

# New Tmax T6. New PR223EF and PR223DS electronic releases.

Preliminary - 1SDC210013B0201



**ABB**



# WHAT IS THE GOOD OF INNOVATION IF

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**EW TMAX T6.  
GREAT PERFORMANCE. SMALL SIZE.**

T6 is the new circuit-breaker of the Tmax family which combines high performances with extremely limited dimensions.





# IT DOESN'T GIVE YOU GREATER FREEDOM?

**NEW EFDP SYSTEM.  
THIS IS WHERE THE EXCLUSIVE INNOVATION IS TO BE FOUND.**

The new PR223EF release with the EFDP System offers two performances which were thought to be antithetic until now: high selectivity values and rapid tripping.



Tmax T1. The little one that's really big.



Tmax T2. Intelligence and high performance in the palm of your hand.



Tmax T3. 250A in a depth of 70 mm.



## THE TMAX FAMILY GROWS. THE PERF

**T**

HE GENERATION T HAS GROWN.

With the new T6 circuit-breaker, the Tmax family has been enlarged to offer an even more complete series of extremely compact, technologically advanced moulded-case circuit-breakers with top performances.

Find out how well the family has grown.

Tmax. Generation **T**.

Tmax T4 and T5 up to 630A. Icu up to 200 kA at 415 V, Ics=100% of Icu.



## PERFORMANCES GROW.

### NEW TMAX T6. PERFORMANCES YOU DIDN'T EXPECT.

T6 is the new Tmax circuit-breaker which combines high performances with extremely limited dimensions: in the fixed version, it can reach 1000A current carrying capacity. Tmax T6 has the same depth as the T4-T5 sizes and most of the accessories are in common with the other Tmax family sizes, such as the service releases and the auxiliary contacts.

#### State-of-the-art electronics

Apart from the PR221DS and PR222DS/P already available, Tmax T4, T5 and T6 circuit-breakers can be equipped with the following new revolutionary electronic releases:

- PR223DS: release for power distribution circuit-breakers;
- PR223EF: release built for specific needs requiring high selectivity values.

The evolution is completed by dedicated accessories for these new electronic releases, which make Tmax a decidedly avant-gard circuit breaker:

- The VM210 device is able to provide the voltage and power measurements without the use of traditional VTs;
- The front display unit - FDU makes it possible to display a wide range of information about the circuit-breaker and about the measurements available;
- The IM210 interlock module guarantees extension of ABB moulded-case circuit-breakers zone selectivity to air circuit-breakers.



# NEW ELECTRONIC RELEASES. GREATER

## NEW PR223EF RELEASE. FREE THE INSTALLATIONS, WITH LEVELS OF SELECTIVITY NEVER ACHIEVED BEFORE.

With the new T6 a new range up to 1000A is born, for specific needs requiring high selectivity values.

■ In fact, the new PR223EF, available on T4, T5 and T6 in the L version for use in alternating current, can isolate any fault in the network, in decidedly shorter times than that of “traditional” selectivity systems.

■ The PR223EF release integrated in the Tmax circuit-breakers allows extremely high limitation of the fault energy, thereby optimising sizing of the installation.

### Other features include:

- High quality of the electrical energy.
- Integration of energy distribution with the production process.
- Simple enlargement of the installations.

- Damage caused by the fault limited to the minimum.
- Simplified installation studies.

### Advanced zone selectivity

■ Thanks to extremely rapid discovery and elimination of the short-circuit, the moulded-case circuit-breakers equipped with the PR223EF release are selective up to and above 100 kA and are not subject to any limits regarding the number of hierarchical levels in the distribution system.

■ The information regarding a circuit-breaker trip is saved permanently inside the release. Up to 10 events are recorded, which can be acquired by a supervision system by means of the Modbus protocol (currents which caused opening, events, states, alarms, trips, type of protection tripped).



## IN SELECTIVITY AND CONTROL.

### Savings in the costs of the installation

■ Apart from the technical advantages already mentioned, using the circuit-breakers equipped with the PR223EF release allows significant simplification of circuit-breaker selection within the installation.

■ With zone selectivity implemented, it is possible to reduce the size of the circuit-breakers and optimise cable and busbar dimensions. And the result? Considerable reduction in the costs of the installation.

### NEW PR223DS ELECTRONIC RELEASE. FREEDOM OF CONTROL.

The new PR223DS release, available for T4, T5 and T6, was conceived and built for power distribution circuit-breakers.

■ Apart from the traditional L, S, I, and G protection functions, the PR223DS release offers the possibility of measuring the different electrical values of the installation. The measurements can be displayed by means of the FDU or by using a remote supervision system.

■ The measurement functions of the PR223DS release mean that the traditional multimeters can be replaced. The following measurements are available: current, voltage, power, power factor, peak factor, frequency and energy.

■ There are LEDs available on the front of the release which signal some configuration settings and the presence of alarms (overload, incorrect connections and malfunction of the electronics).

# Power distribution circuit-breakers.

## Electrical Characteristics.

		Tmax T1 1P		Tmax T1		Tmax T2			
Rated uninterrupted current, $I_u$ [A]	[A]	160		160		160			
Poles	[Nr]	1		3/4		3/4			
Rated service current, $I_{se}$	(AC) 50-60 Hz	[V] 240		690		690			
	(DC)	[V] 125		500		500			
Rated impulse withstand voltage, $U_{imp}$	[kV]	8		8		8			
Rated insulation voltage, $U_i$	[V]	500		800		800			
Test voltage at industrial frequency for 1 min.	[V]	3000		3000		3000			
Rated ultimate short-circuit breaking capacity, $I_{cu}$		<b>B</b>	<b>B</b>	<b>C</b>	<b>N</b>	<b>N</b>	<b>S</b>	<b>H</b>	<b>L</b>
(AC) 50-60 Hz 220/230 V	[kA]	25*	25	40	50	65	85	100	120
(AC) 50-60 Hz 380/415 V	[kA]	-	16	25	36	36	50	70	85
(AC) 50-60 Hz 440 V	[kA]	-	10	15	22	30	45	55	75
(AC) 50-60 Hz 500 V	[kA]	-	8	10	15	25	30	36	50
(AC) 50-60 Hz 690 V	[kA]	-	3	4	6	6	7	8	10
(DC) 250 V - 2 pole in series	[kA]	25 (at 125 V)	16	25	36	36	50	70	85
(DC) 250 V - 3 pole in series	[kA]	-	20	30	40	40	55	85	100
(DC) 500 V - 2 pole in series	[kA]	-	-	-	-	-	-	-	-
(DC) 500 V - 3 pole in series	[kA]	-	16	25	36	36	50	70	85
(DC) 750 V - 3 pole in series	[kA]	-	-	-	-	-	-	-	-
Rated service short-circuit breaking capacity, $I_{cs}$									
(AC) 50-60 Hz 220/230 V	[% $I_{cu}$ ]	75%	100%	75%	75%	100%	100%	100%	100%
(AC) 50-60 Hz 380/415 V	[% $I_{cu}$ ]	-	100%	100%	75%	100%	100%	100%	75% (70 kA)
(AC) 50-60 Hz 440 V	[% $I_{cu}$ ]	-	100%	75%	50%	100%	100%	100%	75%
(AC) 50-60 Hz 500 V	[% $I_{cu}$ ]	-	100%	75%	50%	100%	100%	100%	75%
(AC) 50-60 Hz 690 V	[% $I_{cu}$ ]	-	100%	75%	50%	100%	100%	100%	75%
Rated short-circuit making capacity, $I_{cm}$									
(AC) 50-60 Hz 220/230 V	[kA]	52.5	52.5	84	105	143	187	220	264
(AC) 50-60 Hz 380/415 V	[kA]	-	32	52.5	75.6	75.6	105	154	187
(AC) 50-60 Hz 440 V	[kA]	-	17	30	46.2	63	94.5	121	165
(AC) 50-60 Hz 500 V	[kA]	-	13.6	17	30	52.5	63	75.6	105
(AC) 50-60 Hz 690 V	[kA]	-	4.3	5.9	9.2	9.2	11.9	13.6	17
Opening time (415 V)	[ms]	7	7	6	5	3	3	3	3
Utilization category (IEC 60947-2)		A		A		A			
Isolation behaviour		■		■		■			
Reference standard		IEC 60947-2		IEC 60947-2		IEC 60947-2			
Releases:									
thermomagnetic									
T fixed, M fixed	TMF	■	-	-	-	-	-	-	-
T adjustable, M fixed	TMD	-	■	-	-	■	-	-	-
T adjustable, M adjustable (5...10 x In)	TMA	-	-	-	-	-	-	-	-
T adjustable, M fixed (3 x In)	TMG	-	-	-	-	-	-	-	-
T adjustable, M adjustable (2,5...5 x In)	TMG	-	-	-	-	-	-	-	-
electronic									
PR221DS-LS1		-	-	-	-	-	■	-	-
PR221DS-I		-	-	-	-	-	■	-	-
PR222DS-LSI		-	-	-	-	-	-	-	-
PR222DS-LSG		-	-	-	-	-	-	-	-
PR222DS/PD-LSI		-	-	-	-	-	-	-	-
PR222DS/PD-LSG		-	-	-	-	-	-	-	-
PR223DS		-	-	-	-	-	-	-	-
Interchangeability									
Versions		F		F		F-P			
Terminals fixed		FC Cu		FC Cu-EF-FC CuAl-HR		F-FC Cu-FC CuAl-EF-ES-R			
plug-in		-		-		F-FC Cu-FC CuAl-EF-ES-R			
withdrawable		-		-		-			
Flang on DIN rail		-		DW EN 50022		DW EN 50022			
Mechanical life	[No. operations]	25000		25000		25000			
	[No. hourly operations]	240		240		240			
Electrical life @ 415 V AC	[No. operations]	8000		8000		8000			
	[No. hourly operations]	120		120		120			
Basic dimensions - fixed version									
	W [mm]	25.4 (1 pole)		76		90			
4 poles	W [mm]	-		102		120			
	D [mm]	70		70		70			
	H [mm]	130		130		130			
Weight									
fixed	3/4 poles	[kg] 0.4 (1 pole)		0.9/1.2		1.1/1.5			
plug-in	3/4 poles	[kg] -		-		1.5/1.9			
withdrawable	3/4 poles	[kg] -		-		-			

KEY TO TERMINALS  
F = Front

EF = Front extended  
ES = Front extended spread

FC Cu = Front for copper cables  
FC CuAl = Front for CuAl cables

R = Rear oriented  
MC = Multi-cables

F = Fixed circuit-breaker  
P = Plug-in circuit-breaker





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Due to possible developments of standards as well as of materials, the characteristics and dimensions specified in the present catalogue may only be considered binding after confirmation by ABB SACE.

