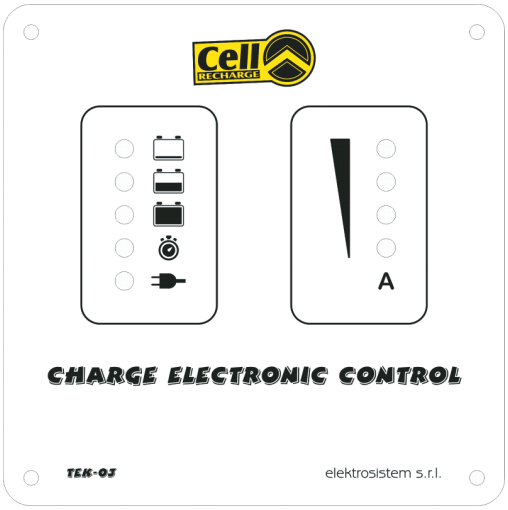
elektrosistem NEWS

TEK-3

ELECTRONIC CONTROL CARD FOR BATTERY CHARGER



Timer and control card for monophase and three phase battery charger featuring microprocessor control; battery rated voltage can be set through a jumper.

SPECIFICATIONS

Power supply voltage	10-120V, protection from transient overvoltages
Battery rated voltage	12 24 36 48 72 80 96V Setting through jumper (2 jumpers for 12V)
Final charging time	1-2-3-4 hours, adjustable
Final charging limit	2,4 V/cell (adjustable within +/- 0,1V/cell)
Equalization	5min ON every hour for max 12 times (Enabling through external switch)
Time limit	max 14 hours
Voltage limit	max 2,85 V/cell
Status LED for	Connected Battery, Final Charging, Charge Ended, Mains Presence, Faults
Current level indication	No.4 LEDs indicating the approx. instantaneous battery current
Connections	8 pin Minifit for auxiliary parts, 2 pin terminal for relay contact
Contact output	10A NO relay with 16A fuse

OPERATION

Note

Some of the options listed below can be set using removable bridges (jumpers). The microprocessor “reads” the state of jumpers only during the first seconds after switching on; when changing jumpers setting it is necessary to switch off and then on the card.

Charging cycle

When the card is switched on all LEDs are on for 2 seconds. If the battery is connected the “Mains Presence” LED becomes on and the relay closes. Charging starts with the “Initial Charging” phase. The card continuously checks the battery voltage. Max time protection is on. When the end charging voltage is reached (generally 2,4V/cell), “Final Charging” LED becomes on and the “Final Charging Time” counting starts. When charging has completed the relay opens and the “Charging ended” LED becomes on. If the “Equalization” option was selected through external switch, the cycle starts (see Equalization section).

Voltage setting

The battery rated voltage can be set using a jumper. Only the jumper for the rated voltage must be closed. For 12V operation, it is necessary to close also “W2" jumper.”W2" jumper must never be closed for voltages other than 12V to prevent damages on the card.

Special charging for sulphated batteries

For the first 30 minutes after switching on, even if the battery voltage increases over “Final charging” level, the card does not pass to “Final charging” phase. This procedure is used to enable sulphated batteries to become stable.

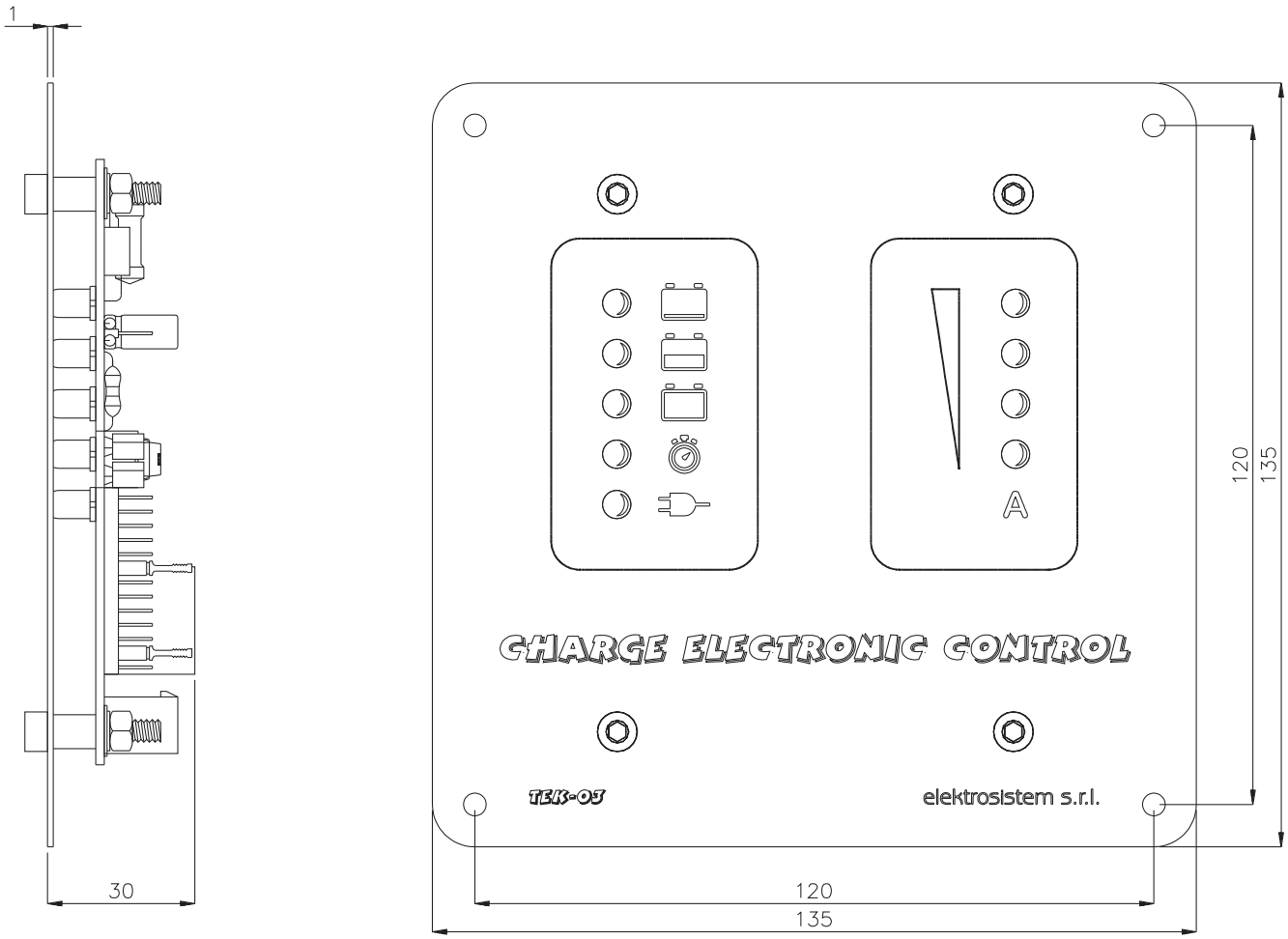
Equalization

This option can be selected closing the external switch for equalization before starting the charging cycle. When the charging phase has finished, equalization cycles featuring 5 minutes ON and 55 minutes OFF are repeated for 12 times. At the end the “Charging ended” LED becomes on and the relay is open. No indications are supplied during the equalization cycle.

Float Mode

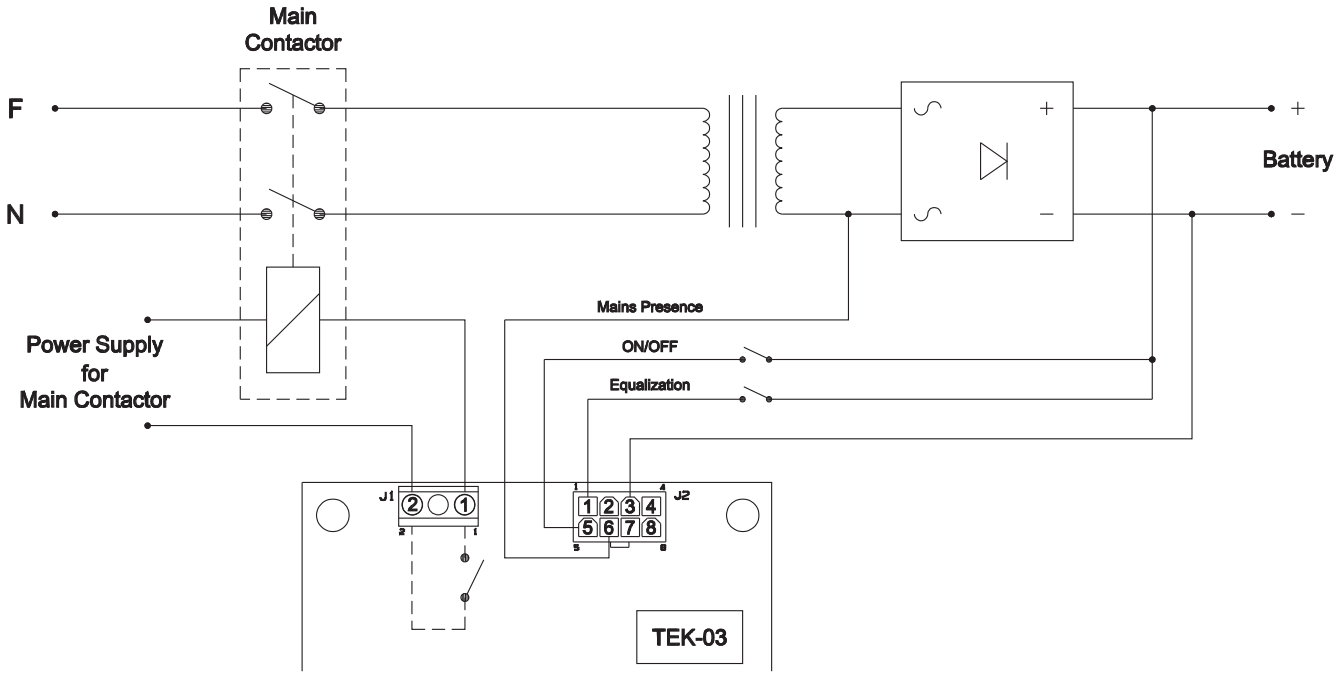
When W6 jumper is closed, a complete charging cycle including float charge is carried out. When this option is on, no Equalization is carried out even if it is selected. The charging cycle is the standard one, and the settings according to jumpers are valid. When charging has finished, after a safety time of 5 minutes, the card checks the battery voltage and when it decreases below 2,00V/cell a new charging cycle is started. Cycles can be repeated with no limits.

MECHANICAL DIMENSIONS

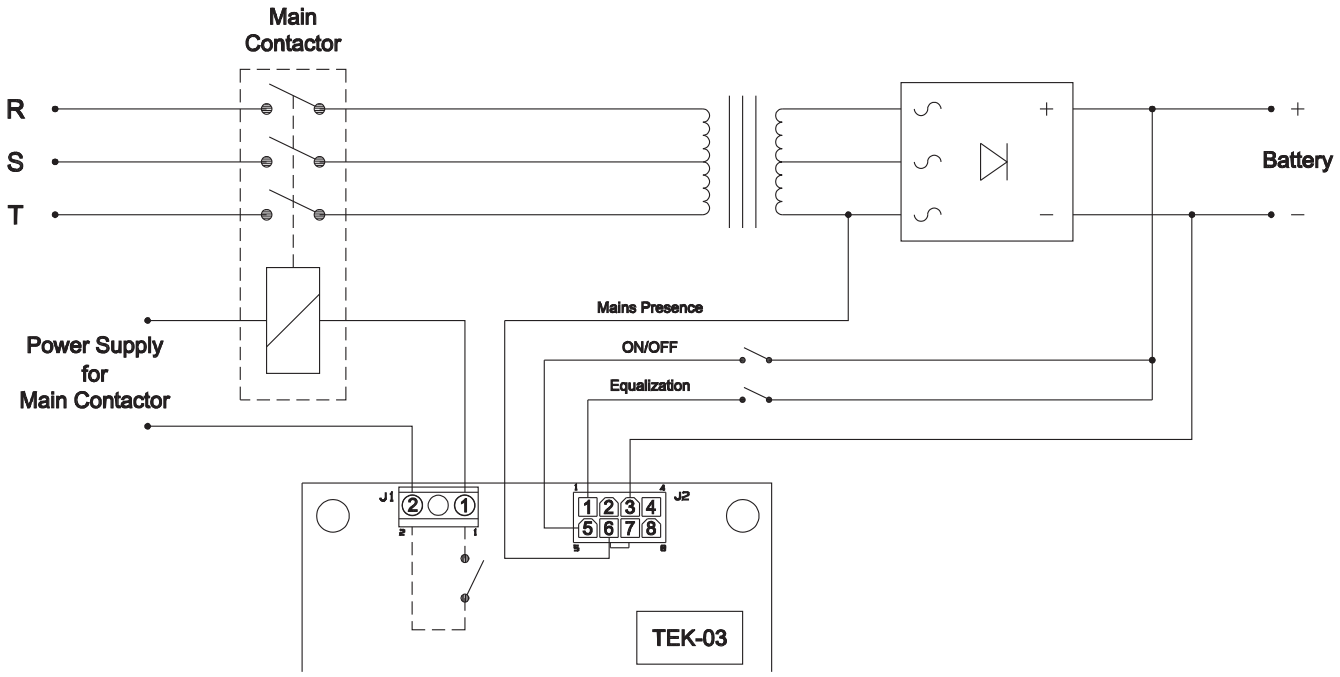


CONNECTIONS

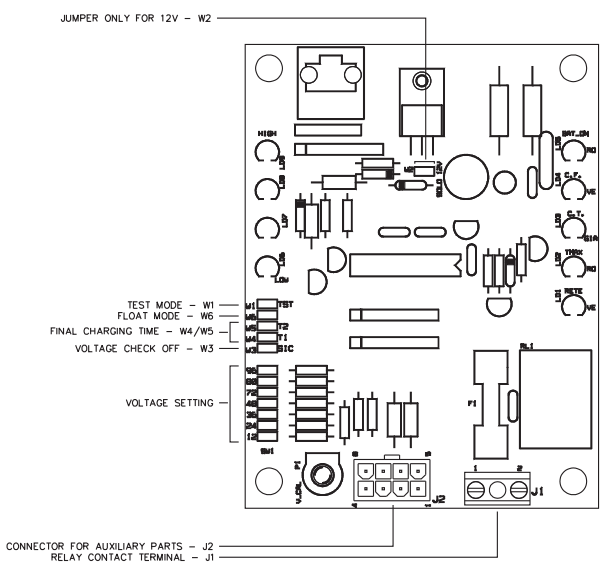
MONOPHASE

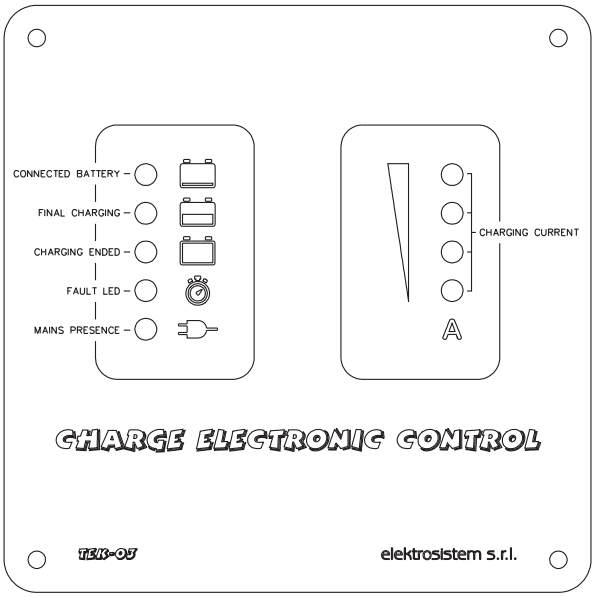


THREE PHASE



SETTINGS and DIAGNOSTICS





SETTINGS

SW1 - The jumper is used to select the battery rated voltage (also close W2 jumper for 12V only)
W2 - The jumper must be closed only for 12V battery rated voltage
W3 - Voltage check off. When the jumper is closed no checks for battery Vmin (<1,4V/cell) and max (>3,0V/cell) are carried out and a charging cycle with a final voltage of 2,35V/cell instead of 2,4V/cell is used
W6 - The jumper is used to select the float mode (this option disables equalization)
W4 - The jumper together with W5 jumper is used to set the time for the final charging phase
W5 - The jumper together with W4 jumper is used to set the time for the final charging phase

Time	1 hour	2 hours	3 hours	4 hours
W4	NO	YES	NO	YES
W5	NO	NO	YES	YES

INDICATIONS and FAULT LED

Connected Battery - The LED becomes on when the battery is connected
Final Charging - The LED becomes on when the battery level reaches 2,4V/cell and the counting for the final charging time starts
Charging Ended - The LED becomes on when the charging phase has finished, the final charging time has expired and the relay has opened
Mains presence - The LED becomes on when the power supply is read on mains presence pin in J2 connector
Charging current - 4 LEDs are used to indicate the approx. battery current, calculated from the battery voltage

Fault LED Flashes

1 - No AC power supply on mains presence pin in J2 connector. All timers are locked. The Mains Presence LED becomes Off and the Fault LED flashes once. When the power supply is restored charging restarts from the point when it was interrupted
2 - No jumper for the battery rated voltage is closed or Battery voltage > 3,5V/cell when the card was switched on or Battery voltage > 2,85V/cell during charging. It is necessary to disconnect the battery to restore operation
3 - Battery voltage < 1,4V/cell
4 - Max charging time has expired. If the charging cycle has not finished within the max pre-set time the relay opens. It is necessary to disconnect the battery to restore operation.
5 - Charging has interrupted due to battery voltage > 3,6V/cell