

# 10 x 38 mm Photovoltaic fuse links



## Product description

Eaton's Bussmann® series 10 x 38 mm, 1000 V d.c. photovoltaic fuse links are used to protect and isolate photovoltaic strings.

These fuse links are specifically designed for use in photovoltaic systems with extreme temperature, high cycling and low fault current conditions (reverse current, multi-array fault) string arrays.

## Features

- Five tags available for application flexibility
- Meets UL and IEC photovoltaic standards for global acceptance
- Low watts loss performance for energy efficiency
- Low temperature rise performance for more precise sizing
- In-line crimp terminal version is easy to apply in wire harness construction
- Compatible with Eaton's Bussmann series modular fuse holders (see data sheet 720147)

## Applications

- Combiner boxes
- Inverters
- PV wire harnesses

**Catalogue symbol**

- Cylindrical: PV-(amp)A10F
- Bolt fixing: PV-(amp)A10-T
- PCB Fixing 1 pin: PV-(amp)A10-1P
- PCB Fixing 2 pin: PV-(amp)A10-2P
- In line with crimp terminals: PV-(amp)10F-CT

**Fuse link size**

10 x 38 mm

**Technical data**

- Rated voltage: 1000 V d.c.
- Rated current: 1 to 20 A see tables below
- Class of operation: gPV and UL PV fuse links
- Breaking capacity: 50 kA
- Minimum interrupting rating:
  - 1.3 x I<sub>n</sub> for 1-15 A
  - 1.5 x I<sub>n</sub> for 20 A
- PV fuse coordination with thin film cells and 4", 5" and 6" crystalline silicon cells
- Time constant: 1-3 ms

**Standards/Approvals**

- IEC® 60269-6 (gPV)
- UL® Listed to 248-19, guide JFGA, File E335324 (except crimp terminal version that is UL recognised to UL248-19, Guide JFGA, File E335324)
- CCC®
- CSA® File 53787, Class 1422-30 (1 to 15 A), 20 A pending
- RoHS compliant

**Packaging**

- PV-(amp)A10F: 10
- PV-(amp)A10-T: 10
- PV-(amp)A10-1P: 10
- PV-(amp)A10-2P: 10
- PV-(amp)10F-CT: 20

**Table 1. Technical data**

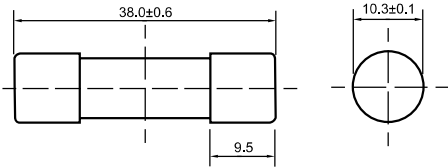
Cylindrical catalogue number	Bolt fixing catalogue number	PCB fixing catalogue number			Rated current (A)	Rated voltage (V d.c.)	Energy integrals I <sup>2</sup> t (A <sup>2</sup> s) Watts loss (W)			
		1 Pin	2 Pin	In-line with crimp terminal			Pre-arcing	Total at 1000 V d.c.	0.8 I <sub>n</sub>	I <sub>n</sub>
PV-1A10F	PV-1A10-T	PV-1A10-1P	PV-1A10-2P	PV-1A10F-CT	1	1000 (IEC/UL)	0.2	0.4	0.8	1.5
PV-2A10F	PV-2A10-T	PV-2A10-1P	PV-2A10-2P	PV-2A10F-CT	2		1.2	4	0.6	1
PV-2.5A10F	PV-2.5A10-T	PV-2.5A10-1P	PV-2.5A10-2P	PV-2.5A10F-CT	2.5		3	9	0.6	1
PV-3A10F	PV-3A10-T	PV-3A10-1P	PV-3A10-2P	PV-3A10F-CT	3		4	11	0.8	1.3
PV-3.5A10F	PV-3.5A10-T	PV-3.5A10-1P	PV-3.5A10-2P	PV-3.5A10F-CT	3.5		6.6	18	0.9	1.4
PV-4A10F	PV-4A10-T	PV-4A10-1P	PV-4A10-2P	PV-4A10F-CT	4		9.5	26	1	1.5
PV-5A10F	PV-5A10-T	PV-5A10-1P	PV-5A10-2P	PV-5A10F-CT	5		19	50	1	1.6
PV-6A10F	PV-6A10-T	PV-6A10-1P	PV-6A10-2P	PV-6A10F-CT	6		30	90	1.1	1.8
PV-8A10F	PV-8A10-T	PV-8A10-1P	PV-8A10-2P	PV-8A10F-CT	8		3	32	1.2	2.1
PV-10A10F	PV-10A10-T	PV-10A10-1P	PV-10A10-2P	PV-10A10F-CT	10		7	70	1.2	2.3
PV-12A10F	PV-12A10-T	PV-12A10-1P	PV-12A10-2P	PV-12A10F-CT	12		12	120	1.5	2.7
PV-15A10F	PV-15A10-T	PV-15A10-1P	PV-15A10-2P	PV-15A10F-CT	15		15	160	1.7	2.9
PV-16A10F	PV-16A10-T	PV-16A10-1P	PV-16A10-2P	PV-16A10F-CT	16		19	200	1.8	3
PV-20A10F	PV-20A10-T	PV-20A10-1P	PV-20A10-2P	PV-20A10F-CT	20		34	350	2.1	3.6

**Table 2. Compatible fuse holders**

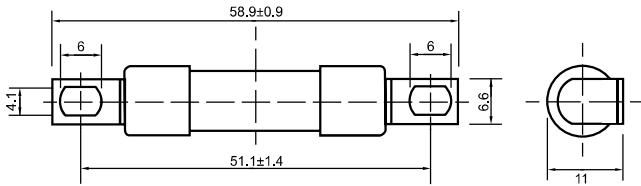
Catalogue number	Description	Data sheet number
BPVM_	Modular PV fuse block with optional covers	10265
CHPV1IU	1-Pole modular fuse holder with indication	720147
CHPV1U	1-Pole modular fuse holder without indication	720147
CHPV2IU	2-Pole modular fuse holder with indication	720147
CHPV2U	2-Pole modular fuse holder without indication	720147
1A3400_	PCB Fuseclips	2131
HPV-DV-_A	In-line fuse holder assembly	2157

**Dimensions/configurations - mm**

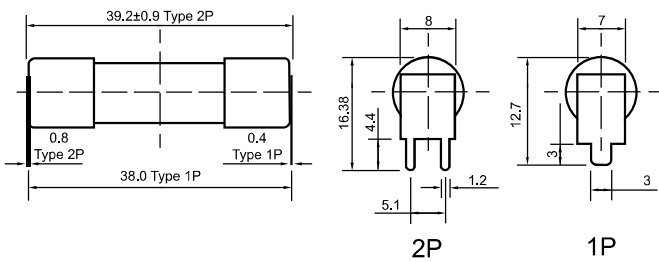
**Cylindrical PV-(amp)A10F**



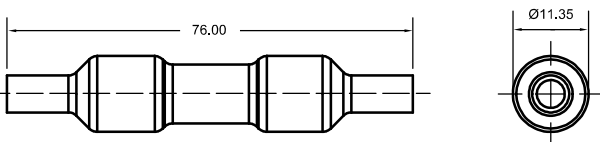
**Cylindrical with bolt fixings PV-(amp)A10-T**



**Cylindrical with PCB tabs PV-(amp)A10-1P (single pin), PV-(amp)A10-2P (double pin)**



**In-line with crimp terminals PV-(amp)A10F-CT**



The in-line crimp terminal version can be electrically insulated with customer supplied overmolding or approved heat-shrink.

**Operating temperature range**

- -40°C to 90°C

**Wire range and type**

- Single conductor, 12-10AWG 75°C/90°C Cu stranded PV

**Overmolding temperature parameters**

- 233°C for 180 sec Max

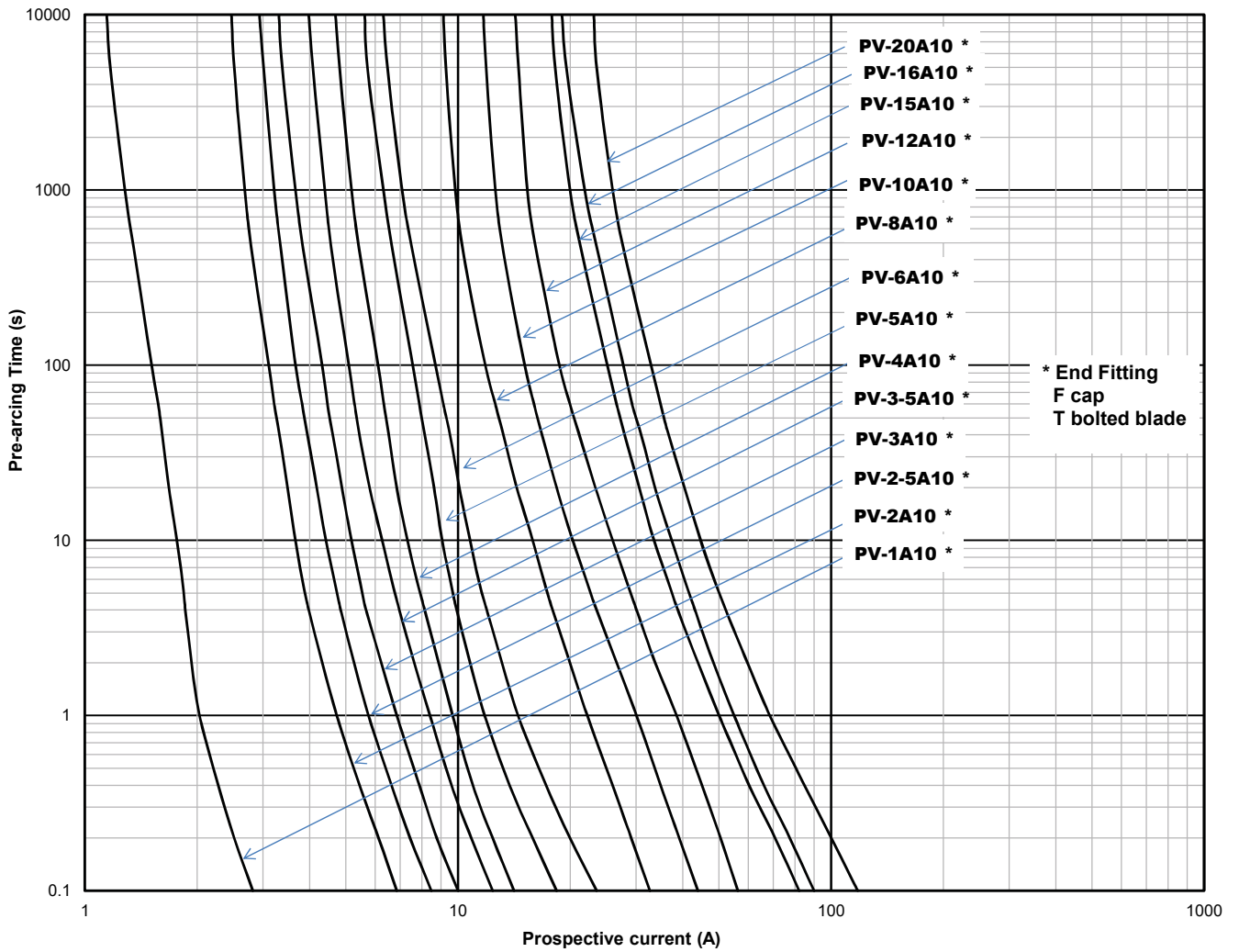
**Terminals**

- Crimp terminal for 12-10AWG PV copper conductors

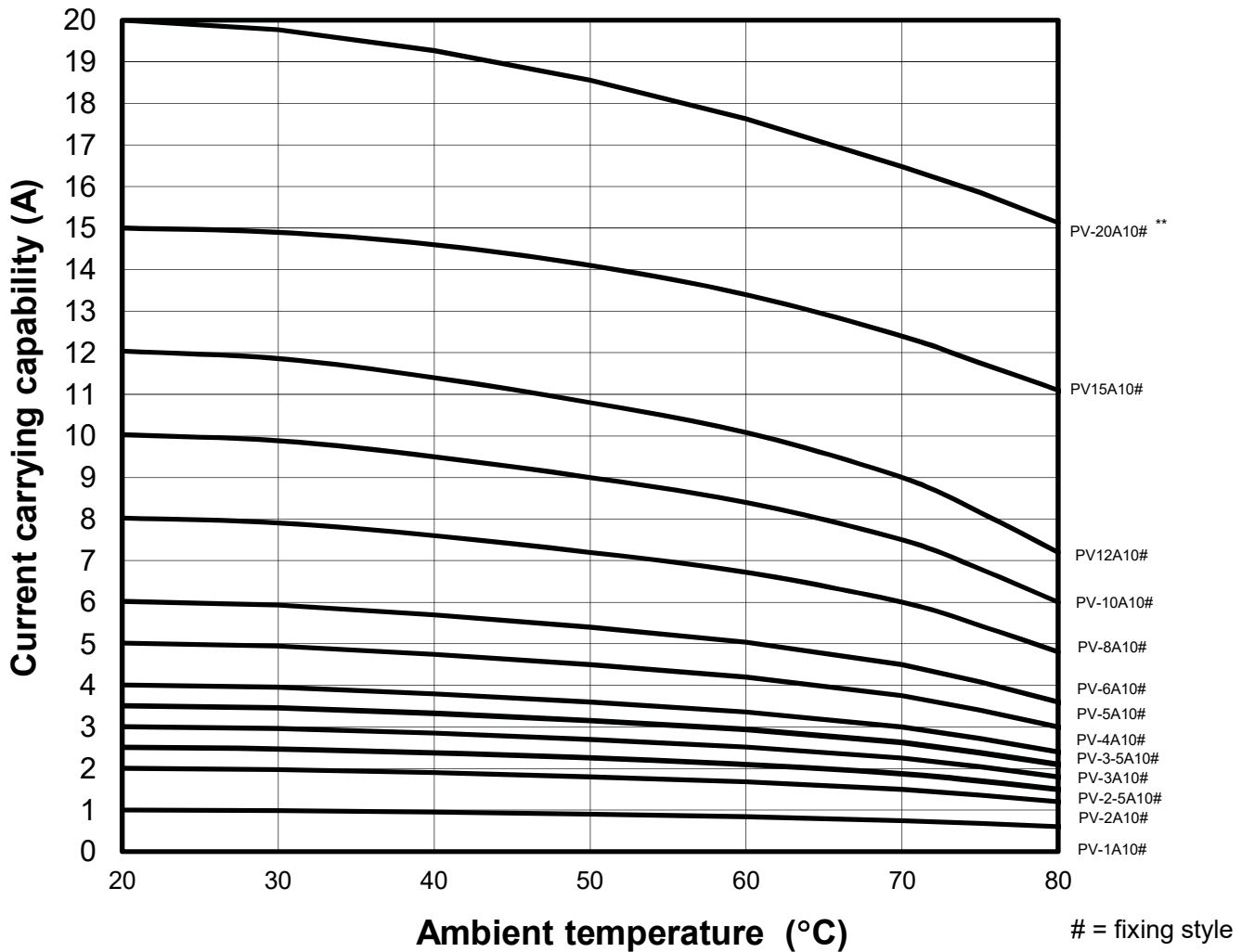
**Recommended tools**

- Sta-Kon® terminal crimping tool, catalog number ERG4002

Time current curve



**Temperature derating curves**



No additional derating is required for PV fuse links installed in ganged modular fuse holders without spacing between units, provided that the rating used is  $>1.56 \times I_{sc}$ .

The only controlled copy of this data sheet is the electronic read-only version located on the Eaton network drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

Changes to the products, to the information contained in this document, and to prices are reserved; so are errors and omissions. Only order confirmations and technical documentation by Eaton is binding. Photos and pictures also do not warrant a specific layout or functionality. Their use in whatever form is subject to prior approval by Eaton. The same applies to Trademarks (especially Eaton, Moeller, and Cutler-Hammer). The Terms and Conditions of Eaton apply, as referenced on Eaton Internet pages and Eaton order confirmations.

**Eaton**  
 EMEA Headquarters  
 Route de la Longeraie 7  
 1110 Morges, Switzerland

Eaton Electrical Products Limited  
 Unit 1, Hawker Business Park  
 Melton Road  
 Burton-on-the-Wolds  
 Leicestershire, LE12 5TH  
 United Kingdom

© 2020 Eaton  
 All Rights Reserved  
 PDF Only  
 Publication No. 720110  
 May 2020