

MANUAL  
DEEP DISCHARGE PROTECTION  
Type: BITT DDP-DIN-X



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# 1 Important basic information

## 1.1 Items supplied

- Deep discharge protection, Type: BITT DDP-DIN-X
- Manual

## 1.2 Responsibilities

### 1.2.1 The manufacturer's responsibilities

The BITT DDP-DIN-X was designed and built on the basis of a risk analysis and is under consideration of all relevant harmonized standards as well as further national standards and technical specifications. The system thus conforms to the current level of technology and guarantees the highest possible degree of safety.

### 1.2.2 The operating organisation's responsibilities

The highest possible degree of safety can only be achieved in practice if all necessary measures are observed in dealing with the equipment. It is therefore part of the duty of care of the operator to plan these measures and check that they are executed correctly.

In particular the operator must ensure that

- the BITT DDP-DIN-X is used only as prescribed (cf. chapter 2.2 "Correct usage"),
- the BITT DDP-DIN-X is operated only in a fault-free, operational condition and in particular the safety devices are regularly checked to ensure that those function as stipulated,
- any necessary protective equipment or apparel for the operating, maintenance and repair personnel is available and is used,
- the operating manual is always legible and is available in full at the product's location,
- the product is operated, maintained and repaired only by sufficiently qualified and authorized personnel,
- the personnel is regularly instructed in all matters relating to occupational safety and environmental protection and are familiar with the operating manual and in particular the safety instructions that it contains.

### 1.3 Legal notes

The operating instructions must not be electronically or mechanically reproduced, distributed, amended, transmitted, translated into other languages or used in any other way – either in full or in part – without the express written approval of Bitt Technology-A Ges.m.b.H.

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### 1.4 Significance of the operating instructions

The operating instructions

- are part of the product,
- must be retained and maintained for the entire service life of the product (i.e. updated as necessary),
- must be passed to any subsequent owner or user of the product.

This document shall allow the customer to put a BITT DDP-DIN-X into operation.

## 2 Safety

### 2.1 Basic safety instructions

#### 2.1.1 Requirements on the personnel, duty to take due care

- All work on the electrical equipment must be carried out by trained electrical specialists only.
- Electrical equipment must be checked regularly: Loose connections must be made secure, damaged wires or cables must be replaced immediately.
- All electrical supply units must always be kept locked. Access is only permitted for authorized persons.
- Never clean electrical apparatus with water or similar liquids.

The BITT DDP-DIN-X is only permitted to be operated and maintained by personnel who has reached the minimum age stipulated by law.

A suitable qualified person is everyone who is due to his/her specialist training, knowledge, and experience, as well as knowledge of the applicable stipulations, is able to assess the work assigned to him/her and can recognize possible hazards.

#### 2.1.2 Electrical danger

When working on the equipment there is a risk of electrical danger from

- direct contact with live parts or parts which have become live due to faults,
- electrostatic processes,
- short circuits / overloading.

Batteries can present a risk of electric shock or burn from high short circuit current. The following precautions should be observed:

- Remove watches, rings, or other metal objects.
- Use tools with insulated handles.
- Do not lay tools or metal parts on top of batteries.

**ELECTRICAL ENERGIE HAZARDS:** Do not attempt to alter any battery wiring or connectors. Attempting to alter wiring can cause injury.

### 2.1.3 Disposal

Dispose of all components in accordance with locally applicable national regulations.

## 2.2 Correct usage

### 2.2.1 Application

The BITT DDP-DIN-X is intended exclusively for using with:

- 14VDC power supplies 14VDC (e.g. Mean Well MDR-40-12 12 ~ 15 VDC)
- 12 V rechargeable batteries (e.g. First Power FP12120 12V /12 Ah)

Correct usage also includes reading this operating manual and complying with all the instructions it contains – in particular the safety instructions. Furthermore, all inspection and maintenance work must be carried out at the stipulated intervals.

The BITT DDP-DIN-X is not designed for applications other than those listed here - this is considered as improper use!

If the BITT DDP-DIN-X is not used in accordance with these conditions, safe operation of the equipment cannot be guaranteed.

For any injury or damage to persons or property resulting from improper use, the operator, but and not the manufacturer of the system will be responsible!

### 2.2.2 Operating conditions

For consistent quality, it is imperative that the following ambient conditions are met.

Permissible room temperature:	-30 °C to 70 °C
Permissible relative atmospheric humidity:	10 % to 90 % non-condensing

### 2.2.3 Connection Conditions

- V+IN: 13,8 - 14,2VDC nominal
- VOUT/ACCU: depending on battery voltage and V+IN
- I<sub>out</sub> max. 2A single, I<sub>ACCU</sub> max. 2A single, I<sub>out</sub>+I<sub>ACCU</sub> + I<sub>VADD</sub> max. 2A
- VADD: 5VDC +/- 3% / max. 500mA or  
12VDC +3% /- 20% / max. 1A or both, or none (depending on type)
- NM: 2.0 - 2.5VDC Input (network message, e.g. for Data logger)

### **2.3 Incorrect usage**

The BITT DDP-DIN-X and the peripherals are not allowed to be modified or changed without approval.

The components of the BITT DDP-DIN-X are not permitted to be integrated in other systems.

Maintenance work other than described in this manual only is permitted to be performed by Bitt technology personnel.

None of the operating conditions defined in correct usage (cf. chapter 2.2 "Correct usage") are permitted to be changed.

### **2.4 Residual hazards and protective measures**

- Electronic components can be damaged by electrostatic processes.
- The electrical components are not protected against water spray.
- Appropriate safety precautions must be taken by the customer.
- Prior to working on the electrical system unplug from the main or isolate the mains connection.
- Do not shortcut the optional battery (cf. chapter 2.1.2 "Electrical danger")

### 3 Technical data

#### 3.1 Technical data BITT DDP-DIN-X

- V+IN: 13,8 - 14,2VDC nominal
- VOUT/ACCU: depending on battery voltage and V+IN
- $I_{out}$  max. 2A single,  $I_{ACCU}$  max. 2A single,  $I_{out}+I_{ACCU} + I_{VADD}$  max. 2A
- VADD: 5VDC +/- 3% / max. 500mA or  
12VDC +3% /- 20% / max. 1A or  
both, or  
none (depending on type)
- NM: 2.0 - 2.5VDC Input (network message, e.g. for Data logger)
- If the accumulator voltage goes down, VOUT and VADD outputs switched off if the accumulator voltage  $< 10.8V +4\%/-2\%$  avoiding the deep discharge.
- From Accumulator Low status the output voltages (VOUT, VADD) switched on back if the V+IN voltage  $> 13V +/- 6\%$ .

LED indicators for:

- Power on (Mains)
- Load (if VOUT and VADD voltage are on)
- Accumulator charge (A-Chg) (If charge current  $\sim >0.2A$ )
- Accumulator low (A-Low) (If Accumulator voltage  $\sim <10.8V$ )

The DDP-DIN-X can be installed on DIN rail TS-35/7.5 or 15.

Dimensions see Chapter 5.2 "Space required".

## 4 Layout and function

### 4.1 Illustrations of the product



### 4.2 Functional description

The DDP-DIN-X prevents the battery against deep discharging. If the voltage of the battery becomes to low, the DDP-DIN-X disconnects the battery from the load. The DDP-DIN-X controls the charging voltage.

Additional outputs:

- DDP-DIN-05: 5VDC +/- 3% / max. 500mA
- DDP-DIN-12: 12VDC +3% /- 20% / max. 1A
- DDP-DIN-05/12: 5VDC +/- 3% / max. 500mA and 12VDC +3% /- 20% / max. 1A
- DDP-DIN: none

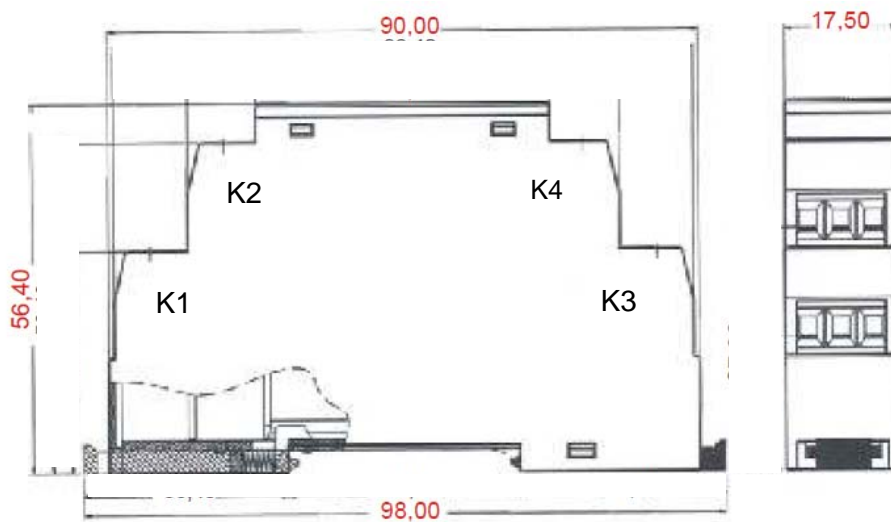
## 5 Installation conditions

### 5.1 Ambient conditions

Read Chapter 2.2.2 „Operating conditions“

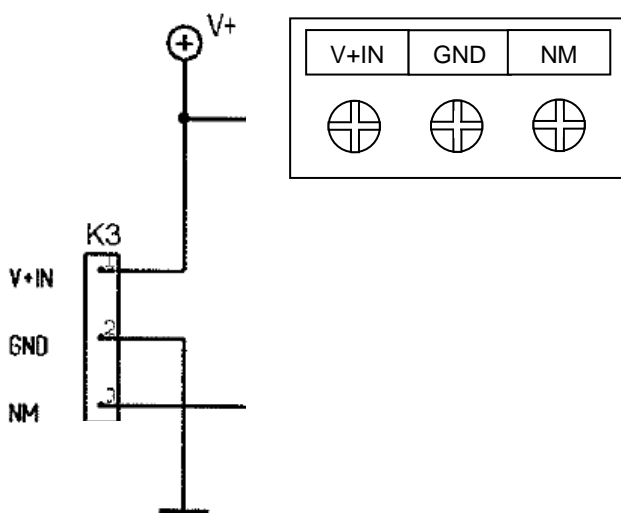
### 5.2 Space required

- Consider min. 5cm above and below the module for the connection.
- Dimensions:

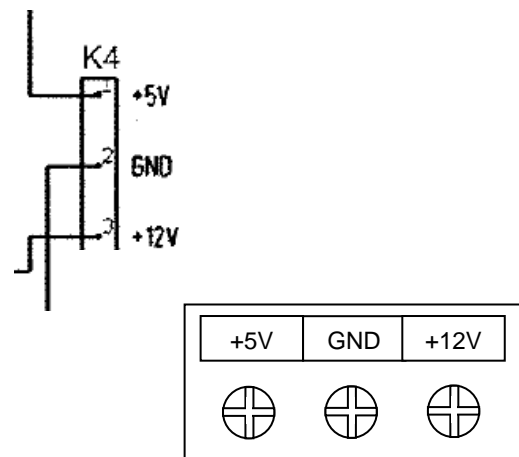


### 5.3 Connections

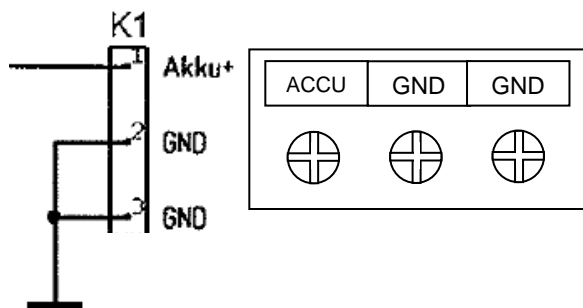
V+IN / NM (network message):



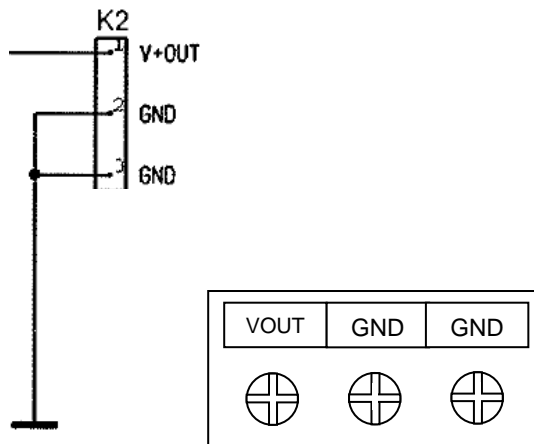
+5V / +12V (VADD):



Battery:



V+OUT:



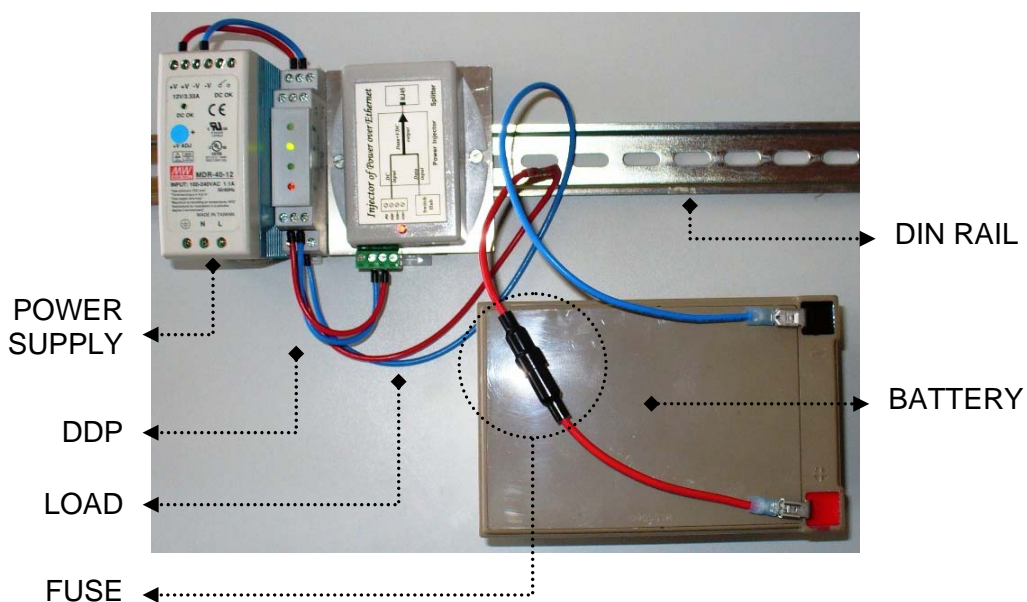
## 6 Installation

### 6.1 Initial commissioning

#### 6.1.1 Making connections

- First step: connect the power supply
- Second step: connect the load
- Last step: connect the accumulator

#### 6.1.2 Wiring Example



### 6.1.3 Making adjustments

The DDP-DIN-X is factory provided adjusted, there is no adjustment to do by the customer.

### 6.1.4 Inspections / test procedures

Read chapter 7 Operation”

## 7 Operation

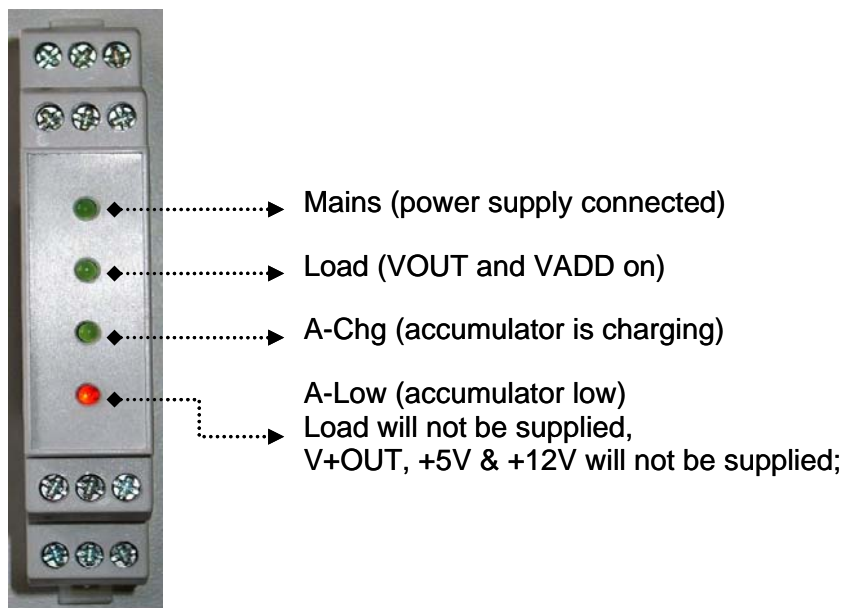
### 7.1 Special safety instructions for operation

See chapter 2 “Safety”

### 7.2 Controls

No customer controls provided.

### 7.3 Displays and warning devices



## **7.4 Operating modes**

The DDP-DIN-X sets following operating modes automatically:

- charging mode
- non charging mode
- accumulator protecting mode

## **7.5 Placing in service**

After connecting the power supply, the DDP-DIN-X starts automatically.

## **7.6 Operating**

The DPP-DIN-X works automatically, no operating by the customer possible.

## **7.7 Instructions on the detection of error states**

Use the indicator LED's (see chapter 7.3 Displays and warning devices).

## **7.8 Taking out of service**

Disconnect battery and power supply.

## 8 Troubleshooting

### 8.1 Service address

BITT Technology  
Wienerstraße 70  
A-2104 Spillern

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[office@bitt.at](mailto:office@bitt.at)  
[www.bitt.at](http://www.bitt.at)

### 8.2 Repair work

Replace damaged devices.

### 8.3 Spare parts and consumables

- DDP-DIN-X

## Document release

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