Intelligent ripple control receiver
LCR 160

Compact ripple receiver for DIN rail with one load control relay and one auxiliary relay

The LCR160 is a high-quality ripple control receiver including switch clock. It can be used in standard ripple control applications as well as in modern systems with “distributed intelligence” (VERSACOM) as a remotely programmable switch clock.

Digital filtering of the ripple control signal is done by a microcontroller in most modern technology using an algorithm developed by Elster.

Functionality

- Processing of all common ripple control protocols and their specific pulse patterns
- Internal clock with optional buffering by a supercap or a battery, flexible synchronisation using VERSACOM Protocol
- Switch clock depending on weekdays, with remote parameterisation using the ‘VERSACOM’ protocol (DIN 43861-301)
- Switch clock for a year with calculated dawn and dusk times for illumination control (e.g. street light)
- Programming and test via the electrical interface (USB) is possible without the 230VAC power supply
- Signal absence sensing, detection of transmitter failures
- Cyclic switching function
- Switching delay (1 s – 24 h)
- Passing contact function (1 s – 24 h)
- Anti – Tampering and supervision
  - Automatic refreshing of relay positions every 60 seconds
  - Counter for number of switching actions per relay
  - Log file for storage of pulse pattern and signal levels of last telegrams received (minimum 10 telegrams)
  - Log file for storage of events (power failure, low network frequency, signal absence)
- Logical interconnection of relays
- User friendly programming tool LCRset6
- The receiver is fitted as standard with one load control relay, rated at 40A. In addition, a second relay rated at 6A and suitable for switching TOU registers can also be fitted. Both relays are directly soldered to the PCB.
## Technical Data

**Power supply**
- Voltage Un: 230V + 15%...-20%
- Frequency of power supply: 50Hz +2%...-2%
- Lightning impulse strength: 8kV 1,2/50 according to DIN EN 61 000-4-5

**Filter data**
- Audio frequency: 158Hz – 1600Hz
- Selection of audio frequency: any frequency can be set
- Minimum respond signal voltage: $U_f > 0.5\% U_n$
- None respond signal voltage: $U_{nf} < 0.3\% U_n$
- Maximum signal level: 8-15 times $U_f$ (dependent on frequency)

**Real time backup**
- Supercap: > 48 h without power
- Battery: > 3 years without power at 25°C Celsius
- Time deviation: < 2 s/day

**Output data**
- Number of relays: 2
- Nominal switching voltage $U_c$: 250V, 50Hz or 60Hz
- Nominal switching current $I_c$: Relay 1: 40A, cos phi = 0.4….1, Relay 4: 6 A, cos phi = 0.4….1
- Relay type: Normally closed contact, bistable
  - Relay 1: floating, Relay 4: non floating
- Terminal size: Power supply and relay 4: 1 x 2.5 mm² or 2 x 1,5 mm²
  - Relay 1: 1 x 6 mm²

**Climate conditions**
- Operating temperature: -20...+60°C
- Storage temperature: -30...+60°C

**Housing**
- The ripple control receiver housing is designed to be mounted on a DIN - rail. For mounting on a wall a cover is available.
- Protection class: IP51

**Dimensions**
- Without cover: H=92mm, W=37mm, D=65mm
- With cover: H=150mm, W=82mm, D=67mm

### Connection diagramm

![Connection diagramm](image-url)