

Always ready for use

with electronic power supply and charging systems
from



STAND BY ladeautomatik 1224-I Built-in unit for walls/vehicles Operating/installation instructions

You have acquired a high-quality electronic charging unit. Special operating instructions are not required thanks to the conceptual unit design. Only some points are to be taken into account and/or checked before starting the unit.

Please note: when the unit has been connected to the 230 V AC mains, you have only to plug the charging device in the on-board mains. The rest is ensured by the electronic system of the unit.

After having checked the unit for its completeness and for transport damage, the first step is to install the charging unit according to the installation instructions of the STAND BY charging automatic 1224-I. In particular, it is to be ensured that the charging voltage programmed in the unit complies with the on-board mains voltage of the vehicle.

Change of set voltage: (see also "Change of charging voltage")

The voltage program card is to be turned in a way to ensure that the voltage indicated on the program card in built-in state (regarding component assembly) complies with the on-board mains voltage. If the STAND BY charging automatic 1224-I is equipped with an automatic on-board voltage identification system (80.01.63), an on-board voltage test will not be required.

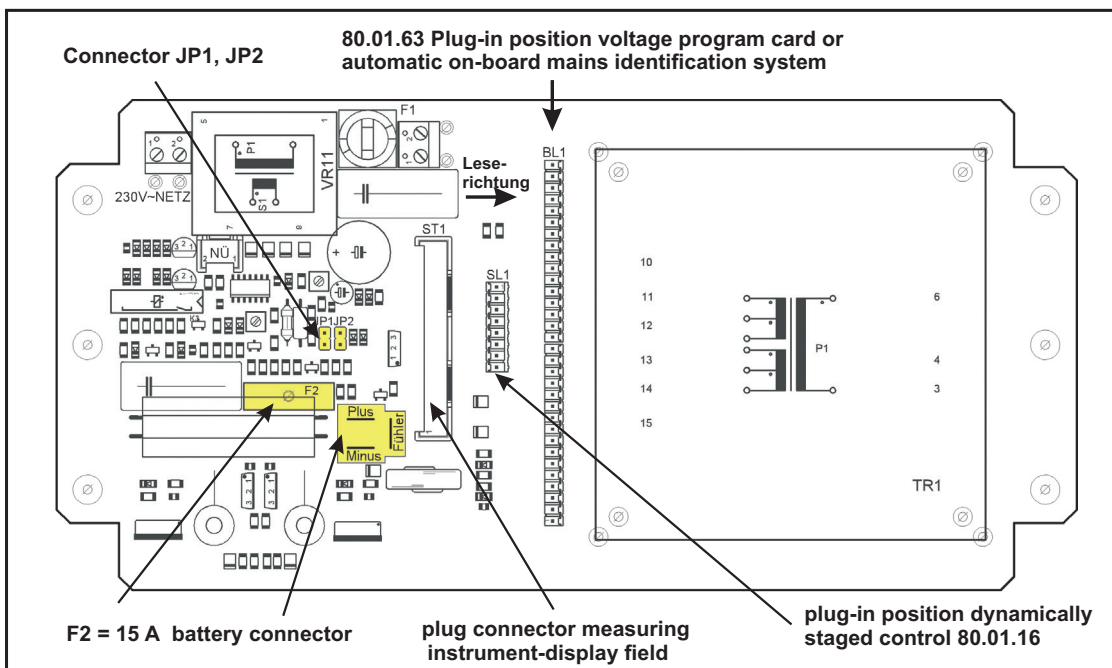
The following absolutely important step is to check whether the on-board mains battery to be charged is equipped with a temperature sensor, or whether it only works with a voltmeter. This is certainly always the case when charging is carried out using the DIN 14690 plug-in device. If the unit works with temperature compensation, the connector in the unit must be plugged in "JP1" whereas "JP2" is open. At the same time the yellow temperature sensor LED in the measuring instrument must be lit. If the unit does not work with temperature compensation, the connector must be plugged in "JP2" whereas "JP1" is open. The yellow temperature sensor LED in the measuring instrument is not lit.



80.01.63 On-board mains voltage identification system



Voltage program card



If the battery connecting cable has not been fitted by the manufacturer, this cable is to be installed and connection to the currentless unit is to be carried out as indicated taking correct polarity into account.

Description:

The „STAND BY charging automatic 1224C-I“ (80.01.90) has been designed as a non-portable unit for use in a humid, wet environment and for charging PB-batteries, protection type IP 65. The unit 80.01.90 can also be installed in a vehicle. It has not been equipped with outside switch elements and power switches to avoid handling errors. This unit can be supplied with different connection variants (see combined system plan) and be operated with 12 V or 24 V PB-batteries.



All units and unit parts comply with the EN safety standards and conform with CE regulations

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A temperature-dependent control of the end-of-charge-voltage (sensor operation) can be carried out only with the 3-pin plug-in system (quick disconnect coupler).

For this purpose the special built-in vehicle cable (82.02.51 - .53 or 82.02.60 - .62) is to be installed in the vehicle and to be directly connected with the vehicle battery. When using the 2-pole plug DIN 14690, you can use the charging plug (acc. to DIN data) fitted to the vehicle. It must be directly connected to the on-board mains battery via a pre-fuse. Make sure to connect the battery to obtain power from the unit. If the battery has not been connected, or if there is no plug-in connection or the battery terminal voltage is beneath the operating capacity rating, then the red LED is flashing and displays "no battery". The terminal "feeler" is always to be connected! If charging is carried out without temperature sensor, this terminal is to be bridged with PLUS.

However, the connected battery must have a terminal voltage which must be within the operating range and has a min. nominal capacity of 1.8 Ah. When being separated the pins of the charging plug (battery not connected) are **idle**. This means no spark formation in the case of short circuit at the pins. The green LED integrated in the measuring instrument indicates when the unit is connected to the mains voltage. Most of the red LEDs indicate whether the on-board mains voltage is 12 V or 24 V. Similarly the LEDs are flashing (red) when the battery has not been connected. The red LED also indicates technical malfunction such as overvoltage or subvoltage of the battery.

The measuring instrument displaying the charging current shows the arithmetical mean value. An electronic protective circuit of the measuring instrument provides **spreading** in the lower display scale area and **compression** in the upper display scale area, so that even low charging rates (in case of conservation charging) can be clearly identified.

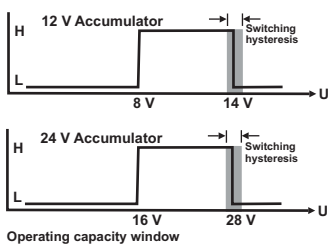
Function:

The electronic system automatically switches over from charging to conservation charging. Only the number of energy pulses per time unit changes. Continuous manual supervision or control of the PB-battery charge condition is not required, provided that the battery is operable and not dry or faulty! If used correctly the battery cannot be overcharged, even not when it has been continuously connected for many months or years. The charging unit has been set by the manufacturer in a way to ensure that the average 'gas condition-related' voltage is not exceeded.

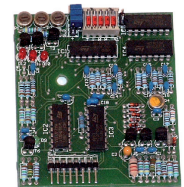
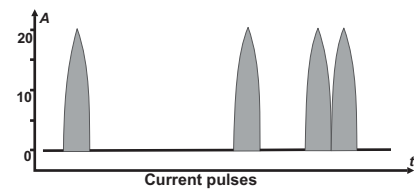
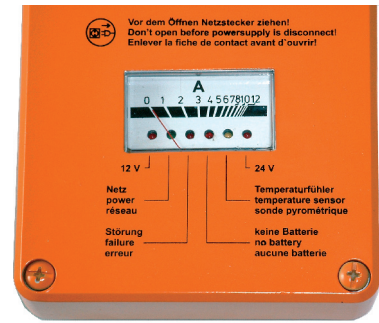
Program card staged control

Based on the dynamically staged control the full charge cycle is started first after each coupling with a subsequent recharging phase. Phase 3 is conservation charging. If the vehicle is continuously connected to the mains for several days, stand by charging is again reduced to obtain trickle-charging. With wet batteries this results in less water evaporation. The relevant principle is described on our web site () under: **"Batterieladetechnik" (battery charging technology) A-1.6.1 Dynamically staged control"**.

For safety reasons the unit has been equipped with an **operating capacity window** (possibly faulty cells or total discharge of the battery). Thus the battery is also protected against incorrect connection (e.g. 12 V



battery, 24 V charging unit or vice versa). The battery to be charged must have a minimum terminal voltage of 8 V for a 12 V accumulator and of 16 V for a 24 V accumulator. If this residual terminal voltage does **not exist**, the unit cannot be switched on! With this type of battery charge a low residual ripple factor can be brought about in the on-board vehicle mains. A faulty on-board mains battery (excessively high internal resistance) or bad terminal connection (e.g. oxidizing terminal shoe) can result in a max. voltage peak of 17.0 V in a 12 V unit and of 34 V in a 24 V unit. Therefore make sure to eliminate oxidation from the battery poles and pole terminals before starting the unit!



80.01.16
Program card
dynamically
staged control

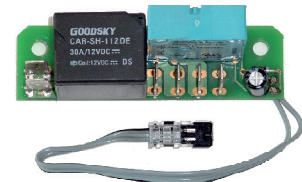
Starting:

This charging unit complies with protection type IP 65, protection class II. If the 3-pin socket outlet and plug is to be automatically unplugged when being pulled, the flanged built-in socket is to be fitted at a suitable point at the tail **end**. (Make sure that the charging cable cannot be suspended on the vehicle body). The vehicle built-in element is to be laid directly – without any interruption – up to the power supplying battery. It is important to take the measuring line and temperature sensor up to the battery and to connect them accordingly. **If connection is not carried out to the '+' of the battery, the unit will not be operable! When using the DIN 14690 plug-in device you can also use the socket built in the vehicle. In this case the sensor line is to be connected to '+' inside the plug.** (The control of the end-of-charge voltage will then not be dependent on the battery temperature!) Before fitting the unit (mounting on wall/ceiling) it is to be checked whether the base or the brickwork are suitable for absorbing the traction forces that are possibly brought about under the operating conditions involved. The fastening material we supply together with the assembly set has been designed to meet with above-average requirements. If the unit is firmly fitted inside the vehicle make absolutely sure to avoid heat accumulation. Due to the technical conditions the unit can become very hot. As the unit is waterproof according to IP 65, moisture effects are not to be taken into account.

Based on the generally applicable technical rules the vehicle is to be immobilized to prevent it from starting, as long as the vehicle voltage is 230 V. For this purpose BEOS offers relevant modules (NÜ 220). After the unit, the cables and the plug-in device have been installed professionally and the starter battery has been checked (water level, short circuit, terminal connection "oxidation"), the charging unit can be connected to the power supply system. Now the plug-in connection from the vehicle to the charging unit has to be carried out. All the rest is ensured by the electronic system of the unit. Attention! Do not forget to fit the pertinent safety sign to the power supply socket and to indicate the battery voltage.

Change of charging voltage:

Every supplied unit has been set for charging of 12 V PB-batteries. By means of the optional voltage card inside the unit it can be converted to charge 24 V PB-batteries. For this purpose the unit is to be cut off the mains and the battery. Loosen the 4 screws of the cover to open the unit. Attention! The cover is connected to the circuit board by means of the ribbon cable. Use a suitable tool (universal pliers, flat pliers) to vertically pull the optional voltage card (beside the transformer) off the socket board. Attention! Make absolutely sure not to plug in the plug connector in an offset manner, otherwise the electronic system will be destroyed when the unit is switched on!! Close the unit and connect it to the mains voltage. All changes and settings have been automatically carried out based on a 24 V operation (no alignment measures have been taken). The charging plug is again to be connected, the amperemeter must display the charging current. When the stand by charging condition has been achieved a vibrating pointer can be identified in the amperemeter.



80.01.99 Start interlock
(immobiliser) module