Mounting

The physical dimensions of the SICAM FPI and the required cut-out dimensions are shown.

1. Create a slot of dimensions as shown in Figure 1-2 to house the SICAM FPI in the Ring Main Unit (RMU).
2. Flush the rear-side of device into the RMU cut-out.
3. In the rear terminal of SICAM FPI, execute the wiring process as mentioned in scheme requirements. For more details about terminal connector diagram, refer to Table 1-1 for connectorization and recommended lugs and cable types.
4. Maintain a minimum clearance from the device as given in Figure 1-1 to ensure safety and to avoid accidental damage to the plastic fibre- optic cable.

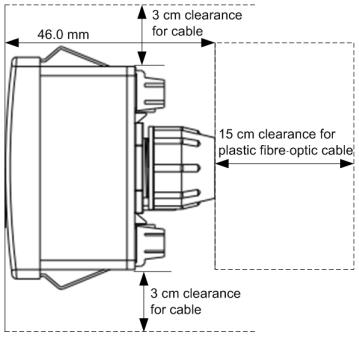


Figure 1-1 Clearance for Terminal Wiring

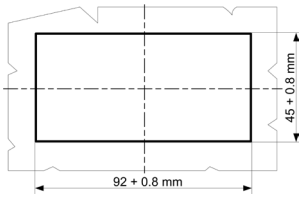


Figure 1-2 RMU Panel Cut-Out

Commissioning

Execute the commissioning tests if the following criteria's are satisfied:

1. SICAM FPI has not been damaged in transit (physical damage).
2. SICAM FPI has been correctly connected and installed.

Post Installation and Commissioning

To use SICAM FPI for the first time, unscrew the front-cover plate and remove the paper strip between the battery clip and battery.
You can set the DIP switch settings with the help of the tool as shown in Figure 1-3. Refer to Table 1-1 for the recommended mechanical tools.
At the rear side of SICAM FPI, remove the stickers placed on the locknut of the optical inputs (L1, L2, L3, and E).

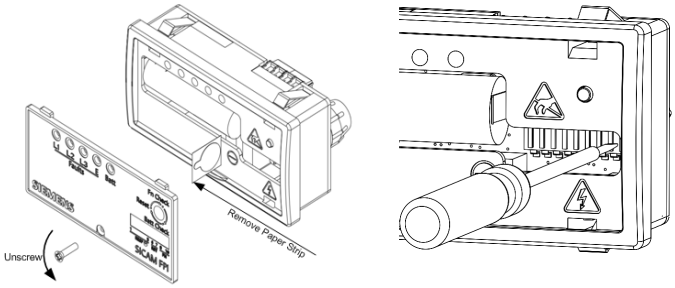
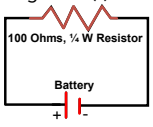


Figure 1-3 Removal of Paper Strip and DIP Switch Settings

NOTE
For the first time when the battery is inserted in the device, the device may not POWER ON due to the passivation property of the Lithium Thionyl Chloride battery.

To de-passivate the battery, it is recommended to proceed as follows:
1. Remove the battery from the device.
2. Connect a 100 ohms 1/4 W resistor, to the positive (+) and negative (-) terminals of the battery and keep it for 10 minutes.



3. Disconnect the battery from the resistor.
4. Insert the battery in the device.
5. Perform the self test using the push button.

Alternately, the battery can be de-passivated as follows:
1. Insert the battery into the device and keep for about 6 hours.
2. After 6 hours, observe the device functionality by performing the self test using the push button.

If the self test is passed, the battery has recovered and the device is ready for operation.

The recommended method of de-passivation does not have any effect on the battery life. However, the alternate method of de-passivation may have a nominal effect of the battery life.

For more information, please contact your local Siemens office.

Table 1-1 Recommended Mechanical Tools

Mechanical Components	Tools Specifications	Manufacturer/ Part number
Screws for front Cover, terminal block	Flat screw drivers	Taparia (Product No. 933) or equivalent
DIP switch settings and battery removal	Flat screw drivers	Taparia (Product No. 933) or equivalent
M4 nut and M5 nut for sensor clamp	7 mm/8 mm spanner	Standard manufacturer

Do's and Don'ts

- For more information about installation and technical specifications, refer to SICAM FPI Manual.
- Insert both the ends of the plastic fibre-optic cable into the glands located on the phase sensor, earth sensor, and SICAM FPI.
- Do not attempt to remove the SICAM FPI without disconnecting all the wires and the plastic fibre-optic cable.
- Do not damage or twist the plastic fibre-optic cable during installation and ensure a minimum bending radius of 5 cm is maintained.

SICAM FPI Terminal Details

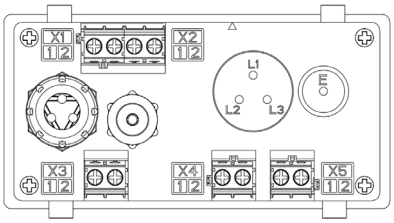


Figure 1-4 Terminal Diagram

Table 1-2 Recommended Terminal Lugs Specifications

Terminal Block - Numbers	Type/Cable Specifications	Manufacturer/ Part number
X1-1, 2 - Remote reset input from dry contact	Pin type lug/ 1.8 mm, Ferrule - AI 1, 5 - 8 BK	Phoenix/ 3200043 or equivalent
X2-1, 2 - Blinking lamp supply		
X3-1, 2 - Phase-fault latching type binary output		
X4 -1, 2#- Earth fault latching type binary output		
X5-1, 2 - 230 V AC reset Input		
Plastic fibre-optic cable	Plastic fibre-optic cable	Siemens Supplied

- X4 terminal block is included only when ordering the complete variant. Refer to Table 1-4 for details of SICAM FPI variants.

DIP Switch Settings

To apply the changes in the DIP switch settings, run the complete function test by pressing the push-button for less than 3 seconds.

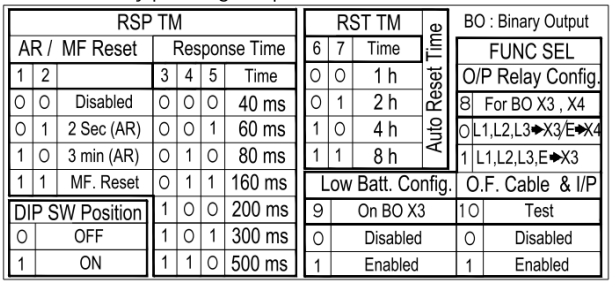


Figure 1-5 DIP Switch Settings for Complete Variant

Table 1-3 DIP Switch - Default Factory Settings

DIP Switch Settings	Factory Settings	DIP Switch
AR/MF reset (RSP_TM)	Disabled	1-2
Response time (RSP_TM)	40 ms	3-5
Auto reset time (RST_TM)	1 h	6- 7
Fault indication on binary output (FUNC_SEL)	X3, X4	8
Low battery config.on binary output (FUNC SEL)	Disabled	9
Sensors plastic fibre-optic cable test (FUNC_SEL)	Disabled	10

NOTE:
Confirm that the correct DIP switch settings have been configured to meet the application requirements.

Table 1-4 SICAM FPI Variants

MLFB	Phase Input	Earth Input	BO# (Qty)	Sensor Type
6MD2310-0AA00-0AA0	3	1	2	3Phase+1Earth
6MD2310-0BB00-0AA0	3	-	1	3Phase
6MD2310-0CC00-0AA0	-	1	1	1Earth
6MD2310-0DA00-0AA0	3	1	1	3Phase+1Earth
6MD2310-0EC00-0AA0	-	1	2	1 earth

Depending upon the MLFB variants, the number of binary outputs, sensor types, and related functionalities can be configured.

SICAM FPI variants can also be ordered with Type 2 series sensors.

Installation of Phase Sensors

The 3 Phase sensors and 1 earth sensor shipped with SICAM FPI unit must be mounted on L1, L2, L3 phases and 3 core-cables respectively.

NOTE (Phase Sensor and Earth Sensor)

- Always ensure that the plastic fibre-optic cable touches the internal component of the sensor gland and device gland and tighten the locknut. The accuracy of the measurement cannot be achieved when the installation steps are not followed correctly.
- It is recommended to use the strip color plastic fibre-optic cables provided for the phase and earth connections: **L1, L2, L3,** and **Black(E)**.

To install the phase sensor, follow the procedure:

1. Loosen the M4 fixing bolts on both the sides by using 7 mm spanner.
2. Mount the open bracket around the core cables.
3. Place the sensor in final position and fix the bolts on both sides of sensor and tighten.
4. Fix the phase sensor by using the locking screw.
5. In the phase sensor and rear-side of SICAM FPI, loosen the locknut and insert the plastic fibre-optic cable into the gland.
6. By using a screw driver, turn the rotary switch on the phase sensor, and set the fault current threshold limit.
7. Repeat the above procedure for installing other phase sensors.

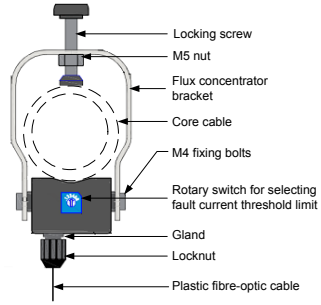


Figure 1-6 Phase Sensors Installation

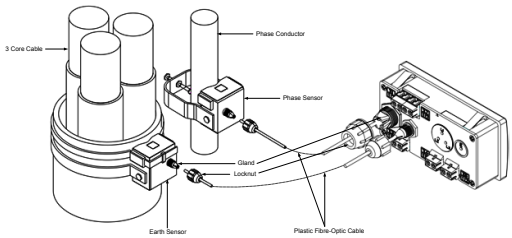


Figure 1-7 SICAM FPI connected with Phase and Earth Sensors

Installation of Earth Sensor

To install the earth sensor, follow the procedure:

1. Loosen the fixing bolt and unmount the steel belt from one side of the housing. For more information about mounting of shielded and unshielded part, refer to SICAM FPI Manual.
2. Place the belt around the 3 core-cables.
3. Connect the earth sensor housing with the steel belt again by reinserting and tightening the fixing bolt.
4. Fix the sensor in the right position using the provided plastic cable tie.
5. In the earth sensor and rear-side of SICAM FPI, loosen the locknut and insert the plastic fibre-optic cable at gland.
6. By using the rotary switch on the earth sensor, set the fault current threshold limit.

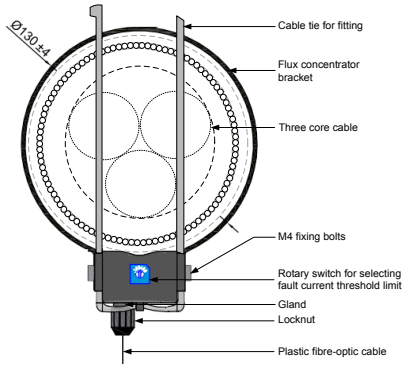


Figure 1-8 Earth Sensor Installation

Troubleshooting

This section provides the common observation and the recommended solutions to resolve the observations.

Table 1-5 Troubleshooting

Observation	Action
SICAM FPI is not responding	Remove the housing screw and ensure that the paper strip inserted between the battery and battery-clip during shipment is removed.
SICAM FPI failed to work as per the DIP switch configura-tion settings	Perform the complete function test by pressing the push button for less than 3 seconds, to apply the DIP switch settings.
Fault current above the threshold value is not detected by SICAM FPI	1. Check the current sensor threshold limit setting on the phase and earth sensor (The fault cannot be detected until the current has exceeded the threshold limit set). 2. Check the plastic fibre-optic cable connection between the current sensor and SICAM FPI. 3. Always ensure that both the ends of plastic fibre-optic cable touch the internal part of current sensor and SICAM FPI. 4. Perform the function test by pressing the push button for less than 3 seconds. 5. Perform the sensors plastic fibre-optic cable test function to ensure the cable healthiness by using the DIP switch.
SICAM FPI resets immediately after detecting the fault	Check if the remote reset is activated or the 230 V AC reset input is applied continuously.
LED indicates the fault condition in SICAM FPI , but the binary outputs do not operate	Check the battery health by performing battery check. Press the push button for more than 3 seconds. If battery is not healthy, replace with a new battery.

If the above troubleshooting checklist does not help in correcting the problem, contact the local Siemens office or contact customer support.

Phone: +49 (180) 524-7000,
Fax: +49 (180) 524-2471
E-Mail: support.energy@siemens.com