SIEMENS

Reader Interface Module (RIM-020)
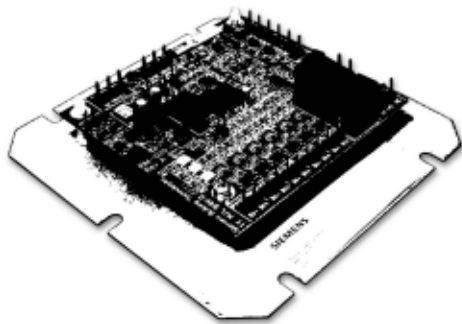
INS-RIM0002

Figure 1 – Reader Interface Module (RIM-020)

Product Description

The RIM-020 is a Single Reader Interface used as part of a Siemens integrated access control and security solution. It provides an interface between an Advanced Central Controller (ACC) and an entry card reader and other devices used to secure and monitor a door.

When a cardholder presents their access card at a reader (connected to a RIM-020) the RIM-020 interprets the encoded information and sends this data to the ACC. The ACC then checks the validity of the cardholder. If the appropriate permissions have been assigned to the cardholder, the ACC then sends a message back to the RIM-020 allowing it to unlock the door and permit access.

Product Numbers

6FL7820-8CA20   RIM-020 Single Reader Interface + base-plate, 12Vdc

Prerequisites

- Devices to be connected to the RIM-020.
- Cabling (RS-485)

Required Tools & Material

- Medium-duty drill and associated drill-bits (if required)

- 4 to 6 mounting screws or standoffs (approx. 4mm)
- Flat-blade terminal screwdriver
- Wire cutters
- Cable strippers

Expected Installation Time

30 minutes

Mounting Instructions

1. Remove the RIM-020 from its carton and discard the packaging material.

2. Place the RIM-020 (mounting plate) against the surface to which it is to be affixed and mark the location of the mounting holes.

   If being mounted within a cabinet simply align the RIM-020 base-plate with the holes located on the cabinet backplane and proceed to step 3.

   It is recommended that you affix the RIM-020 in at least four of the six mounting locations.

⚠️ **WARNING:**
Do not apply power to the RIM-020 or associated components at this stage.

3. Select the appropriate drill bit according to the mounting surface and hole size and drill the holes in the locations marked (if required).

4. Fasten the RIM-020 (base-plate) to the surface using the correct size and type of screws or standoffs for the surface.

5. Connect the cabling to the RIM-020 PCB (as described in the next section titled 'Wiring').

   Apply power to the RIM-020 and test its operation.

   This step may require installation and programming of the access control host software and download of the firmware instruction set.

   Alternatively, the firmware and configuration may carried out using the FLN Field Service Tool.

Wiring

1. It is recommended that you wear a grounding strap while carrying out this procedure.

2. Connect a card or biometric reader to the **READER INTERFACE** port.

    Note:
    The reader must be wired correctly as outlined in the Reader Wiring table in these instructions.

3. Connect the Request-to-Exit switch to the **REX** port.

4. Connect the door contact sensor to the **DOOR/C** port.

5. Connect auxiliary inputs (if required) to the **AUX1** and **AUX2** ports

    NOTE:

    Listed end-of-line resistors must be connected to the wires of each input device if they are to be supervised.

6. Connect the FLN wires (from the ACC) to the **RS485 BUS** port.

7. Connect the door strike / lock to the **RELAY** port. Ensure that power is also provided to the door lock / strike, and that this power supply is sufficiently rated to handle the load.

8. Connect the auxiliary output device (if required) to the **AUX OUT** port.

9. If the FLN cable is long or subject to high noise, ensure that the jumper across link LK5 (EOL) has been made.

10. Connect the active and neutral wires from the Power Supply Unit (PSU) to the **+12Vdc IN** port. Ensure the polarity of the connection is made correctly.

    Maximum Input Voltage should not exceed +14V.

11. Check all connections thoroughly.
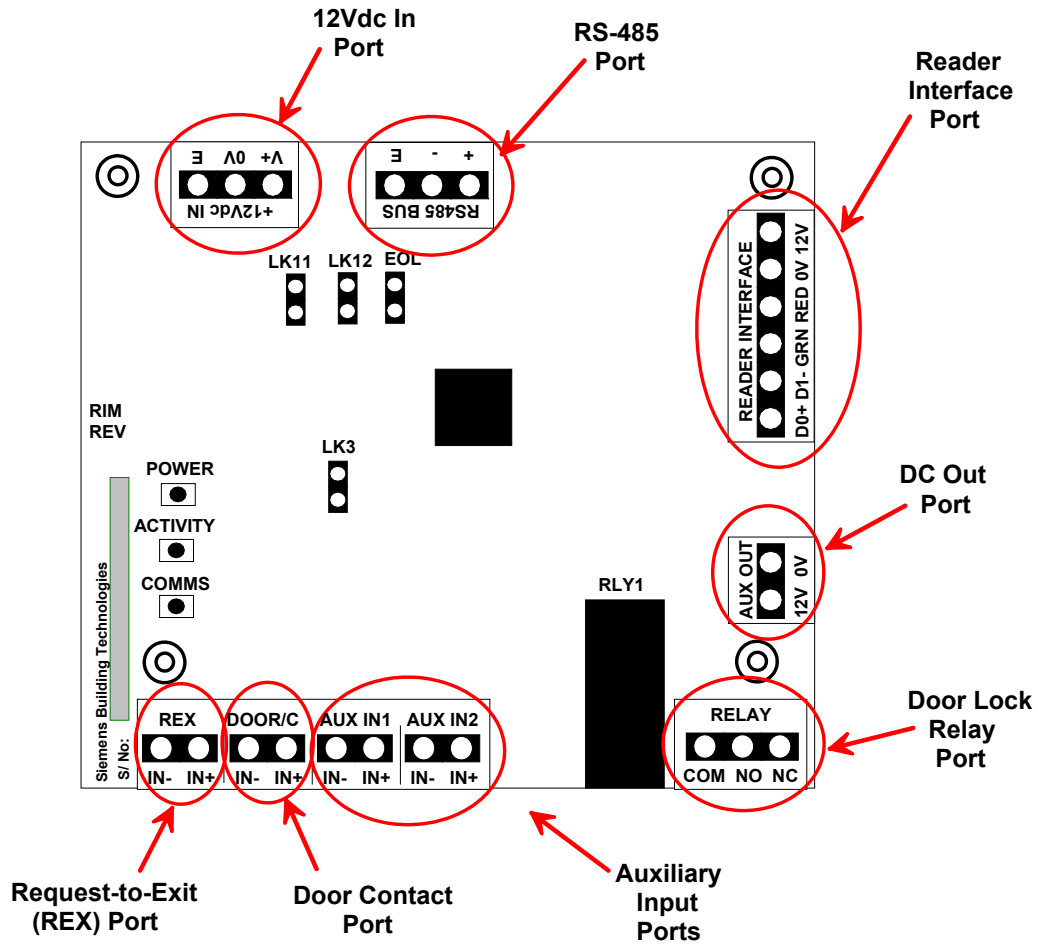
12. Power can now be connected to the RIM-020.

Dimensions and Layout

The following diagrams display the layout and dimensions of the RIM-020:
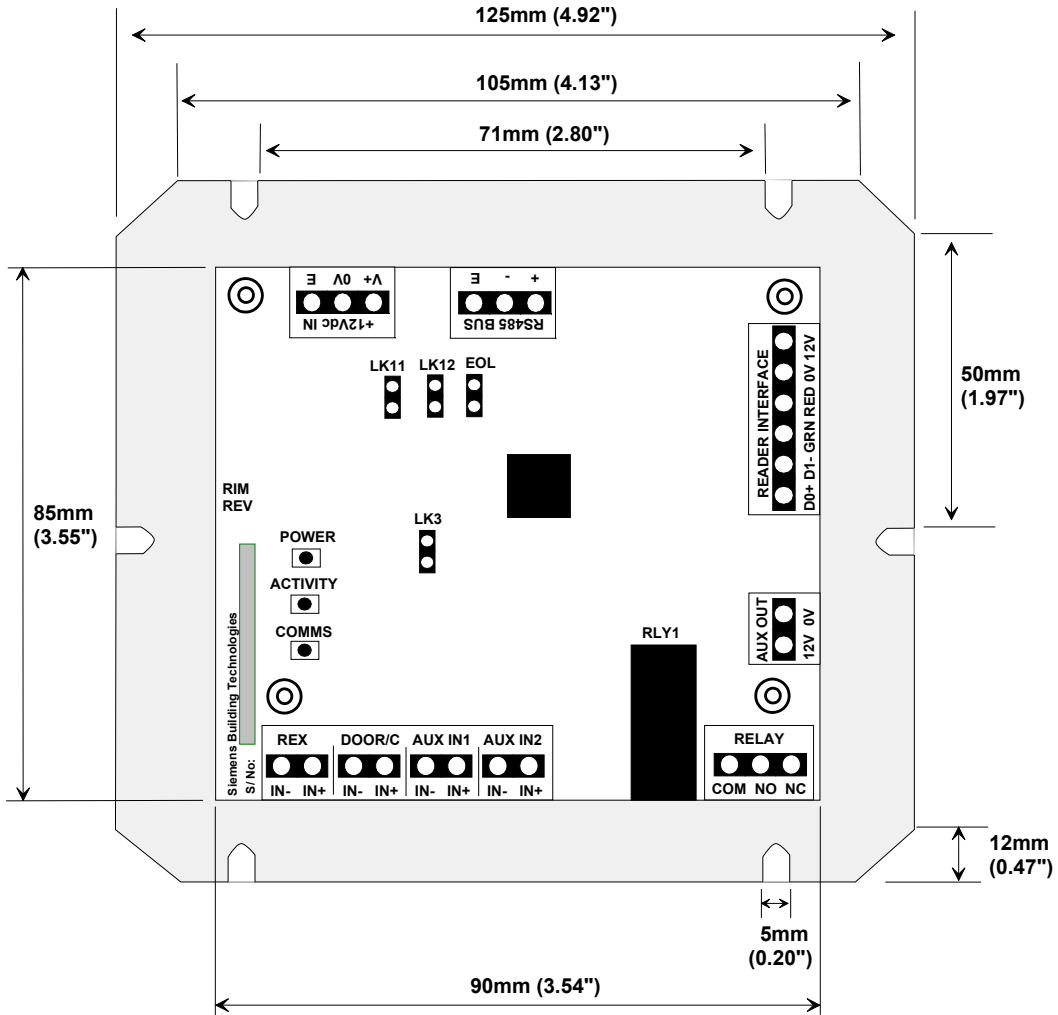
Port Description

The following diagram displays the location of the ports on the RIM-020:

The following table provides a brief description of each port:

Port Name	Brief Description
12Vdc IN	12Vdc power input
RS485	RS-485 communications port for connection to an ACC FLN channel
Reader Interface	Connection for a card reader providing communications, power, and LED control
Aux Out	12Vdc open collector output
Relay	Door lock / strike relay driven output
AUX IN1	Auxiliary input connection 1
AUX IN2	Auxiliary input connection 2
DOOR FR	Door contact input
PASS BK	Request-to-Exit (REX) device connection

Reader Wiring

The following table outlines industry standard reader wiring to the RIM-020:

Type	D0+	D1-	GRN	RED	0V)	12V
Wiegand	D0	D1	GRN	RED	0V	12V
Magstripe (ABA Track II – Clock & Data)	RCP	RDP	GRN	RED	0V	8V / 12V
Bar Code (Differential - Pulse)	D+	D-	GRN	RED	0V	8V / 12V

Links and Jumpers

The following table outlines the link settings for the RIM-020:

Link	Description	Value	
LK3	**Reset** Manually power reset.	Normal Operation (jumper OFF) **LK3** ● ●	Reset – by placing the jumper across this link. **LK3** ● ●
LK5 (EOL)	**End Of Line Termination** This link allows the RS485 communications channel to be terminated in noisy or lengthy comms.	RS-485 channel terminated. **EOL** ● ● **LK5**	RS-485 channel not terminated. **EOL** ● ● **LK5**
LK11	**Full Reset** – by placing the jumper across the pins the RIM-020 will completely reset and the memory will be cleared. Please note that the RIM-020 will need to be re-programmed for operation after a full reset.		
LK12	**No Link** – General purpose link included for future enhancement		

Supported Card Formats

The following table outlines the card formats supported by a Siemens access control and security system:

Card Technology	Format
Bar Code	2 of 5
	3 of 9
	Encrypted
	Facility
Magstripe	Credit
	Encrypted
	Facility
	CerPass
	SiPass
HID Proximity	26-bit
	36-bit Asco
	Corporate 1000
	Siemens STG (*)
	Siemens 52-bit encrypted
Indala Proximity	27 bit

Card Technology	Format
Cotag Proximity	27 bit
Siemens Proximity	Encrypted
MIFARE	CSN32
	CSN40
	Sector – Siemens 52-bit
MIFARE Smart	Siemens
Asset ID Proximity	IBMAssetID1
125Khz Proximity	CerPass
Miro	CerPass
Hitag1	Cerpass
Hitag2	CerPass
Legic	CerPass

(*) For use in UL installations

LEDs

The following table describes the operation of the LEDs located on the RIM-020:

LED	Brief Description
POWER	The **POWER** LED is illuminated when power (12Vdc) has been applied to the RIM-020.
ACTIVITY	The **ACTIVITY** LED indicates that the RIM-020 is accessing information contained in its internal database or performing a routine operation function such as reading a card format.
	This LED also indicates whether the initial instruction set has been downloaded. If power is applied and the LED blinks quickly, the RIM-020 instruction set (firmware) needs to be downloaded. If the LED is blinking slowly, approximately once per second, a firmware set has already been downloaded.
COMMS	The **COMMS** LED flashes when the RIM-020 is communicating with the ACC to which it has been connected (via an FLN).

Recommended Cable Specifications

The following table outlines the cable recommended for connection of an integrated security system:

Communication Type	Recommended Cable Specifications							
	Cores	Pairs	AWG	Stranding	Wire Type	Insulation	Shield	Jacket
RS-485	4	2	28	7 x 36	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / braided shield	PVC
	6	3	28	7 x 36	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / braided shield	PVC
	8	4	28	7 x 36	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / braided shield	PVC
RS-232	4	2	24	7 x 32	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / no braid	PVC
	6	3	24	7 x 32	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / no braid	PVC
	8	4	24	7 x 32	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / no braid	PVC
RS-422	4	2	24	7 x 32	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / no braid	PVC
	6	3	24	7 x 32	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / no braid	PVC
	8	4	24	7 x 32	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / no braid	PVC
RJ-45	8	4	24	Solid	Bare Copper	Polyethylene	Unshielded	PVC
	8	4	24	7 x 32	Tinned Copper	Polyethylene	Unshielded	PVC
RJ-12	8	4	24	Solid	Bare Copper	Polyethylene	Aluminum foil- Polyester tape / no braid	PVC
	8	4	24	7 x 32	Tinned Copper	Polyethylene	Aluminum foil- Polyester tape / no braid	PVC
Wiegand / Reader	6	3	28	7 x 36	Tinned Copper	Foam Polyethylene	Aluminum foil- Polyester tape / braided shield	PVC
Power (12/24Vdc)	2	1	18	19 x 30	Tinned Copper	Foam Polyethylene	Unshielded	PVC

Please Note: The above table provides a guideline for selecting an appropriate cable type only. Other cable types are also compatible with the system and can be used to achieve the same results.

Programming and Firmware Download

The RIM-020 is programmed using the host software application via the ACC, or using the stand-alone "Field Service Tool" application. Please refer to the respective User's Guide for more Information.

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