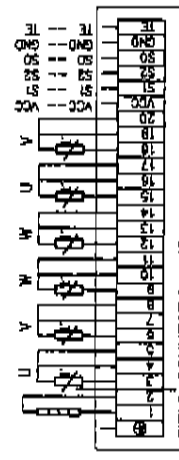


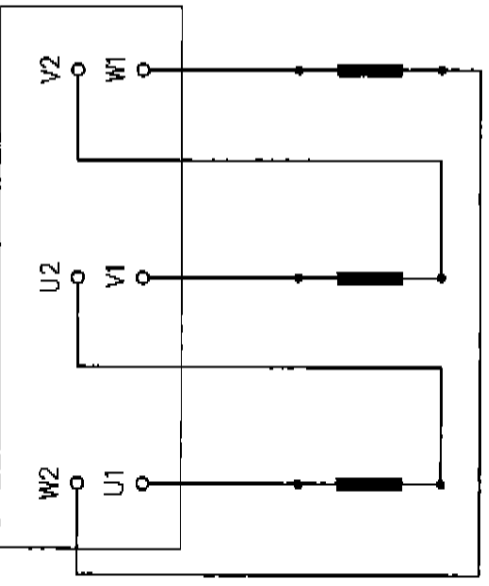
**AUXILIARY TERMINAL BOX**

NOTE: PFRD DETECTOR TEST MAK 10 mA

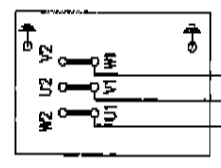


**FIELD CONNECTION SIDE**  
 W1: L-2 HEATER, 115V, 300W  
 W2: 3-PO. STATOR PFD'S FIELD  
 W3: ROT. TL. PULSE ENCODER

**MAIN TERMINAL BOX**



**CONNECTION OF TERMINALS D-CONNECTION**

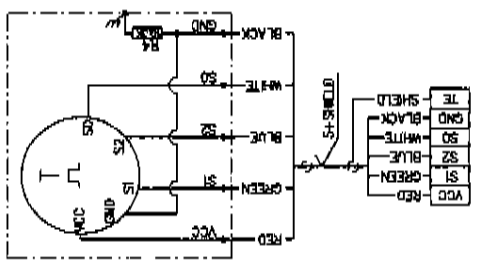


DIRECTION OF ROTATION WITH NORMAL PHASE SEQUENCE.

DIRECTION OF ROTATION WITH REVERSED PHASE SEQUENCE.

PERMITTED DIRECTION OF ROTATION IS MARKED ON THE MOTOR.

**PULSE ENCODER**  
 MODEL: 86/186S0010-204B  
 (LEINE & LINDE)





Type series: AMA ..., AMB ..., AMH ..., AMK ...,  
HS ..., HXR ...



## Safety and commissioning instructions for low-voltage machinery (in conformity with the low-voltage directive 73/23/EEC)

### 1. General

Low-voltage machines have dangerous live and rotating parts and possibly hot surfaces. All operations serving transport, connection, commissioning and maintenance are to be carried out by responsible skilled personnel (in conformity with prEN 50110-1 / VDE 0105 / IEC 364) Improper handling may cause serious personal injury and damage to property.

### 2. Intended use

These low-voltage machines are intended for industrial and commercial installations. They comply with the harmonized series of standards EN 60034 (VDE 0530). Their use in hazardous areas is prohibited unless they are expressly intended for such use (follow additional instructions). On no account, use degrees of protection  $\leq$  IP 23 outdoors. Air-cooled models are rated for ambient temperatures of  $-20^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  and altitudes of  $\leq 1000$  m above sea level. Ambient temperature for air/water-cooled models should be not less than  $+5^{\circ}\text{C}$  (for sleeve-bearing machines, see manufacturer's documentation). Strictly observe different instructions on the rating plate. Conditions on site must conform to all rating plate markings.

Low-voltage machines are components for installation in machinery as defined in the Machinery Directive 89/392/EEC. Commissioning is prohibited until conformity of the end product with this directive has been established. (Follow I a EN 60204-1).

### 3. Transport, storage

Immediately report damage established after delivery to transport company. Stop commissioning, if necessary. Tighten screwed-in ring bolts before transport. They are designed for the weight of the low-voltage machine, do not apply extra loads. If necessary, use suitable, adequately dimensioned means of transport (e.g. rope guides). Remove shipping brace before commissioning. Reuse it for further transports. When low-voltage machines are stored, make sure of dry, dust-free, low-vibration ( $V_{rms} \leq 0.2$  mm/s) environment (danger of bearing damage at rest). Before commissioning, measure insulation resistance. In case of values  $\leq 1$  k $\Omega$  per volt of rated voltage, dry winding.

### 4. Installation

Make sure of even supporting surface, solid foot or flange mounting and exact alignment in case of direct coupling. Avoid resonances with rotational frequency and double mains frequency which may be caused by the assembly. Turn rotor, listen for abnormal slipping noises. Check direction of rotation in uncoupled state (mind Section 5.)

Follow manufacturer's instructions when mounting or removing couplings or other drive elements and cover them with touch guard. Avoid excessive radial and axial bearing loads (note manufacturer's documentation).

The balance of the low-voltage machine is indicated on the shaft end face or on the rating plate (H = half, F = full key). In case of half-key design, the coupling, too, must be half-key balanced.

In case of protruding, visible part of key, establish mechanical balance.

Make necessary ventilating pipe connections, if any. Models with shaft ends pointing upward are to be provided with a cover by the customer to prevent foreign objects from falling into the ventilator. The ventilation must not be obstructed and the exhaust air, also of neighbouring sets, not taken in directly.

### 5. Electrical connection

All operations may be carried out only by skilled technical personnel on the low-voltage machine at rest and de-energized and provided with a safeguard to prevent unintentional reclosing. This also applies to auxiliary circuits (e.g. anti-condensation heating).

**Check safe isolation from supply!**

Exceeding of the tolerances specified EN 60034-1 (VDE 0530, Teil1), i.e. voltage  $\pm 5\%$ , frequency  $\pm 2\%$ , waveform, symmetry, leads to elevated temperatures and affects the electromagnetic compatibility. Take account of rating plate markings and of connection diagram in terminal box.

The connection must be so made as to maintain a permanent safe electrical connection (no loose wire ends). Use appropriate cable terminals. Establish safe protective conductor connection.

Minimum clearances between uninsulated live parts and between such parts and earth must not be below the following values: 8 mm at  $U_N \leq 550$  V, 10 mm at  $U_N \leq 725$  V, 14 mm at  $U_N \leq 1000$  V. No presence of foreign objects, dirt or moisture is admitted in the terminal box. Close unused cable entrance holes and the box itself in a dust- and watertight manner. For trial run without output elements, lock fitting key. For low-voltage machines with accessories, check satisfactory functioning of these before putting into service.

### 6. Operation

Vibration severities in the "satisfactory" range ( $V_{rms} \leq 4.5$  mm/s) according to ISO 3945 are acceptable in coupled-mode operation. In case of deviations from normal operation - e.g. elevated temperature, noises, vibrations - disconnect machine, if in doubt. Establish cause, consult manufacturer, if necessary.

Do not defeat protective devices, not even in a trial run. In case of heavy dirt deposits, clean cooling system at regular intervals. From time to time, open closed condensate drain holes, if any. Regrease antifriction bearings while the low-voltage machine is running. Use right kind of grease. Follow instructions on lubricating plate.

In case of sleeve-bearing machines, observe time-limit for oil-change and if equipped with oil supply system make sure the system is working.

Refer to manufacturer's documentation for sound power level and information about the use of appropriate sound-reducing measures.

### 7. Maintenance and servicing

Follow manufacturer's operating instructions.