



Robust Battery Protection unit for 24, 48 and 80 V including Battery Management System:

- **Industrial Vehicles**
- **Material Handling**
- **Automated Guided Vehicle (AGV)**

INTRODUCTION

LiBAL s-BPU™ is a compact integrated battery management system (BMS) with switching and current sensing for Li-ION battery based industrial vehicles, material handling and AGV's. The product is a standalone housed solution which is easy to integrate and install on any given battery pack.

LiBAL s-BPU™ contains:

- LiBAL s-BMS™
- Current measurement sensor
- Relay for discharge/charge disconnect-Advanced auto-off function
- DC/DC converter

KEY FEATURES

3 models for 24, 48 and 80 V.

3 models supporting 8, 16 and 24 cells

Up to 800 Amp and peak current up to 1200 Amp

(*) Operating temperature from -40 to +45 °C.

Temperature sensor: 2, 4 and 8 depending on model

(*) The current rates are typically limited by the temperature of s-BPU and ambient temperature.

All battery related parameters can be easily configured via PC Diagnostic Tool where the user can define or configure the following parameters:

- Cell over and under voltage and temperature limits.
- Cell target voltage and charge current regulation trajectory.
- Cell balancing window.
- Event responses and configurable levels for warnings and errors.
- Configurable IOs.
- CAN frames and embedded post processing of CAN data.
- Battery model for intelligent charge/discharge rate and SOC compensation as a function of temperature and C-rate.
- Advance charger control (CAN or PWM).
- Cell voltage & temperature, pack voltage & current, error & warning monitoring.
- Data and Error logging.
- Pre-charge and leak detection related settings.
- Auto off functions; Idle time-out at charge and discharge.

s-BPU I/O's

RS232 port for connecting to s-BMS via PC Diagnostic tool

CAN Bus port for external communication

Digital IOs

12 V power output for auxiliary units

High voltage ports for connecting to DC bus

1, 2 or 3 Cell monitoring and pack temperature input

Auto off re-engage contact

Applications



Industrial EV's



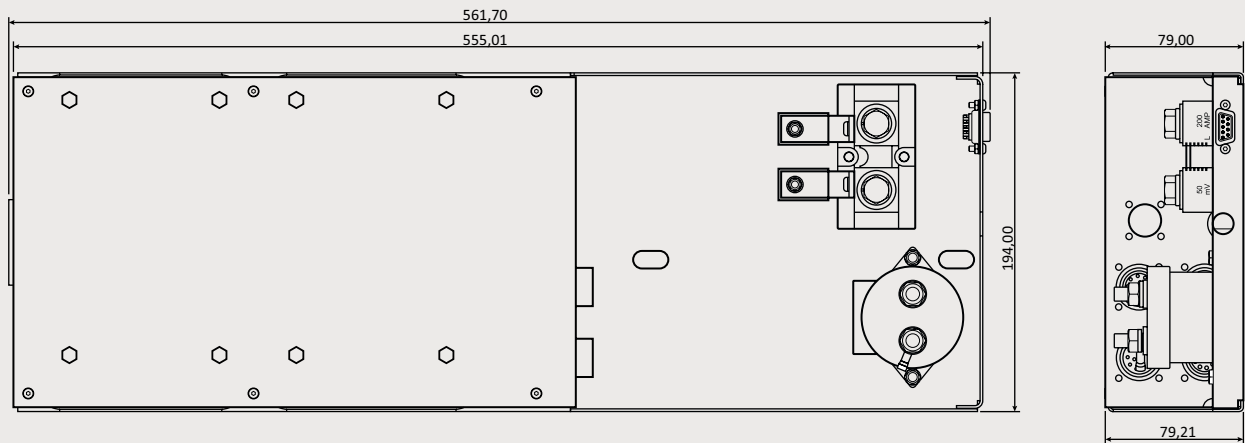
Forklift



Automated guided vehicles (AGV)



Heavy Industrial Machines



BPU Battery Protection Unit

Dimensions in MM

SPECIFICATIONS

Product No:	100733.24 (24V BPU)	100733.48 (48V BPU)	100733.80 (80V BPU)
Number of cells	3-8	6-16	16-26
Voltage interval	6V – 36V	12V - 72V	18V-108V
Continuous current limit	200 or 300 Amp	300 or 500 Amp	300, 500 or 800 Amp
Dimensions	Size is (h x w x d) 561.7 x 194 x 79.21mm		
Weight	4.3kg	4.4kg	4.5kg
Cell Monitoring Input connector	1	2	4
Ambient Temperature	-40°C to + 45°C at steady-state operation current up to above mentioned current levels		
EMC according to	IEC EN61000-4-3 80: 1000 MHz at 200 V/m and IEC EN61000-4-4 (4 kV)		
Vibration	ISO 16750-3: Chapter 4.1.2.4		
Humidity	BMS tested according ISO 16750-4:2006 5.6.2.2 Test1 damp heat cyclic. Tested up to 93% RH at 55C		
BMCU power consumption	< 2.1 W		
BPU Power consumption	< 3.5 W		
Available auxiliary power	25 W		
Temperature sensor type	NTC, 10 kΩ @ 25 °C, β = 3900		
Temperature measurement tolerance	1.5 °C Typical, 2.5 °C at worst case		
Current sensor	Shunt resistor, 100 μΩ - tolerance <0.5% at 25 °C		

