





## Features

- · 72 power monitorings, trip & circuit breaker on/off status monitoring + 24 leakage monitoring
- $\cdot$  Modbus TCP Ethernet, built-in 2-port hub minimizes installation space and time
- $\cdot$  Ethernet gateway support, simple installation using CAN communication
- $\cdot$  Quick-click plug-and-play technology system saves up to 95% of installation time









# HIGH PERFORMANCE DIGITAL POWER STATUS MONITOR

iPSM72 is an energy meter that supports 72 power monitorings simultaneously. At the same time, it allows to perform monitoring of trips, circuit breaker on/off status, and the measurement of leakage currents for 24 3-phase loads.

#### 1. Main functions

Measurement elements

- $\cdot$  Phase/line voltage
- Frequency
- $\cdot$  Line current
- Active/reactive/apparent power
- $\cdot$  Voltage/current unbalance
- Power factor
- THD
- $\cdot$  Ambient temperature with NTC
- · Leakage current (max. 24)

#### 2. High Accuracy

IEC 62053-22 class 0.2S accuracy

#### 3. True RMS

With iPSM72, you can measure highly nonlinear loads with high accuracy. 640 samples/cycle (50Hz), 533 samples/cycle (60Hz), true RMS measurement can be fulfilled on all 72 power monitors.

#### 4. Power Quality Support

The iPSM72 provides insights into power quality aspects such as dips (sags), swells, harmonics, and unbalance.

### 5. Safety and Reliability by CE

iPSM72 is certified by CE [EN61326–1:2020] and CE [IEC 61010–1 3rd edition, IEC 61010–2–30]

#### 6. Unique functions

Features of the iPSM72

- Flexible configuration (max.72 for single-phase) : single-phase PDP, 3-phase PDP, mixed PDP
- Monitoring On/Off status of MCCBs
- Monitoring trip status of MCCBs
- $\cdot$  Communication redundancy using LAN and CAN
- · Saves up to 95% of installation time

### 7. Quick-click plug-and-play technology system

iPSM72 is equipped with the quick-click plug-and-play technology system. When paired with current transformers featuring the quick-click plug-and-play technology system, it is designed to reduce installation time by up to 95% compared to standard current transformers and leakage CT installations.

Saves space and time when used with CTs with quick-click plug-and-play technology.

#### 8. Additional features

- $\cdot$  CT direction change function
- $\cdot$  CT phase change function
- Includes 2-port 10/100 base-T Ethernet hub
- · Supports digital input, 1 point
- · Supports digital output, 1 point





The iPSM72 has a built-in 2-port Ethernet switch hub, enabling network connection only with direct UTP/STP cabling between devices without an external hub. In addition, it has CAN communication that can be connected to the gateway in a ring structure, so it can be used for communication redundancy.

### LAN communication



### CAN (Controller Area Network) communicaiton







iPSM72 provides accurate measurements of 0.2% for voltage and current. Active power/energy conforms to IEC62053–22 Class 0.2S.

It also provides various information essential for electric quality management of switchgear such as sag, swell and harmonics (V, I)

	Use on LV, MV, and HV systems		$\checkmark$
General	Current accuracy		Class 0.2
	Voltage accuracy		Class 0.2
	Active energy accuracy		Class 0.2S
	Sample frequency		32kHz
	Current, voltage, frequency		✓
Instantaneous RMS values	Active, reactive, apparent power	Total and per phase	$\checkmark$
	Power factor	Total and per phase	$\checkmark$
Energy values	Active, reactive, apparent energy		$\checkmark$
	Harmonic distortion	Current and voltage	$\checkmark$
Power quality	Detection of voltage swells and sags		$\checkmark$
medsurements	Fast acquisition	1/2 cycle data	$\checkmark$
	Display unit		$\checkmark$
Display and I/O Digital Inp Digital Out	Digital Input	al Input	
	Digital Output		$\checkmark$
Communication	CAN port		1 port, max. 1Mbps
	Ethernet port		2-port switch hub
	Ethernet port (Modbus/TCP)		✓
	RS-232		$\checkmark$

	Type of measurement		True RMS to 640 samples per cycle @ 50Hz
			True RMS to 533 samples per cycle @ 60Hz
	Measurement	Current & Voltage	Class 0.2 as per IEC 61557–12
		Active Power	Class 0.2 as per IEC 61557–12
		Active Energy	Class 0.2S IEC 62053-22
	accuracy	Power Factor	Class 0.5 as per IEC 61557–12
		Frequency	Class 0.02 as per IEC 61557-12
		THD (Voltage/Current)	Class 1 as per IEC61557-12
		Specified accuracy voltage	AC 690V 3~L-L, 400V L-N
Electrical	Input-voltage characteristics	Impedance	2.4M ohm per phase
		Specified accuracy	45 to $65$ Hz (50/60 Hz nominal)
		frequency	45 to 65 Hz (50/00 Hz holimat)
characteristics	Input-current	Rated nominal current	External CT (100mA, secondary side), up to 1,200A
	characteristics	Starting Current	5 mA (Selectable)
	Power supply	AC	90-264 VAC
	AC/DC	DC	100-370VDC
	Input/output	Digital Input	1 point, 230 V~, external power supply
		Digital Output	1-SPST, AC 250V 5A, DC 30V 5A
	Temperature	NTC	1 point, 25°C, 10 kΩ, β(25/85)=3,970°k
Mechanical	Туре		Din rail or wall mount
	Dimensions		186.9 x 90 x 65.5 mm
characteristics	IP degree of protection		IP 30
	Weight		518g



SPECIFICATIONS



	Operating temperature	−10 °C to 65 °C	
Environmental conditions	Storage temperature	−25 °C to 85 °C	
	Humidity rating	5 % to 80 % non-condensing	
	Installation category	III	
	Operating altitude (maximum)	2000m above sea-level	
	EMC standards	IEC 61326-1:2020	
Electromagnetic	Immunity to electrostatic discharge	IEC 61000-4-2	
	Immunity to radiated fields	IEC 61000-4-3	
	Immunity to fast transients	IEC 61000-4-4	
	Immunity to surges	IEC 61000-4-5	
compatibility	Immunity to conducted disturbances	IEC 61000-4-6	
	Immunity to power frequency magnetic fields	IEC 61000-4-8	
	Immunity to voltage dips & interruptions	IEC 61000-4-11	
Safety	Safety construction	IEC 61010-1 3rd edition	
	Ethernet port(s)	2-port 10/100 base-T switch hub, RJ45 connector (UTP)	
	CAN	1 port, 1Mbps, RJ45 connector	
Communication	RS232	1 port, RJ45 connector	
	Protocol	Modbus, SNTP, IPv4	

Firmware characteristics	Sag/swell detection	Provides a function to detect sags and swells at the level and duration specified by the user.
	Alarms	Provides alarm function by setting threshold for current data
	CT phase change	Provides a function to change the phase of the 3-phase CT
		to neatly wire the power cable.
	CT direction change	Provides a function to change the K/L direction of the CT to
		neatly wire the power cable.
	Flexible wiring selection	3P4W, 3P3W, 1P2W or mixed can be used by utility setting.
		This provides flexible configuration to the user.

## Standard Compliance

Accuracy	IEC62053-22 Class 0.2S	Static meters for active energy
EMC	IEC 61326-1:2020	Electrical equipment for measurement, control and laboratory
		use – EMC requirements
Safety	IEC 61010-1 3rd edition	Safety requirements for electrical equipment for measurement,
		control, and laboratory use – Part 1: General requirements
	IEC 61010-2-30	Safety requirements for electrical equipment for measurement,
		control, and laboratory use - Part 2-030: Particular require-
		ments for equipment having testing or measuring circuits
Certification	KC, CE	



DIMENSIONS



### Dimensions



### Part names



No.	Description
1	Voltage Input
2	Ethernet Port : 2-port switching hub
3	1~72 CT Input, 1~24 leakage Input
4	Temperature sensor input: NTC
5	DO Terminal : Digital Output Terminal
6	DI Terminal : Digital Input Terminal
7	Control Power : 90~264VAC or 100~370VDC
8	Status LED
9	PDM Port : RS-232 Port to connect the PC or PDM
10	CAN Port : to connect gateway





## Wiring Diagram





### Dimensions





RJ45 Terminal











# Appendix



## 1. Detection method of a trip event

• Trip event detection occurs when the current exceeds the setpoint for the trip detection, surpassing the available capacity of the circuit breaker.





## 2. Detection method of a circuit breaker ON/OFF event

- $\cdot$  The ON status event is triggered when a large current, exceeding the set value (starting current) is detected.
  - If the circuit breaker is in the ON status, the OFF status event is processed when the current value falls below the starting current.



