

Sfere701 Series

 Specially designed for intelligent rack bus

 Multi-circuit real-time measurement

 Energy metering

 Power quality monitoring

 Electrical safety monitoring



Application

- Data center
- Telecommunications
- Power monitoring
- Energy management

Model & Function

Name	Model	Function
Display module	Sfere701-D1	To show measured data from measurement module, and be used to set parameter of measurement module.
Communication module	Sfere701-C1	Three digital communication interfaces available, adopting Modbus-RTU protocol. No.1 interface is connected to measurement module Sfere701-M; No.2 interface is connected to host computer; No.3 interface is connected to display module Sfere701-D1.
Measurement module	Sfere701-M	Measure voltage, current, power, frequency, energy, demand, extreme value and harmonics of three-phase grid. 1 RS485 communication interface, 1 digital output, and external current transformers. Each module can be extended to one Sfere701-F.
Temperature module	Sfere701-F0	4-way temperature measurements.
Temperature & switch module	Sfere701-F1	4-way temperature measurements; 3-way digital input measurements.
Temperature & leakage module	Sfere701-F2	4-way temperature measurements; 3-way leakage measurements.
Switch module	Sfere701-F3	3-way digital input measurements.
Temperature & relay module	Sfere701-F4	4-way temperature measurements; 4-way digital output.
Power supply module	Sfere701-P	Provide DC24V power supply to display and communication modules.

“●” Yes “-” No

Function	Sfere701-M1A	Sfere701-M1B	Sfere701-M21
Real-time measurement	U, I, Hz, P, Q, S, PF	●	●
	Demand, max./ min. value, average value		●
Energy metering	Bi-direction energy, apparent energy	●	●
	Four-quadrant reactive energy		●
	Sub-phase energy		●
Power quality	THDu, THDi		●
	Individual harmonic ratio		2~31st
	Unbalance		●
	Crest factor, K factor		●
Data record	Voltage deviation, frequency deviation		●
	Demand record		●
	Max value, min value and average value record		●
Digital output			1
Self power supply	-	-	●

Sfere701-M1A and Sfere701-M1B have same measurement functions, only differ in different types of wiring terminals.



Technical Specification



Sfere701-M Working environment

Working temperature	-20°C~70°C
Storage temperature	-40°C~85°C
Relative humidity	≤95%RH, no condensation
Working altitude	≤2500m
Protection	IP20
Insulation	Signal, power supply and output terminal to case resistance>100MΩ
Withstand voltage	≥2kV
Electromagnetic compatibility	Better than Class III

Working power supply

Rated range	AC/DC:80~270V (Sfere701-M1A/M1B) Sfere701-M21 take power from Phase A voltage, and voltage should not below 180V
Power consumption	≤0.5W

Voltage input

Range	3×230V/400V
Resolution	0.1 V
Impedance	≥1.7 MΩ/phase
Consumption	≤0.1 VA /phase
Over-voltage	Continuous 1.2 times, instantaneous: 2 times/10s
Frequency	45-65 Hz

Current input

Range	External split-core/closed type CT
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Digital output

Type	Solid state relay
Capacity	280V/0.12A AC, 400V/0.12A DC
Solution voltage	5000V AC
Action time	2ms max
Release time	1ms max
Energy pulse width	80ms ±20%
Energy pulse frequency	≤10Hz

Communication port COM1

Physical interface	RS485
Communication protocol	Modbus-RTU, up to 19200bps
Insulation voltage	4000 V AC

Communication port SBUS

Physical interface	RS485
Communication port	Used to connect to Sfere701-F1/F2/F3/F4
Communication protocol	Modbus-RTU, up to 38400bps
Insulation voltage	4000 V AC

Sfere701-C1 Working environment

Working temperature	-20°C~70°C
Storage temperature	-40°C~85°C
Relative humidity	≤95%RH, no condensation
Working altitude	≤2500m
Protection	IP20
Insulation	Signal, power supply and output terminal to case resistance>100MΩ

Working power supply

Nominal range	24V DC
Consumption	≤0.5W

Communication port

Communication port1 (SBUS port)	This interface uses wire L2 and goes through the transfer module Z4 to connect to COM1port of Sfere701-M.
Communication port2 (SBUS port)	This interface uses wire L2 and goes through the transfer module Z4 to connect to the port of host software.
Communication port3	This interface uses wire RJ12-1 to connect to Sfere701-D1.
Physical interface	RS485
Communication baud rate	Up to 9600bps
Communication protocol	Modbus-RTU
Isolation voltage	2500 V AC

Real-time clock

Error	≤0.5s/day
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Sfere701-D1

Specification

Connection	RJ12-1 cable, connect to Sfere701-C1
Display	3.5" TFT LCD, resolution 320×240, 167 million colors
Button	4 capacitive touch buttons with backlight
Breathing light	When the LCD backlight is off, the working frequency is 1Hz, and the working frequency is 2Hz when it alarms.
Protection	Front panel IP67
Working temperature	-20~70°C
Storage temperature	-30~80°C
Relative humidity	≤95%RH (no condensation)
Working range	(24±20%)VDC
Consumption	≤2W

Sfere701-P

Specification

Input voltage	AC/DC: 80V~270V
Output voltage	DC: 24V
Output power	≤20W
Accuracy	±1%
Efficiency	≥75%
Withstand voltage	2000V AC

