PowerLogic™ A125

Arc Flash Protection Unit

User Manual

09/2025

Version: A125/EN M/01C

www.se.com

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General

Safety information

Important information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in death or serious injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠⚠DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Failure to follow these instructions will result in death or serious injury.

⚠WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury, or equipment damage.

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

NOTICE is used to address practices not related to physical injury.

Failure to follow these instructions can result in equipment damage.

User qualification

Electrical equipment should be installed, operated, serviced, and maintained only by trained and qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material. A qualified person is one who has skills and knowledge related to the construction,

installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Settings protection

The IED's settings protection is intended for detecting accidental settings change. It automatically alarms, if the system is not installed after the DIP switch changes.

⚠WARNING

WORKING ON ENERGIZED EQUIPMENT

Do not choose lower Personal Protection Equipment while working on energized equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Certification and declaration

Item	Standard	Description
CE European Commission's directives	EN IEC 60255-26	Electromagnetic Compatibility Directive (EMCD) 2014/30/EU
	EN IEC 60255-27	Low Voltage Directive (LVD) 2014/35/EU
	EN IEC 63000	Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (ROHS) Directive 2015/863/EU
UKCA United Kingdom regulations	BS EN 60255-26	Electromagnetic Compatibility (EMC) Regulations SI 2016 No. 1091.
	BS EN 60255-27	Electrical Equipment (Safety) Regulations SI 2016 No. 1101
	BS EN IEC 63000	Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (ROHS) Regulations SI 2012 No. 3032

Periodical testing

The protection IED, cabling and arc sensors must periodically be tested according to the end-user's safety instructions, national safety instructions or law. The manufacturer recommends that functional testing is carried out at the minimum every five (5) years.

It is proposed that the periodic testing is conducted with a secondary injection principle for those protection stages which are used in the IED and its related units where current measurement is used.

Purpose

NOTE: For applications in the US, Canada and Mexico, use specific documents reviewed in line with the requirements of the relevant regulatory authorities. Please contact our local Schneider Electric office for assistance.

This document contains instructions on the installation, commissioning and operation of the PowerLogic™ A125. This guide also contains an application example of configuring an arc flash protection system.

This document is intended for persons who are experts on electrical power engineering, and it covers the device models as described by the ordering code in Order information , page 38.

Related documents

Document	Identification*)
PowerLogic A125 Quick Start Guide	GEX56292+XX

*) xx = revision number

Download the latest manual at www.se.com.

Abbreviations

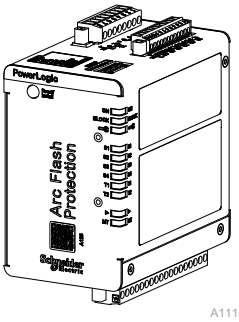
Table 1 - Abbreviations used in the manual

Acronyms	Indication
ac	Alternating current
ANSI	American National Standards Institute. A standardization organization.
AWG	American wire gauge
CB	Circuit breaker
dc	Direct current
DI	Digital input
DO	Digital output, output relay
EEPROM	Electrically Erasable Programmable Read - Only Memory
HSO	High speed output
HMI	Human-machine interface
IED	Intelligent electronic device, refers to the PowerLogic A125 in this document
LED	Light-emitting diode
MT	Master trip
SF	Self-supervision contact
VAMP 4C	Current I/O unit for arc flash protection

Introduction

PowerLogic A125

Figure 1 - Arc protection unit PowerLogic A125



The PowerLogic A125 arc flash protection unit is a versatile and independently operating device for bay based protection.

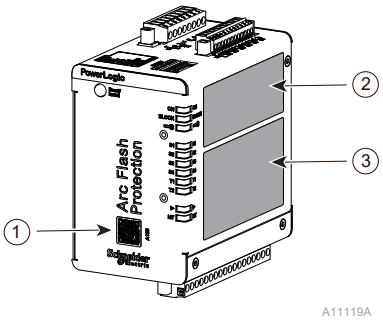
The PowerLogic A125 has a fixed one type design, and it is optimized for use in arc protection as a stand-alone device or as part of a system. It can be used in various arc protection applications in low or medium voltage power distribution systems.

- External input for overcurrent measurement via the I> I_N input
- LED indication memory in case of mains loss
- Operation on simultaneous current and light or on light only mode (I> & L>, or L>)
- 8 ms operation time with a mechanical output relay
- With HSO the operation time is maximum 2 ms in the light only mode
- Two programmable operation zones
- Full system self-supervision
- Up to two normally-open trip contacts for fast arc flash detection: T1 (HSO) and T2 (SPST)
- One change-over signal contact: SF (self-supervision contact)
- LED indications of status, error and trip indications
- Binary input/output (BI/BO) bus for light and overcurrent information and master trip

Equipment identification

Different kinds of labels are used on the PowerLogic A125 to identify its model type and contain safety instructions.

Figure 2 - Label examples on the PowerLogic A125



① QR code label

② Product label

③ Instruction label

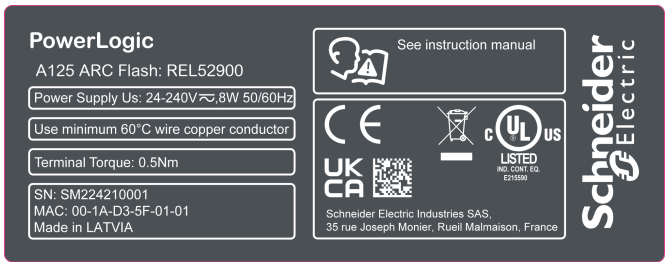
QR code label

Scan the QR code with **mySchneider** application or other scanner to access the specific product website to get basic product documents and product life cycle documents like Certificate of Conformity and Test.

Product label

The product label contains the serial number, the model number, technical data and certification information.

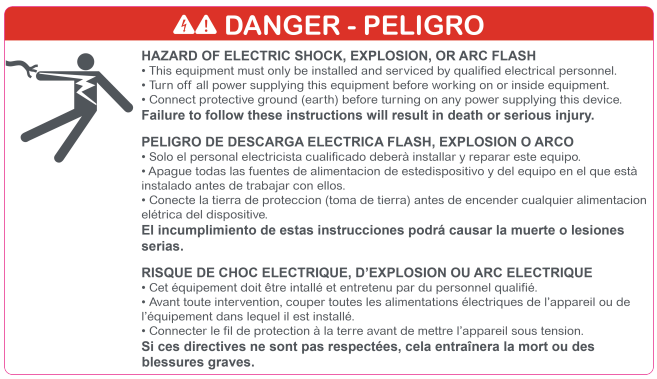
Figure 3 - Example of a product label



Instruction label

This label contains the safety instructions for operations on the PowerLogic A125.

Figure 4 - Example of an instruction label



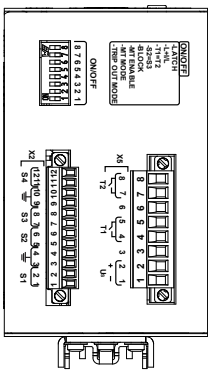
Unit features

The PowerLogic A125 is a state of the art arc protection unit for electrical power distribution systems. By using the PowerLogic A125 in switchgears, considerable safety improvements are obtained in the form of minimized injury and damage in case of an arc fault. The PowerLogic A125 is a stand alone device, which provides a compact solution when the application does not require overcurrent measurement or when the overcurrent information is available from the incomer

protection relay or any other arc protection unit (VAM 4C). It is possible to connect four arc sensors of the VA1DA or VA1EH type to the PowerLogic A125 unit.

DIP switch settings on unit

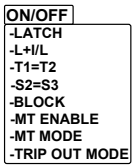
Figure 5 - PowerLogic A125 DIP switch operations and sensor connection



The unit is configured using DIP switches which are located on top of the device.

NOTE: If any settings are changed, the device indicates it through the service output and the ⊃ LED is lit.

Table 2 - DIP switches 1 – 8:

	SW No.	Description
	1 LATCH	The latch switch enables latching of the trip relays. If set to the ‘ON’ position, the latching function is enabled. If set to the ‘OFF’ position, the output relays will follow the state of the sensors and minimally 20 ms output control pulse is generated.
	2 L+I/L	The L+I/L switch selects the operation mode. If set to the ‘ON’ position, the unit operates in the L+I mode (requires both I > input activation and light + external I > I_N signal). If set to the ‘OFF’ position, the unit operates in the L > mode (light only mode).
	3 T1=T2	The T1=T2 mode is for setting the system selectivity. If set to the ‘OFF’ position, sensors No. 1 and 2 will trip relay T1. Accordingly, sensors No. 3 and 4 will trip relay T2. If set to the ‘ON’ position, all four sensor channels will activate both trip outputs.
	4 S2=S3	If the configuration switch for sensor inputs 2 and 3 is in the ‘ON’ position, the activation of sensor 2 or 3 results in a common trip of both T1 and T2. If the switch is in the ‘OFF’ position, sensor 2 is linked to T1, sensor 3 is linked to T2 and both will individually trip their dedicated trip relays.
	5 BLOCK	The block switch enables blocking function to unit outputs.
	6 MT ENABLE	The MT ENABLE switch enables the master trip function. (1)
	7 MT MODE	If the configuration switch is set to the ‘OFF’ position, the MT output follows T1. If the configuration switch is set to the ‘ON’ position, the MT output follows T1 and T2. Note: Operation applies also to the L+I/L function.
	8 TRIP OUT MODE	If the configuration switch is set to the ‘OFF’ position, the trip out follows the state of T1. If the switch is set to the ‘ON’ position, the trip out follows the state of T2.

The table below provides a reference for outputs activated by inputs on different DIP switch configurations.

(1) If the MT ENABLE is enabled in upstream unit, once it receives a "MT In" signal, the upstream unit will trip. The "MT In" signal is connected to the "MT Out" signal of downstream unit.

DIP switch configuration	Inputs	Outputs			
		T1	T2	Trip Out	MT Out
Default (all switches: OFF)	MT In				
	S1	●		●	●
	S2	●		●	●
	S3		●		
	S4		●		
T1 = T2: ON	MT In				
Other switches: OFF	S1	●	●	●	●
	S2	●	●	●	●
	S3	●	●	●	●
	S4	●	●	●	●
S2 = S3: ON	MT In				
Other switches: OFF	S1	●		●	●
	S2	●	●	●	●
	S3	●	●	●	●
	S4		●		
MT enable: ON	MT In	●		●	
Other switches: OFF	S1	●		●	●
	S2	●		●	●
	S3		●		
	S4		●		
MT mode: ON	MT In				
Other switches: OFF	S1	●		●	●
	S2	●		●	●
	S3		●		●
	S4		●		●
MT enable: ON	MT In	●	●	●	
MT mode: ON	S1	●		●	●
Other switches: OFF	S2	●		●	●
	S3		●		●
	S4		●		●
Trip output mode: ON	MT In				
Other switches: OFF	S1	●			●
	S2	●			●
	S3		●	●	
	S4		●	●	

Connecting the supply voltage

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Always connect the protective grounding before connecting the power supply.

Failure to follow these instructions will result in death or serious injury.

NOTICE
UNEXPECTED DEVICE DOWN Power the device with auxiliary power supply. Do not power the device by primary network. **Failure to follow these instructions can result the device down when the primary network is power off.**

NOTE: Do not connect the supply voltage before the device connections and configuration are done. If the settings of the unit need to be changed, disconnect the supply voltage before configuring the device(s).

- Ensure the device connections, protective grounding and unit configurations are in order.
- Connect the auxiliary supply voltage to the IED's terminal block.

See Mounting, page 35 for ground connection details.

Disconnecting the supply voltage

The auxiliary supply power must be disconnected from the IED if the following service actions are required:

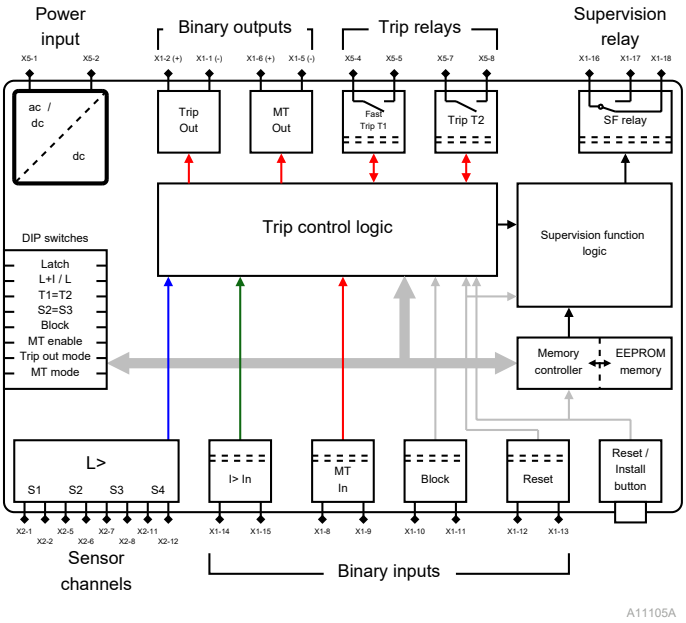
- Replacement, add-on or removal of unit, cabling or sensors
- Changing of unit settings

Functions

Arc flash protection, general principle

The arc flash protection contains two protection zones, which may be used to trip for example the incomer and outgoing circuit breakers. Arc protection zones are activated with external overcurrent status and light signals (or light signal alone). The allocation of different light signals to arc zones is defined in the sensor channel mapping of the unit.

Figure 6 - PowerLogic A125 block diagram



Self-supervision

The electronics and operation of the PowerLogic A125 unit are supervised by means of a separate self-supervision logic. The arc flash sensors are also self-supervised. In case the self-supervision detects a permanent error within the PowerLogic A125 unit or the arc sensors connected, the self-supervision output and system status indication LED are activated.

Binary inputs and outputs

Information from the arc protection function can be transmitted and/or received through binary inputs (BI) and outputs (BO). The rated voltage of these signals is 24 V dc when active. The input signal voltage range is 18...250 V dc.

Binary inputs

The binary inputs ‘BI’ (MT In, Block, Reset or I > I_N) can be used to receive the master trip, blocking, reset or current indication from another IED to build selective arc protection scheme(s). BI is a dry type input for a 18...250 V dc signal. The function of BI signals is configured with the DIP switch.

Binary outputs

The binary outputs ‘BO’ (Trip Out or MT Out) can be used to send the trip indication/information signal to another IED's binary input to build selective arc protection systems. BO is an internally driven (wetted) 24 Vdc signal. The function of BO signals is configured with the DIP switch.

Output relays

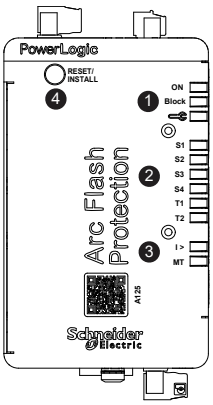
The output relays are also called digital outputs. Trip contacts can be controlled only by the corresponding arc flash sensors. The activated contact is indicated by the T1 and T2 LEDs.

An output relay can be configured as latched or non-latched using DIP switch 1. Latched relay contacts can be set free by pressing the IED's **Reset / Install** key.

The difference between the trip contacts and signal contacts is the DC breaking capacity. The contacts are single pole single throw (SPST) normal open type (NO), except for the signal relay SF which has a change-over contact single pole double throw (SPDT).

HMI functions and indications

Figure 7 - PowerLogic A125 DIP switch operations and sensor connection



1. **Operating status indication lights**
   - On: Green, steady when the device is powered
   - Block: Yellow, lit when the block is active, either from DIP or Block input
   - Tool: Red, steady when the device is in the error state or blocked
2. **Sensor and trip output indications**
   - S1: Yellow, steady when sensor 1 is activated, flashing in the unhealthy state
   - S2: Yellow, steady when sensor 2 is activated, flashing in the unhealthy state
   - S3: Yellow, steady when sensor 3 is activated, flashing in the unhealthy state
   - S4: Yellow, steady when sensor 4 is activated, flashing in the unhealthy state
   - T1: Red, steady when trip 1 is activated, flashing in the unhealthy state
   - T2: Red, steady when trip 2 is activated, flashing in the unhealthy state

3. **Binary input indications**
   - I >: Red, steady when I> input is energized
   - MT: Red, steady when external master trip is received from MT In
4. **Reset / Install**
   - Push button on the front: **Reset / Install**
     - 0.5 s press to, reset and clear indications / latch
     - 5 s to press to, install sensors
   - While pressing "Install", the device will flash all LEDs at the end of the installation routine to perform the LED function test.

Application

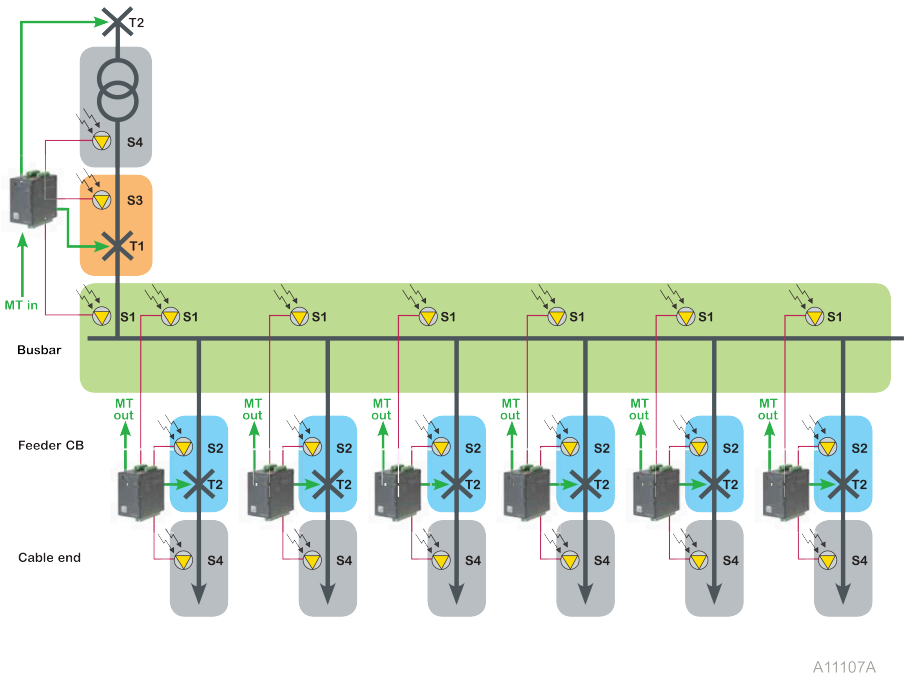
Every switchgear or assembly compartment is equipped with an arc flash point sensor. Up to four sensors can be connected to the PowerLogic A125 unit. The trip relays are electromechanical and hybrid type of outputs. Relays can be connected directly to control the circuit breakers.

The PowerLogic A125 is an arc flash protection relay for small MV and LV power distribution applications used in power generation, industry and utilities where the light only operation mode with full selectivity is required.

If overcurrent criteria is required simultaneously with light activation, a binary current signal has to be connected to X1-14/15. This I > I_N signal can for example be taken from the VAM 4C unit.

The one main application and two main application are explained with figures below:

Figure 8 - One main application



Fault in cable end of outgoing feeders

- S4 sensor activates trip contact T2. Busbar remains operational.

Fault in busbar and feeder CB

- S1 sensor in busbar or S2 sensor in feeder CB activates the master trip out.
- MT Out is connected to the incomer PowerLogic A125 unit master trip in.
- When the PowerLogic A125 unit located in the incomer receives MT to input, the incomer unit activates the trip contact T1.

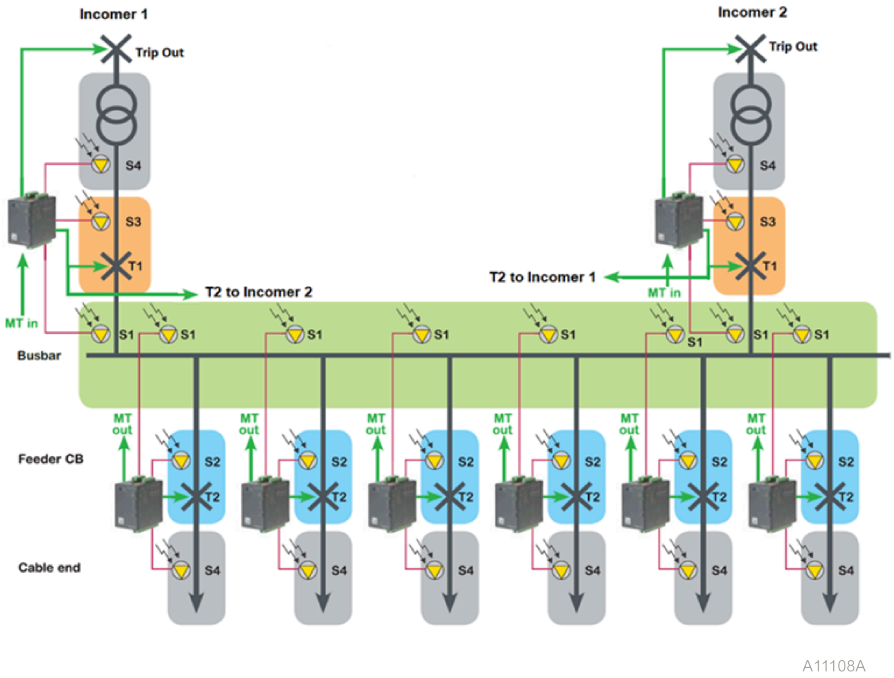
Fault in incomer CB or cable end

- Sensors S3 and S4 activate contact T2.

DIP switch settings for incoming and outgoing feeders in the one main application. These settings are identical for the incomer and feeder PowerLogic A125 IED.

	ON	OFF
Latch	X	
L+I/L		X
T1=T2		X
S2=S3		X
Block		X
MT enable	X	
MT mode		X
Trip out mode		X

Figure 9 - Two main application



Fault in cable end of outgoing feeders and fault in busbar and outgoing feeder CB is same as the one main application.

Fault in busbar in main feeder

- S1 sensor in busbar in main feeder activates T1 trip relay of the PowerLogic A125 relay in main feeder, controls its associated CB and activates T2 trip relay of the same PowerLogic A125 which should be sent/wired to neighbor main feeder tripping circuit.
- S3 and S4 sensors in CB and cable end of the main feeder activate the trip out relay of PowerLogic A125 relay which is installed in main feeder and send direct transfer trip to upstream.

DIP switch settings for incoming and outgoing feeders in the two main application.

Table 3 - Setting for incoming feeders

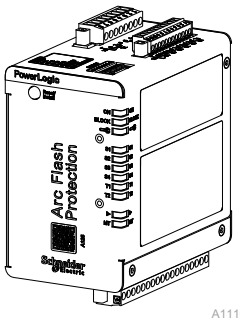
	ON	OFF
Latch	X	
L+I/L		X
T1=T2	X	
S2=S3		X
Block		X
MT enable	X	
MT mode		X
Trip out mode	X	

Table 4 - Setting for outgoing feeders

	ON	OFF
Latch	X	
L+I/L		X
T1=T2		X
S2=S3		X
Block		X
MT enable	X	
MT mode		X
Trip out mode		X

Connections

Figure 10 - PowerLogic A125 connections



The PowerLogic A125 unit comprises two independent arc protection zones. Both zones have their own trip relay, trip 1 and trip 2. Trip 1 is controlled by sensor inputs 1 and 2. Trip 2 is controlled by sensors 3 and 4.

Trip Out is activated if either or both the trip relays trip.

- If the trip out mode switch is in the "OFF" position, the output follows the state of T1.
- If the trip out mode switch is in the "ON" position, the output follows the state of T2.

If the “T1=T2” dip switch is in the “ON” position, both trip outputs will work in parallel for any sensor activation.

If the “S2=S3” dip switch is in the “ON” position, activation of sensor 2 or 3 will cause both T1 and T2 to trip. This is for example used for CB compartment supervision where two zones overlap each other.

If the overcurrent criteria are required simultaneously with light activation, a binary current signal has to be connected to X1-14/15. This I> signal can e.g. be taken from the VAM 4C unit. External reset is possible by energizing the Reset input in X1-12/13 by auxiliary voltage.

The auxiliary voltage is connected to X5-1 and X5-2. The PowerLogic A125 has a wide power supply range.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Always connect the protective grounding before connecting the power supply.

Failure to follow these instructions will result in death or serious injury.

X1 connector

Table 5 - Type: Phoenix contact MSTB 2.5 – 5.06

Pin No.	Symbol	Description
1	Trip Out	Trip Out, negative terminal
2	Trip Out	Trip Out, positive terminal, +24 V dc
3	GND	Binary output GND
4	GND	Binary output GND
5	MT Out	MT Out, negative terminal
6	MT Out	MT Out, positive terminal, +24 V dc
7	NC	No connection

Table 5 - Type: Phoenix contact MSTB 2.5 – 5.06 (Continued)

Pin No.	Symbol	Description
8	MT In	External master trip input
9	MT In	External master trip input
10	Block	External block input
11	Block	External block input
12	Reset	External reset input
13	Reset	External reset input
14	I> In	External current input
15	I> In	External current input
16	SF COMMON	Service status output, common
17	SF NO	Service status output, normal open
18	SF NC	Service status output, normal close

NOTE: Binary inputs are polarity free which means that the user can freely choose "-" and "+" terminals for each binary input.

X2 connector

Table 6 - Type: Phoenix contact MC 1.5 – 3.5

Pin No.	Symbol	Description
1	S1	Arc sensor channel 1, positive terminal
2	S1	Arc sensor channel 1, negative terminal
3	GND	Arc sensor channel 1 Ground
4	GND	Arc sensor channel 2 Ground
5	S2	Arc sensor channel 2, positive terminal
6	S2	Arc sensor channel 2, negative terminal
7	S3	Arc sensor channel 3, positive terminal
8	S3	Arc sensor channel 3, negative terminal
9	GND	Arc sensor channel 3 Ground
10	GND	Arc sensor channel 4 Ground
11	S4	Arc sensor channel 4, positive terminal
12	S4	Arc sensor channel 4, negative terminal

X5 connector

Table 7 - Type: Phoenix contact MSTB 2.5 – 5.06

Pin No.	Symbol	Description
1	L / - / ~	Supply voltage, positive terminal
2	N / + / ~	Supply voltage, negative terminal
3	NC	No connection
4	T1	Trip relay 1, HSO type
5	T1	Trip relay 1, HSO type

Table 7 - Type: Phoenix contact MSTB 2.5 – 5.06 (Continued)

Pin No.	Symbol	Description
6	NC	No connection
7	T2	Trip relay 2, electromechanical type
8	T2	Trip relay 2, electromechanical type

Arc flash sensor

VA 1 xx is a point type arc flash sensor. Arc flash light is transformed to a current signal in the sensor.

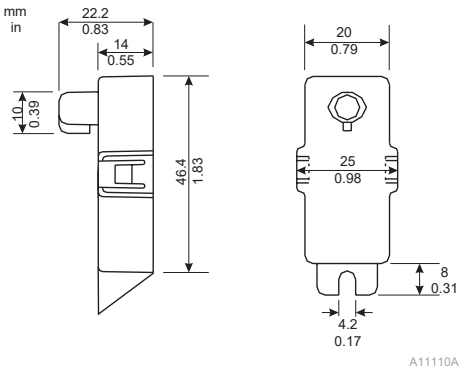
- Standard 8000 – 10000 lux visible light sensitivity
- Wide area arc flash detection
- Typically < 1 ms detection time
- Standard cable length of 6 m (19.68 ft) or 20 m (65.61 ft) (cut to length on site)
- Easy to install (2-wired non-polarity sensitive connection)
- Can be mounted on switchgear surface, in customer drilled holes in switchgear or on VYX001 Z shape or VYX002 L shape mounting plates available, or locally fabricated from supplied drawings

The sensor is used by an arc flash protection device (IED) or system to detect the light coming from the arc flash incident.

VA 1 DA

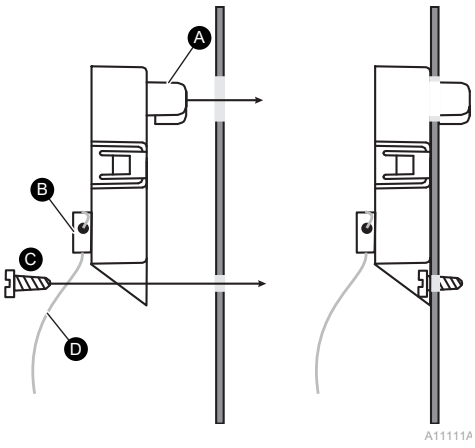
The arc sensor VA 1 DA is activated by strong light. The sensor transforms the light information into the current signal, which is used by the IED to detect arc flash light.

Figure 11 - VA 1 DA dimensions



You can install the arc sensor onto the switchgear wall from the outside. Press the active part of the sensor through the 10 mm (0.393 in) hole in the wall and fix it using a M4 screw.

Figure 12 - VA 1 DA mounting



A. Active part of the sensor
B. Cable clamp
C. Fastening screw M4 x 15 mm
D. Sensor cable

Connecting the IED

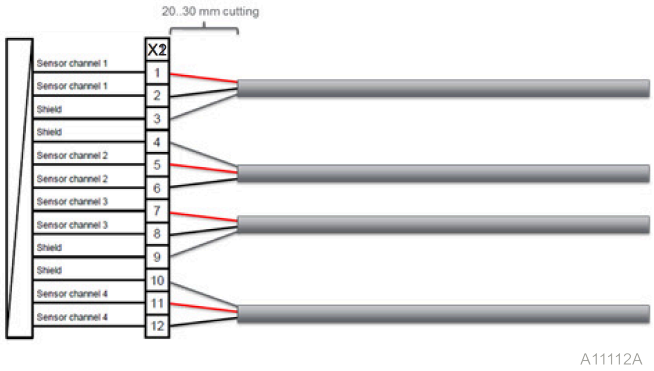
The sensors are delivered with 6 m (19.68 ft) or 20 m (65.61 ft) cables. After mounting the sensors, connect them to the IED as follows:

- Draw the wire to the nearest IED using the shortest route possible and cut it to a suitable length.
- Connect the arc sensors to the screw terminals. The polarity of the arc sensor cables is not critical.
- Connect the cable shield to the corresponding connector on X2 terminal when using shielded cable on sensor(s).

  NOTE:

  - Use a ferrule to protect exposed sensor wire when the sensor wire is connected to terminals. Guarantee a correct sensor wiring.
  - Do not splice or extend pre-made/supplied cables with any type of wires or cables.

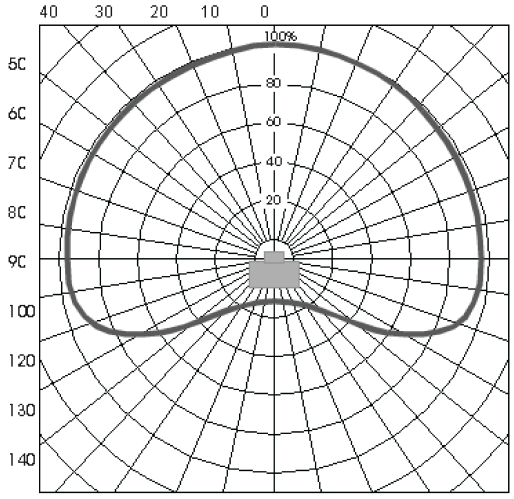
Figure 13 - Cable landing to PowerLogic A125 X2 connector



Sensitivity

NOTE: The sensor must not be exposed to direct sunlight or other strong light sources. Do not mount the sensor directly under a light source.

Figure 14 - Sensitivity of the arc sensor VA 1 DA



Preventive maintenance

The IED requires maintenance to help ensure that it works according to the specification. Keep record of the maintenance actions performed for the system. The maintenance can include, but is not limited to, the following actions.

Maintenance

The arc products, sensors and cabling shall be visually checked when the switchgear is de-energized. During such inspection pay attention to:

- Possible dirty arc sensors
- Loose wire connections
- Damaged wiring
- Indicator lights (unit start-up)
- Other mechanical connections.

Visual inspection shall be carried out at the minimum once every three (3) years.

⚠CAUTION

EQUIPMENT OPERATION HAZARD

Carry out periodical system testing as per manufacturer's recommendation or in case the protection system scheme has been changed.

Failure to follow these instructions can result in injury or equipment damage.

Cleaning of hardware

Pay special attention to help ensure that the device, its extension units and sensors are always clean. In case cleaning is required, wipe out dirt from the units.

Use a dry cleaning cloth or equivalent together with mild soapy water to clean any residues from the sensor.

⚠CAUTION

EQUIPMENT OPERATION HAZARD

Do not use any type of solvents or gasoline to clean the IED, sensors or cables.

Failure to follow these instructions can result in injury or equipment damage.

Sensor condition and positioning check

After commissioning, sensor replacement, modification procedure, cleaning and periodical testing always check that the sensor positioning remains as it was originally designed.

System status messages

In case the IED’s self-checking detects any unexpected system status, it provides an alarm by activating the Service LED ( ) and indication status notification on the SF output. Should this happen, contact your local office for further guidance.

Spare parts

Use the entire unit as a spare for the device to be replaced.

Returning for expert assessment

To return PowerLogic A125 for expert assessment, use the original packaging if possible.

PowerLogic A125 must be returned accompanied by its settings sheet and the following information:

- Name and address of the initiator
- PowerLogic A125 type and serial number
- Date of the incident
- Detailed description of the incident
- LED status at the time of the incident
- List of stored events
- Repair and Modification Authorization (RMA) form which is from the country organization

End of life

At end of life of PowerLogic A125, Schneider Electric's Green Premium program helps decrease the amount of waste and allow recovery of the product components and materials. Please refer to the Product Environmental Profile and the End of Life instructions documents available on SE website: https://www.se.com/ww/en/work/support/green-premium/.

Dispose the device according to the legislation of the country when decommissioning the device. It helps prevent potential disclosure of data contained in the device that was not removed.

⚠WARNING

UNAUTHORIZED OR UNINTENDED ACCESS TO CONFIDENTIAL DATA

Ensure all data from the device has been saved and erased.

Failure to follow these instructions can result in unauthorized or unintended access to sensitive or secure customer data.

Technical data

PowerLogic A125

Table 8 - Auxiliary power supply

U_{AUX}	24...240 (-20%...+10%) V ac/dc
Maximum withstand voltage	264 V ac/dc
Normal operating power consumption	5 W; (Max. 8 W)

Table 9 - High speed output, T1

Number of contacts	1, NO
Rated voltage (max withstand voltage)	250 V ac (3 A); 24 V dc (2 A); 250 V dc (0.2 A);
Minimum voltage	12 V ac/dc
Continuous current	5 A
Minimum making current	-
Maximum operation time (light only)(2)	2 ms
Make and carry, 0.5 s Make and carry, 3 s	30 A 15 A
Breaking capacity, AC	2000 VA (resistive load 1, inductive load 0.7)
Breaking capacity, DC (L/R = 40 ms) • at 48 V dc: 5 A • at 110 V dc: 3 A • at 220 V dc: 1 A	
Contact material	Ag alloy
Terminal block: Pitch: 5.08 mm/0.2 in.	Wire dimension: Maximum 2.5 mm^2 (13...14 AWG) Minimum 1.5 mm^2 (15...16 AWG)

Table 10 - Trip contact, T2

Number of contacts	1, NO
Rated voltage	250 V ac/dc
Continuous current	5 A
Minimum making current	100 mA at 24 V dc
Maximum operation time (light only)	9 ms
Make and carry, 0.5 s Make and carry, 3 s	30 A 15 A
Breaking capacity, AC	2000 VA (resistive load 1, inductive load 0.7)
Breaking capacity, DC (L/R = 40ms) • at 48 V dc: 1.15 A • at 110 V dc: 0.5 A • at 220 V dc: 0.25 A	
Contact material	Ag alloy
Terminal block: Pitch: 5.08 mm/0.2 in.	Wire dimension: Maximum 2.5 mm^2 (13...14 AWG) Minimum 1.5 mm^2 (15...16 AWG)

(2) 8 ms operation time with a mechanical output relay. With HSO the operation time is maximum 2 ms in the light only mode.

Table 11 - Self-supervision contact; SF

Number of contacts:	2, NC/NO
Rated voltage	250 V ac/dc
Continuous current	5 A
Minimum making current	100 mA at 24 V ac/dc
Make and carry, 0.5 s Make and carry, 3 s	30 A 15 A
Breaking capacity, AC	2000 VA (resistive load 1, inductive load 0.7)
Breaking capacity, DC (L/R = 40ms) • at 48 V dc: 1.15 A • at 110 V dc: 0.5 A • at 220 V dc: 0.25 A	
Contact material	Ag alloy
Terminal block: Pitch: 5.08 mm/0.2 in.	Wire dimension: Maximum 2.5 mm^2 (13...14 AWG) Minimum 1.5 mm^2 (15...16 AWG)

Table 12 - Binary outputs; Trip Out, MT Out

Number of outputs	2
Rated output voltage	+24 V dc (max +32 V dc unloaded)
Rated output current	20 mA
Terminal block: Pitch: 5.08 mm/0.2 in.	Wire dimension: Maximum 2.5 mm^2 (13 – 14 AWG) Minimum 1.5 mm^2 (15 – 16 AWG)
Connection cable	Twisted pair, with shield. Shield shall be grounded to the appropriate connector.

Table 13 - Binary inputs; MT In, Block, Reset, $I > I_N$

Number of inputs	4
Voltage withstand	250 V dc
Nominal operation voltage	24...240 V ac/dc (max. 250 V DC)
Typical switching threshold	12 V dc ± 5 %
Current drain	approx. 3 mA
Terminal block: Pitch: 5.08 mm/0.2 in.	Wire dimension: Maximum 2.5 mm^2 (13...14 AWG) Minimum 1.5 mm^2 (15...16 AWG)
Connection cable	Twisted pair, with shield. Shield shall be grounded to the appropriate connector.

Table 14 - Arc sensor inputs; S1 – S4

Number of inputs	4
Supply to sensors	8 V dc
Grounding	4 grounding pins on connector

Table 14 - Arc sensor inputs; S1 – S4 (Continued)

Terminal block: Pitch: 3.5 mm/0.14 in.	Wire dimension: Maximum 1.5 mm^2 (15...16 AWG) Minimum 0.14 mm^2 (25...26 AWG)
Connection cable	Twisted pair, with shield. Shield shall be grounded to the appropriate connector.

Table 15 - IEC 60947-9-2 Compliance

Light immunity	2000 lx (0,+400)
Arc detection	Reduced energy arc, 10 kA, 400 V, with a cos Phi of 0,50 High energy arcs, 100 kA, 400 V, with a cos Phi of 0,20 Sensors placed 2000 mm from the arc
Functional tests	Configure T1, T2 and Trip Out/MT Out triggered for any sensor stimulation. Stimulated all the sensors one by one. The associated LED for sensor and output relay light on when the relay is triggered by the light sensors.

Table 16 - Electro-Magnetic Compatibility (EMC) requirements

Characteristic	Standard	Description
Emission tests		
Radiated emission	EN IEC 60255-26 CISPR 11 CISPR 16-2-3	Class A(3)
Conducted emission	EN IEC 60255-26 CISPR 11 CISPR 32	Class A (Power ports, Wired network port)
Radiated disturbances immunity tests		
Electrostatic discharges	IEC 61000-4-2	Level 4: +/- 8 kV Contact Discharge +/- 15 kV Air Discharge Criteria B
Radiated radio frequency electromagnetic field	IEC 61000-4-3	Level 3: 10 V/m, 0.8 to 6 GHz, AM 80% - 1 kHz Criteria A
Power frequency magnetic fields	IEC 61000-4-8	Level 5: 100 A/m, continuously - 60 s, 50/60 Hz Criteria A 1000 A/m, continuously - 3 s, 50/60 Hz Criteria B
Conducted disturbances immunity tests		
Electrical fast transient	IEC 61000-4-4	Level 4: 4 kV, burst frequency 5kHz and 100 kHz Criteria B
Surge	IEC 61000-4-5	Level 3:

(3) Tested from 30 MHz to 1 GHz. According to the EN IEC 60255-26, if the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.

Table 16 - Electro-Magnetic Compatibility (EMC) requirements (Continued)

Characteristic	Standard	Description
		2 kV, 1.2/50 µs (CM) - 1 kV, 1.2/50 µs (DM) Criteria B(4)
RF conducted disturbances	IEC 61000-4-6	Level x: 15 Vrms, 0.15 - 80 MHz - AM 80% - 1kHz Criteria A
Conducted low frequency	IEC 61000-4-16	Level 4: Continuous disturbance: 30 V - 50/60 Hz Short disturbance: 300 V - 50/60 Hz Criteria A
	IEC 60255-26	BI port (5) 300V (CM) 50/60HZ Zone A
Ripple (DC)	IEC 61000-4-17	Level 4: 15% UDC - 100 Hz / 120 Hz – 10 min Criteria A
Damped oscillatory waves	IEC 61000-4-18	Level 3: 2.5 kV (1 MHz, 100 kHz): CM 1 kV (1 MHz, 100 kHz): DM 2kV (3/10/30 MHz): CM Criteria B
Gradual shutdown	IEC 60255-26	Criteria C: Shut-down ramp 60 s Power off 5 min Start-up ramp 60 s

Table 17 - Electrical safety tests

Characteristic	Standard	Description
Insulation	IEC 60255-27	Insulation resistance > 100 MΩ at 500 Vdc
	IEC 60947-9-2	Insulation resistance >100 MΩ at 500 Vdc (except BO circuits) Insulation resistance >10 MΩ at 64 Vdc (for BO circuits)
Clearances and creepage distances	IEC 60255-27	Pollution degree 2, Overvoltage category III
Dielectric voltage	IEC 60255-27	3.7 kV DC, 1 min: between all independent circuits. 1.5 kV AC, 1 min: across normally open control and signaling contacts. (6)
	IEC 60947-9-2	1.415 kV DC, 1 min: between BO circuits, 2.12 kV DC, 1 min: between all independent circuits (except BO)
Impulse voltage	IEC 60255-27	6 kV, 1.2 µs - 50 µs, 0.5J between all independent circuits.

(4) Zone B requirement level
(5) According to IEC 60255-26:2023, A125 do not test differential mode since the BI ports do not have AC or DC mode selection based on hardware or software settings.
(6) None for high speed, high break control relay output due to solid state devices across normally open contact.

Table 17 - Electrical safety tests (Continued)

Characteristic	Standard	Description
	IEC 60947-9-2	4.8 kV, 1.2 µs – 50 µs, 0.5 J between all independent circuits and case ground. 0.9 kV, 1.2 µs – 50 µs, 0.5 J between BO circuits and case ground.
Protective bonding	IEC 60255-27	R< 0,1 Ω; 32 A, 12V ac or dc maximum; 60 seconds.
Reverse polarity and slow ramp test	IEC 60255-27	/

Table 18 - Mechanical requirements (DIN rail mounting & panel mounting)

Characteristic	Standard	Description
Vibration	IEC 60255-21-1 IEC 60068-2-6	Class 1: Response – 0.5 Gn, 10 Hz to 150 Hz Endurance - 1 Gn, 10 Hz to 150 Hz
Shock and bump	IEC 60255-21-2	Class 1: Shock response - 5 Gn, 11 ms Shock withstand - 15 Gn, 11 ms Bump - 10 Gn, 16 ms
Seismic	IEC 60255-21-3	Class 1: 1 Gn horizontal; 0.5 Gn vertical

Table 19 - Climatic environmental requirements

Characteristic	Standard	Description
Cold test Dry heat test	IEC 60068-2-1 IEC 60068-2-2	In operation: -40°C (-40°F), 96 hours / +70°C (+158°F), 96 hours. Storage: -40°C (-40°F), 96 hours / +85°C (+185°F), 96 hours.
Damp heat steady state	IEC 60068-2-78	In operation: 10 days, 93% RH, +40°C (104°F).
Cyclic temperature with humidity	IEC 60068-2-30	In operation: 93% RH, +25°C to +55°C (77°F to 131°F), 6 cycles (12 hours + 12 hours).
Change of temperature test	IEC 60068-2-14	In operation: -40°C to +70°C (-40°F to +158°F) Exposure time: 2h + 1h, 5 cycles 1°C/min (1.8°F/min) of transfer time

Table 20 - Enclosure protection

Characteristic		Standard	Description
Enclosure protection	Front surface area	IEC 60529	IP2X
		IEC 62262	IK07
	Other area	IEC 60529	IP2X
Flammability of Insulating materials, components, and fire enclosures		IEC 60255-27 IEC 60695-11-5	Needle flame test
Single fault condition		IEC 61010-1	Short-circuit of components

Table 20 - Enclosure protection (Continued)

Characteristic	Standard	Description
Durability of markings	IEC 60255-27	Water-resistance
Packaging	IEC 68000-2-31	Resistance to shocks by free fall (with packaging). 1 m (3.28ft)

Table 21 - Energizing quantities

Characteristic	Standard	Description
Burden	IEC 60255-1	Power supply DC: 4 W typical, 6 W maximum at 48 Vdc 5 W typical, 7 W maximum at 240 Vdc Power supply AC: 6 VA typical, 9 VA maximum at 48 Vac 17 VA typical, 22 VA maximum at 240 Vac Digital inputs: <1 W at 24 V ac/dc <1 W at 240 V ac/dc
AC power supply voltage dips and interruption	IEC 61000-4-11	24 Vac: 0% residual voltage @ 10 cycles (50/60 Hz) Criteria A 40% residual voltage @ 10/12 cycles (50/60 Hz) Criteria C 70% residual voltage @ 25/30 cycles (50/60 Hz) Criteria C 0% residual voltage @ 250/300 cycles (50/60 Hz) Criteria C 240 Vac: 0% residual voltage @ 25 cycles (50/60 Hz) Criteria A 40% residual voltage @ 10/12 cycles (50/60 Hz) Criteria A 70% residual voltage @ 25/30 cycles (50/60 Hz) Criteria C 0% residual voltage @ 250/300 cycles (50/60 Hz) Criteria C
DC power supply interruption	IEC 61000-4-29	24 Vdc: 0% residual voltage @ 300 ms Criteria A 40% residual voltage @ 200 ms Criteria C 70% residual voltage @ 500 ms Criteria C 0% residual voltage @ 5000 ms Criteria C 240 Vdc: 0% residual voltage @ 500 ms Criteria A 70% residual voltage @ 500 ms Criteria C 0% residual voltage @ 5000 ms Criteria C

Table 22 - Environmental conditions

Ambient temperature range, in operation:	-40...+70°C (-40...+158°F)
Ambient temperature range, storage:	-40...+80°C (-40...+176°F)
Relative air humidity:	< 90%

Table 22 - Environmental conditions (Continued)

Maximum operating altitude:	2000 m (6561.68 ft)
No condensation.	

Table 23 - Casing

Degree of protection (IEC 60529)	IP2X
Dimensions (W x H x D)	70.6 x 135.8 x 126.2 mm / 2.779 x 5.346 x 4.968 in
Weight	0.95 kg (2.094 lb)

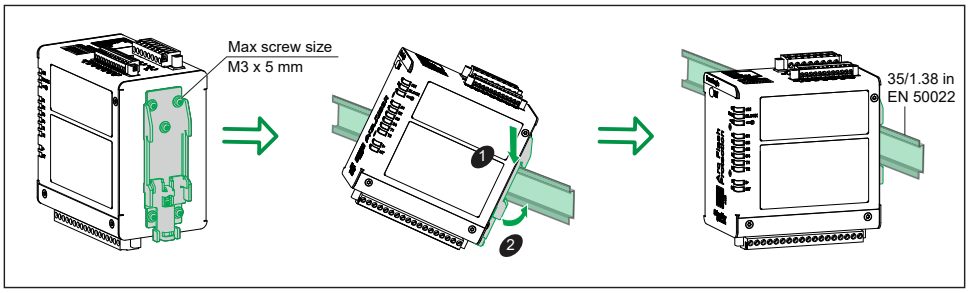
Arc flash sensor

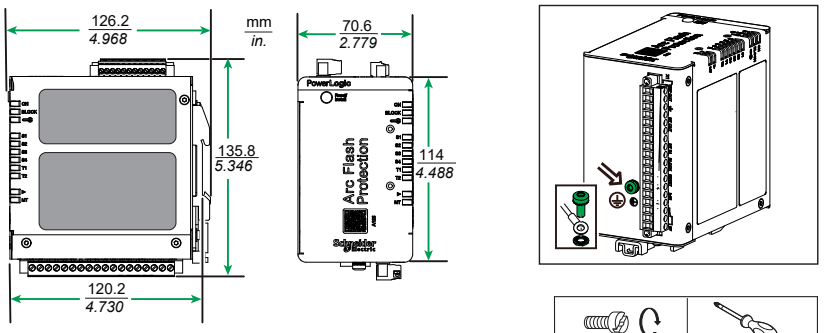
U_{AUX}	8, 12 or 15 V DC (from the IED)
Current consumption	< 2...4 mA (in normal mode) < 18...29 mA (activated)
Housing class (IEC 60529)	IP20
Dimensions (W x H x D)	25 x 55 x 14 mm / 0.98 x 2.17 x 0.55 in
Material	Plastic
Weight (with 6 m / 236.22 in cable)	0.3 kg (0.662 lb)
Cable length	6 m (236.22 in) or 20 m (787.40 in)
Environment	Pollution Degree 2
Operation temperature	-40...85°C (-40...185°F)
Light spectrum sensitivity area	400...1100 nm

Mounting

PowerLogic A125 DIN rail mounting

Figure 15 - DIN rail mounting





X2	7 mm 0.28 in.	Min. 0.14 mm² *(AWG 26...25)* Max. 1.5 mm² *(AWG 16...15)*	0.22...0.25 N•m *1.95...2.21 lb-in*	2.5 mm *3/32 in.*
X1, X5	7 mm 0.28 in.	Min. 1.5 mm² *(AWG 16...15)* Max. 2.5 mm² *(AWG 14...13)*	0.5...0.6 N•m *4.4...5.3 lb-in*	3.5 mm *9/64 in.*
⏚	Ø 4...6 mm *0.16...0.24 in.*	Min. 2.5 mm² *(AWG 12)*	1.5 N•m *13.28 lb-in*	M4

A11115A

PowerLogic A125 panel mounting

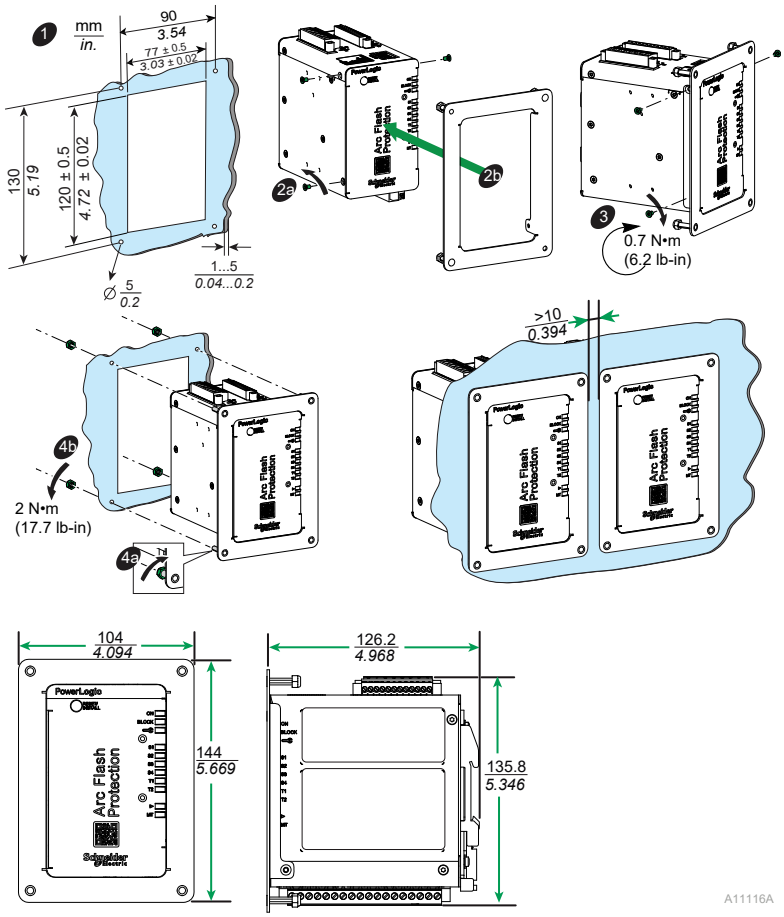


Figure 16 - VYX 001 mounting plate for sensors

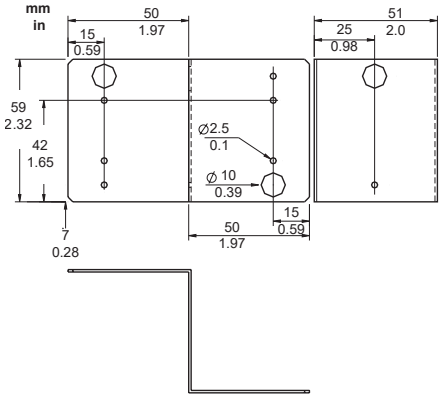
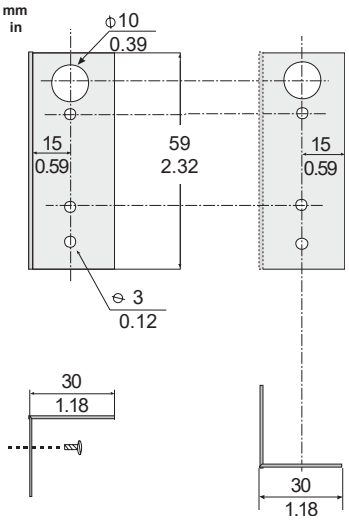


Figure 17 - VYX 002 mounting plate for sensors



Order information

When ordering, please state:

- Type designation: PowerLogic A125
- Quantity
- Accessories (see respective ordering code):

Table 24 - Accessories

Commercial Reference	Product Name	Description
REL52804	VA 1 DA-6	Arc sensor, cable length 6 m (19.69 ft)
REL52801	VA 1 DA-20	Arc sensor, cable length 20 m (65.62 ft)
REL52806	VA 1 DA-6S	Arc sensor, shielded, cable length 6 m (19.69 ft)
REL52803	VA 1 DA-20S	Arc sensor, shielded, cable length 20 m (65.62 ft)
REL52805	VA 1 DA-6S-HF	Arc sensor, halogen free, cable length 6 m (19.69 ft)
REL52802	VA 1 DA-20S-HF	Arc sensor, halogen free, cable length 20 m (65.62 ft)
REL52839	VA 1 DA-6W	Arc sensor, shielded at sensor end, cable length 6 m (19.69 ft)
REL52840	VA 1 DA-20W	Arc sensor, shielded at sensor end, cable length 20 m (65.62 ft)
REL52809	VA 1 EH-6	Arc sensor (pipe type), cable length 6 m (19.69 ft)
REL52807	VA 1 EH-20	Arc sensor (pipe type), cable length 20 m (65.62 ft)
REL52810	VA 1 EH-6S	Arc sensor (pipe type), shielded, cable length 6 m (19.69 ft)
REL52808	VA 1 EH-20S	Arc sensor (pipe type), shielded, cable length 20 m (65.62 ft)
REL52828	VYX 001	Surface mounting plate for sensors, Z-shaped
REL52829	VYX 002	Surface mounting plate for sensors, L-shaped
REL52903	Door mount bracket	For PowerLogic A125 and PowerLogic A3F, IP 20

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