elmex®

since 1963

Converging Innovations Expanding Solutions

Solutions for Solar Photovoltaic

elmex®

since 1963

Converging Innovations Expanding Solutions

Solutions For Solar Photovoltaic

Solutions For Connectivity

Solutions For Control & Instrumentation

Solutions For Metering & Protection

Solutions For Oil & Gas Industry

since 1963

'elmex' was established in 1963 and is a pioneer and leader in the field of Wire Termination Technology in India. 'elmex' is having manufacturing facilities in Vadodara, Gujarat, India. 'elmex' manufacturing plants are **ISO 9001:2008** and **ISO 14001:2004** certified. 'elmex' has extended domain knowledge in Termination Technology to develop product range suitable for Photovoltaic application by indigenous design and development.

As an application 'elmex' provides wide range of PV products such as PV Junction Boxes (2 - Rail, 3 - Rail & 4 - Rail), Straight Connectors, Branch Connectors, Over moulded wire harness, Inline Fuse Connector, DC Fuse holder (for Combiner Box / DC Distribution Box) which are used for Termination and to transfer DC energy from PV module to final output. All the Solar PV products are designed, manufactured and tested in - house. 'elmex' PV product range conforms to International standards like, EN 50521 / IEC 62852 (for Connectors) and EN 50548 / IEC 62790 (for Junction Boxes).

'elmex' supports its customer base with more than 150 distributors all over India and with customer support engineers having presence in all major cities in India.

'elmex' SCHEMATIC DIAGRAM

PV Junction Box

EPVJB-F

Straight Connector

EMPV4

Branch Connector

EBPV4F

EBPV4M

EBPVFC4F

EBPVFC4M

PV Branch In-Line Fuse Connector

Terminal Block

Panel Connector

EMPVPCM4

EMPVPCF4

Current Transformer

Array Junction Box

Residential / Industrial Load

EPVFH1000

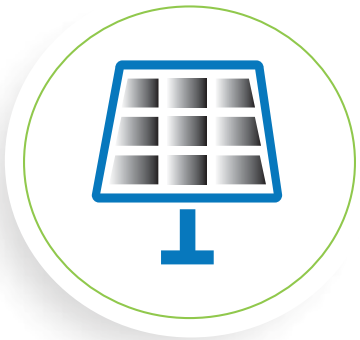
EPVFH1500

PV Fuse Terminal Block

Solar PV Panel

'elmex' SOLAR PRODUCT SOLUTIONS

Solutions For PV Panels / Module Manufacturers



- 2 - Rail PV Junction Boxes
- 3 - Rail PV Junction Box
- 4 - Rail PV Junction Boxes

Solutions For EPC / Rooftop / Project Developers

1) PV Straight Connectors
2) PV Branch Connectors
3) Straight In-Line Fuse Connectors
4) Branch In-Line Fuse Connectors
5) Over Moulded Wire Harnesses

Solutions For System Integrators / Inverters

1) PV Panel Connectors
2) PV Fuse Terminal Blocks
3) Terminal Blocks

'elmex' PHOTOVOLTAIC SOLAR CONNECTOR EMPV4

'elmex' has developed Solar Straight connector with plug and socket design suitable for **2.5, 4.0 & 6.0 mm²** size cables and are constructed using flame retardant engineering thermoplastic suitable for exposure to UV rays and for application in PV Power Generation strings. While small solar panels, commonly used for battery charging, may not require special connectors, larger terrestrial arrays for power generation involve higher currents and voltage and place special demands on both cables and connectors for safe operation. The **EMPV4** connectors incorporate a flexible watertight seal and are supplied as ' male (plug) ' and ' female (socket) ' types to minimize the chance of wrong connections. For proper seal, they require usage with the correct diameter cable, normally double - insulated (insulation plus black / red sheath) and UV protection (as UV rays tend to damage the connection).

Description	'elmex' Specification
Rated Voltage	1000V / 1500V DC
Rated Current	25A (2.5 mm²), 30A (4.0 mm², 6.0 mm²)
Test Voltage	6KV (50Hz)
Degree of Protection	IP 68
Contact Material	Copper with Tin Plating
Operating Temperature	-40°C to 85°C
Safety Class	II
Contact Resistance	< 0.5 mΩ
Insertion Force	≤ 50 N
Withdrawal Force	≥ 50 N
Suitable Cable	2.5 mm²/4.0 mm²/6.0 mm²
Locking System	Snap In

SALIENT FEATURES

Note: Our Connectors are suitable for PV Solar cable of 2.5/4.0/6.0 mm² diameter (As per 2Pfg 1169/EN 50618).

'elmex' PHOTOVOLTAIC SOLAR BRANCH CONNECTORS

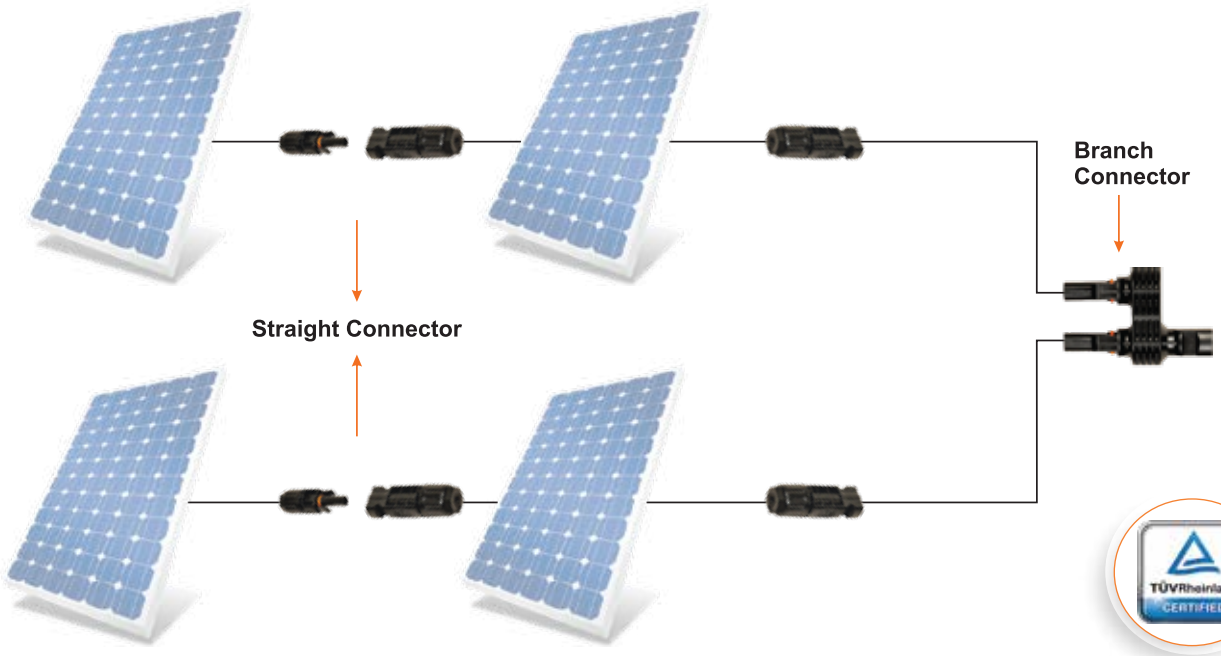
'elmex' has developed Branch Connectors **EBPV4M** and **EBPV4F** to facilitate parallel connection of Photovoltaic male or female straight connectors depending on on-site application. The Branch Connectors have 3 branches, 2 for inputs either male or female and 1 for output either male or female. The Branch Connectors are constructed using flame retardant engineering thermoplastic suitable for exposure to UV rays and for Application in PV Power Generation strings 'elmex' branch connectors are constructed using flame retardant component, optimizing its performance. The Branch Connectors are easy to use as they can be connected or disconnected without help of any accessory.

Description	'elmex' Specification
Rated Voltage	1000V / 1500V DC
Rated Current	25A (2.5 mm^2), 30A (4.0 mm^2, 6.0 mm^2)
Test Voltage	6KV (50Hz)
Degree of Protection	IP 67
Contact Material	Brass with Nickel and Tin Plating
Operating Temperature	-40°C to 85°C
Safety Class	II
Contact Resistance	< 0.5 mΩ
Insertion Force	≤ 50 N
Withdrawal Force	≥ 50 N
Locking System	Snap In

EBPV4F

EBPV4M

LOCATION OF PV CONNECTORS IN PV MODULES



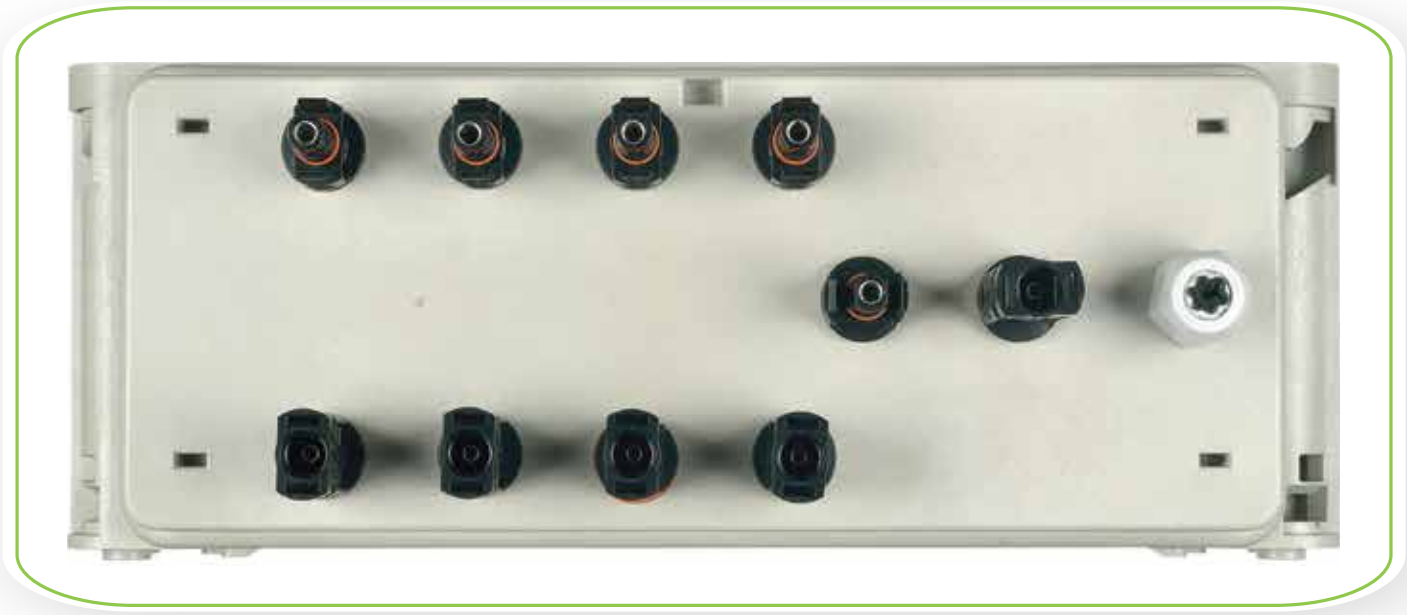
'elmex' PHOTOVOLTAIC SOLAR PANEL CONNECTORS

To cater to the requirement of Panel Mounted Connection, 'elmex' has developed Panel Connectors **EMPVPCM4** and **EMPVPCF4**. 'elmex' Panel Connectors are constructed using flame retardant engineering thermoplastic suitable for exposure to UV rays & for application in PV Power Generation Strings. 'elmex' Panel Connectors are designed for use in connection of photovoltaic devices like Panels. Inverter, String boxes etc. 'elmex' Panel Connectors are provided with hexagonal nut for fixing and tightening it on the mounting surface. A rubber o - ring is kept between Panel surface and the wall of the photovoltaic devices ensuring protection against ingress of water and dust. 'elmex' Panel Connectors have mating compatibility with 'elmex' make Straight Connector EMPV4.

Description	'elmex' Specification
Rated Voltage	1000V / 1500V DC
Rated Current	25A (2.5 mm^2), 30A (4.0 mm^2, 6.0 mm^2)
Test Voltage	6KV (50Hz)
Contact Material	Copper with Tin Plating
Operating Temperature	-40°C to 85°C
Safety Class	II
Contact Resistance	< 0.5 mΩ
Insertion Force	≤ 50 N
Withdrawal Force	≥ 50 N
Suitable Cable	2.5 mm^2/4.0 mm^2/6.0 mm^2
Locking System	Snap In

EMPVPCM4

EMPVPCF4



Note: Our Connectors are suitable for PV Solar cable of 2.5/4.0/6.0 mm^2 diameter (As per 2Pfg 1169/EN 50618).

'elmex' IN-LINE FUSE CONNECTORS

'elmex' introduces PV In-Line Fuse Connectors with plug and socket design and are constructed using flame retardant engineering thermoplastic suitable for photovoltaic application. 'elmex' PV In-Line Fuse Connectors are suitable for use with gPV (cylindrical) fuse of Ø 10 x 38 mm.

EMPV4FC

EMPV4FCM

EMPV4FCF

Description	'elmex' Specification
Rated Voltage	1000V DC
Rated Current	15 A
Test Voltage	6 KV (50Hz)
Degree of Protection	IP 67
Contact Material	Copper With Tin Plating
Operating Temperature	-40°C to +85°C
Safety Class	II
Contact Resistance	<0.5mΩ
Suitable Cable	2.5 mm^2/ 4.0 mm^2/ 6.0 mm^2
Locking System	Snap In

*** Note: It is recommended to use gPV (cylindrical) fuse of Ø 10 x 38 mm dimension.**

'elmex' gPV FUSE LINK

EPVFL

'elmex' gPV Fuse Link suitable for 1000V DC photovoltaic applications.

Description	'elmex' Specification
Rated Voltage	1000V DC
Current Rating	4, 12, 15, 16, 20, 25, 30 A
Type	gPV (Cylindrical)
Dimension	Ø 10 x 38 mm
Testing Standard	IEC 60269-6

'elmex' BRANCH IN-LINE FUSE CONNECTORS

'elmex' introduces PV Branch In-Line Fuse Connectors with plug and socket design and are constructed using flame retardant engineering thermoplastic suitable for photovoltaic application. 'elmex' PV Branch In-Line Fuse Connectors are suitable for use with gPV (cylindrical) fuse of Ø 10 x 38 mm.

EBPVFC4M

EBPVFC4F

Description	'elmex' Specification
Rated Voltage	1000V DC
Rated Current	15 A
Test Voltage	8KV (50Hz)
Degree of Protection	IP 67
Contact Material	Copper With Tin Plating
Operating Temperature	-40°C to +85°C
Safety Class	II
Contact Resistance	<0.5mΩ
Locking System	Snap In

*** Note: It is recommended to use gPV (cylindrical) fuse of Ø 10 x 38 mm dimension.**

'elmex' gPV FUSE LINK

EPVFL

'elmex' gPV Fuse Link suitable for 1000V DC photovoltaic applications.

Description	'elmex' Specification
Rated Voltage	1000V DC
Current Rating	4, 12, 15, 16, 20, 25, 30 A
Type	gPV (Cylindrical)
Dimension	Ø 10 x 38 mm
Testing Standard	IEC 60269-6

'elmex' OVER MOULDED WIRE HARNESSES

'elmex' introduces **'Y - Type'** and **'T - Type'** Over moulded Cable Harness Solutions suitable for photovoltaic applications. The **'Y - Type' and 'T - Type'** cable harnesses are available with multiple input and output connections.

'T - Type' Male Harness

'T - Type' Female Harness

'Y - Type' Male Harness

'Y - Type' Female Harness

Description	'elmex' Specification
Rated Voltage	1000V DC
Rated Current	30A
Test Voltage	6KV (50Hz)
Contact Resistance	< 0.5 mΩ
Contact Material	Copper with Tin Plating
Degree of Protection	IP 67
Pollution Degree	III
Safety Class	Class II
Locking System	Snap in locking type

*** Note: 'elmex' Wire Harness solutions are customized, based on cable size, length & type of connectors**

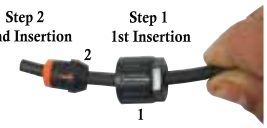
'elmex' SOLAR CONNECTOR ASSEMBLY INSTRUCTIONS

Step 1

Prepare the cable by inserting following components in the sequence as mentioned below:

SEQUENCE COMPONENTS

1 Connector Cap
2 Grommet with Collet

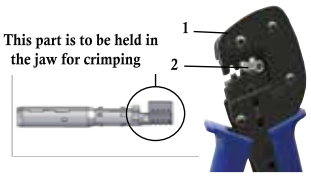


Step 2

Strip the cable as per specified stripping length i.e. 7 mm to 8 mm

Step 3

1 Select the jaw as per cable size
2 Place the cable in the appropriate jaw



Step 4

Hold the contact in a crimping tool

Step 5

Insert the cable into the contact

Step 6

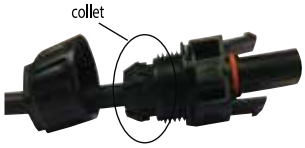
Press the crimping tool until it releases itself

Step 7

Insert the crimped contact into the straight connector until a locking sound (click) is heard

Step 8

Set the Grommet & Collet properly on connector



Step 9

1 Tighten the cap manually or
2 Tighten the cap with Tightening tool

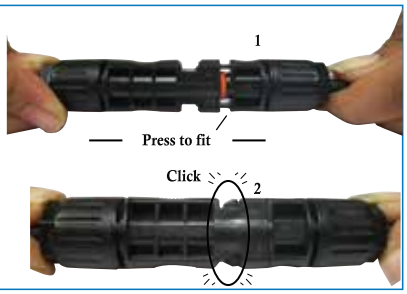
Step 10

The Male & Female connectors are ready for connection

Step 11

1 Press to fit for reliable connection

2 Ensure that it locks properly for reliable connection



Note: Our Connectors are suitable for PV Solar cable of 2.5/4.0/6.0 mm^2 diameter (As per 2Pfg 1169/EN 50618).

CUSTOMIZED CABLE WITH CONNECTOR ASSEMBLY

Description	'elmex' Specification
Rated Voltage	1000V DC
PV cable colour	Black

Note: We can provide assembly with cable length and cable size as per customer requirement .

Male connector with cable length of 1.0 Mtr and cable size 2.5 / 4.0 / 6.0 mm^2

Female connector with cable length of 1.0 Mtr and cable size 2.5 / 4.0 / 6.0 mm^2

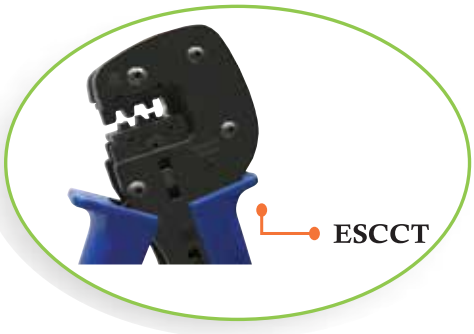
1.0 Mtr cable with connector at both ends and cable size 2.5 / 4.0 / 6.0 mm^2

SPACER (For PV Fuse Terminal Block)

CONNECTOR SEALING CAP

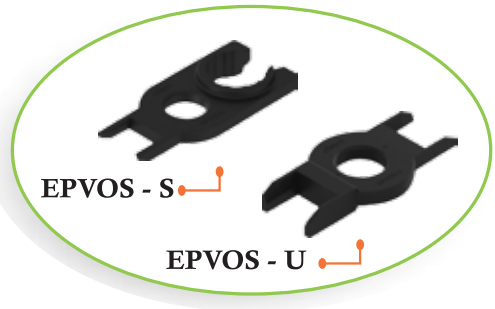
For sealing of unplugged PV Connectors

CRIMPING TOOL



Tool for crimping connectors pin with 2.5 / 4.0 / 6.0 mm^2 Solar Cable

SPANNER TOOLS



For tightening and loosening the cap of the connectors and unlocking the connectors during on - site operations

'elmex' 2 - RAIL PV JUNCTION BOXES

'elmex' has developed Junction Boxes suitable for Solar street light low wattage (less than 50W) panels. 'elmex' Junction Boxes **EPVJB3** and **EPVJB6** are designed with sliding snap fit locking arrangement. 'elmex' **EPVJB3 and EPVJB6** are available with 2 - in and 1 - out cable connection.

EPVJB3

EPVJB6

Description	'elmex' Specification **EPVJB3**	'elmex' Specification **EPVJB6**
Rated Current	3 A	6 A
Contact Material	Brass with Tin and Nickel Plating	Brass with Tin and Nickel Plating
Temperature	-40°C to +85°C	-40°C to +85°C
Safety Class	II	II
Application	3 W to 20 W	30 W to 50 W
Locking System	Sliding Snap Fit	Sliding Snap Fit

'elmex' 2 - RAIL PV JUNCTION BOX EPVJB-2R

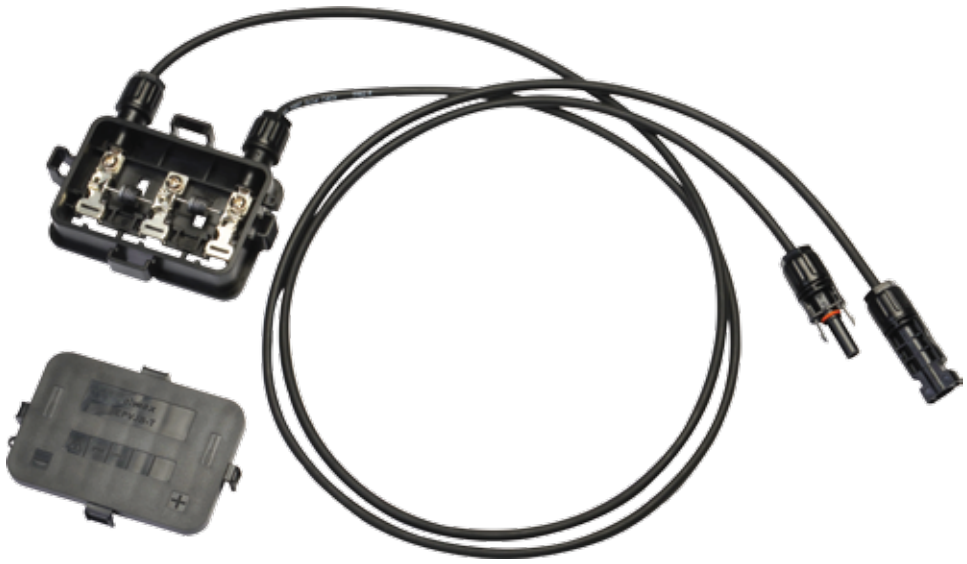
'elmex' has developed Junction Box suitable for Solar street light low wattage (less than 50W) panel. 'elmex' Junction Box **EPVJB-2R** is designed with sliding snap fit locking arrangement. 'elmex' **EPVJB-2R** is available with 2 - in 1 - out cable connection and with 6A / 10A diode.

EPVJB-2R

Description	'elmex' Specification
Rated Current	6 A / 10 A
Contact Material	Brass with Tin and Nickel Plating
Temperature	-40°C to +85°C
Safety Class	II
Application	30 W to 50 W
Locking System	Snap Fit
Diode Rating	6 A / 10 A

'elmex' 3 - RAIL PV JUNCTION BOX

'elmex' introduces 3 - Rail PV Junction Box for electrical connection from PV Crystalline module as a solution for easy and reliable interconnection from PV module to DC/AC convertors. 'elmex' Junction Box has simple and cost effective assembly designed with snap fit locking arrangement with IP 65 protection sealing requirement for PV industry. The Junction Box is provided with two cables each of 1 meter length, with 'elmex' make male and female **EMPV4** connector for simple on-site wiring.



EPVJB-T

Description	'elmex' Specification
Rated Voltage	1000V DC
Rated Current	10 A
Degree of Protection	IP 65
Safety Class	II
Type of Terminal	Soldering
Number of Diodes	2
Locking System	Snap In
Contact Material	Copper with Tin Plating
Operating Temperature	-40°C to +85°C
Application	50 W to 150 W

'elmex' 4 - RAIL PV JUNCTION BOX

'elmex' introduces 4 - Rail PV Junction Box for electrical connection from PV Crystalline module as a solution for easy and reliable interconnection from PV module to DC/AC convertors. 'elmex' Junction Box has simple and cost effective assembly designed with snap fit locking arrangement with IP 65 protection sealing requirement for PV industry. The Junction Box is provided with two cables each of 1 meter length, with 'elmex' make male and female EMPV4 connector for simple on-site wiring.

EPVJB-F

Description	'elmex' Specification
Rated Voltage	1000V DC
Rated Current	12 A
Degree of Protection	IP 65
Safety Class	II
Type of Terminal	Soldering
Number of Diodes	3
Locking System	Snap In
Contact Material	Copper with Tin Plating
Operating Temperature	-40°C to +85°C
Application	250 W to 310 W
Connector	'elmex' Straight Connector EMPV4
Cable	TUV certified solar cable of 1 meter each

*** Note: Junction Box is available with 15Amp, 20Amp and 25Amp Diode.**

'elmex' 4 - RAIL PV JUNCTION BOX

'elmex' introduces 4 - Rail PV Junction Box for electrical connection from PV Crystalline module as a solution for easy and reliable interconnection from PV module to DC/AC convertors. 'elmex' Junction Box has simple and cost effective assembly designed with snap fit locking arrangement with IP 68 protection sealing requirement for PV industry. The Junction Box is provided with two cables each of 1 meter length, with 'elmex' make male and female EMPV4 connectors for simple on-site wiring.

Description	'elmex' Specification
Rated Voltage	1000V DC / 1500V DC
Rated Current	15 A
Degree of Protection	IP 68
Safety Class	II
Type of Termination	Soldering / Clamping
Diode Type	Schottky Diode Chip Module
Locking System	Snap In
Contact Material	Copper with Tin Plating
Operating Temperature	-40°C to +85°C
Application	250 W to 310 W
Connector	'elmex' Straight Connector EMPV4
Cable	TUV certified solar cable of 1 meter each

*** Note: Junction Box is available with 15Amp, 20Amp and 25Amp Diode.**

'elmex' PV FUSE TERMINAL BLOCK

'elmex' offers Fuse Terminal Blocks for photovoltaic applications. The Fuse Terminal Blocks are constructed as per Standard IEC 60269-1 and are suitable for cylindrical gPV fuse size Ø10 mm x 38 mm. The PV Fuse Terminal Block finds application in the Array Junction Box for string protection.

EPVFH1000

Description	'elmex' Specification
Rated Voltage	1000V DC
Rated Current	32 A
Degree of Protection	IP 20
Rated Cross Section	1 - 25 mm^2
Rated Torque	2 Nm
Dimensions (W x H x P)	78 x 62 x 18 mm
Marking Lable	KN 5.5
Mounting Channel	CHK / CHKS
Standard Box Packing	20 Nos.

*** Note: It is recommended to use gPV (cylindrical) fuse of Ø 10 x 38 mm dimension.**

'elmex' gPV FUSE LINK

EPVFL

'elmex' gPV Fuse Link suitable for 1000V DC photovoltaic applications.

Description	'elmex' Specification
Rated Voltage	1000V DC
Current Rating	4, 12, 15, 16, 20, 25, 30 A
Type	gPV (Cylindrical)
Dimension	Ø 10 x 38 mm
Testing Standard	IEC 60269-6

'elmex' PV FUSE TERMINAL BLOCK - 1500V

'elmex' offers Fuse Holder for PV Power Generation Strings. The Fuse Holder is constructed as per Standard IEC 60269 - 1 and is suitable for cylindrical cylindrical gPV fuse size Ø10 mm x 85 mm.

EPVFH1500

Description	'elmex' Specification
Rated Voltage	1500V DC
Rated Current	32 A
Degree of Protection	IP 20
Rated Cross Section	4 - 25 mm ^{2}
Rated Torque	3.2 Nm
Dimensions (W x H x P)	127 x 55 x 22 mm
Suitable Fuse Dimension	Ø 10 x 85 mm
Mounting Channel	CHK / CHKS
Standard Box Packing	6 Nos.

*** Note: It is recommended to use gPV (cylindrical) fuse of Ø 10 x 85 mm dimension.**

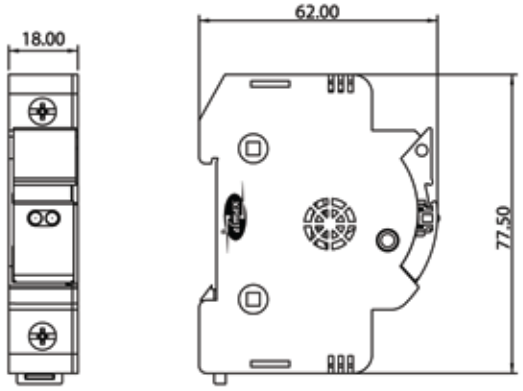
'elmex' gPV FUSE LINK

EPVFL1500

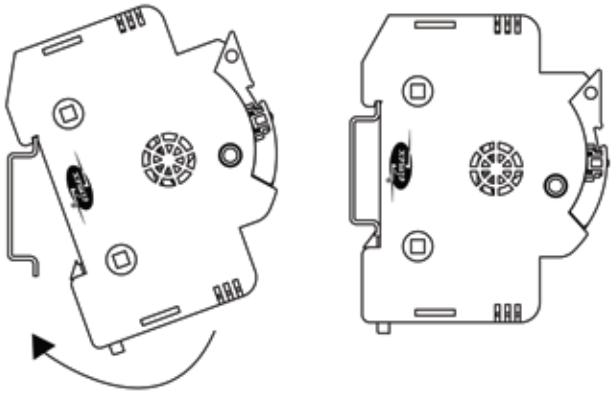
'elmex' gPV Fuse Link suitable for 1500V DC photovoltaic applications.

Description	'elmex' Specification
Rated Voltage	1500V DC
Current Rating	15A & 30A
Type	gPV (Cylindrical)
Dimension	Ø 10 x 85 mm
Testing Standard	IEC 60269-6

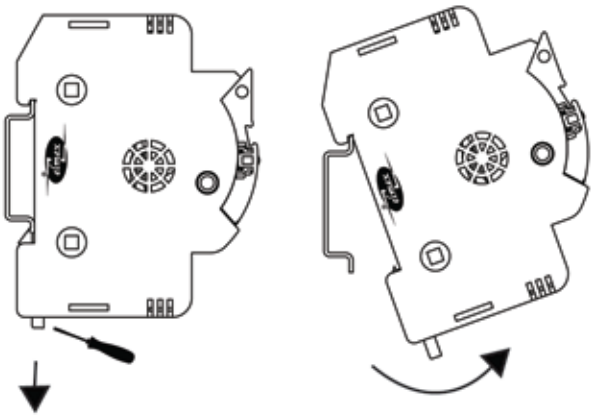
1) Dimensional Details (mm)



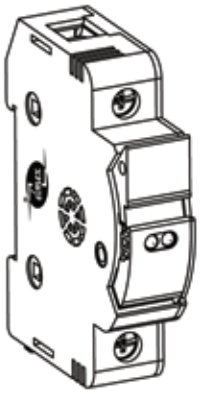
2) Fuse Terminal Mounting on DIN Rail



3) Fuse Terminal Dismounting from DIN Rail

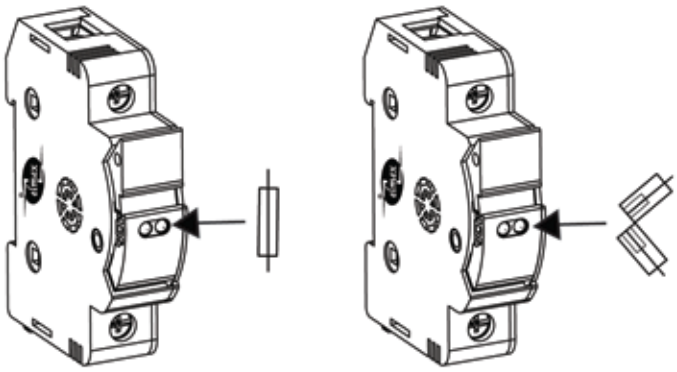


4) Conductor Specifications

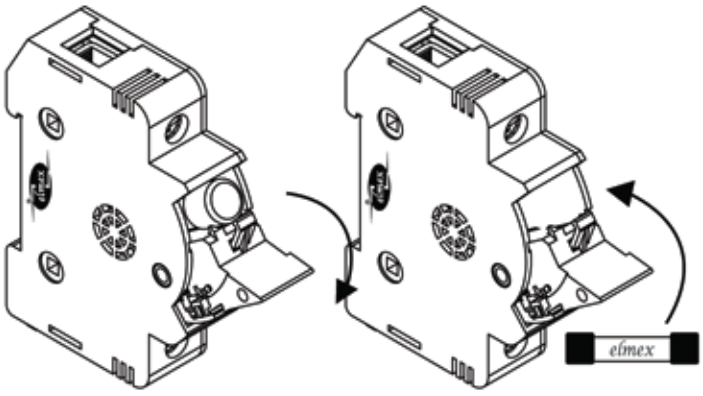


Description	'elmex' Specification
Conductor Cross Section	1-25 mm^2
Rated Torque	2 Nm

5) LED Indication For Blown Fuse



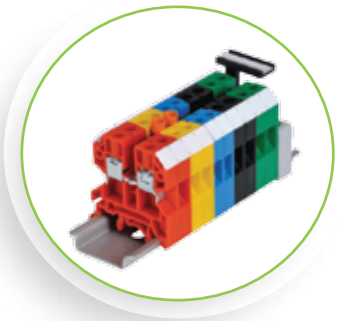
6) Fuse Link Assembly in Fuse Terminal Block



* Note: 1) It is recommended to use gPV (cylindrical) fuse of Ø 10 x 38 mm dimension
2) Spacers are available for providing space between adjacent Fuse Terminal Blocks

'elmex' TERMINAL BLOCKS FOR PHOTOVOLTAIC APPLICATIONS

'elmex' offers a wide range of Terminal Blocks for conductor size ranging from 2.5 to 95 sq.mm tested and approved for 1000V DC suitable for use in Solar Photovoltaic Systems. Electrical ratings of these Terminal Blocks are given below. These Terminal Blocks have conductor termination by screw-clamp technology or by screwless (spring clamp technology).



SCREW CLAMP TERMINALS

SCREWLESS TERMINALS

Description	'elmex' Specification
KUT 2.5N	1000V DC/24 A/2.5 sq mm/0.5 Nm
KUT 4N	1000V DC/32 A/4 sq mm/0.6 Nm
KUT 6N	1000V DC/41 A/6 sq mm/0.8 Nm
KUT 10N	1000V DC/63 A/10 sq mm/1.2 Nm
KUT 25	1000V DC/101 A/25 sq mm/2.3 Nm
KUT 35	1000V DC/125 A/35 sq mm/3 Nm
KUT 50	1000V DC/150 A/50 sq mm/8 Nm
KUT 95	1000V DC/232 A/95 sq mm/20 Nm

Description	'elmex' Specification
DST 2.5	1000V DC/24 A/2.5 sq mm
DST 2.5 1 x 2	1000V DC/24 A/2.5 sq mm
DST 4	1000V DC/32 A/4 sq mm
DST 6	1000V DC/41 A/6 sq mm
DST 10	1000V DC/57 A/10 sq mm
DST 16	1000V DC/76 A/16 sq mm
SCT 2.5	1000V DC/24 A/2.5 sq mm
SCT 4	1000V DC/32 A/4 sq mm
MCT 2.5	1000V DC/24 A/2.5 sq mm
MCT 2.5P4	1000V DC/24 A/2.5 sq mm
MCT 4	1000V DC/32 A/4 sq mm
DCT 2.5 1 x 2	1000V DC/24 A/2.5 sq mm
DCT 2.5 2 x 2	1000V DC/24 A/2.5 sq mm

LOW VOLTAGE CURRENT TRANSFORMERS

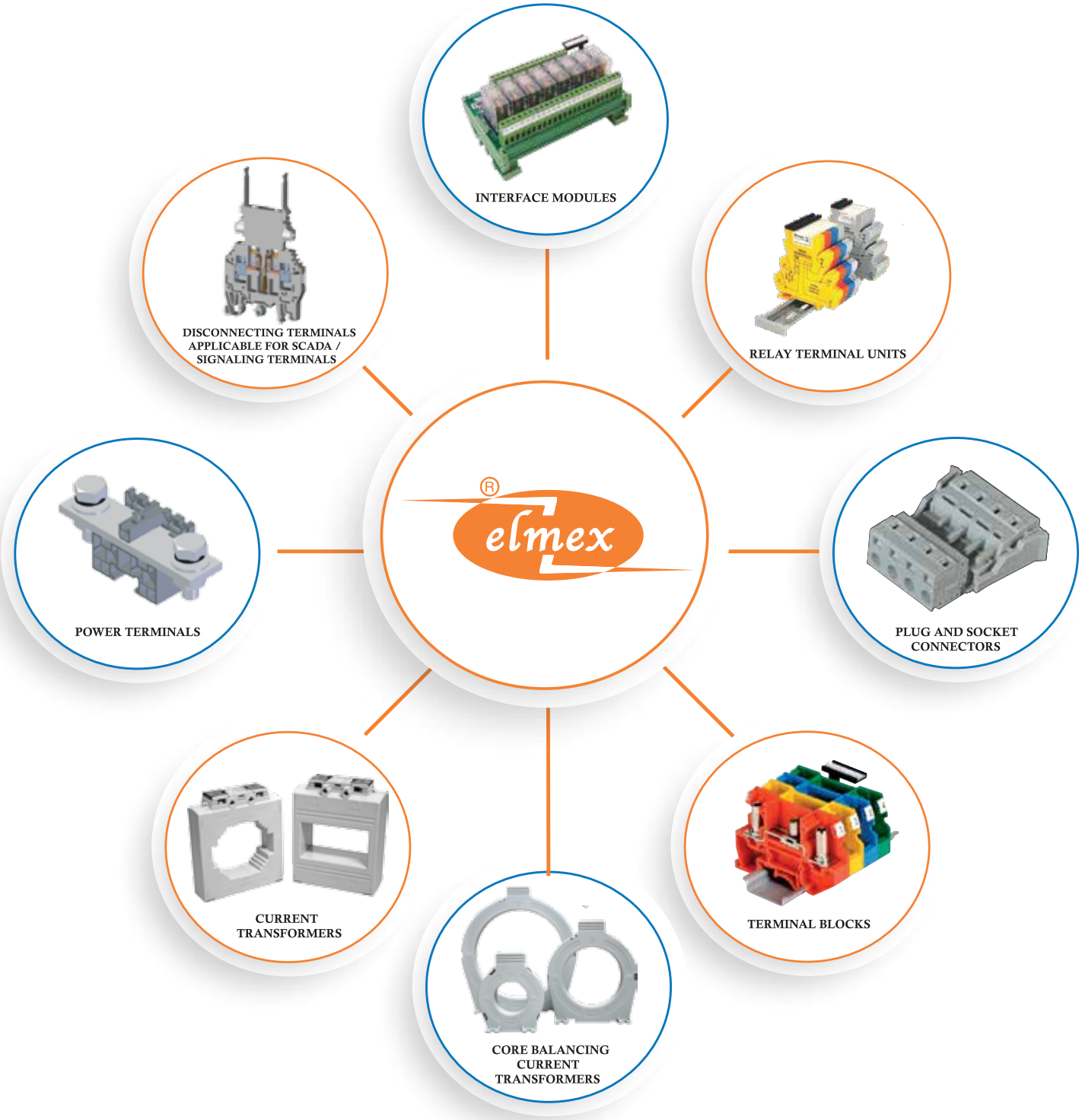
Low Voltage Current Transformers are designed for supplying to measuring instruments and protection devices, applicable for the range of 1A to 7000A. 'elmex' Current Transformers are available for all possible applications required in Low Voltage Segment. They are grouped into Polycarbonate Encased Type, Resin Cast Type and Tape Wound Type.

AUXILIARY TRANSFORMERS

3 - Phase Auxiliary Transformers are used to step down the generator or grid voltage for PV plants Auxiliary & Station Load.

SUMMATION CURRENT TRANSFORMERS

Summation CTs are used for monitoring 2 or more feeders using one centralised monitor.


INTERFACE MODULES
DISCONNECTING TERMINALS APPLICABLE FOR SCADA / SIGNALING TERMINALS
RELAY TERMINAL UNITS
POWER TERMINALS
elmex
PLUG AND SOCKET CONNECTORS
CURRENT TRANSFORMERS
TERMINAL BLOCKS
CORE BALANCING CURRENT TRANSFORMERS

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Elmex Solar 12/2/2018

TECHNICAL SPECIFICATIONS MAY CHANGE IN LINE WITH TECHNICAL ADVANCES AND INDUSTRY STANDARDS.