

Embedded Communication DC Power Supply System

model: TY-DU68-B301V-5.0

overview

TY-DU68-B301V-5.0is an embedded shared DC power supply system with AC input and output of 48VDC. The power system consists of a complete set of components (rack, cabinet with control unit, molding module, distribution connector panel, and cable system), forming a complete DC power supply equipment.

Product Highlights

★It can realize the scenario of tenants sharing stations;

Measurable tenants' DC electricity consumption and electricity ratio;

The peak efficiency of the rectifier is as high as 96.3%;

Efficiency under rated load conditions \geq 95%;

★ Suitable for a wide single-phase voltage range of 85VAC to 295VAC, with strong adaptability to the power grid;

In energy-saving mode, the monitoring unit automatically sleeps redundant rectifiers or wakes up dormant rectifiers based on changes in load power.

The power consumption of the rectifier during sleep is not greater than 4W, saving energy consumption;

★ Standard USB port, supports batch parameter setting, copying history records, and upgrading programs on USB flash drive;

★Flexible monitoring network: Provides input/output dry contacts, RJ45 Ethernet interface, RS232 communication interface, RS485 communication interface.

Meet the networking requirements of Telnet, HTTP, FTP, and SNMP.

Product structure diagram





S	oecificatio	on parameters

general requirements	describe
1.1.1	300A power cabinet (indoor power cabinet with 3 storage blocks (Rect) and 5 rectifier units (Rect) in compliance with international standards)
1.1.2	Anti interference: Complies with FCC, ClassB or equivalent standards
1. 1. 3	Fire safety standards: comply withtheUL1950 standard, CSA60950 safetystandard or equivalent standards in the United States, and the QCVN9:2016/BTTTT telecommunications engineering grounding standard of the Ministry of Information and Communications. Complies with the standards and technical regulations for telecommunications station infrastructure alarm, monitoring, and control systems as stated in Letter No. 5515/VNPT-CNM
1. 1. 4	The lightning protection standards QCVN32-2020-BTTTT and TCVN8687:2011 provide a -48VDC power supply for telecommunications systems. Certification in compliance with ROHS hazardous substance restriction standards
1. 1. 5	Electromagnetic/EMC compatibility: certified in accordance with EN55022B or equivalent standards, applicable safety standards: certified in accordance with IEC60950-1, EN60950, UL60950 or equivalent standards
parameter	describe
Product version number	TY-DU68-B301V-5. 0
1.1.6	System capacity: The rectifier block should have at least 5 slots and be able to expand a total power of at least 300A (maximum output current).



1. 1. 7	<pre>System efficiency, system efficiency ≥ 93.5% @ 30% rated power; System efficiency ≥ 95.5% @ 50% rated power; System efficiency ≥ 95.5% @ 100% rated power</pre>
1. 1. 8	$MTBF \geq 3.2 \times 10^5 h$
1.1.9	The system is installed on a 19 inch standard rack and integrated into one cabinet, which seamlessly fits into one rack and consists of a complete set of components (rack, cabinet with control unit, molding module, distribution connector panel, and cable system) to form a complete DC power supply equipment.
1. Forming Cabinet	
1.1 System Requirements	The power system consists of a complete set of components (rack, cabinet with control unit, molding module, distribution connector panel, and cable system), forming a complete DC power supply equipment.
1.2 Requirements for rectifier	The rectifier block should have at least 5 slots and be able to expand a total power of at least 300A (maximum output current).
1.3 Function Description of Cabinet	Equipped with appropriate capacity for installation at BTS/NodeB stations, high performance \geq 95%, controlled and programmed by microprocessors (soft switching technology), with state-of-the-art power management and external device control connection functions.
1.4 Cabinet Control	The rolling forming machine cabinet is controlled locally through screens/buttons, and the software is connected to a computer (PC) and remote, centralized (remote) through an IP network.
1.5 Working mode	The rectifier block operates in N+1 redundancy mode, with automatic load sharing, rotation interruption, and adjustment when the load increases
1.6 Fan cooling block	Automatically adjustable according to temperature, capable of replacing and replenishing heat (hot swappable) without affecting the operation and power function of the entire system
1.7 Voltage Adjustment Method	The molded cabinet is equipped with a low-voltage circuit breaker (LVD), and the thermal compensation block can automatically adjust the output voltage according to changes in ambient temperature
1.8 Abnormal Errors and Warning Requirements	The alarm states sent by the monitoring module to the upper computer include: AC overvoltage, AC undervoltage, AC phase loss, AC air switch, module fault, fan fault, module current limit, DC undervoltage, DC overvoltage, battery power down, load fuse, battery fuse status, low voltage warning (LVD), high voltage warning
1.9 Input (nominal)	Single phase voltage 220VAC and three-phase 380VAC, frequency 50-60Hz.
1.10 Output voltage:	-48VDC nominal, grounded anode.



1.11Efficiency:	≥95%
1.12Power Distribution Table:	Communication input connection (using 3-phase 4-pole MCB). 03CB/fuse \geq 125A is used for battery connection, 10 CBs are used for load (3 CBs \geq 50A, 2 CBs \geq 32A, 2CB \geq 16A), and CB expansion can be installed as needed.
1.13 Input Standards	Input voltage range: It can operate within the range of 85AVC to 300AVC, automatically disconnect the input when the voltage exceeds the allowable voltage range, and automatically restore within the voltage range (90VCA-290VCA). When the input voltage exceeds the range, it can work for a short period of time. Power factor ≥ 0.98 , load range 50% -100%, 220VCA input, AC Surge Protection: The input has lightning protection circuits and voltage transients. The lightning protection circuits are installed in all branches of the AC input and comply with Class C standards (identifier 20kA, $8/20 \mu$ s; maximum 40kA, $8/20 \mu$ s).
1.14 Output Standards	 Output voltage range (adjustable within the range): 43VDC to 58 ± 0.5% VDC. Output power distribution table (available): Battery: 03CB ≥ 125A Load: Minimum 10CB (3CB≥63A, 3CB≥50A, 2CB≥32A, 2CB≥16A)
1.15 Output Protection	 Circuit breaker when the voltage is below the threshold (LVD) The disconnection voltage can be adjusted within the range of 42 to 50VDC. Adjustable hotspot from 47VDC to 57VDC Minimum identifier: 200A Short circuit protection, anti polarity reversal (open circuit delay<3ms). Overload protection. High temperature overheating protection: automatic power reduction or system shutdown Overvoltage protection: DC high-voltage circuit breaker (Uout>58VDC)
1.16 Lightning Protection System	 Secondary lightning protection system for each block. The output DC lightning arrester adopts MOV technology (allowing users to replace it when damaged by lightning). Protective structures (L-N, N-E); Working temperature range: -40 °C to 55 °C; Response time:< 25ns; Nominal voltage: 48VDC; Maximum operating voltage: 75VDC. Pulse normal discharge current (8/20 μ s): 15kA; Pulse protection level (20kA, 8/20 μ s): 150V.
2. Remote monitoring	
2.1 Documents	Provide MIB files
2.2 Monitoring Parameters	 Basic information (power cabinet name, working mode, number and version of controllers, number and version of rectifiers) AC voltage phase DC rectifier DC load current



	5. Load DC voltage level meter	
	6. Collect the setting parameters of the power cabinet (DCLow, BLVD, LLVD, ACLow)	
	7. Battery temperature	
	8. Environmental temperature	
	Power gridoutage, high battery temperature, high ambient temperature, rectifier error,	
0.0	battery jumping with CB, CB jumping load, LLVD, BLVD, DC low alarm information	
2.3 Warning		
2.4 Remote Installation	Low AC voltage threshold, LLVD, BLVD, DC low voltage butterfly valve values	
	Waiting for parameter settings	
3. Control block		
	1. The control block can be connected to the rectifier block through digital signals	
	using software, allowing for real-time monitoring and control of the entire source	
	system.	
	2. LCD screen, to LED, displaying and warning system status; The button allows the device	
	to set system parameters and control the molding machine cabinet.	
3.1 Function	3. On site control software or remote control through interface ports can store/restore	
	the configuration of the entire molding cabinet through files, support software update	
	capabilities, and will not interrupt power supply or have any impact on system	
	operation.	
	4. The software must be compatible with the Windows operating system, support management	
	using a web browser, have built-in SNMP, and be in English or Vietnamese language.	
	1. Display screen: The display screen displays the operating status of the power	
	cabinet, allowing clear and distinct character display. Can display symbols and	
	icons/graphics	
3.2 Display Image and Soun	d 2. Indicator lights: LED light (color change of indicator light): green light for normal	
Indication	operation, yellow warning light, red light for fault/power failure)	
	3. Sound alarm: Play the alarm sound when there is an alarm, self recover when the alarm	
	ends (sound off), and when the alarm is>60dB, the sound level is at a distance of 1m.	
	Atleast 08 programmable dry contacts are used for monitoring or controlling peripheral	
3. 3Having physica	devices.	
interfaces (connections) for	r 2. Supports interfaces: RS232, RS485, USB RI45。	
monitoring and control	3. Expanded I/O card slots that can be connected to external centralized monitoring	
	systems for control and monitoring	
	Support storage of local data on memory cards/hard drives	
3.4 Memory	Support Storage of food data on memory cards, hard drives	
	1 Security mode can be set to enable multi-level/multi-user decentralized control	
	hlocks.	
	2 It has self checking function (system, LVD, alarm relay).	
	3 The entire system configuration can be installed, stored, and restored through files.	
	It can store at least 10000 event alerts and 10000 data alerts automatically incerting	
3.5Management Software	new data when storage canacity expires	
	4 Support the operation and management of external exetem devices through physical	
	interface norts including solar cell systems wind nowar generation systems and air	
	conditioning systems	
	5. Support the operation and management of external evetom devices through physical	
	interface ports including solar cell systems wind newsr generation systems and sim	
	interrace ports, including solar cert systems, wind power generation systems, dild dil	



	conditioning systems
	1. Alarm off
	2.Set the output voltage of the straightening machine within the range of $43V$ to $58V$
	\pm 0.5%, with a resolution of \pm 0.1V
	3. Set high voltage alarm and power-off threshold within the range of 45 to 59.5VDC,
3.6Control function,	supporting level 2
setting the molding machine	4. Set low voltage alarm and power-off threshold within the range of 42 to 58VDC,
cabinet mode:	supporting level 2
	5.Set and adjust the blower speed: automatic, manual, full speed operation.
	6.Setting mode of low voltage circuit breaker (LVD)
	7. Allow flexible parameter settings for main/branch LVD: LLVD, BLVD。
	8. Allow setting of open circuit voltage, circuit connection voltage, and response time.
	You can set alert levels: set alert generation and check alerts.
	Can customize/define the name of extended alerts
	AC power outage alarm (three-phase separate power outage alarm) Power outage/hattery/LVD warning
	Voltage Warning: High DC Voltage (Level 2); Low DC voltage warning (level 2).
	Battery temperature warning (level 2): Battery capacity warning.
3.7Display and Alarm	Disconnecting warning Launch current alarm
Setting Function	Warning for faulty cabinet; Block fault warning; Warning for multiple error blocks.
	Rectifier volume alarm (programmable alarm volume level); Warning: Uneven load
	distribution between rectifier modules.
	Limit warning, operating mode, Low/nigh bullering load, Low/nigh load warning, the system is running. Fast loading, buffer loading, and compensation loading.
	Test voltage, current, buffer current, and charging compensation. Display battery
	temperature.
	Currently updating detailed information for each rectifier module, including current, input/output voltage, inventory/sequence, operating status, storage and export file
	data.
	1.Set current limiter and battery coupling voltage
3.8Setting battery	2.BoostCharging/QuickCharge: Charging voltage and current.
charging mode.	3.Balance mode: current, voltage (adjusted from 48V to 58V \pm 0.5%)
endiging mode.	4.Floating mode: current, voltage (adjustable from 46V to 58V \pm 0.5%)
3.9Charging Modes with	
Different Capacity Settings	The minimum capacity is 50Ah, 100Ah, 150Ah, 200Ah, 300Ah
4. Rectifier block	
	The rectifier block is connected to the control monitoring block through digital
4.1 Operation	signals to monitor and control all block operations.
	85VAC to 300VAC single-phase
4.2 Input voltage range	
	When the voltage exceeds the range of 300V to 350V, it is allowed to maintain operation
4.9. Characterist	for a short period of time
4.3 Snort term operation	



4.4 Power	≥2900₩
4.5 Power factor	Power factor \geqslant 0.99, load range 50% -100%, input voltage 220VAC
4.6 Efficiency	≥ 95% (load of 40% -100%)
4.7Load efficiency	Load efficiency 40% -100%, voltage 220V AC input (Certification of laboratory measurement results according to IS017025 or equivalent standards
4.8 Rated power conditions	Allow 100% power to be provided at internal voltages ranging from 180VAC to 300VAC.
4.9Under 85VAC voltage	The minimum rated power is 40%.
4.10 Holding time	>=20 milliseconds.
4.11Maximum input current	<=19Ams.
4.120perating frequency range	From 45Hz to 65Hz.
4.13Transition Time	The transition time from supplying power to the molding machine cabinet to the nominal DC output voltage of 5 seconds.
4.14Static voltage variation	When the load is adjusted from 10% to 100%, the voltage change is less than or equal to 1%.
4.15Dynamic Voltage Changes	<= \pm 5% load variation of 10-90% or 90-100%, response time<50ms
4.16Minimum range of adjustable output DC voltage	43VDC-58VDC.
Wire current Aptomat	
5.1 Specification requirements	All conductive interfaces of wires and busbars must meet the requirement of passing current density not exceeding 3A/mm2 (\leq 3A/mm2). The thickness and cross-section of the lead system, CB installation busbar, and fuse should match the maximum capacity of the straightening machine system. Pure red bronze busbar, coated with anti-oxidation material (tin/nickel)
5.2 Interface Requirements	All cable endpoints must have a wrapped end, welded end, or clamped end so that the connection site does not generate temperatures higher than the wire temperature.



5. 3	CB type Aptomat: manufactured according to IEC60898/IEC60947-2.
product traceability	
6. 1	The product comes with a QR code stamp, and the encoded information includes: number, contract date; Warranty period: Seller's name; Phone number (warranty information QRCODE form to be agreed upon by both parties in advance).
6.2	Material: High strength, waterproof, and non fading material over time.
6.3	Location: Pasting in areas with less contact will damage the stamp, which can be seen and scanned.