

TCB10

Ten Circuit PV Combiner Box

Designed for Safe and Code Compliant PV Installations

The Trace PV Array Combiner Box, TCB10, is designed to combine the output of multiple solar electric (PV) source circuits. We build this product as part of our continuing commitment to make the installation of solar electric systems safe, simple and compliant with the US National Electrical Code (NEC).

The TCB10 has 10 fused circuits in a NEMA 3R lockable enclosure. Each circuit can accept up to 15 amps of PV input current up to a total maximum continuous current of 80 amps. The TCB10 may be used with 12, 24 and 48 VDC PV systems and can handle a maximum 125 VDC input. To ensure a code compliant safety margin of 25%, a maximum of 64 amps of PV current (64 amps ISC) should be connected to a TCB10.



Reduced Wiring Costs

The combiner box is designed for installation near the PV array with each series string of solar modules connected to one of the TCB10 fused circuits. Up to 10 solar array inputs may be combined at the TCB10, yet only a single pair of wires is required between the Combiner Box and the PV controller location. Each circuit will accept up to #10 AWG wire. This can result in a considerable savings in the cost of wire since fewer wires will have to be installed. The TCB10 has two sets of output terminals (AWG #1/0 wire max) so that parallel pairs of wires may be run for installations with large arrays or where long distances are an issue.

Simplifies Array Maintenance

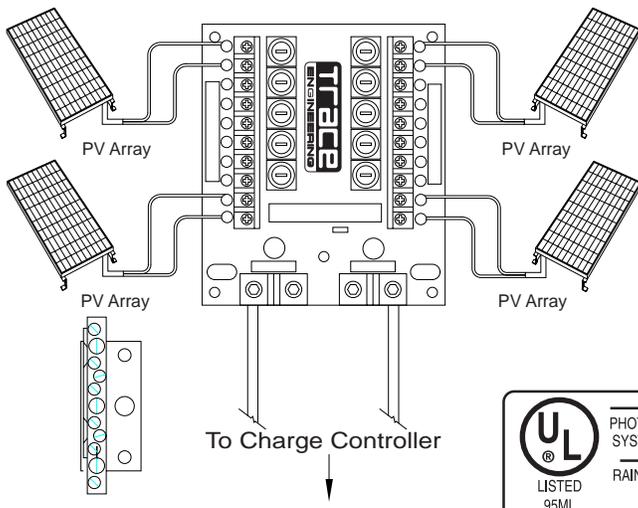
The TCB10 provides a convenient way to isolate and test the PV array circuits without interrupting the power production of other circuits in the array. This improves safety and reduces the time required to troubleshoot any PV related circuitry problems.

Surge Protection

The TCB10 includes Zinc Oxide Non Linear Resistors (ZNR's) which are designed to help protect your system from electrical surges such as those caused from nearby lightning. If only a single pair of output terminals are used, additional lightning protection may be installed in the spare pair of terminals.

Wide Variety of Fuse Sizes

The TCB10 accepts a wide variety of fuses ranging in size from 5 to 15 amps. Trace Engineering recommends Bussman type MDA or ABC fuses which are available in 5, 6, 8, 10 and 15 amp sizes. They are **NOT INCLUDED** with the TCB10, so be sure to order the correct quantity and ampacity when you purchase your combiner box. (See the Fuse Selection Guide on reverse).



Fuse Selection Guide

The table below shows fuse sizes for many commonly available PV modules. The column "Maximum # of Circuits" refers to the number of circuits allowed for a specified PV module.

Module Type	ISC	Fuse Rating	Max # of Circuits	Module Type	ISC	Fuse Rating	Max # of Circuits
ASE				Siemens			
50-AL	3.2	6 Amp	10	SR100	6.3	10 Amp	10
Astropower				Solarex			
AP-120	7.7	15 Amp	8	SR90	6.1	10 Amp	10
AP-110	7.5	15 Amp	8	SR50	3.2	5 Amp	10
AP-75	4.8	15 Amp	10	SP75	4.8	8 Amp	10
AP-65	4.7	10 Amp	10	SM55	3.45	8 Amp	10
BP Solar				Siemens			
BP-90	5.2	10 Amp	10	MSX-120	7.6	15 Amp	8
BP-85	5	10 Amp	10	MSX-83	5.27	15 Amp	10
BP-75	4.75	10 Amp	10	MSX-77	5	15 Amp	10
BP-70	4.48	10 Amp	10	MSX-64	4	15 Amp	10
Duravolt				Siemens			
DV-50SS	2.99	5 Amp	10	MSX-60	3.8	15 Amp	10
Kyocera				Uni-Solar			
KC-120	7.45	15 Amp	8	GP-75	4.9	10 Amp	10
KC-80	4.97	8 Amp	10	GP-64	4	10 Amp	10
KC-60	3.73	6 Amp	10	GP-51	3.3	10 Amp	10
LA51	3.25	5 Amp	10				
LA45	3.25	5 Amp	10	US64	4.8	8 Amp	10
				US42	3.17	6 Amp	10
				US32	2.4	4 Amp	10

Weight

7 lbs (3.18 kg)

Dimensions

10" H X 8" W X 4" D
(25.4 cm X 20.3 cm X 10.2 cm)

Packed in cases of six:

Case Weight

45 lbs (20.4 kg)

Shipping Weight

7.5 lbs (3.4 kg)

Shipping Dimensions

10.5" H X 8.5" W X 5.125" D
(26.7 cm X 21.6 cm X 13.0 cm)

Case Dimensions

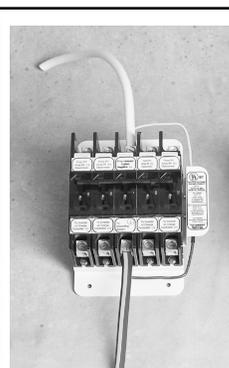
17.5" H X 16" W X 11.5" D
(44.5 cm X 40.6 cm X 29.2 cm)

How to Order TCB10's and Fuses

Fuses are not included with the TCB10, but they are available from Trace Engineering in packs of ten or in bulk packs of 100. Use the table above to find the type of module(s) you will be installing, then order the appropriate fuse as shown in the table. Remember to order your fuses with the TCB10 so that you will have the parts needed for a successful installation.

Part Number	Description
TCB10	UL listed Combiner Box, 10 fused circuits, 80 Amp continuous output rating, NEMA3R enclosure, fuses not included.
TCFxx	TCF05, TCF 06, TCF08, TCF10, TCF15. Fuse sizes 5, 6, 8, 10, and 15 Amp, Trace Combiner Box Fuses, sold ten fuses per pack.
TCF/100xx	Bulk packed Trace Combiner Box Fuses, packaged 100 fuses per pack.

EXAMPLE: For a package of ten 15 Amp fuses use part number TCF15. To receive 100 of these fuses, use part number TCF/10015



Ground Fault Protection

A Ground Fault Protection Device (GFP) is required by the National Electrical Code (NEC) for residential rooftop PV installation in the USA. Our UL listed PVGFP meets these requirements and is available in single, double, triple, and quadruple pole configurations. (100 Amps maximum per pole.) Trace GFP is sold without an enclosure.