



PRELIMINARY

Datasheet
06/2024



*Illustration similar

7S1P HY-Di[®] Smart Batteries HY-Di-7S1P-S1

- 7S Li-Ion Battery pack
- 25.2 V nominal voltage
- 84,42 Wh capacity and 3.35 A discharge
- Fuel gauge with 4 LEDs
- SM-Bus interface
- Planned : UN38.3 + IEC62133 + IEC60601-1-2

7S1P HY-Di[®] Smart Battery – HY-Di-7S1P-S1

Content

Content	2
Specifications	3
BMS specifications	5
Drawing 7S1P	6
Connector	7
Serial number code	7
LED Definition	8
Photos	9
Accessoires	9
Safety Instructions	10
Contact	11

7S1P HY-Di[®] Smart Battery – HY-Di-7S1P-S1

Specifications

Item	Descriptions	Specifications	Remark
1	Model Number	HY-DI-7S1P-S1	
2	Cell	INR18650M35A	Molicel
3	Configuration	7S1P	
4	Nominal Voltage	25.2V	3.6V*7S
5	Nominal Capacity	3.35Ah	3.45Ah*1P = 3.45Ah
6	Watt-Hour (UN38.3)	84.42Wh	12.06Wh*7pcs
7	Internal Resistance	300mΩ	
8	Recommended operation Temperature	Standard Charge Standard Discharge	0°C ... +60°C -40°C ... +60°C
9	Storage condition	< one month < three months < one year	-20°C ... +50°C -20°C ... +40°C -20°C ... +20°C Percentage of recoverable capacity 80%
10	Charging Voltage (Maximum)	29.05V	
11	Charge Current	1.6A	
12	Discharge Current avg.	3.35A	
13	Discharge Current peak	5.0A	For 15min.
14	BMS Chip	TI BQ7693000DBT	
15	BMS Design	(1) Over voltage protection (2) Under voltage protection (3) Over current protection (4) Short circuit protection (5) Over temperature protection (6) Under temperature protection (7) Cell balance (8) SM-Bus (9) Fuel gauge with 4 LEDs and 1 button	

7S1P HY-Di® Smart Battery – HY-Di-7S1P-S1

Specifications

Item	Descriptions	Specifications	Remark
16	Connection type and pin definition	AMP 787614-1 5-pin: 1: P+ 2: SM bus CL 3: SM bus DA 4: NC/PRESET 5: P-	
17	Parameter file	upon request	
18	Enclosure	PC+ABS, Sabic C6600, black, UL94-V0	
19	Weight (g)	~407 ± 20g	
20	Dimension(mm)	L153 * W80 * H22.5 (mm)	
21	IP standard	IP20	
22	Certifications planned	UN 38.3 7 th edition IEC 62133-2:2017/AMD1 :2021 BS EN 62133-2 :2017/A1 :2021 IEC 60601-1-2:2014 BS EN 60601-1-2:2015 CE, UKCA	Transport test Safety UK Safety EMC UK EMC Confirmation of Conformity
23	Specifications SM-Bus	SM-Bus: SBS1.1	
24	Specifications CAN-Bus	Not available	

7S1P HY-Di® Smart Battery – HY-Di-7S1P-S1

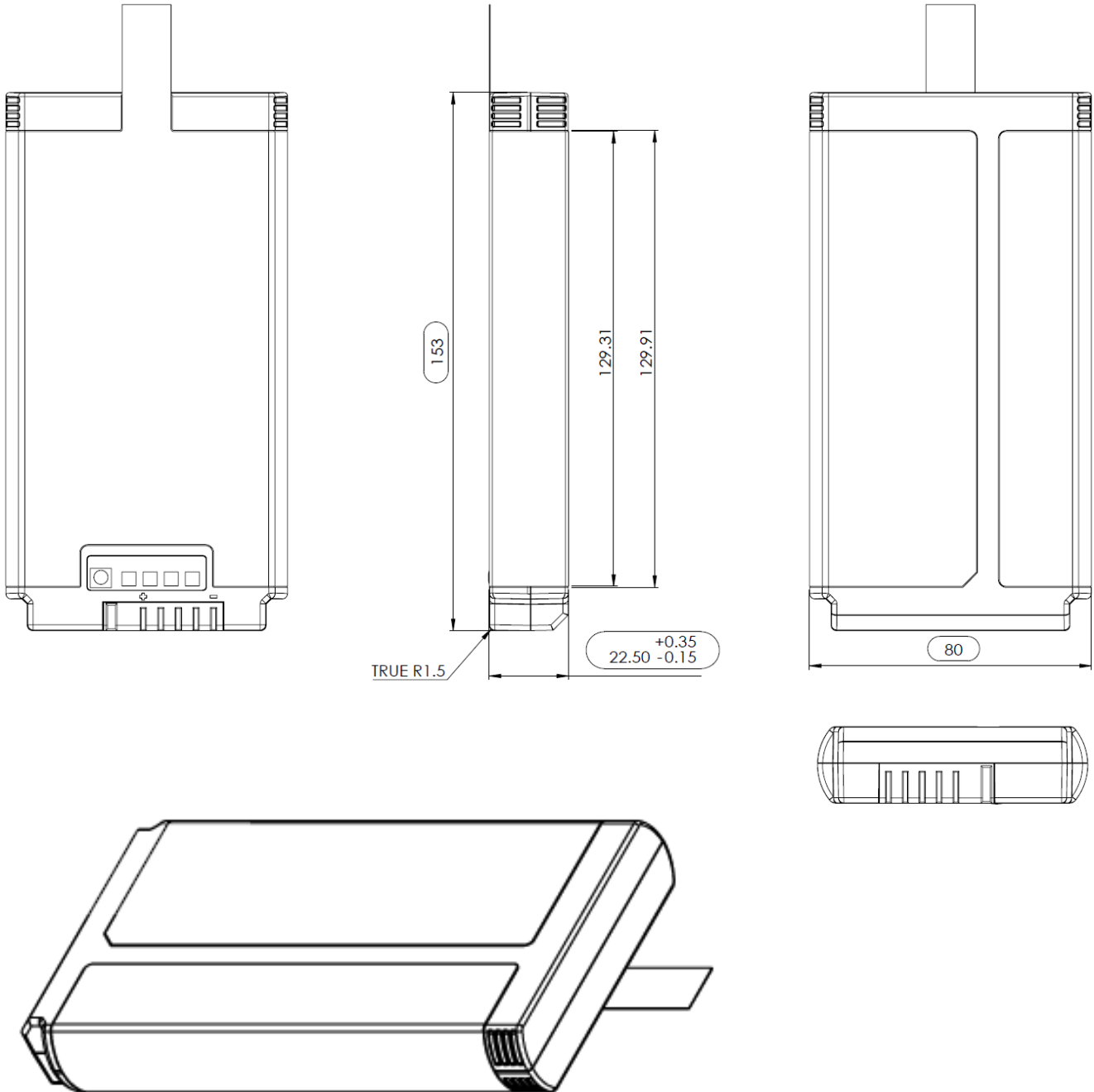
BMS specifications

Item	Descriptions	Specification	Remark
1	PCM	7S	
2	Dimension	71 * 18.8 * 1.2mm	
3	Material	FR-4	
4	Over voltage protection	1 st Over voltage threshold 1 st Over voltage release 1 st Over voltage delay time 2 nd Over voltage threshold 2 nd Over voltage release 2 nd Over voltage delay time	Each cell Each cell Each cell Permanent Fail.
5	Under voltage protection	Under voltage threshold Under voltage release Under voltage delay time	Each cell Each cell
6	Over charge current protection	1 st Over charge current threshold 1 st Over charge current release 1 st Over charge current delay time 2 nd Over charge current threshold 2 nd Over charge current release 2 nd Over charge current delay time	OCC1 OCC OCC1 OCC2 OCC OCC2
7	Over discharge current protection	1 st Over discharge current threshold 1 st Over discharge current release 1 st Over discharge current delay time 2 nd Over discharge current threshold 2 nd Over discharge current release 2 nd Over discharge current delay time	OCD1 OCD OCD1 OCD2 OCD OCD2
8	Short circuit protection	Short circuit Threshold Short circuit Delay Time Short circuit Release	
9	Over temperature protection	Over charge temp. threshold Over charge temp. release Over discharge temp. threshold Over discharge temp. release Over Temperature Delay Time	OTC OTC OTD OTD
10	Under temperature protection	Under charge temp. threshold Under charge temp. release Under discharge temp. threshold Under discharge temp. release Under Temperature Delay Time	UTC UTC UTD UTD

7S1P HY-Di[®] Smart Battery – HY-Di-7S1P-S1

Drawing 7S1P

Outlines in mm: 153 x 80 x 22.5

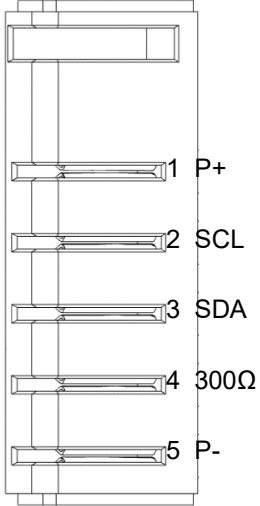


7S1P HY-Di[®] Smart Battery – HY-Di-7S1P-S1

Connector

Type: AMP 787614-1 5-pin connector

Configuration for SM-Bus



Pin	SM-Bus
1	Battery +
2	SM-Bus clock
3	SM-Bus data
4	300 Ω to P-
5	Battery -

Serial number code

























Example: HY-Di-7S1P-S1-1-2424-00001

Part Number	Hardware Rev.	Production Date wwy	Serial Number
HY-Di-7S1P-S1	-1	-2424	-00001





















7S1P HY-Di[®] Smart Battery – HY-Di-7S1P-S1

LED Definition

Charging status of LED (During charging)

No.	SOC	Description	LED Indicator
1	0 ~ 12% of SOC	1 st LED is flashing fast	 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2	13 ~ 24% of SOC	1 st LED is flashing slow	 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3	25 ~ 37% of SOC	1 st LED is "On" / 2 nd LED is flashing fast	  <input type="checkbox"/> <input type="checkbox"/>
4	38 ~ 49% of SOC	1 st LEDs is "On" / 2 nd LED is flashing slow	  <input type="checkbox"/> <input type="checkbox"/>
5	50 ~ 62% of SOC	1 st ~ 2 nd LEDs are "On" / 3 rd LED is flashing fast	   <input type="checkbox"/>
6	63 ~ 74% of SOC	1 st ~ 2 nd LEDs are "On" / 3 rd LED is flashing slow	   <input type="checkbox"/>
7	75 ~ 87% of SOC	1 st ~ 3 rd LEDs are "On" / 4 th LED is flashing fast	   
8	88 ~ 100% of SOC	1 st ~ 3 rd LEDs are "On" / 4 th LED is flashing slow	   
9	Fully Charged	1 st /3 rd LED are "On" / 2 nd /4 th LED are flashing fast	   

Discharge status of LED (After pushing the button)

No.	SOC	Description	LED Indicator
1	0 ~ 12% of SOC	1 st LED is flashing slow	 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2	13 ~ 24% of SOC	1 st LED is "On"	 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3	25 ~ 37% of SOC	1 st LED is "On" / 2 nd LED is flashing slow	  <input type="checkbox"/> <input type="checkbox"/>
4	38 ~ 49% of SOC	1 st /2 nd LED are "On"	  <input type="checkbox"/> <input type="checkbox"/>
5	50 ~ 62% of SOC	1 st /2 nd LED are "On" / 3 rd LED is flashing slow	   <input type="checkbox"/>
6	63 ~ 74% of SOC	1 st ~ 3 rd LEDs are "On"	   <input type="checkbox"/>
7	75 ~ 87% of SOC	1 st ~ 3 rd LEDs are "On" / 4 th LED is flashing slow	   
8	88 ~ 100% of SOC	1 st ~ 4 th LEDs are "On"	   

7S1P HY-Di® Smart Battery – HY-Di-7S1P-S1

Photos

(*illustration similar)



Accessoires

Item	Part number	Remark
Cable SM-Bus	HK-HBI-SM01	Connection cable for Smart Battery to Battery Interface with AMP Con for SM-Bus
Cable HBI to terminal block 5pin	HK-HBI-Multi01	Connection cable HBI to terminal block (5pin), CAN- and SM-Bus
Cadex C7 adapter	07-111-7080-00	CADEX Adapter for HY-LINE Smart Batteries to CADEX C7x00 battery analyser
Counterpart connector for battery connector AMP 787614-1	5787419-1 5787446-1	AMP DC Jack Connectors, Board-to-Board, 5 Positions, Pitch 5mm, with flange AMP DC Jack Connectors, Board-to-Board, 5 Positions, Pitch 5mm
Charger 7S	3240295000	Li-Ion battery charger 29.4V In: 95-264VAC, 2pin IEC320 Charge current 3.5A, 7 cells Model 3240 LI

7S1P HY-Di[®] Smart Battery – HY-Di-7S1P-S1

Safety Instructions

- Never disassemble or modify the battery pack.
- Do not pierce the battery pack with a nail, strike it with a hammer, step on it or otherwise subject it to strong impact.
- Do not immerse the battery in water or sea water or get it wet.
- Do not use or leave battery nearby fire, stove, or heated place (more than 80°C)
- Do not store the battery in high humidity or in the place with which may expose the battery to rain or water.
- The product will shut down and no output if the product is interfered by EMC. After removing and installing, the product will be workable normally.
- Careful consideration of this information is essential when stacking or collocating equipment and when routing cables and accessories.
- Please do not use any other cables or accessories not approved by the manufacturer in this manual to avoid negative influence on electromagnetic compatibility.
- This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.
- The produce is a steady DC output power source, it does not produce noise to interference the ME equipment. The product involves components for Antistatic (ESD) to prevent ESD destruction. And apply multiple layers (4 layers) for PCB to enhance the strength to resist external radiation. The product has a strong surge absorption capacity to prevent EFT. The product also has been passed IEC62133 2nd certification and relevant tests.
- Electric devices may interact due to electro-magnetic radiation. We recommend a safety distance of at least 1-metre especially for sensitive equipment. RF mobile communications equipment can affect medical electrical equipment. Medical electrical equipment needs special precautions regarding EMC and needs to be installed according to the EMC information provided.

Charging:

- It is not allowed that the battery pack voltage is out of the specification.
- It is not allowed that the charge current is out of the specification.
- It is not allowed that the battery pack temperature is out of specification.
- It is not allowed that the battery pack cannot operate suddenly although the battery pack voltage, charge current and temperature is within the specification.

Discharging:

- It is not allowed that the battery pack voltage is out of the specification.
- It is not allowed that the charge current is out of the specification.
- It is not allowed that the battery pack temperature is out of specification.
- It is not allowed that the battery pack cannot operate suddenly although the battery pack voltage, charge current and temperature is within the specification.

7S1P HY-Di[®] Smart Battery – HY-Di-7S1P-S1

Contact

HY-LINE AG

Hochstrasse 355
CH-8200 Schaffhausen

Support:

Tel.: +41 (0) 52 / 647 42 00

Fax: +41 (0) 52 / 647 42 01

Mail us:

info@hy-line.ch

HY-LINE Technology GmbH

Inselkammerstrasse 10
D-82008 Unterhaching

Support:

Tel.: +49 (0) 89 / 614 503 10

Fax: +49 (0) 89 / 614 503 50

Mail us:

sales@hy-line.de

HY-LINE AG

HY-LINE AG belongs to the HY-LINE group, a group of specialized distributors.

HY-LINE AG is a specialist in batteries and systems. In addition to standard batteries and charging and maintenance systems, the focus is on the development and design of custom-specific batteries and systems.

HY-LINE[®] is a registered trademark of the HY-LINE Group.
Printed in the Federal Republic of Germany.
Datasheet HY-Di 7S1P Smart Battery | Juni 2024
Subject to changes without notice | All Information without guarantee
© 2024, HY-LINE Group