

Rechargeable Lithium-ion Battery **SCiB[™] Industrial Pack**



Let the "SCiB[™] Industrial Pack" solve all the inconveniences caused by lead-acid batteries



The reasons why "SCiB™" is chosen rather than lead-acid batteries or other lithium-ion batteries



Protection function

SCiB[™] Industrial Pack is equipped with BMU** which monitors voltage, current, temperature and others to protect the battery from abnormalities.

* LTO : Lithium Titanium Oxide **BMU : Battery Management Uni



Continuous

20,000 cycles or more

The capacity remains at 70% or more even after 20,000 times of charging/discharging. SCiB™ also has small degree of deterioration even with float charging*, making it usable for applications that keep constant voltage such as backup power supply.





* Float charging: Float charging means continuous constant voltage charging

Case Study : AGV (automated guided vehicle) powered by SCiB™

In case of two 8-hours shifts operation



4 advantages to adopt SCiB[™]







Note: The values described on this page are the reference values based on the simulation performed by Toshiba under the conditions assuming the AGV application. The values do not guarantee the product performance.

* TCO : Total cost of ownership



Various applications and voice of customers



Voice of customers

Automated guided vehicle manufacturer A



We proposed the quick charge with automatic charging systems to an automobile manufacturer and our proposal was adopted.

Electronic device manufacturer C



We couldn't find a battery appropriate to the inductive(wireless) charging, and we were at a loss. However, we finally encountered the SCiB[™] Industrial Pack .

Leasing company B



Cost-effectiveness of a long-life (15.000 times) and maintenance-free battery was a determining factor.

Automobile manufacturer D



It was a harsh task to remove and install heavy lead-acid battery. However, SCiB[™] Industrial Pack made our work much easier.

AGV (automated guided vehicle) For AGVs and robots in factories AGVs are increasingly used for transportation between processes, supplying parts to production lines, and working on assembly lines. Benefits of replacing lead-acid batteries **1** Safe and long life Contributes to the improvement of AGV power costs and the reduction of size and weight Reduces the workload of battery replacement 3 **Renewable energy** For small-scale wind and solar power generation systems It can be used to store electricity from renewable energy, which is in high demand around the world. Benefits of replacing lead-acid batteries 1 Stable supply of electricity by handling large fluctuations in output Equipped with BMU and sends battery information 2 to the host computer through communication function Long-life even after frequent and repeated charge/discharge **Service robot** For guide robots in shopping malls and AMRs in medical sites Demand is rising due to a shortage of labor and multilingual support for foreign travelers. Benefits of replacing lead-acid batteries Can operate without leaving the site because charging time is short 2 Highly safe for charging in commercial areas Small size and lightweight reduce the burden on the robot

Facility For power sources for roads, parks, factories, facilities, and other equipment

It can be used for a variety of applications such as digital signage, traffic lights, street lights, surveillance cameras, portable power supplies, and security devices.

Benefits of replacing lead-acid batteries

- 0 Low potential for smoke and fire, safe and widely applicable
- 2 Small and lightweight, so it can be mounted on small devices
- 3 It can be used in extreme outdoor temperatures (-30~45°C)

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You can easily replace lead-acid batteries with SCiB[™] Industrial Pack

SCiB[™] Industrial Pack equips BMU (battery management unit) which monitors cell voltage, current and temperature, detects errors, and protects by itself. You can easily handle and use as replacement of lead-acid batteries.

SCiB[™] Industrial Pack (24V/48V)

Lithium-ion battery appropriate for frequent and repeated charging and discharging

Up to 125A (200 seconds) charge and discharge are available.

SCiB[™] Industrial Pack is appropriate for the motor drive or AGVs, which repeat frequent charging and discharging.

Easy replacement from lead-acid batteries

SCiB[™] Industrial Pack is smaller and lighter than lead-acid batteries. They also can be handled more easily than other lithium-ion batteries. Therefore, you can replace your battery with SCiB™ Industrial Pack without difficulty.



Features

Safety	Built-in BMU ^{*1} protects the battery from errors.	
Rapid charging	Thanks to shorter charging time, you can adopt automatic charging system.	
External interface	Warning, error message, and SOC* ² status are output by CAN communication.	
Weight reduction	reduction The weight of SCiB [™] Industrial Pack is about a quarter* ³ of lead-acid battery (approx. 8kg)	

*1 BMU: Battery Management Unit
 *2 SOC: State of Charge
 *3 Values based on the simulation uniquely performed by TOSHIBA under a certain condition

Product specifications

Product name	SCiB™ Industrial Pack (24V)		SCiB™ Industrial Pack (48V)
Model name	FP01101MCB01A	FP01101MCB01A×2unit	FP01101MCB02A×2unit
Module configuration	Single configuration	2 in parallel	2 in series
Module configuration image	•	Contraction of the second seco	€- <u>SciB</u> - 1113wh
Nominal voltage	DC25.3V		DC50.6V
Voltage range	DC16.5 to 29.7V		DC33.0 to 59.4V
Rated capacity	22Ah	44Ah	22Ah
Nominal energy	556Wh	1113Wh	1113Wh
Maximum allowable current	125A(200 seconds)	150A(200 seconds)	125A(200 seconds)
Charging method	CCCV constant current/constant voltage(V=28.6V)		CCCV constant current/constant voltage(V=57.2V)
Dimensions	W247×D188×H165mm	Using two batteries (W247 x D188 x H165mm)	
Weight	Approx. 8kg	Approx. 16kg	Approx. 16kg
Ambient temperature for use	-30 to 45°C		
Ambient temperature for storage	-30 to 55°C (35°C or less is recommended)		
Humidity	85%RH or less (without dew condensation)		
Dust-/Water-proof	IP53 or equivalent		
Protection function	over charge protection, over discharge protection, over current protection, high temperature protection, and low temperature protection		
	Confirm the module configuration above w	hen placing an order. SCiB™ Industrial Pack is availab	le only for the module configuration described above.

Output terminal (negative Output terminal (positive)



Charging/discharging characteristics(SCiB[™] Industrial Pack (24V))



Charging method and charging time

CCCV* charging, which is the normal method for lithium-ion batteries, is recommended for charging of the SCiB[™] Industrial Pack.

For SCiB[™] Industrial Pack (24V): CV = 28.6V For SCiB[™] Industrial Pack (48V): CV = 57.2V

* CCCV: Constant Current Constant Voltage

Product outline





Note: The graphs and data above do not guarantee the product performance. These are the reference data obtained under a certain condition.

External interface specifications

Shape	Connector	Specifications	Remarks
Main circuit terminal	-	Bolt/Nut (M6)	To be prepared by customer
IN harness (250±30mm)	Manufacturer : JST (8-pin) Pack side: 08R-JWPF-VSLE-D System side: 08T-JWPF-VSLE-D*1	Upstream transmission, digital input 1ch: CAN communication (CAN2.0B, 250 kbps) 3-point: Starting signal, CAN address assignment, module number recognition	If the CAN communication is not used, connect the terminal adapter 2. Terminal adapter 2 (FMW-GAA0064 (Option)) (This is not required for SCIB ^M Industrial Pack (24V) single configuration.)
DO harness (250±30mm)	Manufacturer : JST (6-pin) Pack side: 06R-JWPF-VSLE-D System side: 06T-JWPF-VSLE-D*1	Digital output (FET output: Up to 30 V, 20mA), power source 2-point: SOC output (The remaining SOC appears in four steps (2 bits). 3-point: Warning output* ³ (low voltage, overvoltage, high temperature) 1-point: DC 5V power source (up to 25 mA)	You can connect auxiliary relay or indicators. If you use the external power source other than the DC 5V internal power source, No.5 pin of the IN harness is the GND.
OUT harness (250±30mm)	Manufacturer : JST (8-pin) Pack side: 08T-JWPF-VSLE-D System side: Terminal adapter (supplied with the product)* ²	Output to the Battery module 2 1ch: CAN communication (CAN2.0B, 250 kbps) 3-point: Starting signal, CAN address assignment, module number recognition	Connect the terminal adapter to the module for single use or Battery module 2 for two series or parallel use.

*¹ Connectors on the device side shall be prepared by customer.
*² For two series or parallel use, connect the OUT harness on the Battery module 1 to IN harness on the Battery module 2, then connect the terminal adapter to OUT harness on the Battery module 2.
*³ We recommend customer to equip the circuit on system side to shut down the current when detecting DO waring output.

System configuration

switch







* When you use CAN communication, prepare the terminating resistor on the upper controller side

\Lambda Safety precautions

- Do not use this product for facilities in which there is a risk to human life or a disruption to public functionality if the product fails or malfunctions (nuclear power generator controls, aerospace applications, traffic equipment, life support equipment, safety equipment, and others)
- This product is produced under strict quality controls, however it may malfunction depending on the operating environment and conditions. Please consider countermeasure design (redundancies, failsafe measures, etc.) if using this product in facilities in which failure of the product would be expected to cause a great loss or accident.
- The operating environment must be within the range of specifications noted in the catalog and instruction manuals. Using the product outside the specified range may cause injury a fire or some other accident
- Be sure to carefully read the instruction manuals before using this product so that you can use it correctly.

pages:

- Toshiba is not responsible for any losses related to malfunctions or abnormalities in equipment or devices connected to the product when the product fails or malfunctions, including losses from other secondary repercussions
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Toshiba Corporation	<agent></agent>
Toshiba Infrastructure Systems & Solutions Corporation	on
72-34, Horikawa-cho, Saiwai-ku, Kawasaki 212-8585, Japan	
	SBT(E)-007e 22-12
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