SIEMENS

SiPass integrated

AFI5100

Installation manual

Fire Safety & Security Products

Contents

Siemens Building Technologies

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1 Input Point Module (AFI5100)

Fig. 1   Input Point Module

1.1 Product Description

The AFI5100 is an Input Point Module used as part of a Siemens integrated access control and security solution. It provides an interface between an Advanced Access Controller (ACC) and up to 32 input devices used to monitor a secure facility.

The AFI5100 continuously monitors the status of all input devices connected; for example, Passive Infrared Detectors (PIRs). Any changes in state are instantly communicated to the ACC and then on to the Host system if necessary.

1.2 Product Numbers

6FL7820-8CB10   AFI5100 – Input Point Module and base-plate

1.3 Prerequisites

- Input Devices to be connected to the IPM
- Cabling (RS-485)
- Required Tools & Materials
- Medium-duty drill and associated drill-bits (if required)
- 4 mounting screws or standoffs (approx. 4mm)
- Flat-blade terminal screwdriver
- Wire cutters
- Cable strippers

1.4 Expected Installation Time

30 minutes

1.5 Mounting Instructions

1. Remove the AFI5100 from its carton and discard the packaging material.

2. Place the AFI5100 (base-plate) against the surface to which it is to be affixed and mark the location of the mounting holes.

3. If being mounted within a cabinet, simply align the AFI5100 base-plate with the holes located on the cabinet backplane and proceed to step 3.

4. It is recommended that you affix the AFI5100 in all four of the mounting locations.

⚠	**WARNING**	Do not apply power to the IPM or associated components at this stage.

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

6. Fasten the AFI5100 base-plate to the surface using the correct type of screws or standoffs for the surface.

7. Connect the cabling to the AFI5100 PCB (as described in the next section titled 'Wiring').

8. Apply power to the AFI5100 and test its operation.

9. 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 be carried out using the FLN Field Service Tool.

1.6 Wiring

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

1. Connect all input devices to the INPUT ports.

ℹ	Listed end-of-line resistors must be connected to the wiring for each input device if they are to be supervised. If supervised, cable <u>must</u> be shielded and total cable run resistance must not exceed 100 Ohms. Cable shielding must be unconnected at the device end, and connected to the board earth at the IPM end.

2. Connect any devices to the OUTPUT ports.

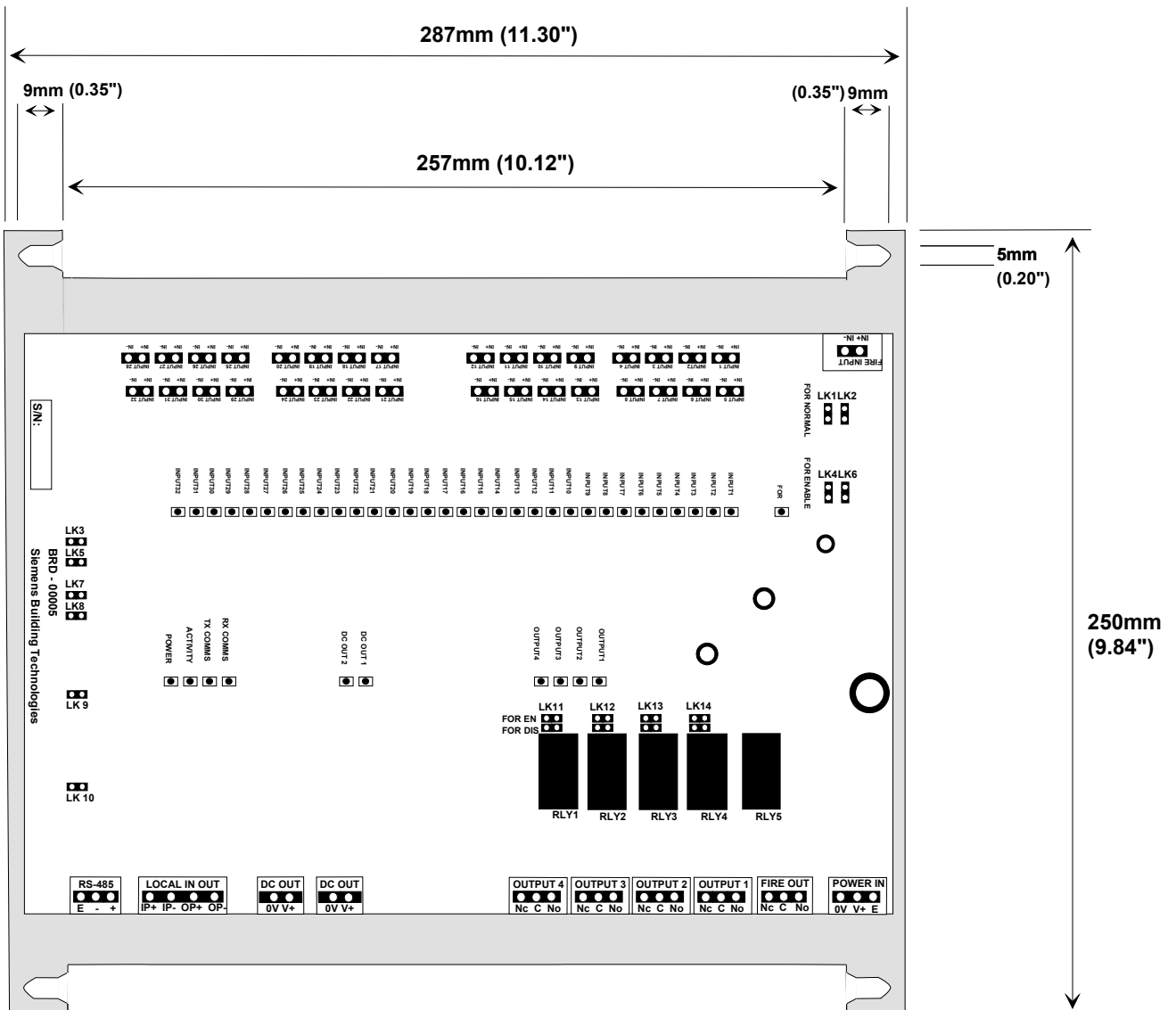3. Connect appropriate wiring to the FIRE OVERRIDE INPUT port if required.
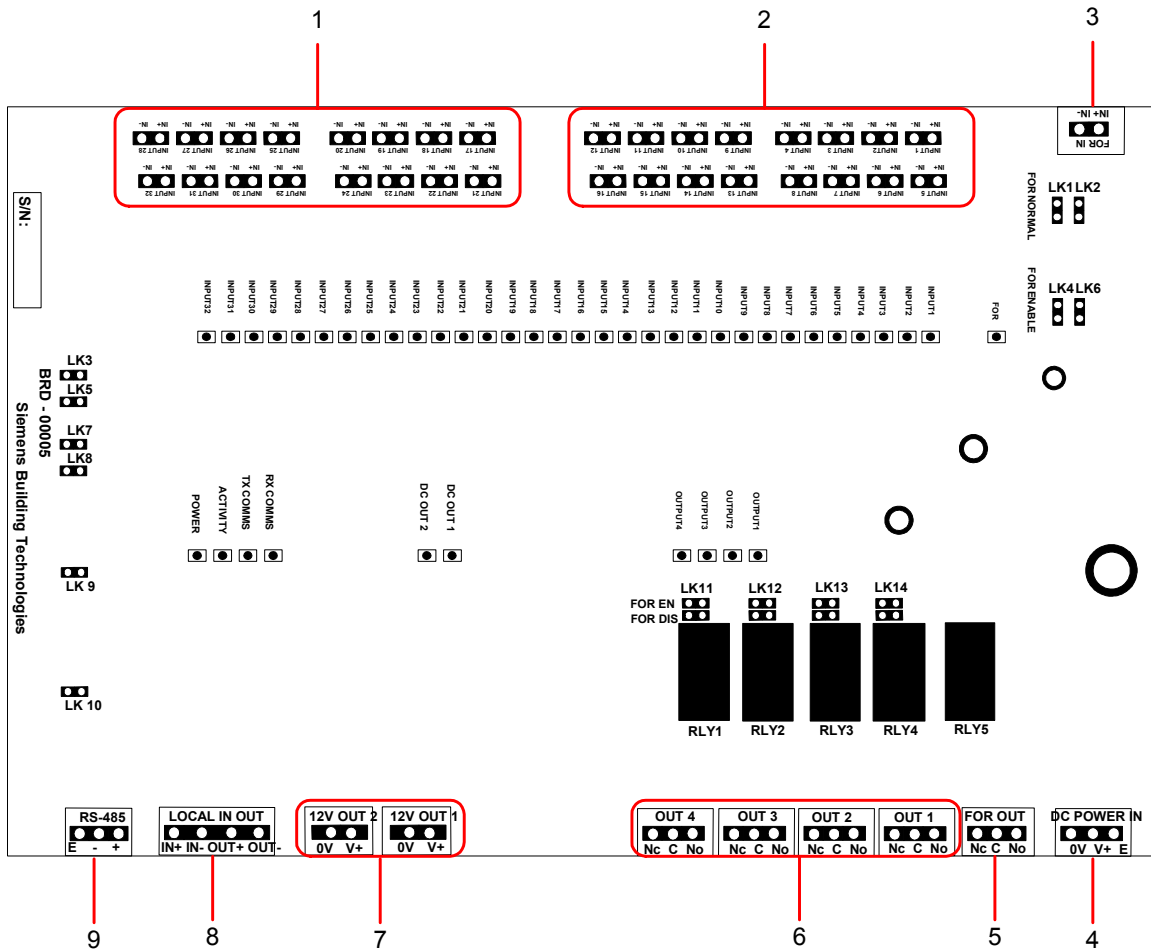
ℹ	Listed end-of-line resistors must be connected to the Fire Over-ride Input wires if you are implementing Enhanced Fire Over-ride. Enhanced mode requires the connection of 22Kohm supervision resistor circuits. Cable must be shielded and total cable run resistance must not exceed 100 Ohms.

4. Connect the next device in the Fire Override sequence to the FIRE OVER-RIDE OUTPUT port if required.

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

6. If the FLN cable is long or subject to high noise, ensure that the jumper across link LK10 (EOL) has been made. This only applies to units located on the ends of bus lines.

7. Connect the active (+ve) and neutral (-ve) wires from the Power Supply Unit (PSU) to the POWER IN port. Ensure the polarity of the connection is made correctly.

8. Check all connections thoroughly.

9. Power can now be applied to the AFI5100 .The following diagram displays the layout and dimensions of the AFI5100 with brace attached:

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Input Point Module (AFI5100)

The following diagram displays the location of the ports on the AFI5100 :
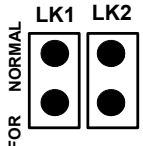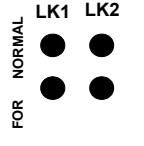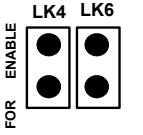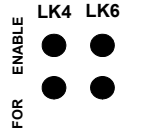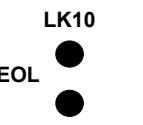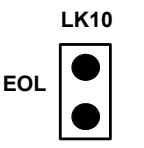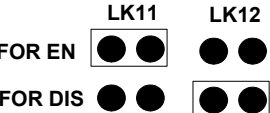
The following table provides a brief description of each port:

	Port Name	Brief Description
1	INPUT 17 – INPUT 32 Input Ports 1 - 32	Inputs for connection to monitoring and input devices
2	INPUT 1 – INPUT 16 Input Ports 1 - 16	Inputs for connection to monitoring and input devices
3	FOR IN Fire Over-ride Input Port	Input for Fire Over-ride wiring
4	DC Power IN	DC power input
5	FOR OUT Fire Over-ride Output Port	Fire Over-ride for connecting devices in Fire Over-ride sequence
6	OUT 1 – OUT 4 Output Ports 1 - 4	Auxiliary Relay-driven Outputs
7	12V OUT 1-12V OUT 2 Auxiliary 12 V DC Power Supply 1-2	12 V DC power source
8	LOCAL IN OUT Tamper In/Out Port	Local input and output for tamper detection and alarm
9	RS485 BUS	RS485 communications port for connection to an ACC FLN channel

1.7   Links and Jumpers

The following table outlines the link settings for the AFI5100 :

Link	Description	Value	
LK1, LK2	Links 1 and 2 are used to configure whether Fire Over-ride (FOR) will operate in Enhanced FOR mode or Normal. Enhanced mode also requires the connection of a supervision circuit to the Fire Over-ride Input.	To enable Normal Mode: **LK1 LK2** NORMAL / FOR	To enable Enhanced Mode: **LK1 LK2** NORMAL / FOR
LK4, LK6	Links 4 and 6 control whether Fire Over-ride (FOR) is enabled. If the links are set to FOR operation, activation of the FOR input will cause the outputs to return to the NO position. If the links are set to the off position, FOR input will have no effect on the state of the output relays.	FOR operation active: **LK4 LK6** ENABLE / FOR	FOR operation ignored: **LK4 LK6** ENABLE / FOR
LK3, LK5	These auxiliary links have been included for further enhancement of the system.		
LK7	LK7 affects the reset action when the RESET link (LK9) is set and the power turned on. See LK9 below for a description of how to reset the unit.	**LK7** If the jumper on Link 7 is set as shown, it is set to "Full Reset" mode. **LK7** If the jumper on Link 7 is taken off, it is set to "Partial Reset" mode.	
LK8	This is a General Purpose links that has been included for further enhancement of the system.		
LK9	Memory Clear and Reset Setting LK9 and turning the power off and on will reset the IPM. A full or partial reset can be achieved by setting LK7 on or off. If LK7 is set, the IPM will fully reset and any firmware loaded into the memory will be erased. You will need to re-program the IPM with firmware again before it can operate. If LK7 has the jumper removed, the microcontroller will be rebooted but the firmware will remain in memory.		
LK10	EOL Termination (Bus) This link allows the RS485 BUS communications channel to be terminated in noisy or lengthy comms. Note: Units located at the end of bus lines only should have this link set.	RS485 BUS port not terminated. **LK10** EOL	RS485 BUS port terminated. **LK10** EOL
LK11 – LK14	FOR Activation These links allow FOR activation to be enabled or disabled for each individual relay output. Enabling Fire Override for a relay means that when the FOR input is activated, the relay output switch to the NO position.	**LK11** **LK12** FOR EN FOR DIS In the above diagram LK11 (Relay 1) is set to FOR Enabled and LK12 (Relay 2) is set to FOR Disabled.	

1.8   LEDs

The following table describes the operation of the LEDs located on the AFI5100 :

LED	Brief Description
POWER	The POWER led is illuminated when power has been applied to the device.
ACTIVITY	The ACTIVITY led indicates that the AFI5100 is accessing information contained in its internal database or performing a routine operation.
	This LED also indicates whether the initial instruction set has been downloaded. If power is applied and the LED blinks quickly, the AFI5100 instruction set (firmware) needs to be downloaded. If the LED is blinking slowly, approximately once per second, a firmware set has already been downloaded.
Tx COMMS	The Transmission COMMS LED flashes when the IPM is sending data to the ACC to which it has been connected (via an FLN).
Rx COMMS	The Transmission COMMS LED flashes when the IPM is receiving data from the ACC to which it has been connected (via an FLN).
Inputs	The tricolor Input Port LEDs indicate the current status of the input port. See the table below for an explanation of the colors.
Outputs	Each Output Relay has a corresponding LED that is illuminated when the relay is activated.
Fire	The Fire LED is illuminated when Fire Over-ride is activated.

Each input LED may be in one of two states as indicated by color.

LED Color	Input status	Fire Over-ride status
Green	Denotes input Normal: Closed	Denotes FOR Normal: Closed
Orange	Denotes input Normal: Open	Denotes FOR Normal: Open (alarm)

1.9 Recommended Cable Specifications

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

Communication Type	Recommended Cable Specifications							
	Core	Pairs	AWG	Stranding	Wire Type	Insulation	Shield	Jacket
RS485	4	2	28	7 x 36	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / braided shield	PVC
	6	3	28	7 x 36	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / braided shield	PVC
	8	4	28	7 x 36	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / braided shield	PVC
RS232	4	2	24	7 x 32	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / no braid	PVC
	6	3	24	7 x 32	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / no braid	PVC
	8	4	24	7 x 32	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / no braid	PVC
RS422	4	2	24	7 x 32	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / no braid	PVC
	6	3	24	7 x 32	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / no braid	PVC
	8	4	24	7 x 32	Tinned Copper	Polyethylene	Aluminium 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	Aluminium foil- Polyester tape / no braid	PVC
	8	4	24	7 x 32	Tinned Copper	Polyethylene	Aluminium foil- Polyester tape / no braid	PVC
Power (12/24 V DC)	2	1	18	19 x 30	Tinned Copper	Polyethylene	Unshielded	PVC

i The previous 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.

1.10 Programming and Firmware Download

The AFI5100 is programmed using the host software application via the ACC, or using the FLN Configurator Field Service Tool application. Please refer to the appropriate User's Guide for more Information.

i Information in this document is based on specifications believed correct at the time of publication. The right is reserved to make changes as design improvements are made.