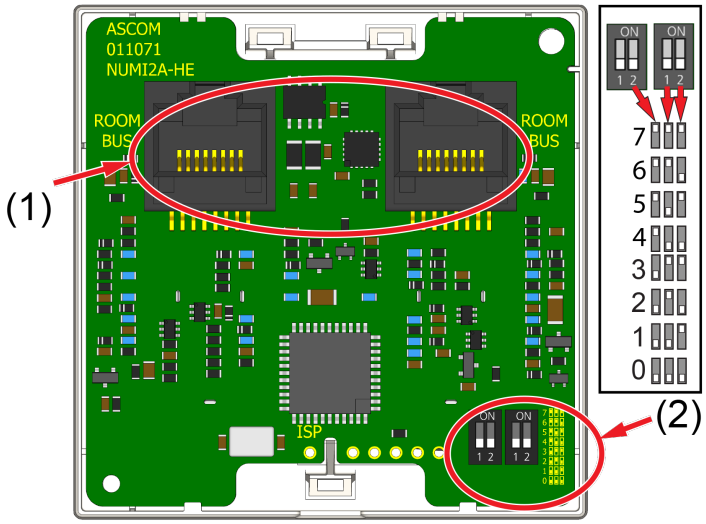
7. Insert the screws though the adapter plate and into the spacer, and then tighten the screws.
8. Pull the connection cables through the knockout holes.

2.3 Connections and DIP Switch Settings

The Device Selector ID is a unique number assigned to a room module when modules of the same type are attached to the same room bus.

Before mounting the NUMI2A to the adapter, make all room bus connections and DIP switch settings. Be sure that required cables are properly connected. The following figure shows the locations for each cable and the DIP switches.

Figure 1. Module connections and DIP switches



Legend

(1) 2 x RJ-45 connections to room bus

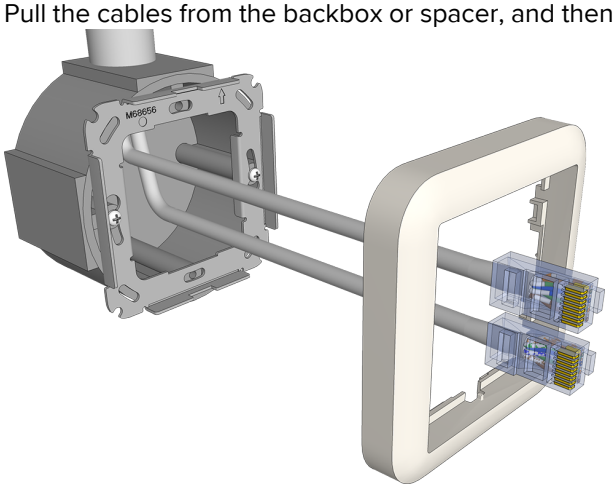
(2) DIP switches for Device Selector ID

Setting the DIP switches:

1. Set the DIP switches for the Device Selector ID (0...7), as shown in Figure 1, item 2.
2. Using a small screwdriver, gently slide the switch up for “ON” or slide it down for “OFF.”

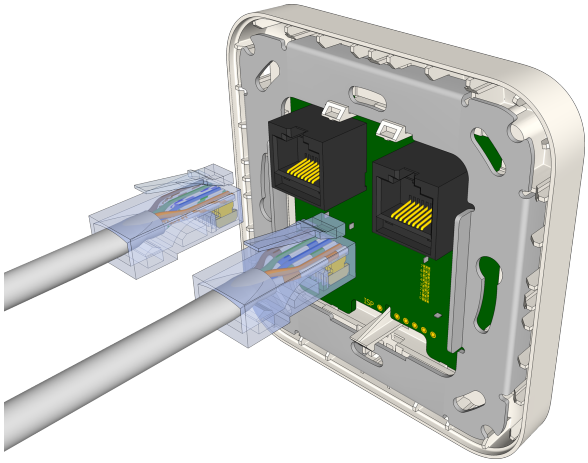
Connecting the room bus:

1. Pull the cables from the backbox or spacer, and then slide them through the module’s frame.



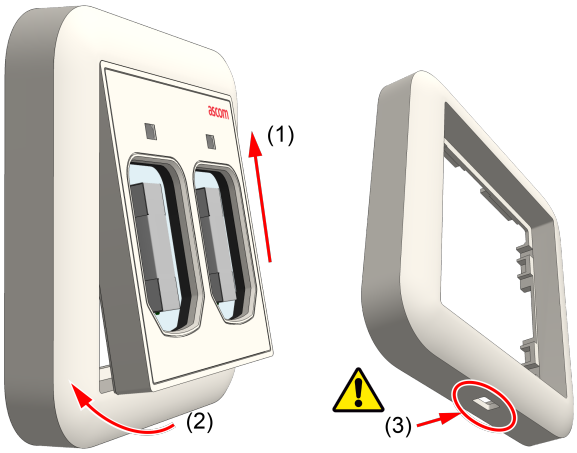
When attaching RJ-45 connectors to the module, use caution not to strain the connectors. If the cables are too stiff to fit in the backbox, remove up to 15cm (6in.) of the cable jacket.

2. Insert the RJ-45 room bus connector into one of the jacks, and then insert the next connector (to the next module) into the next jack, as shown below.



Attaching the module to the adapter:

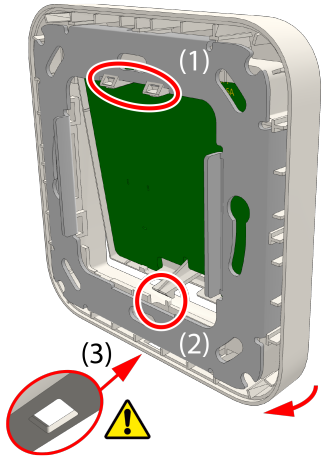
1. Place the module against the frame, ensuring that the module is facing up.



Important

Make sure that the hole (item 3) in the frame is facing down, otherwise the module cannot be removed later on.

2. Place the module's upper snap fasteners against the upper edge of the adapter.



3. Press the module very firmly against the adapter so that the module's bottom fasteners snap closed on the adapter.

The module locks tight to the adapter to prevent it from bending when removing a cable from the SafeConnect socket.

2.4 Acceptance Test

The acceptance test ensures that the functionality of the Ascom system installed complies with the expectations of the customer.

When the test is completed and verified according to customer requirements, the acknowledgement is to be signed by both parties, i.e. the installer from Ascom and the customer.

By signing the acknowledgement, the parties agree that the equipment meets the requirements after installation and configuration. The intended functionality should be operational to a degree only limited by needs associated with adjunct or supporting peripherals that Ascom has no control over. Operational deficiencies should be noted, and appropriate actions specified, in the approval sheets.

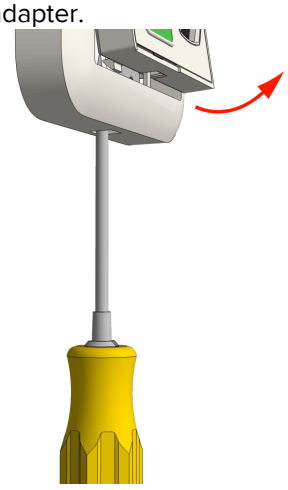
Acceptance testing must be performed for each location supported by this product. Failure to complete acceptance testing may result in failed or delayed notification, resulting in potential patient harm. Functional verification of the products should occur before the product is used in a clinical environment with a live patient. Additionally, this testing should be repeated after any changes to the configuration or system upgrades.

2.5 Removing the NUMI2A

When separating the module from an adapter or spacer, use a screwdriver with a blade that is approximately 6mm wide.

Removing the module from a backbox or spacer:

1. Insert the screwdriver blade into the slot at the bottom of the module between the faceplate and the adapter.



Do not insert the screwdriver into the corners of the frame, as this may damage the frame or module.

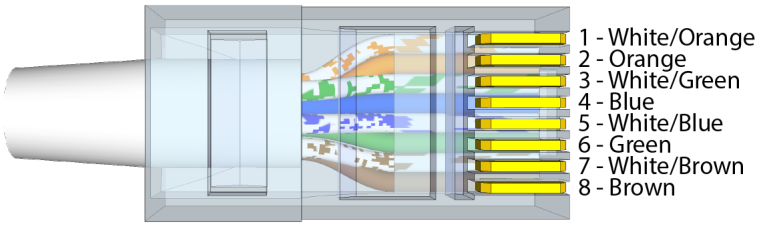
2. Gently push the screwdriver blade until the module releases from the adapter.

3. Remove the module from the adapter. Pull the module gently away. The module is still connected to the room buses.
4. Disconnect RJ-45 connectors from the module.

2.6 Terminating the Room Bus RJ45 Connectors

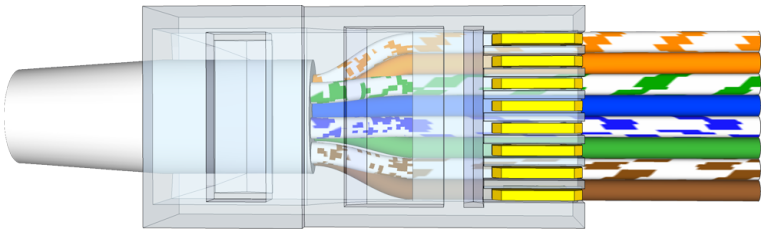
The NUMI2A includes two active room bus RJ45 sockets. Crimp the RJ45 connector(s) to the room bus cable(s) using the Ethernet T-568B termination color scheme. The following figure shows the correct pinout for terminating the active room bus cables.

RJ45 connector for active room bus cable



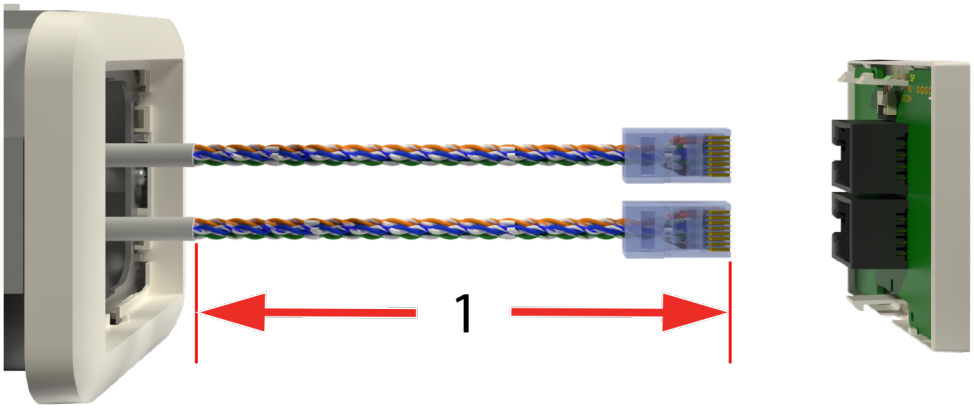
For easy mounting of the RJ45 connector, use Easy RJ45 connectors that allow feeding excess wire length through the connector. When crimping, the excess wire length will be cut automatically.

(Easy) RJ45 connectors are not included and must be ordered separately.



Easy RJ45 connectors require a dedicated crimping tool (not included) that includes a cutting mechanism to cut the excess wire when crimping the connector on the cable.

RJ45 Connector on Cat 6/7 Cables



Caution: Cat 6/7 cables may be too stiff to handle using the normal terminating procedure, which can result in putting to much stress onto the switch module when it is mounted onto the backbox.
Therefore remove an appropriate portion (1) of up to 15cm (6in.) of the outer jacket before crimping the RJ45 connector onto the Cat 6/7 cable.
Note that the individual twisting of the wire pairs should remain intact up to the RJ45 connector.

2.7 Specifications

Wire/terminations	Cat 5/5e/6/7, U/UTP Cat 6/7 cable will work electrically but may be too stiff for some back boxes.
Compatible electrical boxes (metal or plastic)	• EU box (or equivalent) Single backbox with mounting holes 60mm (2.36in.) • MK Honeywell models (or equivalent) 1-gang: 861ZIC, 866ZIC, 877ZIC Note: UK backboxes require single (NUMP86-HK) or dual (NUMPD86-HK) mounting plates.

3 Document History

Version	Date	Description
A	03 June 2021	First Release.
B	09 December 2021	Added Acceptance Test, see 2.4 Acceptance Test, page 7 Added Acknowledgement, see Acknowledgement, page 11
C	10 January 2023	Added “Important Safety Information” text, see 1.1 Symbols, page 1. Updated text with minor grammatical changes, see 1.4 Installation, page 2. Updated graphic for step 2 in ”Attaching the module to the adapter”, see 2.3 Connections and DIP Switch Settings, page 4. Added graphics and text to accommodate CAT6/7 cables, see 2.6 Terminating the Room Bus RJ45 Connectors, page 8. Added symbols for package label, see 1.1 Symbols, page 1.
D	08 April 2024	Added ”Caution and Notes”. See 1.2 Caution and Notes, page 2. Updated graphics and added a warning for step 1 and 2 of “Attaching the module to the adapter”. See 2.3 Connections and DIP Switch Settings, page 4.

Acknowledgement

Test specifications are used for configuration programming and post-installation testing. This configuration is active in the production system unless otherwise noted in superseding documentation such as the post installation checklist.

Date	
Facility Name	Units
Site Representative	
Name	
Signature	Date
Title	Phone/email
Ascom project manager	
Name	
Signature	Date
Title	Phone/email
Ascom Clinical Application Specialist	
Name	
Signature	Date
Title	Phone/email

Ascom (Sweden) AB

Grimbodalen 2

SE–417 49 Göteborg

Sweden

Phone +46 31 55 93 00

www.ascom.com

TD 93436EN / 08 April 2024 / Ver. D