

Low Voltage Products

SACE Tmax 1000 VDC PV UL 489B

A complete range up to 1000A

SACE Tmax PV UL 489B

More and more companies are targeting North America as a key market for photovoltaic applications and requests for products in compliance with North American standards is growing exponentially.

Thanks to its experience with Tmax UL, ABB is proposing a complete range of products in accordance to UL489B, a new standard, whose requirements cover molded case circuit breakers and molded case switches rated up to 1000V DC, neded for use with photovoltaic systems. A complete range of MCCB and MCS is now available up to 1000A for use at 1000V DC, complete with jumpers for a safe, easy and accurate connection of poles in series.

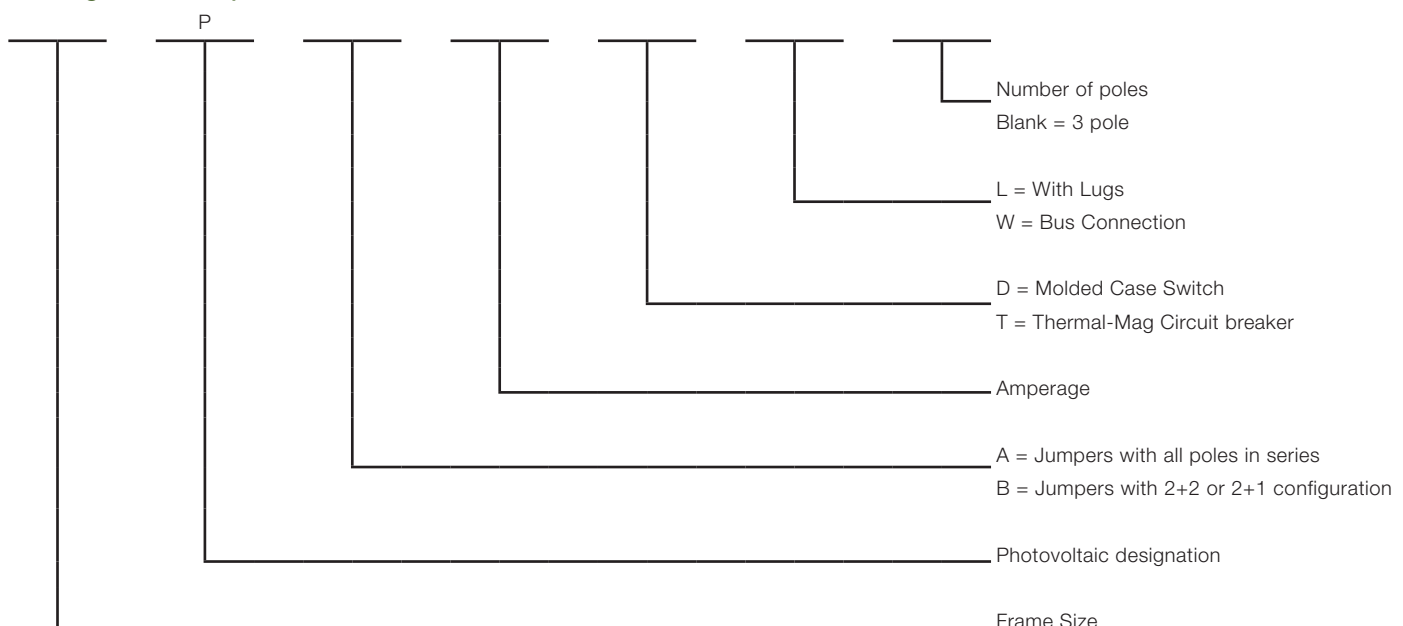
Tmax PV Molded Case Switches in Compliance with UL489B

	T1N-D/PV	T4N-D/PV	T5N-D/PV	T6N-D/PV	T7N-D/PV
Rating, [A]	100	200	400	600-800	1000
Poles, [Nr]	4	3	3	4	4
Short circuit current withstand, [A]	1000	3000	5000	10,000	15,000
Magnetic override, [A]	-	3000	5000	10,000	-
Rated voltage DC, [V]	1000	1000	1000	1000	1000
Versions	Fixed	Fixed	Fixed	Fixed	Fixed
Terminals	FCCu	FCCuAl	FCCuAl-ES	FCCuAl-EF	FCCuAl
Connections	Jumpers	Jumpers	Jumpers	Jumpers	Jumpers

Tmax PV Molded Case Circuit Breakers in Compliance with UL 489B

	T4N/PV	T5N/PV	T6N/PV
Rating, [A]	40-200	400	600-800
Poles, [Nr]	3	3	4
Rated voltage DC, [V]	1000	1000	1000
Short Circuit Interrupting Rating [A]	3000	5000	10,000
Trip Unit	TMA	TMA	TMA
Versions	F	F	F
Terminals	FCCuAl	FCCuAl-ES	FCCuAl-EF
Connections	Jumpers	Jumpers	Jumpers

Catalog number explanation



T1 1000V Photovoltaic Switches
UL 489B up to 100A

T1N-D/PV 100A 1000V DC according to UL 489B: jumper connections and configurations approved by UL
 T1N-D/PV is the molded case switch for photovoltaic applications up to 100A and 1000V DC.

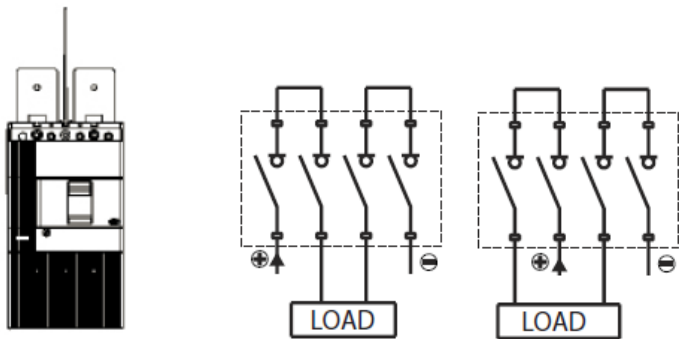
For 2 poles + 2 poles in series, please use the following ordering code

Ordering Code	Description
T1PB100DL-4	MCS T1NPVB 100A 4P UL 2+2PS L 1000VDC

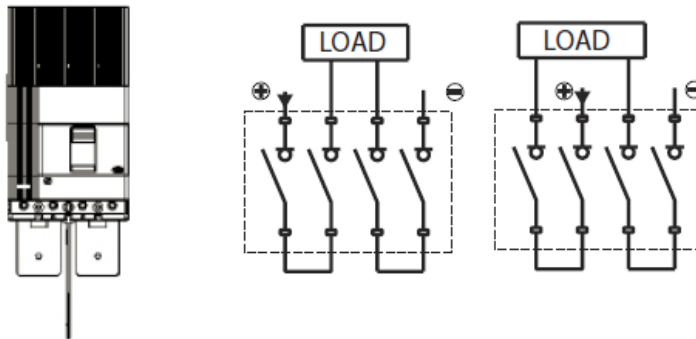
ABB jumpers for pole connections are mandatory when a T1N-D/PV UL is installed.

Below are the UL approved 2 poles + 2 poles in series configurations for ungrounded systems.

Lower supply



Upper supply



Only the standard FCCu terminals are compatible.

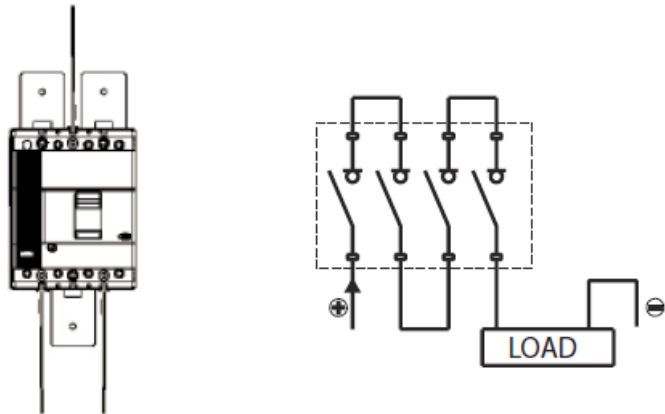
Only the standard FCCu terminals are compatible.

For 4 poles in series, please use the following ordering code

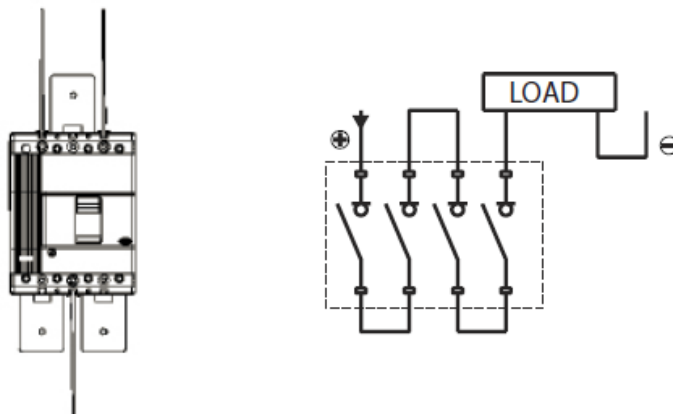
Ordering Code	Description
T1PA100DL-4	MCS T1NPVA 100A 4P UL 4PS L 1000VDC

Below are the UL approved 4 poles in series configurations for grounded systems.

Lower supply



Upper supply



Only the standard FCCu terminals are compatible.

Only the standard FCCu terminals are compatible.

T4 1000V Photovoltaic Breakers & Switches
UL 489B from 40A to 200A

T4N-D/PV and T4N/PV 200A 1000V DC according to UL489B: jumper connections and configurations approved by UL

T4N-D/PV and T4N/PV is the molded case switch and automatic circuit breakers for photovoltaic applications up to 200A and 1000V DC.

For 2 poles + 1 pole in series, please use the following ordering codes

Breaker

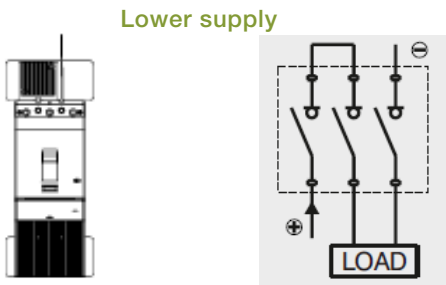
Ordering Code	Description
T4PB040TL	BKR T4NPVB 40A 3P TM UL 2+1PS L 1000VDC
T4PB050TL	BKR T4NPVB 50A 3P TM UL 2+1PS L 1000VDC
T4PB080TL	BKR T4NPVB 80A 3P TM UL 2+1PS L 1000VDC
T4PB100TL	BKR T4NPVB 100A 3P TM UL 2+1PS L 1000VDC
T4PB125TL	BKR T4NPVB 125A 3P TM UL 2+1PS L 1000VDC
T4PB150TL	BKR T4NPVB 150A 3P TM UL 2+1PS L 1000VDC
T4PB200TL	BKR T4NPVB 200A 3P TM UL 2+1PS L 1000VDC

Switch

Ordering Code	Description
T4PB200DL	MCS T4NPVB 200A 3P UL 2+1PS L 1000VDC

ABB jumpers for pole connections are mandatory when a T4N-D/PV or T4N/PV UL is installed.

Below are the UL approved 2 poles + 1 pole in series configurations for ungrounded systems.



Upper supply

No UL approved solution for 2+1 pole in series with upper supply

Only the FCCuAl terminals that are included in the jumper kit are compatible.

For 3 poles in series, please use the following ordering codes

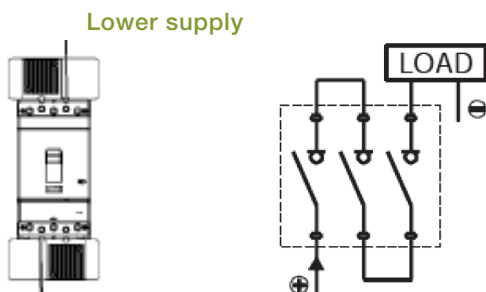
Breaker

Ordering Code	Description
T4PA040TL	BKR T4NPVA 40A 3P TM UL 3PS L 1000VDC
T4PA050TL	BKR T4NPVA 50A 3P TM UL 3PS L 1000VDC
T4PA080TL	BKR T4NPVA 80A 3P TM UL 3PS L 1000VDC
T4PA100TL	BKR T4NPVA 100A 3P TM UL 3PS L 1000VDC
T4PA125TL	BKR T4NPVA 125A 3P TM UL 3PS L 1000VDC
T4PA150TL	BKR T4NPVA 150A 3P TM UL 3PS L 1000VDC
T4PA200TL	BKR T4NPVA 200A 3P TM UL 3PS L 1000VDC

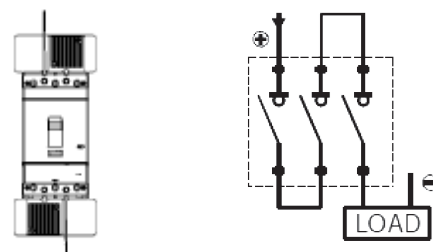
Switch

Ordering Code	Description
T4PA200DL	MSC T4NPVA 200A 3P UL 3PS L 1000VDC

Below are the UL approved 3 poles in series configurations for grounded systems.



Upper supply



Only the FCCuAl terminals that are included in the jumper kit are compatible.

Only the FCCuAl terminals that are included in the jumper kit are compatible.

T5 1000V Photovoltaic Breakers & Switches
UL 489B up to 400A

T5N-D/PV and T5N/PV 400A 1000V DC according to UL489B: jumper connections and configurations approved by UL

T5N-D/PV and T5N/PV is the molded case switch and automatic circuit breakers for photovoltaic applications up to 400A and 1000V DC.

For 2 poles + 1 pole in series, please use the following ordering codes

Breaker

Ordering Code	Description
T5PB400TL	BKR T5NPVB 400A 3P TM UL 2+1PS L 1000VDC
T5PB400TW	BKR T5NPVB 400A 3P TM UL 2+1PS L 1000VDC

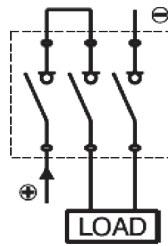
Switch

Ordering Code	Description
T5PB400DL	MCS T5NPB 400A 3P UL 2+1PS L 1000VDC
T5PB400DW	MCS T5NPB 400A 3P UL 2+1PS 1000VDC

ABB jumpers for pole connections are mandatory when a T5N-D/PV or T5N/PV UL is installed.

Below are the UL approved 2 poles + 1 pole in series configurations for ungrounded systems.

Lower supply



Upper supply

No UL approved solution for 2+1 pole in series with upper supply

Only the ES or FCCuAI terminals that are included in the jumper kits are compatible.

For 3 poles in series, please use the following ordering codes

Breaker

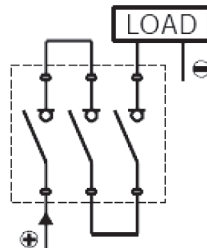
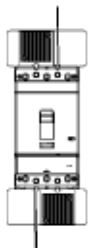
Ordering Code	Description
T5PA400TL	BKR T5NPV 400A 3P TM UL 3PS L 1000VDC
T5PA400TW	BKR T5NPV 400A 3P TM UL 3PS L 1000VDC

Switch

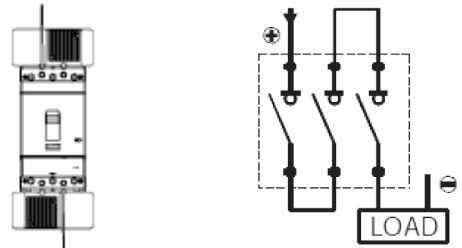
Ordering Code	Description
T5PA400DL	MCS T5NPA 400A 3P UL 3PS L 1000VDC
T5PA400DW	MCS T5NPA 400A 3P UL 3PS 1000VDC

Below are the UL approved 3 poles in series configurations for grounded systems.

Lower supply



Upper supply



Only the ES or FCCuAI terminals that are included in the jumper kits are compatible.

Only the ES or FCCuAI terminals that are included in the jumper kits are compatible.

T6 1000V Photovoltaic Breakers & Switches
UL 489B from 600A to 800A

T6N-D/PV and T6N/PV 600/800A 1000V DC according to UL489B: jumper connections and configurations approved by UL

T6N-D/PV and T6N/PV is the molded case switch and automatic circuit breakers for photovoltaic applications up to 800A and 1000V DC.

For 2 poles + 2 poles in series, please use the following ordering codes

Breaker

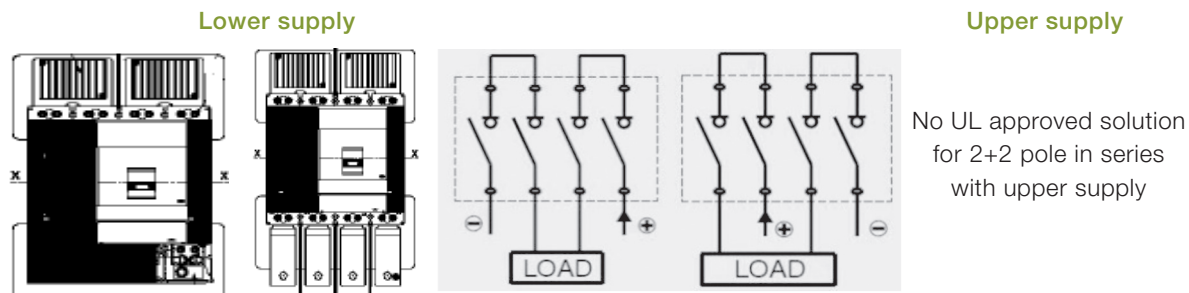
Ordering Code	Description
T6PB600TL-4	BKR T6NPVB 600A 4P TM UL 2+2PS L 1000VDC
T6PB800TW-4	BKR T6NPVB 800A 4P TM UL 2+2PS 1000VDC

Switch

Ordering Code	Description
T6PB600DL-4	MCS T6NPVB 600A 4P UL 2+2PS L 1000VDC
T6PB800DW-4	MCS T6NPVB 800A 4P UL 2+2PS 1000VDC

ABB jumpers for pole connections are mandatory when a T6N-D/PV or T6N/PV UL is installed.

Below are the UL approved 2 poles + 2 poles in series configurations for ungrounded systems.



Only the FCCuAl terminals (600A) and EF terminals (800A) that are included in the jumper kit are compatible.

For four poles in series, please use the following ordering codes

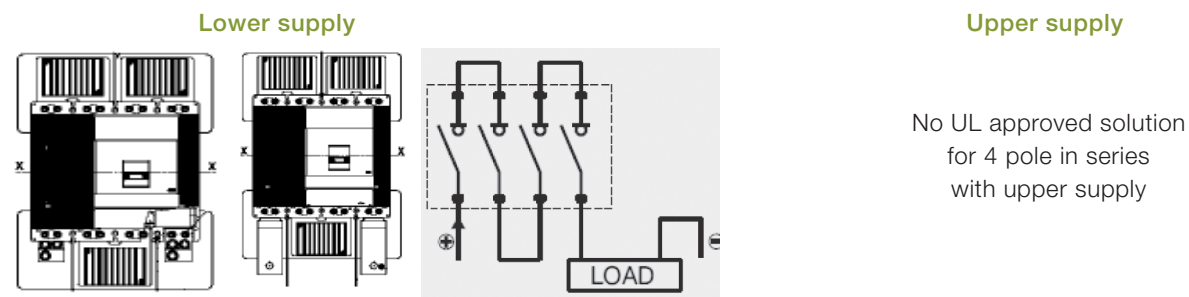
Breaker

Ordering Code	Description
T6PA600TL-4	BKR T6NPVA 600A TM 4P UL 4PS L 1000VDC
T6PA800TW-4	BKR T6NPVA 800A 4P TM UL 4PS 1000VDC

Switch

Ordering Code	Description
T6PA600DL-4	MCS T6NPVA 600A 4P UL 4PS L 1000VDC
T6PA800DW-4	MCS T6NPVA 800A 4P UL 4PS 1000VDC

Below are the UL approved 4 poles in series configurations for grounded systems.



Only the FCCuAl terminals (600A) and EF terminals (800A) that are included in the jumper kit are compatible.

T7 1000V Photovoltaic Switches
UL 489B up to 1000A

T7N-D/PV 1000A 1000V DC according to UL489B: jumper connections and configurations approved by UL

T7N-D/PV is the molded case switch for photovoltaic applications up to 1000A and 1000V DC. It is available in the motorized version only.

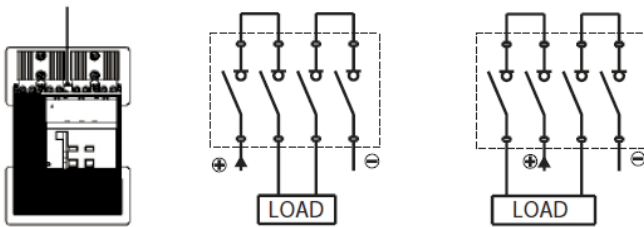
For 2 poles + 2 poles in series, please use the following ordering code

Ordering Code	Description
T7MPB1000DL-4	MCS T7MNPVB 1000A 4P UL 2+2PS L 1000VDC

ABB jumpers for pole connections are mandatory when a T7N-D/PV UL is installed.

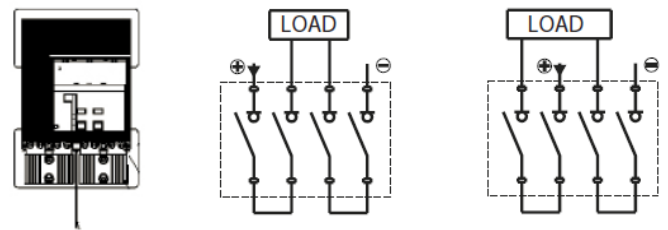
Below are the UL approved 2 poles + 2 poles in series configurations for ungrounded systems.

Lower supply



Only the FCCuAl terminals that are included in the jumper kit are compatible.

Upper supply



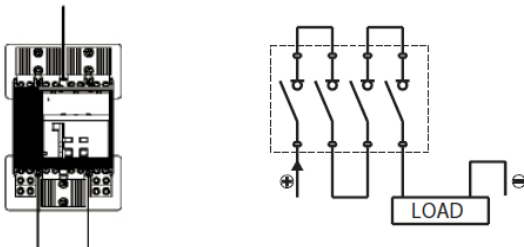
Only the FCCuAl terminals that are included in the jumper kit are compatible.

For four poles in series, please use the following ordering code

Ordering Code	Description
T7MPA1000DL-4	MCS T7MNPVA 1000A 4P UL 4PS L 1000VDC

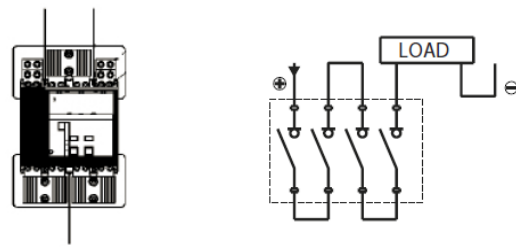
Below are the UL approved 4 poles in series configurations for grounded systems.

Lower supply



Only the FCCuAl terminals that are included in the jumper kit are compatible.

Upper supply



Only the FCCuAl terminals that are included in the jumper kit are compatible.

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