

DFCT48
48V Battery Bank Capacity Tester

Battery protection

Pre-charging to balance the voltage difference of the busbar, which can prevent the battery from being shocked by high voltage difference and large current.

Stable performance

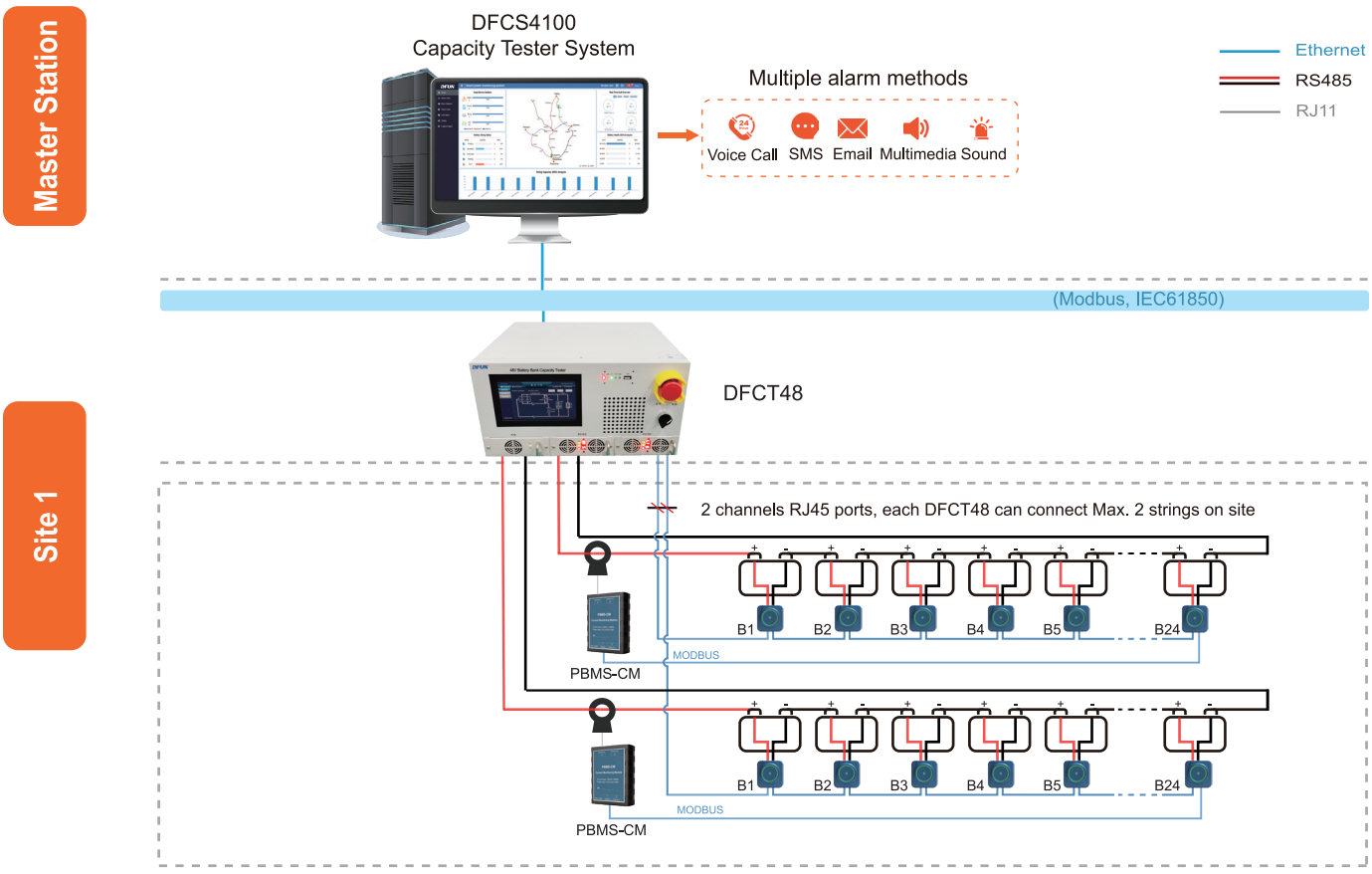
Isolation design with primary side, secondary side structural, strong anti-interference and stable operation

Safety & Energy saving

Adopt real load discharge, boost constant current discharge, circuit physical isolation

Cost saving

Online discharge capacity tester, extend battery life & maintenance-free

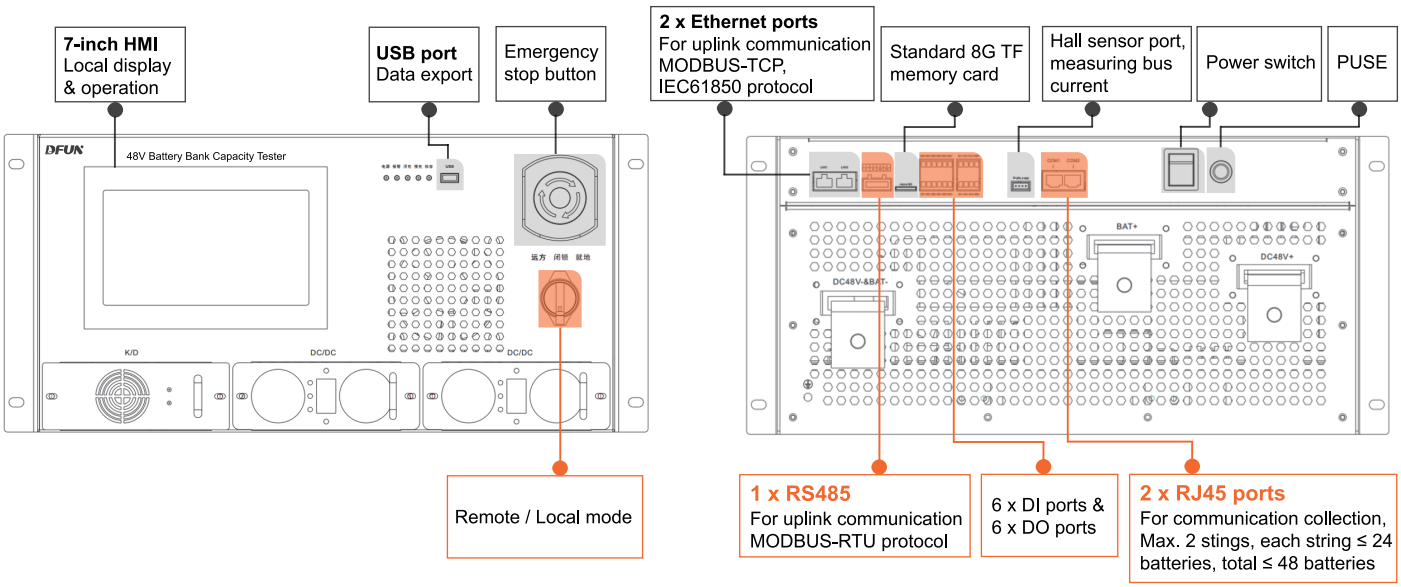


Feature

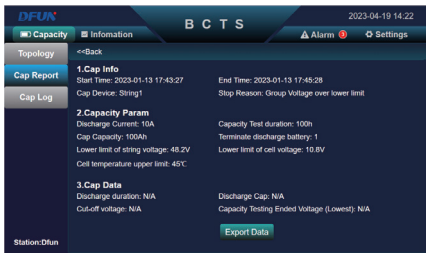
- Apply to 48V power systems, like substation, telecom site, railway transport
- Integrated battery bank capacity tester, battery monitoring
- Discharge the actual load by DC/DC voltage boost, without additional dummy load
- Build-in BMS : monitor battery voltage, charge and discharge current, impedence, internal temperature, environment temperature & humidity, voltage & current
- Historical data storage for 3 years, support query and export
- Shallow charging and discharging to activate the battery regularly, extended battery life
- Build-in touch screen HMI
- IEC61850, Modbus communication protocol



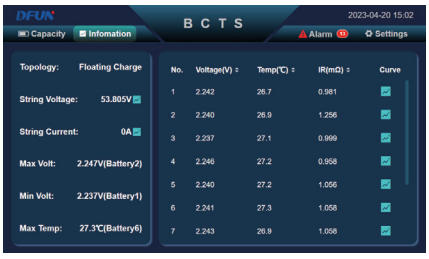
Terminal Introduction



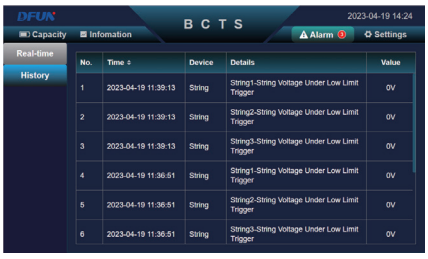
7-inch HMI for local display & Optional



Capacity tester report



Battery parameters



History alarm

48V Battery Bank Capacity Tester

Technical Specification

CPU	ARM cortex A7 528MHz	**Display**	7-inch LCD for local display & operation	
Memory	512MB DDR3, 4G EMMC + 8G TF memory card	**Measure range**	Current	1~2 strings, range: -2000 ~ 2000V (±2.0%, under 15℃ ~ 35 ℃), resolution: 0.01A
MTBF	≥ 100,000 hours		Ripple current	1~2 strings, according to the rated current of the hall sensor, range: DC 0 ~ 0.4*I (peak), resolution: 0.01A
Power supply	Rated: 48VDC Standby consumption: 45W		Voltage	1~2 strings, range: 20 ~ 1000VDC (±0.5%), resolution: 0.01V
Up-link communication	- 2 Ethernet ports (10/100M), (MODBUS-TCP, IEC61850) - 1 RS485 port (MODBUS-RTU)	**Operation environment**	Working temperature: -15℃ ~ 60℃ Storage temperature: -40℃ ~ 70℃ Humidity: 10% ~ 95% non-condensing	
Down-link communication	2 channels RJ45 ports (connect 1~2 strings, each string ≤ 24 batteries, total Max. 48 batteries)			

Oscillatory waves immunity test	GB/T17626.12-1998 (IEC61000-4-12:1995), Level 3
Electrostatic discharge immunit test	GB/T17626.2-2006 (IEC61000-4-2:2008), Level 3
RF electromagnetic field immunity test	GB/T17626.3-2006 (IEC61000-4-3:2006+A1:2007+A2:2010), Class A
Electrical fast transient immunity test	GB/T17626.4-2008 (IEC61000-4-4:2012), Level 3
Surge immunity test	GB/T17626.5-2008 (IEC61000-4-5:2014+A1:2017), Level 3
RF conducted immunity test	GB/T17626.6-2008 (IEC61000-4-6:2013), Class A
Power frequency magnetic field immunity test	GB/T17626.8-2008 (IEC61000-4-8:2009), V
Electromagnetic emission limits test	GB/T14598.16-2002 (IEC60255-25:2000), Comply

String Measuring Sensor

PBMS-CM String Current Measuring Sensor & Hall Sensor

- One string need 1 PBMS-CM, each PBMS-CM with 2 hall sensor ports
- Measure battery string charge and discharge current, ripple current
- Measure multi-pole battery's string charge and discharge current and ripple current with flexiable module and hall sensor
- Accessories:
  1) Hall sensor and cable: range from 0~±1000A with 2m cable
  2) Communication cable : 5m with RJ45 port



PBMS-CM


Hall Sensor

Item	Power supply	Measuring range		Environment
		String current	Ripple current	
PBMS-CM	24VDC (range: 9 ~ 32VDC) Power consumption: ＜0.5W	1 Hall sensor: -1000 ~ 1000A 2 Hall sensor: -2000 ~ 2000A (±2.0%, 15°C ~ 35°C)	20% of Hall sensor Rated current (peak value) Frequency: 50Hz ~ 1KHz	Working temperature: 0°C ~ 45°C Working temperature limit: -15°C ~ 55°C Humidity: 5% ~ 95%RH, non-condensing Storage temperature: -40°C ~ 70°C

Battery Cell Sensor

PBAT71-02 / PBAT71-12 Battery Cell Sensor

- PBAT71-02 for 2V Lead-Acid battery or 1.2V Ni-Cd battery
  PBAT71-12 for 12V Lead-Acid battery
- Monitor individual battery voltage, internal temperature (negative pole), impedance(ohmic value)
- Calculate individual battery state of charge (SOC), state of health (SOH)
- Powered by communication bus, no consuming battery power
- Auto-balancing


Running status

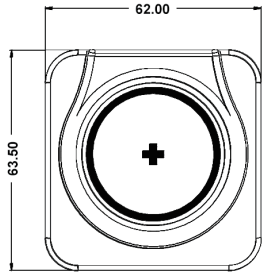

Alarm status

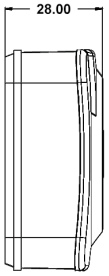
48V Battery Bank Capacity Tester

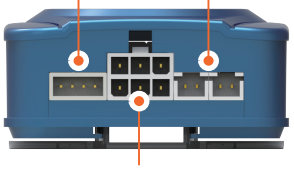
Item	Power supply	Rated input voltage	Measuring range		
			Voltage	Internal temperature	Impedance
PBAT71-02	24VDC Power consumption: < 0.25W	02V / 1.2V	0.5 ~ 3VDC (±0.2%)	-20°C ~ 85°C (±0.5°C)	Range: 0.1mΩ ~ 50mΩ Repeatability error: 1.0%±25μΩ Conformity error: 1.5% ±25μΩ
PBAT71-12		12V	5 ~ 18VDC (±0.2%)		

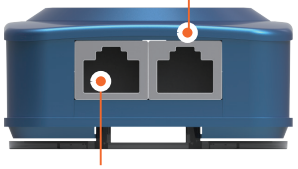
Dimension and Installation

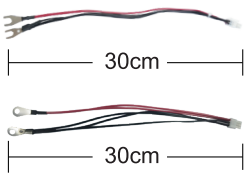
Unit : mm



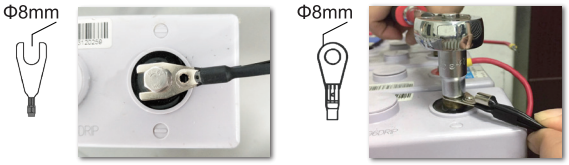








Battery measuring cable	Item	Description
	Length	30cm
	Terminal & size	U Type, hole diameter: 8mm
		O Type, hole diameter: 8mm



Order Information

System Structure		Model	Description	Remark
Management layer		DFCT48-21	48V Battery Bank Capacity Tester	100A discharge,200A load. for 1 string .
		DFCT48-22		100A discharge,200A load. for 2 strings .
		DFCT48-41		100A discharge,400A load. for 1 string .
		DFCT48-42		100A discharge,400A load. for 2 strings .
		DFCT48-61		200A discharge,600A load. for 1 string .
		DFCT48-62		200A discharge,600A load. for 2 strings .
String measuring sensor		PBMS-CM	String current measuring sensor	Hall sensor and cable: range from 0 ~ ±1000A with 2m cable. Communication cable: 5m with RJ45 port
Battery cell sensor		PBAT71-02	02V / 1.2V battery cell sensor	One per battery cell
		PBAT71-12	12V battery cell sensor	One per battery cell
Accessory	Cell sensor communication cable	PBAT-COM-RJ45-50	Cable terminal: RJ45 port, length: 50cm (standard)	
	Battery measuring cable	PBAT-C1-U-M8-30	Cable terminal: U type, hole diameter: 8mm, length: 30cm (standard)	
		PBAT-C1-O-M8-30	Cable terminal: O type, hole diameter: 8mm, length: 30cm	
	Hall sensor for PBMS-CM	CS050EK1T5	Rated input: 50A	Measure range: 0 ~ ±100A, Φ20mm
		CS100EK2T5	Rated input: 100A	Measure range: 0 ~ ±200A, Φ40mm
		CS200EK2T5	Rated input: 200A	Measure range: 0 ~ ±400A, Φ40mm
		CS400EK2T5	Rated input: 400A	Measure range: 0 ~ ±800A, Φ40mm
		CS500EK2T5	Rated input: 500A	Measure range: 0 ~ ±1000A, Φ40mm

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