24 V DC UPS FOR EXTERNAL BATTERY 3.9-130 AH

UB20.241
DC UPS 24V dc I/P 24V dc 20A O/P 3.9-150Ah



- Load current 20 A
- Control of each individual battery
- Selectable output voltage in battery mode
- Temperature compensated charging
- Relay outputs for status

PRODUCT DESCRIPTION

The UB20.241 uninterruptible power supply controller (DC-UPS) is used in addition with a 24V power supply and batteries to bridge power failures or voltage fluctuations. This configuration can prevent expensive downtimes, long restart cycles and loss of data.
A unique feature of the UB20 series is the constant voltage in battery mode, which will not change as the batteries discharge. The buffer voltage in battery mode can be set to four different output values. Another feature is the utilization of two independent battery chargers for the two 12V-batteries in series. This feature makes matching batteries unnecessary and allows for precise battery charging, testing and optimized usage of the battery capacity to achieve the longest battery service life.
The UB20.241 includes many battery diagnostic functions that ensure a reliable operation of the entire system. Furthermore, a temperature controlled charging
extends the life of the batteries. It also includes a selectable buffer time limiter as well as ready, buffering and replace battery contacts. For safety and maintenance, an inhibit input signal is included which prevents a battery backup.

TECHNICAL DATA

Input/Output	
Input voltage from the unit	24 V DC (23.3-30 V DC continuous operation)
Input voltage from the battery	2x12 V DC two batteries in series
Output voltage during normal operation	0.15 V DC lower than the input voltage from the power supply
Output voltage in battery mode	Selectable via switches in the front. 22.5, 24, 25 or 26 VDC. The voltage of the power supply must be 0.8 VDC greater than the selected area.
Output current during normal operation via the unit (max.)	25 A. If feeding unit is greater than 28 A, a 25 A fuse between the unit and the control unit is installed.
Output current in battery mode (max.)	20 A (30 A for 4s, then the output is set in the "hick-up" mode)
Input current internal consumption type	70 mA
Input current when charging from supply 24 V DC	1.7 A battery switch in position <10 Ah 3.4 A battery switch in position >10 Ah
*The total input power when the battery is charging	1.77 A or 3.47 A

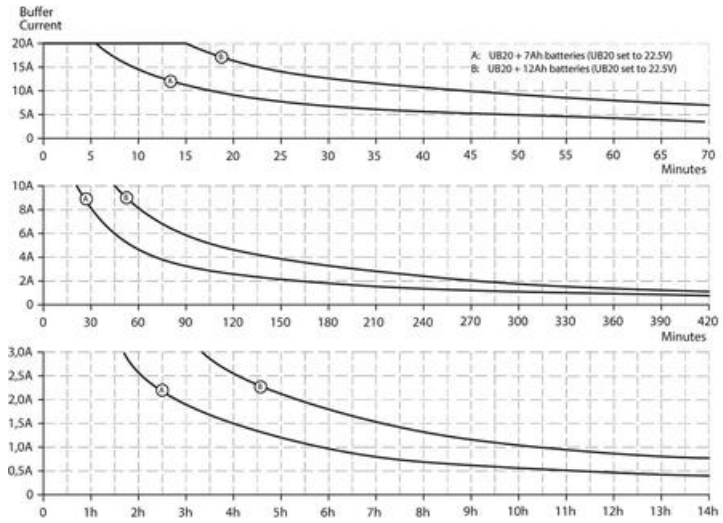
Permitted battery sizes	3.9-130 Ah
Charging the battery type	1.5 A battery switch in position <10 Ah 3 A battery switch in position >10 Ah
Charging type	Ex. 8 hours 12 Ah completely discharged battery
Voltage level of the connection of the battery	Identical to the selected output voltage in battery
Selectable buffer times	10 s, 30 s, 1 m, 3 m, 10 m alt. endlessly until deep discharge protection becomes
Buffer with 2x7 Ah battery **	Min. 13.3 min at 10 A. Typ. 16.53 min at 10 A
	Min. 4 min at 20 A. Typ. 5.12 min at 20 A
Buffer with 2x12 Ah battery **	Min. 35.3 min at 10 A. Typ. 44.3 min at 10 A
	Min. 11.53 min at 20 A. Typ. 14.51 min at 20 A
External temp.	PT-1000. See the "Wiring" tab.
Power loss type	3.7 W Supply via power supply, 20 A load current and the battery is fully charged.
	22.7 W. Supply via battery, 20 A load current
Operating temperature controller	-40 to +70 °C (some power reduction over +60 °C). Please also note the battery specifications.
Connection power	Screw connection. 2.5-4 mm² multifilament, 2.5-6 mm² monofilament
Connection signal contacts	Connector terminals. 0.2-1.5 mm²
Weight	700 g
Dimensions WxHxD (mm)	46x124x127. (Supplement for signal contacts in height and DIN rail length)
Signal contacts	Ready. Controller ready for backup.
	Buffering. Control of backup / battery mode.
	Repl. Bat. Battery replacement
Input inhibit	External shutdown by 24 V DC. Min. pulse time 250ms. Max 35 V DC.
MTBF enl. SN 29500, IEC 61709, 20 A and 40 °C	649 000 hours (Operation with power supply)
Approvals	CE, UL508 Listed, UL 60950-1, CB-Scheme
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4. FCC Part 15 Class B. EN55011/ EN55022 Class B
Compliant standards	EN/ IEC 60204-1, EN/IEC 61131-2, EN50178, IEC 62103

* The total input power must be deducted from the unit's rated current, the result is the maximum available load current. Ex. 20 A units is the maximum load current 16.53 A with battery> 10 Ah. 3.47 A is used for internal consumption and charging of the batteries.

** The minimum value of 20% include the aging of the battery and a cable length of 1.5 meters with the area 4 mm² between battery and controller.

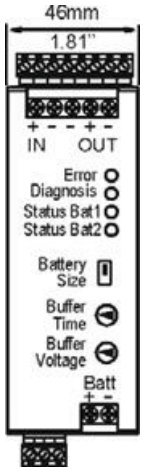
BACKUP TIMES

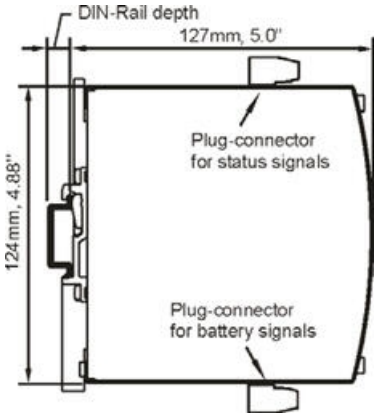
Discharge curve
A-curve= 7 Ah batteries
B-curve= 12 Ah batteries



DIMENSIONS & WIRING

Dimensions

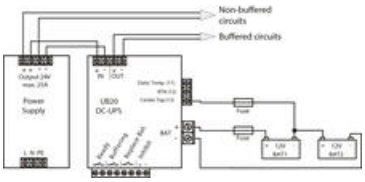




Wiring

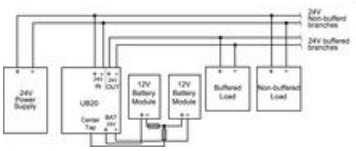
- A. Pluggable connector for alarms / diagnostics
- B. Connection of power supply and output
- C. Red LED. **Wrong indication**. Ex. Blown fuse, input voltage lower than the selected voltage
- D. Yellow LED. **Diagnostics**. Ex. Changing the battery, inhibit input activated, the overload of output
- E. Green LED. **Status**. The operating status of the DC UPS. Mains, battery, refreshing, charge
- F. Changeover switch for battery size
- G. Changeover switch for back-up time. 10 s, 30 s, 1 m, 3 m, 10 m or infinite.
- H. Selection of the output voltage in battery mode
- I. Connectio of battery
- J. Pluggable connector for the temp. sensors, center pin and communication with active battery module

Connecting the center tap of the treatment of the batteries separately



For optimized charging and longevity required that each battery is controlled separately. We recommend connecting the midpoint of the batteries with a center drain connection on the controller to achieve maximum performance. Install a 4 A fuse between the battery and the controller.
If the center pin is not connected works UB20.241 as other DC UPS with two batteries connected in series. It is possible to replace existing DC UPS systems with UB20.241.

Connection of a complete DC UPS systems



Ventilation

Install the battery so that it does not get heated by adjacent equipment and ensure that there is proper ventilation according EN50272-2.

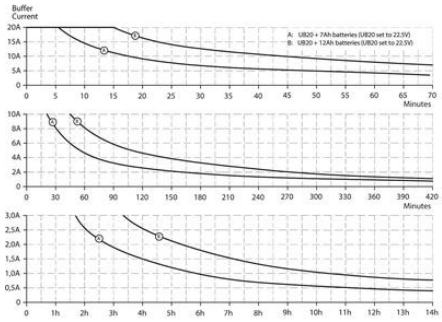
PART NUMBERS

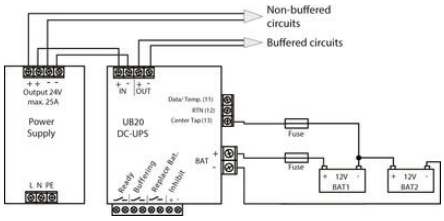
Order number	Description
UB20.241	DC-UPS module for battery. 24 V DC/20 A
UZO24.071	Battery holder for DIN rail. For battery 7 Ah
UZO24.121	Battery holder for DIN rail. For 2x12 Ah batteries

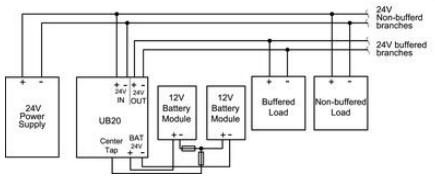
SPECIFICATIONS

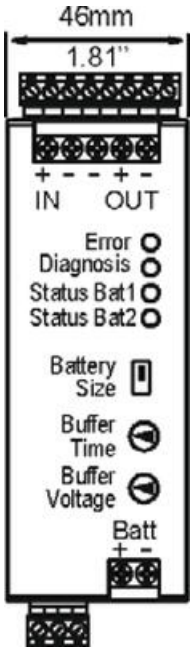
Approvals	ABS, CB, CE, CSA, CSA US, EX, GL, IECEx, UL
Charging The Battery Type	3
Depth	117
Efficiency	99
Height	124
Input Current During Charging Of Aggregates	3.4
Input voltage for battery connection	22.8
Input Voltage From battery	24
Input Voltage From The Unit	24
IP Class	IP20
Life span	122 000 h @ 20 A, 40 °C

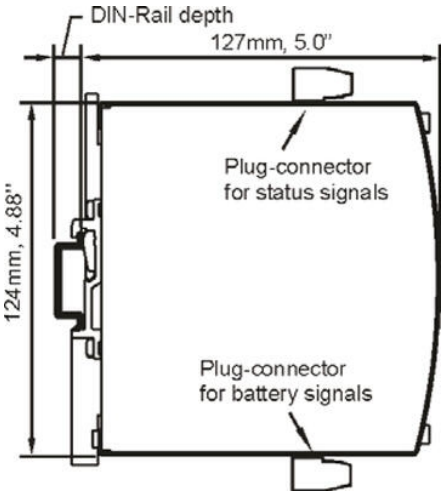
MTBF (IEC 61709)	649 000 h @ 20 A, 40 °C
Output current at 24 V dc	20
Output Current During Normal Operation Via The Unit Max	25
Output current for battery operation max	20 A (30 A @ 4 s)
Output Voltage at Battery	22.5
Output Voltage Normal Operation	24
Permitted Battery Sizes	3,9-150 Ah
Power Reduction Of 60 To 70 ° C	12
Ripple. max	120
Temperature Range Without Derating From	-40
Temperature Range Without Derating To	60
Voltage Level Of The Connection Of The Battery	24
Weight	0.7
Width	49

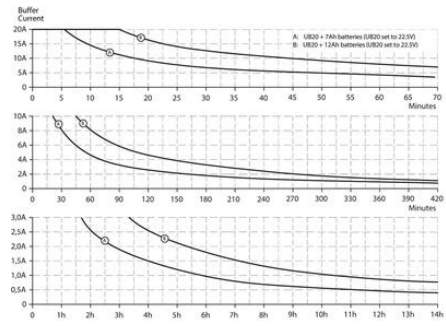


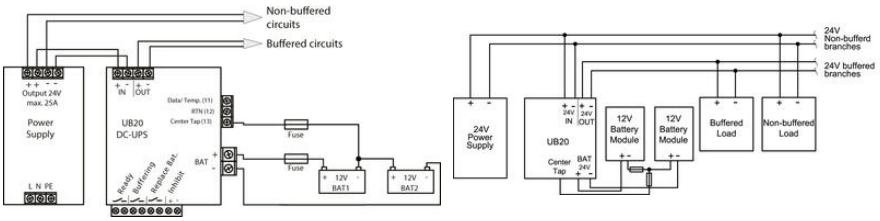


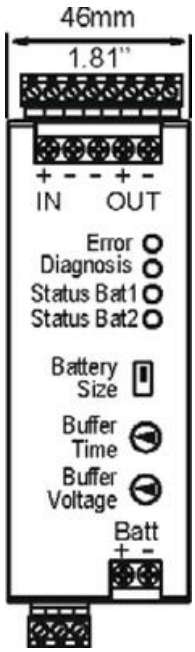


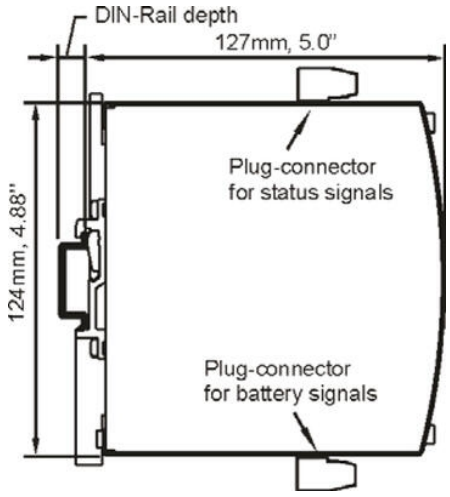







Non-buffered circuits
Buffered circuits
Output 24V max. 25A
Power Supply
L N PE
IN
OUT
UB20 DC-UPS
Data/ Temp. (11)
RTN (12)
Center Tap (13)
Ready
Buffering
Replace Batt.
Inhibit
BAT
Fuse
Fuse
12V BAT1
12V BAT2
24V Power Supply
UB20
Center Tap
BAT 24V
12V Battery Module
12V Battery Module
Buffered Load
Non-buffered Load
24V Non-buffered branches
24V buffered branches


46mm
1.81''
IN
OUT
Error
Diagnosis
Status Bat1
Status Bat2
Battery Size
Buffer Time
Buffer Voltage
Batt


DIN-Rail depth
127mm, 5.0''
124mm, 4.88''
Plug-connector for status signals
Plug-connector for battery signals