Elecnova

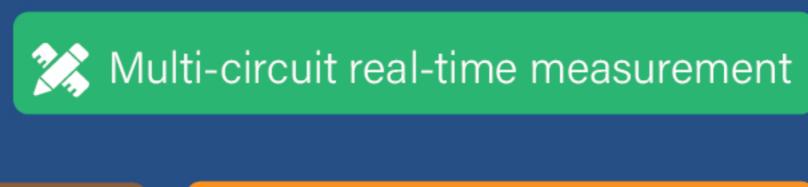
Digital Intelligent Power Distribution Solution Provider



Sfere 701 Series









C Energy metering





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 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		•	
	Voltage deviation, frequency deviation		•	
Data record	Demand record		•	
	Max value, min value and average value record		•	
	Off-limit alarm records			
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 tempe rature	-20°C~70°C	
Storage tempe rature	-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>100M Ω	
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/10	
Frequency	45-65 Hz	
Current input		
Range	External split-core/closed type CT	
Digital output	External split core/closed type or	
Type	Solid state relay	
Capacity	280V/0.12A AC, 400V/0.12A DC	
Solation voltage	5000V AC	
Action time	2ms max	
Release time	1ms max	
Energy pulse width	80ms±20%	
Energy pulse frequency	≤10Hz	
Communication port COI		
Physical interface	RS485	
Communication protocol	Modbus-RTU, up to 19200bps	
Insulation voltage	4000 V AC	
Communication port SBL	JS	
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 en	vironment
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>100M Ω
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

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

