

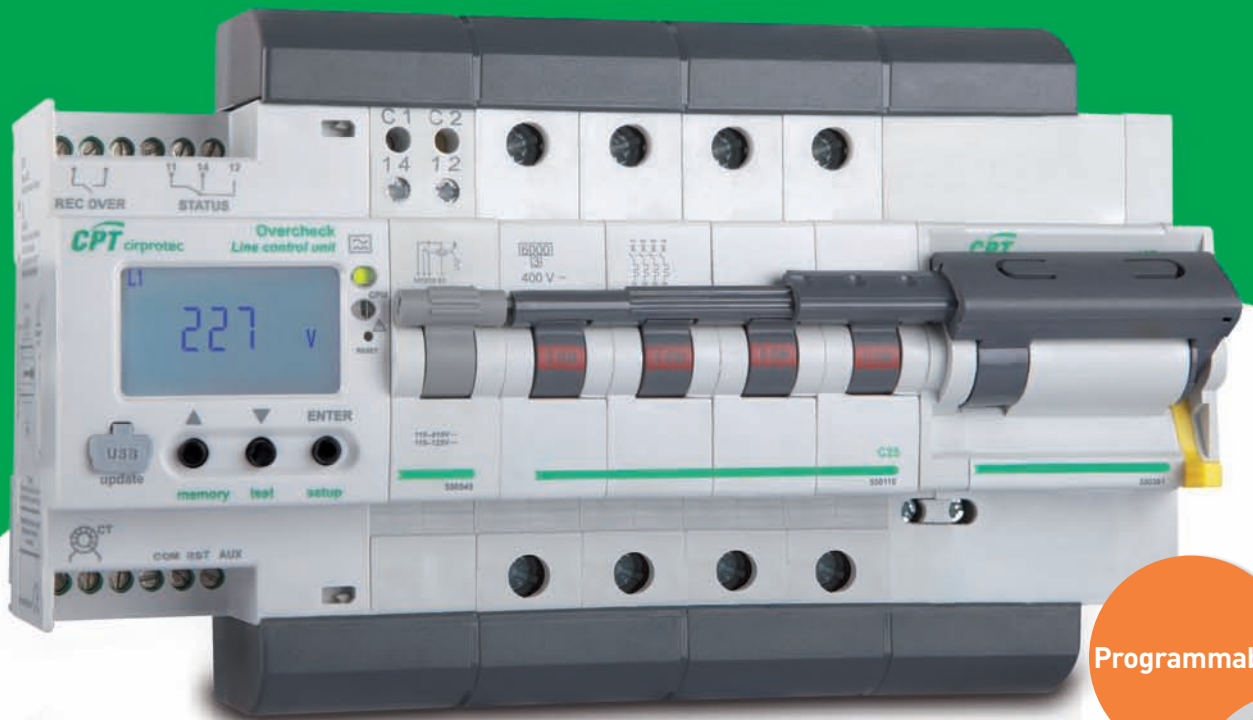


V2

Cirprotec

Overcheck line control unit

Protection against power frequency overvoltages (POP), overcurrents and earth leakages







Programmable

Comprehensive electrical supply protection. Maximum service continuity.



Line control unit

Overcheck is a programmable self-reclosing device, comprising a control unit and circuit breaker which automatically disconnects the supply when voltage, current or earth leakage exceed preset threshold values, and reconnects the supply when these return to permissible values. Includes:

-  POP Power frequency over- and undervoltage protection
-  Phase sequence fault protection
-  Overload and short-circuit protection
-  Class A earth leakage protection (optional)

The compact pre-wired "plug & play" assembly, installable on a DIN rail, is simple and quick to connect; all that is needed is to wire the input and output of the circuit breaker (MCB). In systems which already have a circuit breaker, the latter may be replaced by an Overcheck line control unit to provide the system with complete protection.

The new generation Overcheck provides comprehensive protection of people and equipment connected to the grid, and its safe reconnection feature guarantees maximum service continuity.



POP Power frequency overvoltage and undervoltage protection to the new EN 50550 standard

Overload and short-circuit protection

Phase sequence fault protection

Class A earth leakage protection

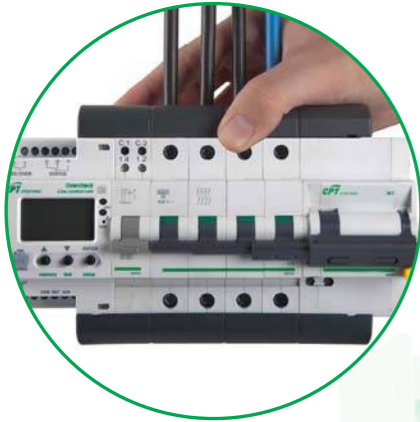
Protection of people

Equipment protection

Service continuity

* POP: Power frequency overvoltage protection = TOV Temporary Overvoltage = Permanent overvoltage





Plug & Play

The new Overcheck is supplied pre-wired to a self-reclosing circuit breaker (MCB), making it **quick and simple to install**.

The connection busbar provides the equipment with **self-protection against transient overvoltages**, guaranteeing long equipment life even in severe environments.



Information

Memory with **historical fault log**

Programmable

Programmable trip and delay thresholds

Safety

Option for program locking using a **PIN code**.

USB connection

The MiniUSB ("update") connection allows for **quick and simple software updates** of the equipment's microcontroller when accessories are added or new functions are implemented.



Scalable

The **lateral expansion port** allows newly designed accessories to be incorporated.



LCD display

Back-lit LCD display provides **easy viewing** of Overcheck readings.



Signalling:

- **REC OVER:** end of cycle of reconnections after overload, short circuit or earth leakage.
- **STATUS:** circuit breaker (MCB) status.

Remote actuation:

- **RST:** remote reset function.
- **AUX:** external tripping signal (such as end-of-life remote indication from a surge protector).

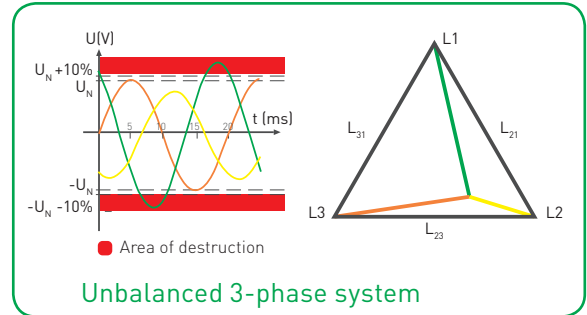


General features



What are power frequency overvoltages (POP)?

These are increases of hundreds of volts for an indefinite period caused by unbalanced phases. They are usually caused by **breakage of the neutral conductor** in the three phase power supply. This results in reduced receptor-life, their immediate destruction or even fire.

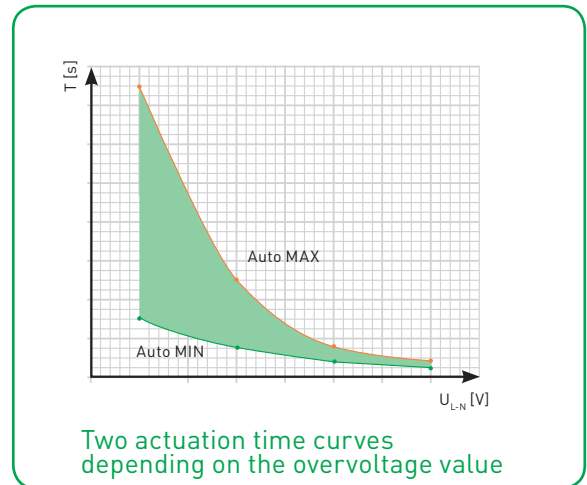


Unbalanced 3-phase system

POP Power frequency overvoltage protection (aka TOV)

The new Overcheck continuously monitors the voltage between each phase and neutral. Should any of these values be above the set threshold of the control unit, it will activate the circuit breaker (MCB) to disconnect the supply. **Tripping time will depend on the magnitude of the overvoltage**, ensuring quick tripping in the case of severe disturbances while avoiding unwanted tripping in the event of small voltage increases.

As soon as the overvoltage returns to acceptable values, the control unit sends a reset command to the self-reclosing control. This **ensures that reconnection always takes place in safe conditions**.



Two actuation time curves depending on the overvoltage value

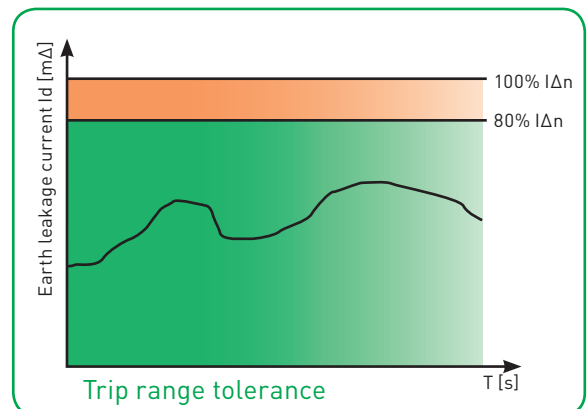


Class A earth leakage protection

The new Overcheck optionally includes **high-performance Class A earth leakage protection**.

IEC standards require a residual current device (RCD) to trip when the earth leakage current is between 50% and 100% of sensitivity ($I\Delta n$). This tolerance, which is usual in electromagnetic devices, may cause problems with unwanted tripping in systems with electronic loads.

The new Overcheck's electronic protection reduces the **range of tolerance to 20%**, thus minimising the risk of supply loss and allowing more loads to be concentrated on a single line.



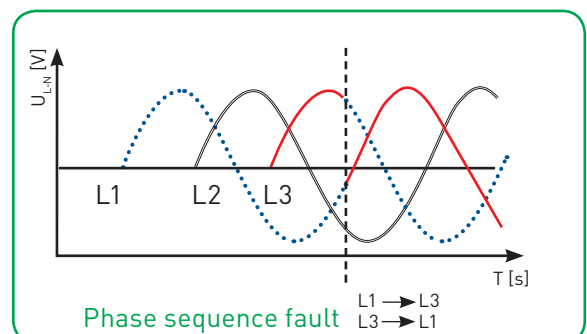
Trip range tolerance



Phase sequence fault protection

Phase sequence fault protection is one of the main innovations of the 3-phase versions of the new Overcheck.

Similar to the undervoltage protection, this function is performed in the form of **continuous monitoring**, with **safe reconnection** once the fault has cleared.



Phase sequence fault

Electrical and compliance features

SINGLE PHASE CONTROL UNIT		2N/120	2N/230	2ND/120	2ND/230
Power supply					
Nominal voltage (L-N)	UN [V]	120 ± 10%	230 ± 10%	120 ± 10%	230 ± 10%
Nominal frequency	FN [Hz]	50/60			
Impulse voltage withstood (1.2/50)		4 kV			
Installation category		III			
Voltage control					
Operating mode		Continuous monitoring			
Setting the overvoltage threshold	[V]	130-175	250-350	130-175	250-350
Setting the undervoltage threshold	[V]	90-110	170-200	90-110	170-200
Trip delay	tdv [ms]	Fixed: 100...980 Progressive: Auto MIN; Auto MAX*			
Reconnection delay	trv [s]	3...250			
Number of reconnections	nrv	no limit			
Earth leakage protection					
Class		-		A	
Sensitivity adjustment	IΔn [mA]	-		30-1000	
Trip delay	tdd [s]	-		0,02-1	
Reconnection delay	trd [s]	-		3-250	
Number of reconnections	nrd	-		0-10	

3-PHASE CONTROL UNIT		4N/120	4N/230	4ND/120	4ND/230
Power supply					
Nominal voltage (L-N)	UN [V]	120 ± 10%	230 ± 10%	120 ± 10%	230 ± 10%
Nominal frequency	FN [Hz]	50/60			
Impulse voltage withstood (1.2/50)		4 kV			
Installation category		III			
Voltage control					
Operating mode		Continuous monitoring			
Setting the overvoltage threshold	[V]	130-175	250-350	130-175	250-350
Setting the undervoltage threshold	[V]	90-110	170-200	90-110	170-200
Trip delay	tdv [ms]	Fixed: 100...980 Progressive: Auto MIN; Auto MAX*			
Reconnection delay	trv [s]	3-250			
Number of reconnections	nrv	no limit			
Earth leakage protection					
Class		-		A	
Sensitivity adjustment	IΔn [mA]	-		30-1000	
Trip delay	tdd [s]	-		0,02-1	
Reconnection delay	trd [s]	-		3-250	
Number of reconnections	nrd	-		0-10	
Phase sequence					
Operating mode		Continuous monitoring			
Trip delay	tdv [ms]	100-980	100-980	100-980	100-980
Reconnection delay	trv [s]	3-250	3-250	3-250	3-250
Number of reconnections	nrv	no limit			

MCB		MT-XX SINGLE PHASE	MT-XX THREE PHASE
Poles		1P+N	4P
Tripping curve		C	
Nominal current	IN [A]	6-63	10-63
Nominal voltage	UN [V]	240	240/415
Nominal frequency	fN [Hz]	50/60	
Assigned breaking capacity AC EN 60.898	Icn [A]	6000	
Assigned breaking capacity AC EN 60.947-2	Icu [kA]	10	
Reconnection delay	trm [min]	1-60	
Number of reconnections	nrm	0-3	

* Actuation time depending on the overvoltage value See values in user manual.

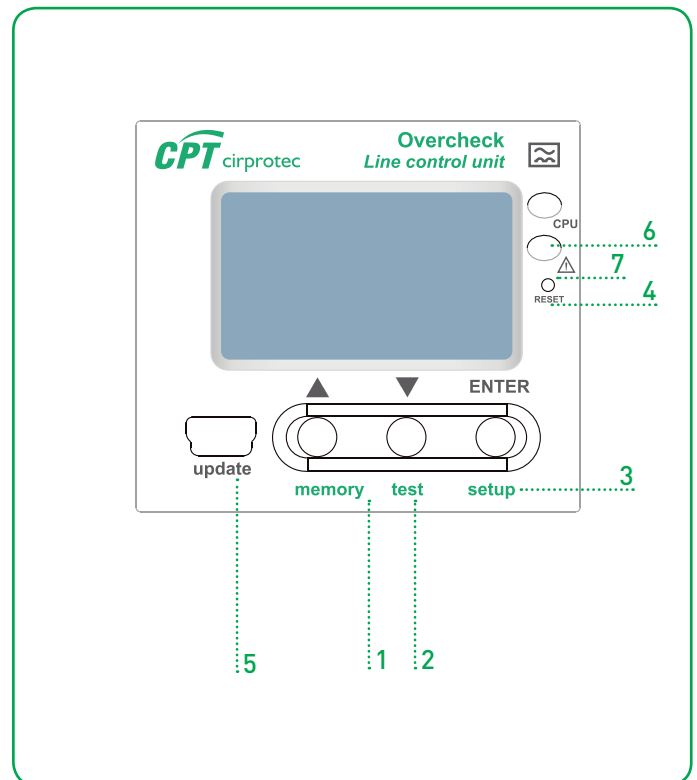
Front panel description

Push buttons

1. **memory**: allows access to historical incident log.
2. **test**: functional test of earth leakage protection.
3. **setup**: allows access to preset parameter programs and setup menu.
4. **RESET**: resets device CPU and trips the circuit breaker (MCB).
5. **Update input**: allows the device software to be updated by connecting a computer via a MiniUSB.

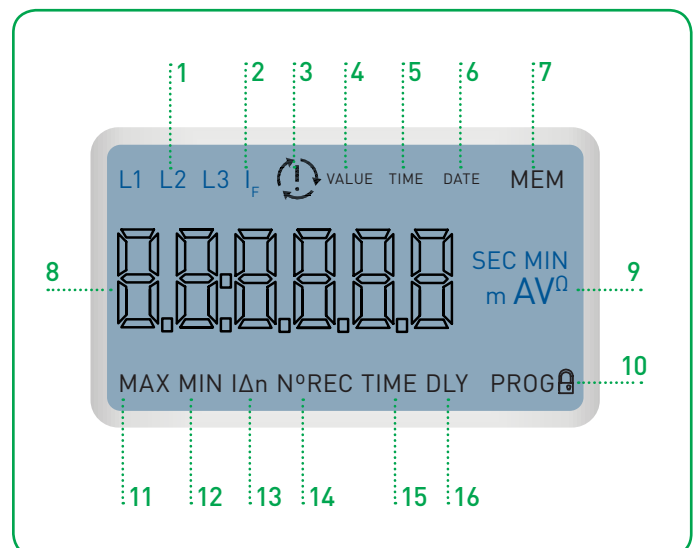
Indicators

6. **LED CPU**: lights up to indicate power status and CPU operation.
7. **LED Δ** : lights up to indicate a fault. If the fault disappears and power is restored, it will remain on until the user views the incident.

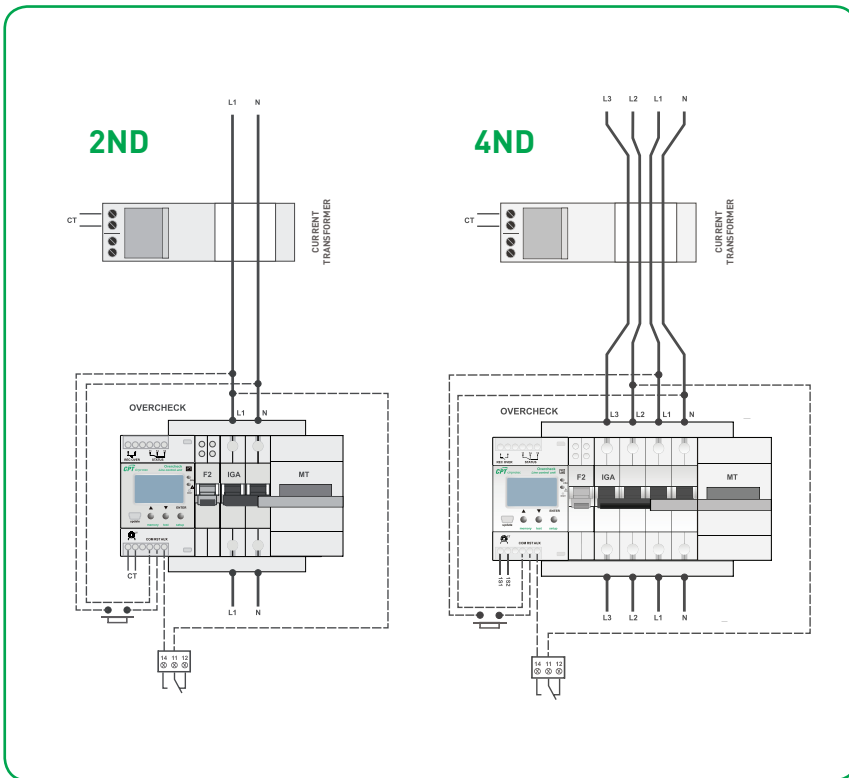


LCD display indicators

1. Voltage control
2. Earth leakage protection
3. Phase sequence control
4. Incident magnitude
5. Time
6. Date
7. Memory record no.
8. Reading
9. Programming mode / setting display
10. Program locking
11. Overvoltage threshold
12. Undervoltage threshold
13. Earth leakage sensitivity
14. Number of reconnections
15. Reconnection delay time
16. Trip delay time



Wiring diagrams

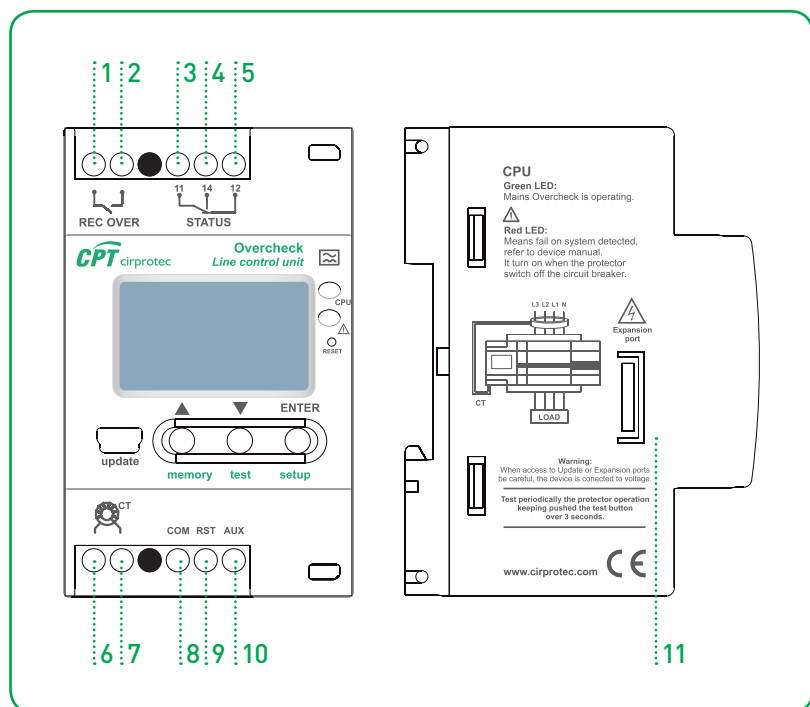


Output contacts

- 1/2. **REC OVER**: signals when the device latches at the end of a cycle of reconnections following earth leakage or overload / short circuit.
- 3/4/5. **STATUS**: signals the circuit breaker (MCB) status:
 11-12: Closed -> MCB closed
 11-14: Closed -> MCB open

Input terminals

- 6/7. **CT**: toroidal connection
- 8. **COM**: common terminal for RST and AUX
- 9. **RST**: remote reset function.
- 10. **AUX**: remote tripping function and "Alert" display on the LCD screen.
- 11. **Expansion port**: expansion module connection





Guide to selection and codes

a Indicates the number of MCB* poles

2: P+N single-phase supplies
4: 4P 3-phase supplies

b Indicates the protection types

N: Device with permanent undervoltage, permanent overvoltage and phase sequence fault protection
ND: Device with earth leakage, undervoltage, overvoltage and phase sequence fault protection

c Indicates the operating voltage (Un)

120: for 120/230 V supplies
230: for 230/400 V supplies

d Indicates the nominal current of the MCB* (In)

Available models: 6 A**, 10 A, 16 A, 20 A, 25 A, 32 A, 40 A, 50 A, 63 A

* MCB : Circuit breaker / cutout
** Only single phase model

Consult us for other voltages and supplies

Overcheck

a · b / c - MT · d

step 1

step 2

step 3

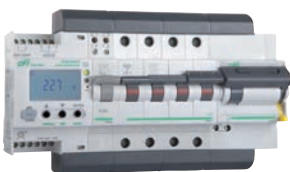
step 4



Overcheck single phase



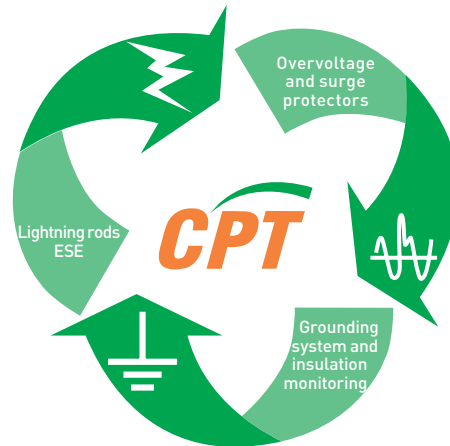
Overcheck three phase



WITH earth leakage protection		WITHOUT earth leakage protection	
Code	Part number	Code	Part number
77762541	OVERCHECK 2ND/230 - MT 6	77762561	OVERCHECK 2N/230 - MT 6
77762542	OVERCHECK 2ND/230 - MT 10	77762562	OVERCHECK 2N/230 - MT 10
77762543	OVERCHECK 2ND/230 - MT 16	77762563	OVERCHECK 2N/230 - MT 16
77762544	OVERCHECK 2ND/230 - MT 20	77762564	OVERCHECK 2N/230 - MT 20
77762545	OVERCHECK 2ND/230 - MT 25	77762565	OVERCHECK 2N/230 - MT 25
77762546	OVERCHECK 2ND/230 - MT 32	77762566	OVERCHECK 2N/230 - MT 32
77762547	OVERCHECK 2ND/230 - MT 40	77762567	OVERCHECK 2N/230 - MT 40
77762548	OVERCHECK 2ND/230 - MT 50	77762568	OVERCHECK 2N/230 - MT 50
77762549	OVERCHECK 2ND/230 - MT 63	77762569	OVERCHECK 2N/230 - MT 63
77762551	OVERCHECK 2ND/120 - MT 6	77762571	OVERCHECK 2N/120 - MT 6
77762552	OVERCHECK 2ND/120 - MT 10	77762572	OVERCHECK 2N/120 - MT 10
77762553	OVERCHECK 2ND/120 - MT 16	77762573	OVERCHECK 2N/120 - MT 16
77762554	OVERCHECK 2ND/120 - MT 20	77762574	OVERCHECK 2N/120 - MT 20
77762555	OVERCHECK 2ND/120 - MT 25	77762575	OVERCHECK 2N/120 - MT 25
77762556	OVERCHECK 2ND/120 - MT 32	77762576	OVERCHECK 2N/120 - MT 32
77762557	OVERCHECK 2ND/120 - MT 40	77762577	OVERCHECK 2N/120 - MT 40
77762558	OVERCHECK 2ND/120 - MT 50	77762578	OVERCHECK 2N/120 - MT 50
77762559	OVERCHECK 2ND/120 - MT 63	77762579	OVERCHECK 2N/120 - MT 63
77762642	OVERCHECK 4ND/230 - MT 10	77762662	OVERCHECK 4N/230 - MT 10
77762643	OVERCHECK 4ND/230 - MT 16	77762663	OVERCHECK 4N/230 - MT 16
77762644	OVERCHECK 4ND/230 - MT 20	77762664	OVERCHECK 4N/230 - MT 20
77762645	OVERCHECK 4ND/230 - MT 25	77762665	OVERCHECK 4N/230 - MT 25
77762646	OVERCHECK 4ND/230 - MT 32	77762666	OVERCHECK 4N/230 - MT 32
77762647	OVERCHECK 4ND/230 - MT 40	77762667	OVERCHECK 4N/230 - MT 40
77762648	OVERCHECK 4ND/230 - MT 50	77762668	OVERCHECK 4N/230 - MT 50
77762649	OVERCHECK 4ND/230 - MT 63	77762669	OVERCHECK 4N/230 - MT 63
77762652	OVERCHECK 4ND/120 - MT 10	77762672	OVERCHECK 4N/120 - MT 10
77762653	OVERCHECK 4ND/120 - MT 16	77762673	OVERCHECK 4N/120 - MT 16
77762654	OVERCHECK 4ND/120 - MT 20	77762674	OVERCHECK 4N/120 - MT 20
77762655	OVERCHECK 4ND/120 - MT 25	77762675	OVERCHECK 4N/120 - MT 25
77762656	OVERCHECK 4ND/120 - MT 32	77762676	OVERCHECK 4N/120 - MT 32
77762657	OVERCHECK 4ND/120 - MT 40	77762677	OVERCHECK 4N/120 - MT 40
77762658	OVERCHECK 4ND/120 - MT 50	77762678	OVERCHECK 4N/120 - MT 50
77762659	OVERCHECK 4ND/120 - MT 63	77762679	OVERCHECK 4N/120 - MT 63

Specialists in lightning and overvoltage protection

Cirprotec (CPT) is a pioneer in the design and manufacture of surge and lightning protection devices. CPT has an extensive network of sales offices and is present in over 60 countries.



Comprehensive solution: protection, control and safety

CPT offers a wide range of specific products to provide a solution for any type of need in the field of lightning and surge protection.

- Internal protection (surge protectors)
- External protection (ESE lightning rods and Faradisation)
- Grounding system and insulation monitors

Design, technical consulting and training services



Innovation and energy efficiency

Cirprotec is committed to innovation: A highly specialised team, test laboratories, high investment in R&D&i, international patents and presence on standards committees.

More efficient solutions to enhance device lifetime and avoid excessive current consumption.



Quality assurance

Cirprotec has a number of design, manufacturing and production centres and laboratories. All products are designed and manufactured entirely in Europe in accordance with local and international standards such as UNE, IEC, EN, NFC, VDE, UL, IEEE, always under the control of ISO 9001 quality assurance.





www.cirprotec.com

Specialists in comprehensive lightning and overvoltage protection. Specific solutions for all types of application.



Surge Protection



POP Power frequency
Overvoltage
Protection (TOV)



Surge
Protection For
Communications



External
Lightning
Protection



Monitoring
of Grounding
Systems



Insulation
Monitoring



Beacon
Systems



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