elektrosistem

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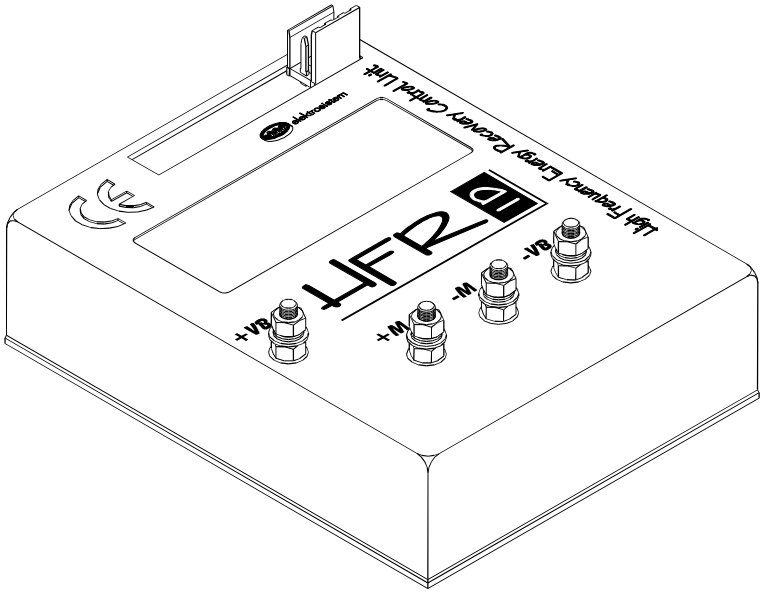


# HFR 1D

## HIGH FREQUENCY ELECTRONIC CONTROL UNIT WITH

The unidirectional high frequency electronic control unit with energy recovery type HFR 1D has been added to the wide range of products manufactured by ELEKTROSISTEM. Conceived for permanent magnete motors, this equipment complies with the newest security provisions for the application on EC-vehicles and is produced in a wide power range (from 60 A up to 150 A.

The acceleration adjusting device allows the vehicle to gradually and regularly reach the maximum speed. The current limiter enables the operator to adjust the max. current supplied to the motor.

This control unit is provided with a variable regenerative braking whose max. value is fixed by the recovery braking adjusting device.

### MAIN TECHNICAL FEATURES

- Slow starting through adjustable acceleration slope.
- Presettable limiter of the max. current supplied to the motor.
- Thermal limiter with a proportional action.
- Recovery braking system activated by deceleration or by pedal release.
- Presettable limiter of max. braking current.
- Control system by a 5K or a 10K potentiometer connected to 3 wires.
- Control system by a potentiometer connected to 2 wires with adjusting angle upon request.
- Total protection against battery polarity inversion by means of an internal line relay.
- Protection against short circuits of the mos units.
- Protection against potentiometer breakdown.
- Intervention of the safety block when, turning the key the potentiometer is not on the value 0.
- Disabling of the safety block by resetting the potentiometer to the value 0.

### TECHNICAL SPECIFICATIONS

- Voltage rating ..... 12-24-36V
- Allowed supply variation ..... from 85% to 125%
- Operation frequency ..... >= 18 KHz
- Operation temperature ..... -20°C/+40°C
- Humidity at 25°C ..... 90%
- Thermal limiter action ..... 80°C
- Max voltage supplied at 12 VB ..... 94%
- Max voltage supplied at 36 VB ..... 98%
- Weight ..... 500g

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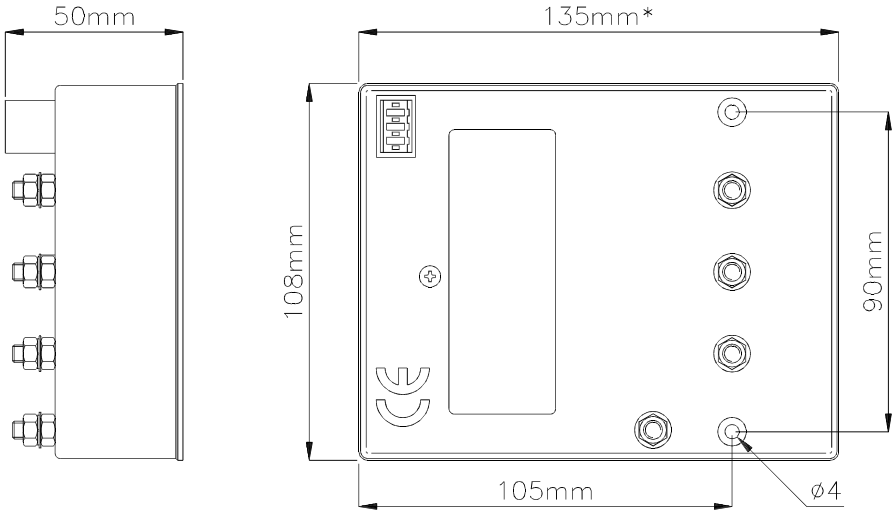
## MODELS

| Size | Starting Current | Current/min | Current/hour* |
|---|---|---|---|
| 60 A | 60 A | 55 A | 21 A |
| 90 A | 90 A | 81 A | 32 A |
| 120 A | 120 A | 110 A | 42 A |
| 150 A | 150 A | 135 A | 53 A |

* In free air conditions.

## DIMENSIONS




* 112mm in the 60A model.

## CONNECTION DIAGRAM