

TOSHIBA

TOSHIBA INTERNATIONAL CORPORATION

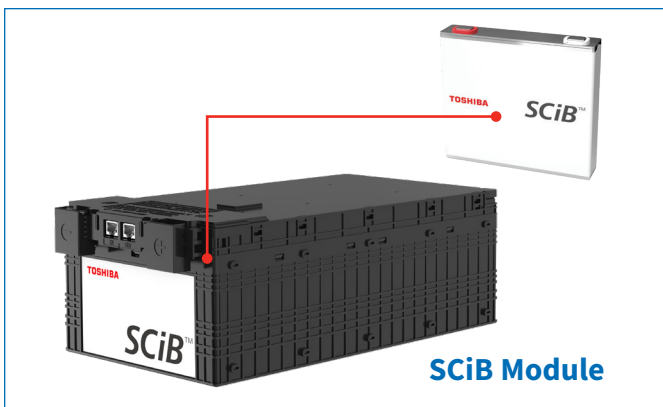
UNINTERRUPTIBLE POWER SYSTEMS

SCiB™ Energy Storage Systems

Lithium Titanium Oxide Battery

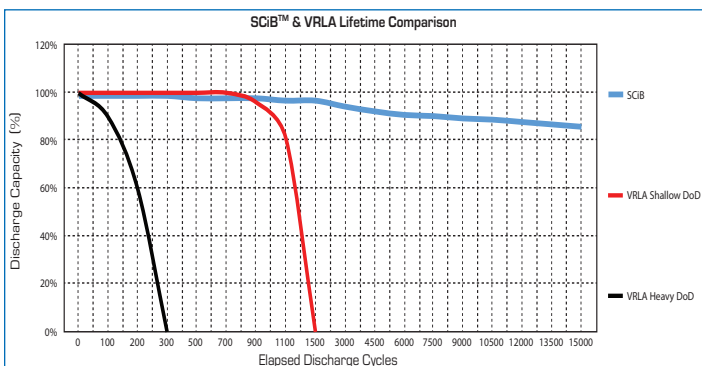
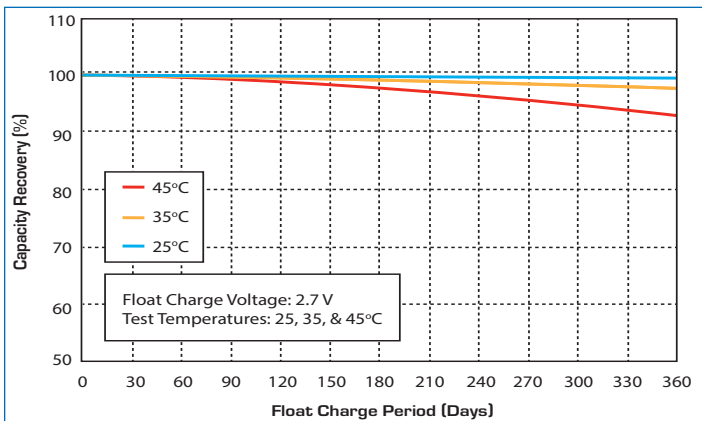


POWER
ELECTRONICS



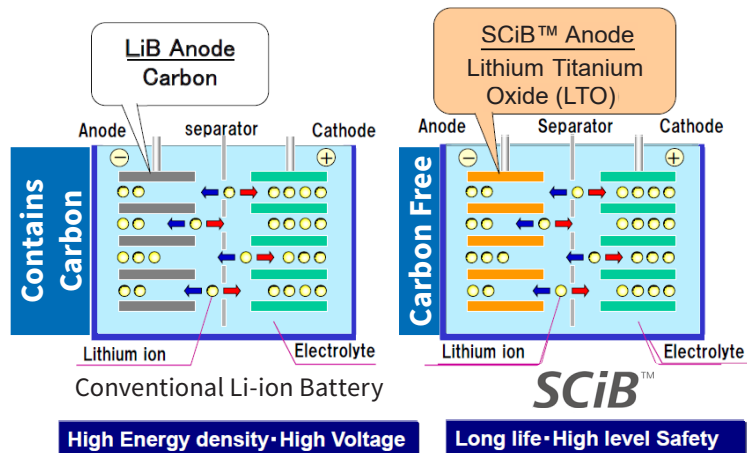
LONG LASTING VALUE

- Lasts up to 20 times longer than VRLA battery systems and 5-7 times longer than competitors' lithium ion chemistries
- Retains over 80% capacity over 15,000 discharge cycles; in UPS applications, this means runtime at batteries' beginning of life is equal to runtime at the end of life.
- With low maintenance and no module replacement for the life cycle of a UPS system, the SCiB ESS has a superior ROI over VRLA battery systems
- Maintains over 90% charge for 1 year in a storage environment of 0°C to 40°C



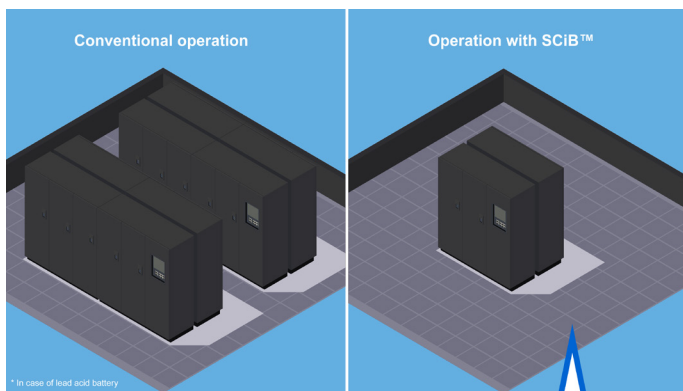
SAFETY & DURABILITY

- Lithium Titanium Oxide (LTO) composition offers superior safety properties:
- LTO chemistry inhibits typical dendritic growth in battery separators preventing shorts due to battery age
- Carbon-Free Design keeps your business safe by preventing thermal runaway
- Wide range of operating temperatures: 0°C to 40°C
- Best-in-class 12 Year Full On-Site Warranty



SUPERIOR ARCHITECTURE

- Half the volume and weight of VRLA
- Meets Buy America Act standards: system components from Cell, Module, to System level designed and manufactured by Toshiba
- Built-in cell and module level monitoring via Modbus RTU
- Fully assembled before shipment, requiring no costly, time-consuming on-site assembly
- Seismic compliant to ICC-ES AC156-2015
- Cabinet is certified to UL1973 and UL9540
- UL9540A testing completed for Cell, Module, and System



Smaller and lighter than lead-acid batteries

Long life of more than 20,000 charge/discharge cycles

Higher reliability than conventional lithium-ion batteries

SAFE, RELIABLE, LONG LASTING ENERGY STORAGE FOR DATA CENTERS

Toshiba's SCiB Energy Storage System (ESS) solutions bring the reliability of the SCiB Lithium Titanium Oxide (LTO) Battery to Uninterruptible Power Systems (UPS). The ESS provides safe and long-lasting rechargeable battery power in compact enclosures designed for a broad range of Enterprise, Hyperscale, Colo, Edge Computing, Hybrid cloud data center and Industrial applications.

Compared to competitors' lithium chemistries, SCiB's LTO properties and state-of-the-art monitoring topology significantly reduce thermal runaway risk.

Additionally, the ESS requires minimal maintenance and has a longer lifespan than the UPS. The enclosure is lighter and more compact than lead acid and other lithium chemistries, maximizing IT data revenue.



480VDC ESS

480VDC SCiB ESS RUNTIMES								
LOAD KW	QTY OF SCiB CABINETS IN PARALLEL							
	1	2	3	4	5	6	7	8
90.0	15:27	39:12	1:01:41	1:25:06	1:49:14	2:13:56	2:39:08	3:04:47
144.0	8:02	21:04	36:28	50:18	1:04:34	1:19:10	1:34:04	1:49:14
202.5	4:30	13:06	23:03	34:24	44:06	54:04	1:04:15	1:14:36
300.0	0:00	7:35	13:20	19:54	27:010	34:50	41:24	48:04
500.0	0:00	2:49	6:24	9:46	13:20	17:11	21:18	25:39
750.0	0:00	0:00	2:49	5:13	7:35	9:46	12:07	14:35
1000.0	0:00	0:00	0:00	2:49	4:37	6:24	8:07	9:46
1200.0	0:00	0:00	0:00	0:00	3:07	4:37	6:06	7:35
1600.0	0:00	0:00	0:00	0:00	0:00	0:00	3:29	4:37
2000.0	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:49

All runtimes shown assume 25°C operating temperature and 0 to 1,000m altitude installation

ELECTRICAL SPECIFICATIONS	
Model Number	G9B00SCiBTS2PH
Capacity	44.7 kWh, 90 Ah
Nominal Voltage	497 V
Voltage Range	455-565 VDC
Maximum Charge Voltage	565 VDC
Maximum Charge Current	32 ADC
DC Current Max	560 A
Module Type	Toshiba Type 3-23 SCiB 2P12S Module
DC Breaker Rating	500VDC, 20kAIC, 600AT
AC Input (Control Power)	480 VAC, 5 A, 2 PH, 2 W
ENVIRONMENTAL SPECIFICATIONS	
System Operating Temperature	0 to 40°C
System Storage Temperature	0 to 40°C
Ambient Humidity	85% RH or Less (Non-Condensation)
Heat Rejection	968 BTU/h
Weight	1950 lbs
Unit Dimensions (per cabinet)	34.1" x 32.8" x 80.6" (WxDxH)
GENERAL SPECIFICATIONS	
NEMA 1 Enclosure	
Seismic compliant to ICC-ES AC156-2015 Level 2, Level 1 with Wall bracket	
ETL Listed to UL1973 and UL9540, UL9540A Tested	Top, Bottom, & Side Entry/Exit
Two strings of (18) 2P12S SCiB Modules per Cabinet	Modbus RTU Communication
OPTIONS	
RemotEye ESS, Human Machine Interface (HMI) Providing Additional Display Detail and Cell Level Monitoring	



288VDC ESS

Toshiba's SCiB ESS solutions maximize the power density of small footprint UPS systems. Where space is a premium, the 288VDC solution excels with less than a foot of width while matching the Toshiba 4400 Series UPS, making it ideal for IT, Edge Compute, Healthcare, Commercial, and Light Industrial applications.

Both 480VDC and 288VDC systems may be configured with up to eight (8) cabinets connected in parallel to a single UPS, providing a wide range of available backup times. Cable routing channels on the top, bottom, and side of the unit make parallel connections with the UPS convenient and simple. Communication between cabinets is convenient and straightforward utilizing CAT5 cables to transmit system information, notifying each cabinet of the full system status.

An included DC breaker eliminates the need for separate overcurrent protection, making the SCiB ESS a plug-and-play feature even in the most restrictive UPS applications.

ELECTRICAL SPECIFICATIONS

Model Number	DCS0011K060TS91FHDSX
Capacity	11 kWh, 45 Ah
Nominal Voltage	248 V
Voltage Range	215-285 VDC
Maximum Charge Voltage	285 VDC
Maximum Charge Current	10 ADC
DC Current Max	125 A
Module Type	Type 3-23 SCiB 2P12S Module
AC Input (Control Power)	208 VAC, 5 A, 2 PH, 2 W

ENVIRONMENTAL SPECIFICATIONS

Systems Operating Temperature	0 to 40°C
Systems Storage Temperature	0 to 40°C
Ambient Humidity	85% RH or Less (Non-Condensation)
Heat Rejection	968 BTU/h
Weight	600 lbs
DC Breaker Rating	500VDC, 20kAIC, 125AT
Unit Dimensions (per cabinet)	11.9" x 37.1" x 66.8" (WxDxH)

GENERAL SPECIFICATIONS

NEMA 1 Enclosure Seismic compliant to ICC-ES AC156-2015 Level 2, Level 1 with Wall bracket	
ETL Listed to UL1973 and UL9540, UL9540A Tested	Side, Top, & Bottom entry/exit
One string of (9) 2P12S SCiB Modules per Cabinet	Modbus RTU Communication

OPTIONS

RemotEye ESS, Human Machine Interface (HMI) Providing Additional Display Detail and Cell Level Monitoring

288VDC SCiB ESS RUNTIMES

LOAD KW	QTY OF SCiB CABINETS IN PARALLEL			
	1	2	3	8
13.5	39:00	84:00	129:00	N/A
18.0	28:00	63:00	98:00	N/A
22.5	20:00	50:00	78:00	N/A
27.0	18:00	43:00	64:00	179:00

All runtimes shown assume 25°C operating temperature and 0 to 1,000m altitude installation

125VDC ESS

ELECTRICAL SPECIFICATIONS				
Model Number	DCS0005K060TS41KMI	DCS0010K060TS42KMI	DCS0015K060TS43KMI	DCS0020K060TS44KMI
String Quantity	1	2	3	4
Capacity	5 kWh, 45 Ah	10 kWh, 90Ah	15 kWh, 135 Ah	20 kWh, 180 Ah
Nominal Voltage	106 V			
Voltage Range	98-125 VDC			
Maximum Charge Voltage	125 VDC			
DC Current Max	51 ADC	102 ADC	153ADC	205ADC
Module Type	Type 3-23 SCiB 2P12S Module			
Qty. of Modules/Strings (Total)	One String of 4 Modules (4)	Two Strings of 4 Modules (8)	Three String of 4 Modules (12)	Four String of 4 Modules (16)
DC Breaker Rating	500VDC, 20kAIC, 250AT			
AC Input (Control Power)	120 VAC, 5 A, 2 PH, 2 W			

ENVIRONMENTAL SPECIFICATIONS	
Systems Operating Temperature	0 to 40°C
Systems Storage Temperature	0 to 40°C
Ambient Humidity	85% RH or Less (Non-Condensation)
Weight	420 lbs 620 lbs 810 lbs 1000 lbs
Unit Dimensions (per rack)	23.5" x 44.5" x 80.8" (WxDxH)

GENERAL SPECIFICATIONS	
Modbus RTU Communication (RemotEye ESS Included)	NEMA 1 Enclosure Seismic compliant to ICC-ES AC156-2015 Level 2, Level 1 with Wall bracket
ETL Listed to UL1973 and UL9540, UL9540A Tested	Top & Bottom entry/exit

OPTIONS
Human Machine Interface (HMI) Providing Additional Display Detail and Cell Level Monitoring

125VDC SCiB ESS RUNTIMES				
LOAD KW	QTY OF STRINGS IN PARALLEL			
	1	2	3	4
5.0	60:00	N/A	N/A	N/A
10.0	N/A	60:00	N/A	N/A
15.0	N/A	N/A	60:00	N/A
20.0	N/A	N/A	N/A	60:00

All runtimes shown assume 25°C operating temperature and 0 to 1,000m altitude installation



Toshiba's 125VDC SCiB ESS utilizes the flexibility of rackmount enclosures, providing effective ranges of runtime and capacity options. This system is a direct replacement for VRLA rackmount energy storage, making it ideal for the Telecommunications, Oil and Gas, and Utility industries.

Each rack system can be configured to contain from one to four strings of Toshiba SCiB 2P12S modules with individual controller trays, which establishes redundancy within the cabinet for critical load applications. For Toshiba UPS applications, the 125VDC ESS is compatible with the 5000 Series 3P1 UPS or as a standalone cabinet for DC Load applications. The 125VDC ESS is an environmentally resilient energy storage companion designed for industrial applications.

INDUSTRIES SERVED

- Data Center
- Emergency/Healthcare
- Industrial

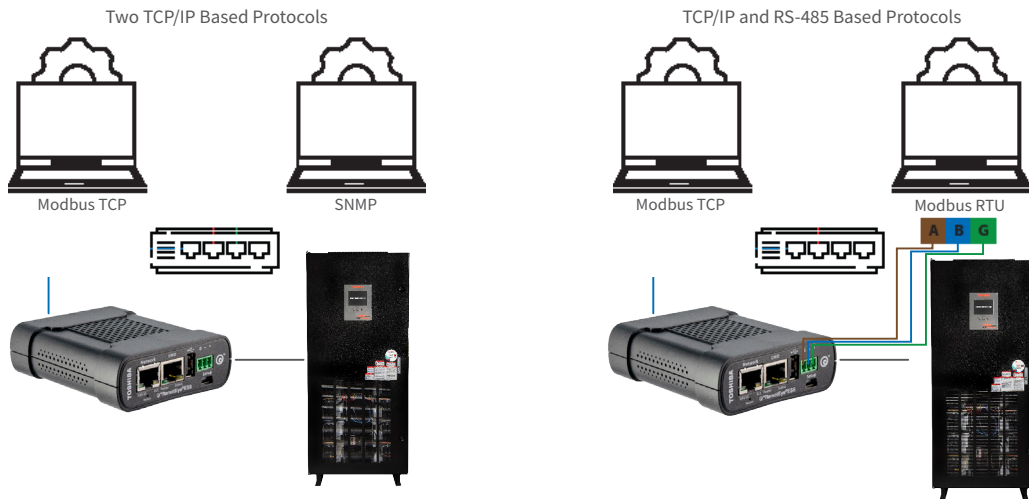
APPLICATIONS

- Computer Systems
- Server Rooms
- Voice/Data Network Closets
- Edge Data Centers
- Point-of-Sale Equipment
- Banking Systems
- Retail Back Office Systems
- School System Computer Rooms
- Medical Labs
- Light Industrial



REMOTEYE® ESS

- Built-in web server accessible via web browser
- Modbus TCP multi-thread support for hot, warm, and cold failover BMS configurations.
- Simultaneous communication with two protocols at the same time (Below Image)
- Environmental Monitoring Device (EMD) option available for real-time temperature and humidity monitoring
- Automatic firmware updates
- Programmable maintenance notifications
- Multi-profile logins to web app
- Seamless integration with RemotEye 4 that allows viewing of the UPS status



AUTOMATED NOTIFICATIONS

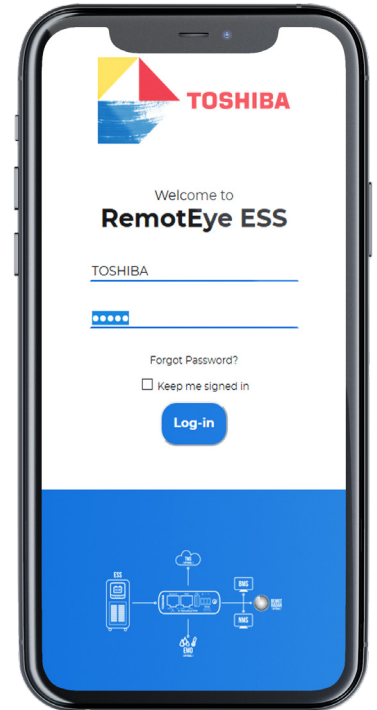
- Email notifications to administrators via private SMTP relay server
- Email notifications via Toshiba Monitoring System cloud-based remote monitoring service*
- SMS notifications via Toshiba Monitoring System cloud-based remote monitoring service*
- SNMP Trap notifications

EMBEDDED WEB SERVER

No management system? No problem. RemotEye ESS offers a web app to access SCiB ESS data.

- Password protected web app
- Up to eight different user profiles with different access (admin/read-only)
- Dashboard that provides system overall status
- Quick visibility to state of health & state of charge
- Quick visibility to left & right string contactor status
- Easy to read dynamic power and temperature charts
- Module and cell level monitoring
- Interactive cabinet that allows module selection to view cell data
- Color indication (green, amber, and red) for quick view of cell status
- Responsive web app for mobile monitoring on the go

*These features will be available via future firmware updates



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Energy Management Systems • Remote Monitoring

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Contract GS-07F-0399F