ELECTRICAL CIVIL INSTALLATIONS

index

POWER SUPPLIES

SINGLE-PHASE POWER SUPPLY DL 2101ALA
SINGLE-PHASE POWER SUPPLY DL 2101ALF

MODULES

SWITCHES AND COMMUTATOR DL 2101T02RM
INTERMEDIATE SWITCH DL 2101T04
INTERMEDIATE SWITCH AND TWO-WAY SWITCHES DL 2101T04RM
LIGHT PUSHBUTTON DL 2101T05
BELL/DOOR OPENER PUSHBUTTONS DL 2101T07RM
MARKED PUSHBUTTONS DL 2101T08
SINGLE-PHASE MAINS SOCKET DL 2101T10
HALOGEN LAMPS DL 2101T11RM
LOW CONSUMPTION FLUORESCENT LAMPS DL 2101T11RM2A
SINGLE-PHASE TRANSFORMER DL 2101T13A
LATCHING RELAYS DL 2101T14
STEPPING RELAY DL 2101T15
STAIRCASE LIGHT TIMER DL 2101T16
INCANDESCENT AND FLUORESCENT LAMPS DL 2101T17RM
BELLS DL 2101T20
BELL AND BUZZER DL 2101T201
DISPLAY SIGNALLING DL 2101T23
ELECTRIC LOCK DL 2101T24
ENTRY PHONE DL 2101T26
OUTDOOR ENTRY PHONE DL 2101T26E
POWER SUPPLY DL 2101T27C
EMERGENCY LIGHT DL 2101T28
STAND-BY BATTERY DL 2101T29
FIRE, INTRUSION AND GAS ALARM CONTROL UNIT DL 2101T30/40
SMOKE DETECTOR DL 2101T31
THERMAL DETECTOR DL 2101T32
EMERGENCY PUSHBUTTON DL 2101T33
ALARMS DL 2101T34RM
GAS DETECTOR DL 2101T38RM
SIGNALLING LAMPS DL 2101T39
MICROWAVE SENSOR DL 2101T41
PASSIVE INFRARED SENSOR DL 2101T42
PERIMETER SENSORS DL 2101T43
BLINKER DL 2101T44
VIDEO CAMERA – MONITOR POWER SUPPLY DL 2101T50
VIDEO CAMERA AND OUTDOOR STATION DL 2101T51/52
INDOOR MONITOR/INTERCOM DL 2101T53
NURSE BOARD DL 2101T60
PATIENT ROOM BOARD DL 2101T61
DIMMER DL 2101T100
PUSHBUTTON LIGHT REGULATOR DL 2101T101
TWILIGHT SWITCH DL 2101T111
PRESENCE AND TWILIGHT SWITCH DL 2101T112
TIME SWITCH DL 2101T113

ACCESSORIES

CONNECTING LEADS TL 2101T
TWO-LEVEL FRAME DL 2100-2M
THREE-LEVEL FRAME DL 2100-3M
POWER SUPPLIES

Single-Phase power Supply


DL 2101ALA

Single-Phase power Supply


DL 2101ALF

MODULES

Switches and Commutator

Two single-pole switches for domestic use, 250 Vac, 10 A

DL 2101T02RM

Intermediate switch

Intermediate switch, 250 Vac, 10 A

DL 2101T04
**Intermediate Switch and Two-Way Switches**

One intermediate switch, 250 Vac, 10 A.
Two two-way switches, 250 Vac, 10 A.

**Light Pushbutton**

Single-pole switch, 250 Vac, 10 A.

**Bell/Door Opener Pushbuttons**

Single-pole pushbutton, 250 Vac, 10 A, bell.
Single-pole pushbutton, 250 Vac, 10 A, door opener.

**Marked Pushbuttons**

Three single pole switches, 250 Vac, 10 A.
Single-phase Mains Socket

European standard single-phase socket, 250 Vac, 2P + T, 10/16 A.

Alternatively, single phase socket suitable for the mains to be specified.

Halogen Lamps

Two halogen lamps, 12 Vac, 20 W.

Low Consumption Fluorescent Lamps

Two low consumption fluorescent lamps with integrated starter, 230 Vac, 5 W.

Single-phase Transformer

Primary: 127-230 V.
Secondary: 12 V - 0 - 12 V, 50 VA.
Fuse protection.
**ELECTRICAL CIVIL INSTALLATIONS**

**Latching Relays**

Two bistable relays with coil at 24 Vac.
Two NO contacts, 48 Vac, 2 A.

*DL 2101T14*

**Stepping Relay**

Two-contact stepping relay with 4 sequences.
Coil 12 Vac – 230 Vac, 10 A.

*DL 2101T15*

**Staircase Light Timer**

Automatic switch for staircase lighting control with adjustable timing, 110 – 230 Vac, 10 A.

*DL 2101T16*

**Incandescent and Fluorescent Lamps**

Two incandescence lamps.
One fluorescent lamp with starter.

*DL 2101T17RM*
**Bells**
Two bells, 12 Vac, 8 VA.

**Display Signalling**
Signalling module with four displays, with reset button. Operating voltage: 12 Vac.

**Bell and Buzzer**
One bell and one buzzer, 12 Vac, 8 VA.

**Electric Lock**
Lock with electromagnetic control. Coil: 12 Vac.
ELECTRICAL CIVIL INSTALLATIONS

Entry Phone
Wall standard intercom with three pushbuttons and buzzer.

Outdoor Entry Phone
Pushbuttons.

Power Supply
Power supply for entry phones.
Output: - J, + 6 Vdc – 6 Vdc.
Power supply from mains.

Emergency Light
Complete with 2 Ni-Cd rechargeable batteries, 2.4 V, 0.5 Ah.
Autonomy: 2 hours.
ELECTRICAL CIVIL INSTALLATIONS

Stand-by Battery
Sealed, rechargeable battery.
Capacity: 12 V, 1.8 Ah.

Fire, Intrusion and Gas Alarm Control Unit
Eight multifunction programmable input control unit for fire, intrusion and gas detection.
- 1 anti-sabotage line, 24 h
- 5 outputs at 12 V for power supplying the sensors
- 1 output at 14 V for charging the battery
- 2 programmable alarm relays
Power supply from mains.

Smoke Detector
Photo-optical smoke detector with relay output.
Typical protected area: 80 m².
Connection through 4 wires, memory LED, output for remote memory LED.
Absorption while in operation 60 μA.
Power supply: 12 Vdc.

Thermal Detector
Combined thermo velocimetric and fixed 60°C conventional temperature detector.
Typical protected area: 40 m².
Connection through 2 wires, memory LED, output for remote memory LED.
Power supply: 12 Vdc.
Emergency Pushbutton

Red emergency push-button with 1 switching contact.

Gas Detector

Gpl sensor, 12 Vdc, 200 mA.

Alarms

Alarm module with a buzzer and a red LED optical indicator, 12 Vdc.

Signaling Lamps

Module with 9 LED pilot lamps, 3 red, 3 yellow and 3 green, 24 Vac.
**Microwave Sensor**

Combined infrared and microwave detector with either AND or OR operating modes. Range: 10 meters and 110°. High level of immunity from radiofrequencies. Operating temperature from -5°C to +50°C. Power supply: 12 Vdc.

**Passive Infrared Sensor**

Volumetric, passive infrared sensor. Range: 10 meters and 110°. High level of immunity from radiofrequencies. Operating temperature from -10°C to +40°C. Power supply: 12 Vdc.

**Perimeter Sensors**

Magnetic contact mechanical sensor for the protection of the entrances (doors, windows, etc.). The magnetic contact is made of two blocks: in one block there is a permanent magnet and in the other one a reed relay with a NO alarm contact. Contact range: 0.5 A.

**Blinker**

Xenon optical blinking indicator, with orange cap, to signal the intrusion attempt. Pulse: 65 - 90 per minute. Absorption: 400 mA. Power supply: 12 Vdc.
ELECTRICAL CIVIL INSTALLATIONS

Video Camera–Monitor
Power Supply

For power supplying the video camera, the outdoor pushbutton and the indoor monitor.
Output power: 38 VA.
Output without timer: 12 Vac, 2 A; 6 Vdc, 1 A
Output with timer: 18 Vdc, 0.85 A; 16 Vdc, 0.23 A
Timer: 45 ÷ 180 sec.
Power supply from mains.

Video Camera and Outdoor Station

Complete with speaker, microphone and call pushbutton.
CCD 1/3 B/W video camera with IR LED lighting group.
Frequency: 50 Hz.

Indoor Monitor / Intercom

Video intercom with opening pushbuttons, volume control and mute function.

Nurse Board

To be placed in the nurses room, it allows stopping the acoustic signal and calming down the patient by sending a light signal to the patient room.
It is composed of: a red calling lamp, a green accepted call lamp, a call buzzer, a light switch, a pushbutton and a bistable relay with two switching contacts.
Operating voltage: 24 Vac
Patient Room Board

**DL 2101T61**

To be placed in the patient room. It allows calling the nurse in case of need. It is composed of: a red calling lamp, a green accepted call lamp, a red lamp outside the door, a pull button, a reset pushbutton and a bistable relay with 3 NO contacts. Operating voltage: 24 Vac.

Dimmer

**DL 2101T100**

Electronic light brightness regulator, only for resistive loads. Adjustment from 100 W to 500 W at 230 V. Adjustment from 50 W to 250 W at 127 V.

Pushbutton Light Regulator

**DL 2101T101**

Pushbutton electronic light brightness regulator, with external controls. Adjustment from 60 W to 600 W, resistive. Adjustment from 60 VA to 500 VA, inductive.

Twilight Switch

**DL 2101T111**

2 to 200 lux, adjustable. Preset at 10 lux.
**Presence and Twilight Switch**

Automatic infrared sensor with twilight switch.
Range: 0 to 110°, 5 meters.
Time adjustment from 10 sec. to 10 min.
Glow regulation from 5 to 2000 lux.

**Time Switch**

Daily timer switch with tappets.
One ON/OFF switching contact, 15 min. minimum.
Output current: 250 Vac, 10 A.
Power supply from mains.

**Connecting Leads**

Cable set for connecting the experiment modules DL 2101T.

**Frame**

Two or three level metal frame for mounting the modules of the laboratory.
## SUGGESTED CONFIGURATIONS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>TA</th>
<th>TAS</th>
<th>TB</th>
<th>TC</th>
<th>TD</th>
<th>TF</th>
<th>TG</th>
<th>TH</th>
<th>TOT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL 2101AL</td>
<td>Single-phase power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101AF</td>
<td>Single-phase power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T02RM</td>
<td>Switches and commutator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T04</td>
<td>Intermediate switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T04RM</td>
<td>Intermediate and 2-way switches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T05</td>
<td>Light pushbutton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T07RM</td>
<td>Bell/door opener pushbuttons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T08</td>
<td>Marked pushbuttons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T10</td>
<td>Single-phase mains socket</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T11RM</td>
<td>Halogen lamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T11RM2A</td>
<td>Low consumption fluorescent lamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T13A</td>
<td>Single-phase transformer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T14</td>
<td>Latching relays</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T15</td>
<td>Stepping relay</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T16</td>
<td>Staircase light timer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T17RM</td>
<td>Incandescent and fluorescent lamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T20</td>
<td>Bells</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T21</td>
<td>Bell and buzzer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T23</td>
<td>Display signalling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T24</td>
<td>Electric lock</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T26</td>
<td>Entry phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T26E</td>
<td>Outdoor entry phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T27C</td>
<td>Power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T28</td>
<td>Emergency light</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T29</td>
<td>Stand-by battery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T30/40</td>
<td>Fire, Intrusion and gas alarm control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T31</td>
<td>Smoke detector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T32</td>
<td>Thermal detector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T33</td>
<td>Emergency pushbutton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T34RM</td>
<td>Alarms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T35RM</td>
<td>Gas detector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T39</td>
<td>Signalling lamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T41</td>
<td>Microwave sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T42</td>
<td>Passive infrared sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T43</td>
<td>Perimeter sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T44</td>
<td>Blinker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T50</td>
<td>Video camera-monitor power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T51/S2</td>
<td>Video camera and outdoor station</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T53</td>
<td>Indoor monitor/intercom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T60</td>
<td>Nurse board</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T61</td>
<td>Patient room</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T100</td>
<td>Dimmer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T101</td>
<td>Pushbutton light regulator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T111</td>
<td>Twilight switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T112</td>
<td>Presence and twilight sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T113</td>
<td>Timer switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2100-2M</td>
<td>Two-level frame</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2100-3M</td>
<td>Three-level frame</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TL 2101T</td>
<td>Connecting leads</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 2101T13AT</td>
<td>Autotransformer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Necessary in case the local voltage is different from 230 Vac
ELECTRICAL CIVIL INSTALLATIONS

LIST OF EXPERIMENTS

DL 2101TA – LIGHTING
- Single-point controlled lighting installation
- Single-point controlled lighting installation with socket
- Switch-controlled two-lamps lighting installation
- Two-point controlled lighting installation
- Three-point controlled lighting installation
- Four-point controlled lighting installation
- Circuit breaking relay controlled lighting installation
- Switching relay controlled lighting installation
- Time relay controlled lighting installation
- Hot-cathode fluorescent lamp installation

DL 2101TAS – LIGHTING (ADVANCED)
- Low consumption lamps lighting installation
- Emergency light installation
- Lighting installation controlled by a dimmer
- Lighting installation controlled by a pushbutton light regulator
- Lighting installation controlled by a twilight switch (outdoor type)
- Lighting installation controlled by a presence and twilight switch (indoor type)
- Lighting installation controlled by a timer switch

DL 2101TB – SIGNALLING
- Signalling installation
- Single-control signalling installation
- Reciprocal control signalling installation
- Light signalling installation
- Ringing installation with doors and main entrance control
- Electric lock ringing installation

DL 2101TC – HOUSE PHONES
- Two reciprocal call entry-phone installation at short distance
- Two reciprocal call entry-phone installation at long distance
- Coupled two entry-phone installation
- Main entry-phone and two shunted entry-phones installation
- Communicating entry-phones installation
- Connection between an external unit and two shunted entry-phones
ELECTRICAL CIVIL INSTALLATIONS

DL 2101TD – HOTELS/HOSPITALS
• Installation for audience request
• Installation for hotel
• Installation for nurse calling

DL 2101TF – FIRE ALARM SYSTEMS
Study of a complete installation of a fire alarm system, including: smoke sensor, thermal detector, gas detector, emergency pushbutton, alarms, auxiliary battery and control panel.

DL 2101TG – INTRUDER ALARM SYSTEMS
Study of a complete installation of an intruder alarm system, including: microwave sensor, infrared passive sensor, perimeter sensor, blinker, alarms, auxiliary battery and control panel.

DL 2101TH – VIDEO INTERCOM
• Signalling bell installation
• Signalling bell and plate lighting installation
• House-phone installation
• Outdoor video station
• Video/house-phone installation