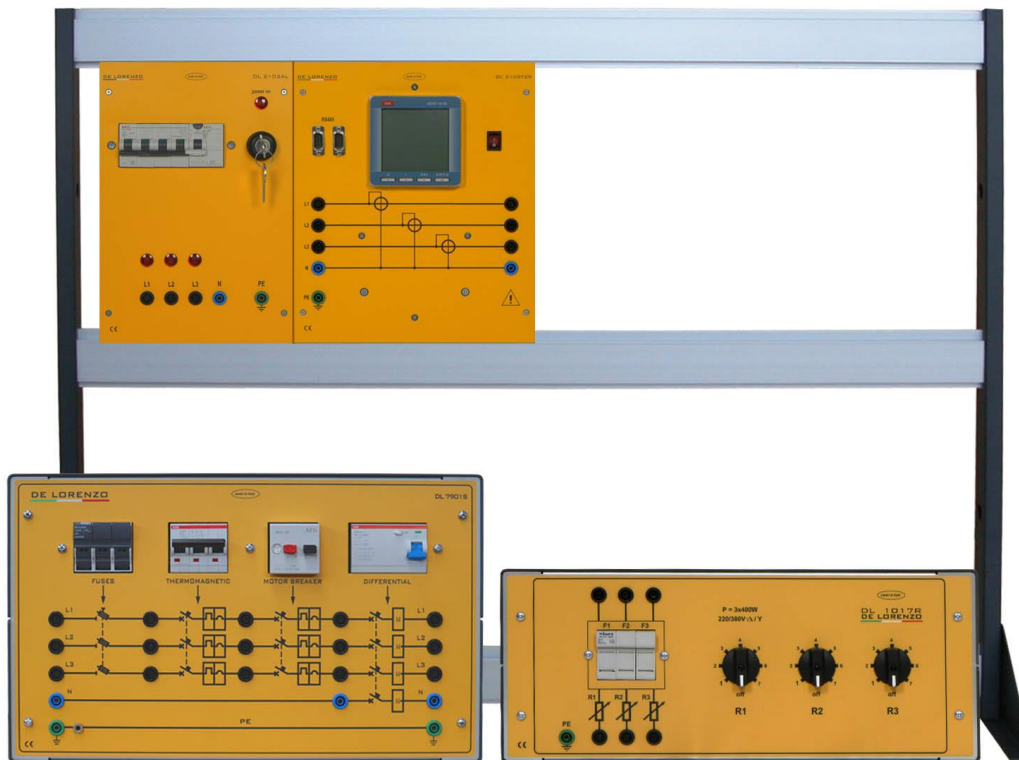




## ELECTRICAL PROTECTION STUDY AND COORDINATION DL PROT-EL



It allows studying the topics of electrical protective devices relevant to over currents used in civil and industrial applications and their co-ordination to ensure a good tripping sensitivity. The laboratory provides all the accessories to study the characteristics of a three-pole fuse overcurrent protection, a three-pole thermo-magnetic breaker switch, a three-pole motor circuit breaker and four-pole residual current breaker with physiologic threshold.



## Theoretical topics

1. CONDUCTOR PROTECTION
  - 1.1. Overload
  - 1.2. Short-circuit
  - 1.3. Protection coordination
2. PROTECTIONS AGAINST THE CONTACTS
  - 2.1. Indirect contact
  - 2.2. Direct contact
  - 2.3. Extracurrents
  - 2.4. Electrocution
  - 2.5. Protection measures
3. FUSES
  - 3.1. Characteristic magnitudes
  - 3.2. Normalization
  - 3.3. Fuse Behaviour during the short-circuit
  - 3.4. Fuse choice
4. MAGNETOTHERMIC AUTOMATIC SWITCHES
  - 4.1. Characteristic magnitudes
  - 4.2. Behaviour of the switch during the short-circuit
  - 4.3. Switch choice
  - 4.4. Selective protection
  - 4.5. Switch upstream and fuse downstream
5. MOTOR PROTECTOR
  - 5.1. Intervention curve
  - 5.2. Behaviour of the switch during the short-circuit
6. DIFFERENTIAL SWITCHES
  - 6.1. Operation principle
  - 6.2. Differential current
  - 6.3. Coordination
  - 6.4. Differential selectivity

## Practical test

- Fuses purposes – Fusion time measure
- Magneto-thermic switch purposes – Measure of the thermal intervention time
- Motor protector purposes – Measure of the intervention time of the delayed thermal releaser
- Differential switch purposes – Measure of the differential intervention current and verification of the intervention of the differential switch

## MODULES:

CODE	DESCRIPTION	QTY
DL 7901S	Electrical protections	1
DL 1017R	Resistive load	1
DL 2109T29	Maximum demand meter	1
DL CRON	Electronic stopclock	1
DL RHE-7901	Rheostat 10 k $\Omega$ /180 mA	1
DL 2102AL	Three-phase power supply module (panel type)	1
DL 2100-2M	Two-level work frame	1
TLPROT-EL	Connecting Leads	1