Smart Multi-Channel Meter, gems3500

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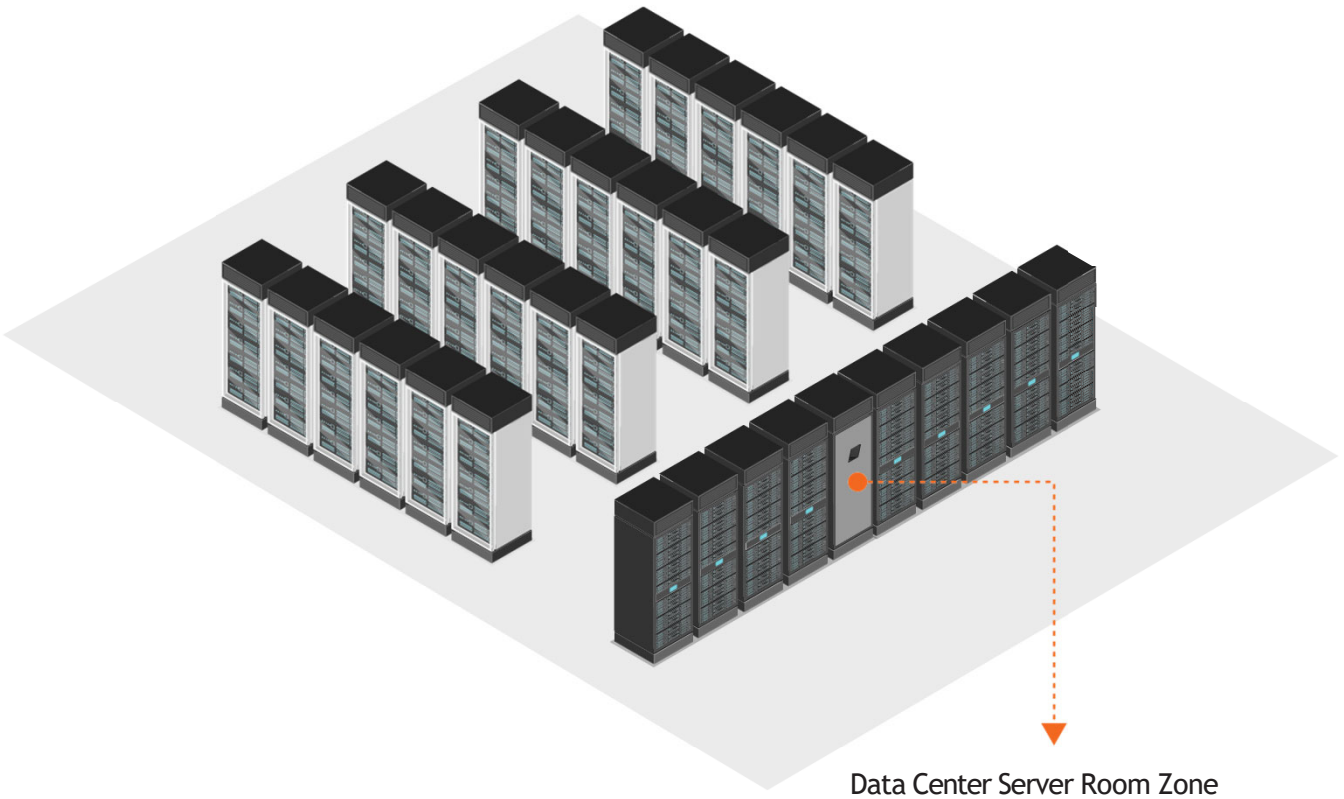
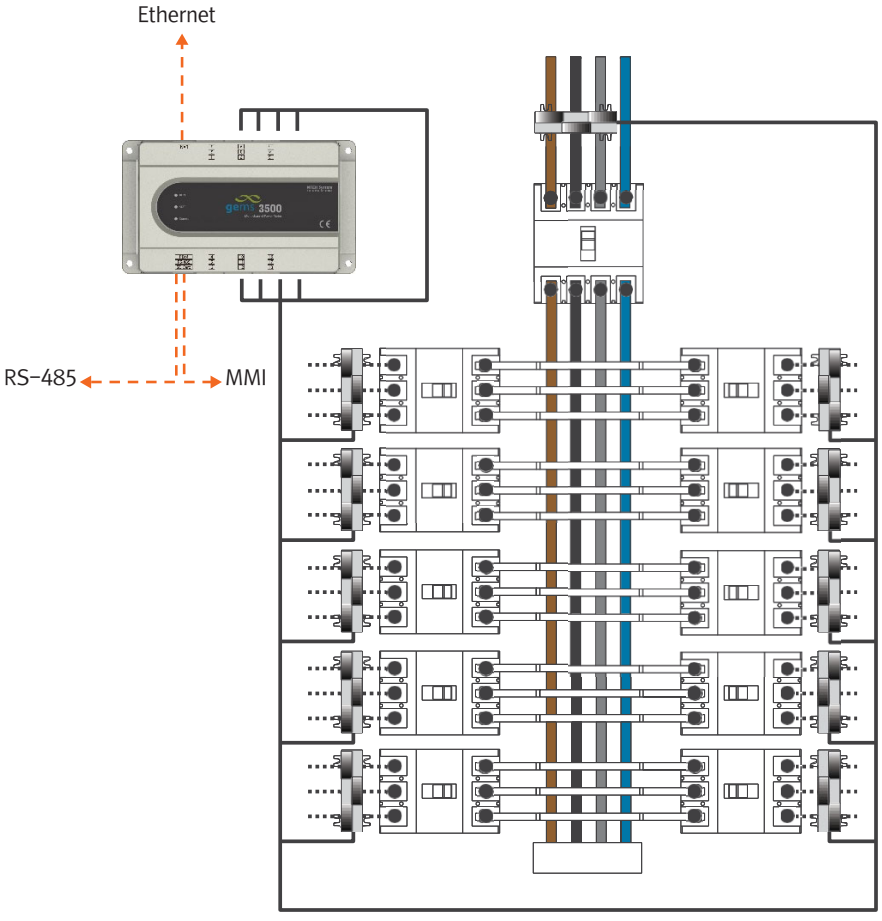
NTEKSYSTEM
Next Technology System

System Overview



Data Center Server Room Zone

Distribution Panel

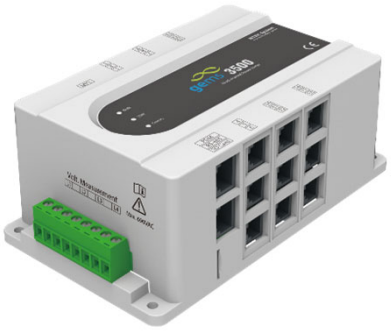


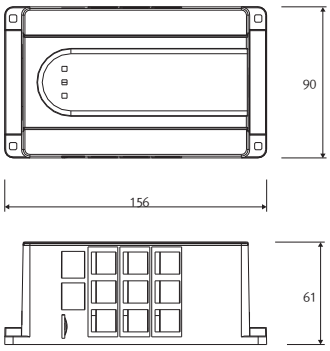
gems3500

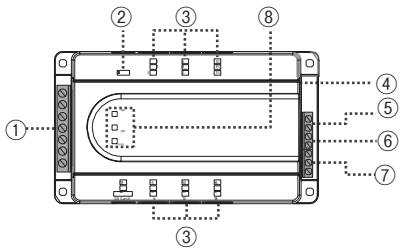
Smart Multi-Channel Meter

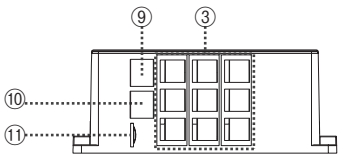
- Measurement elements: phase/line voltage, frequency, line current, active/reactive/apparent power, voltage/current unbalance factor, power factor, active/reactive/apparent energy
- 160 samples/cycle (50Hz), 133 samples/cycle (60Hz); True RMS
- Flexible configuration (max. 54 ch. for single-phase) : single-phase PDP, 3-phase PDP, mixed PDP
- Measurement accuracy : 0.5%, IEC62053-22 class 0.5S
- Displays power harmonic distortion (THD)
- Sag/Swell detection (minimum 0.5 cycle)
- Monitoring On/Off status and trip status of MCCB
- Built-in temperature sensor: ambient temperature can be measured
- Supports wall mount and DIN rail installation
- Operating temperature: -10˚C ~ 55˚C , Storage temperature: -25˚C ~ 85˚C
- Designed for real-time measurements of rack power consumption
- Branch circuit monitor for PDP (power distribution panel) in data rooms
- Super cost-effective rack power capacity management tool

  80% less compared to an intelligent rack PDU
- On the fly application to existing live PDP without outage
- Application to CRAC/CRAH PDP for cooling energy management









1. Voltage Input : Voltage input terminal for measurement
2. Ethernet Port : Communication with Master (Modbus Slave)
3. 1~54 CT Port : CT input terminal
4. Temp. Sensor : NTC temperature sensor
5. DO Terminal : Digital Output Terminal
6. DI Terminal : Digital Input Terminal
7. Control Power : Control Power (AC/DC 100~240V)
8. Status LED : RUN – Blinks during normal operation
   STAT – Blinks quickly during normal measurement
   Comm – Blinks during normal communication
9. PDM Port : RS-232 Port to connect to PC or PDM
10. RS-485 Port : RS-485 Port to connect the PC, external IO or SCADA system
11. SD Card Slot : Micro SD Card Slot

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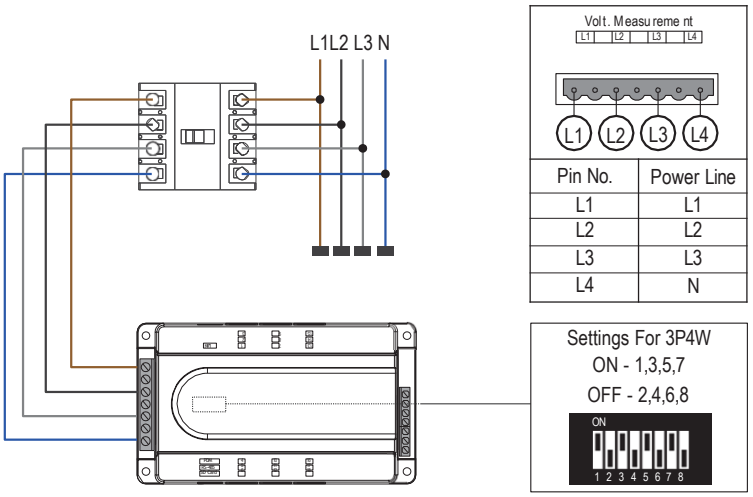
Specifications

Parameter		Spec
Power System		1P2W, 3P3W, 3P4W
Contact Input	Voltage (Umin – Umax) Voltage (Vmin – Vmax) Measurement Category	43–690 V~ phase/phase 25–400 V~ phase/neutral Cat III
	Frequency	45–65 Hz
	Current	0~100mA
	Digital Input	1 point, 230 V~, external power supply
	Temperature NTC	25˚C, 10 kΩ, β(25/85)=3,970˚k
Auxiliary Supply	Voltage Frequency Max Voltage (L–N) Power Consumption Overvoltage Category	100–240 V ~ 50–60 Hz Short term: 1,440 V~ – Long term: 490 V~ 0.08–0.05 A Cat II
Communication		Modbus RS-485
		Modbus TCP
		RS-232
Output Contact		1 NO (Normally Open) SPST (Single Pole Single Throw)
Pollution Degree		2
Altitude		≤ 2,000 m
Operating Temperature Storage Temperature		–10˚C to +55˚C –25˚C to +85˚C
Maximum Humidity		5–80% RH non-condensing
IP degree of protection (IEC 60529)Communication		IP20 (IP40: front panel)
For Indoor Use Only		

Parameter		Measuring range	Accuracy
Voltage	Phase Voltage	0.0 ~ 400V	±0.2% Reading
	Line Voltage	0.0 ~ 690V	±0.2% Reading
Current	A	0.000 ~ 1,000A	±0.2% Reading
Power	Active	0.000 ~ ±9,999kW	
	Reactive	0.000 ~ ±9,999kvar	
	Apparent	0.000 ~ 9,999kVA	
Energy	Active	0 ~ ±999,999,999kWh	IEC62053-22 Class 0.5
	Reactive	0 ~ ±999,999,999kvarh	
	Apparent	0 ~ 999,999,999kVAh	
Frequency	Hz	45~65 Hz	±0.2% Reading
Power factor	%	–100.00 ~ 100.00%	
THD	Power	0.0 ~ 999.9%	
Unbalance	Voltage	0.0 ~ 100.00%	
	Current	0.0 ~ 100.00%	
Sag/Swell	%	Min. 1/2 cycle	Event
Breaker monitoring	On/Off, Trip	Max. 3 points	Event
True RMS	Voltage/Current	3,5,7…21st harmonic	±0.5%
Temperature	Internal	–40˚C ~ 125˚C	

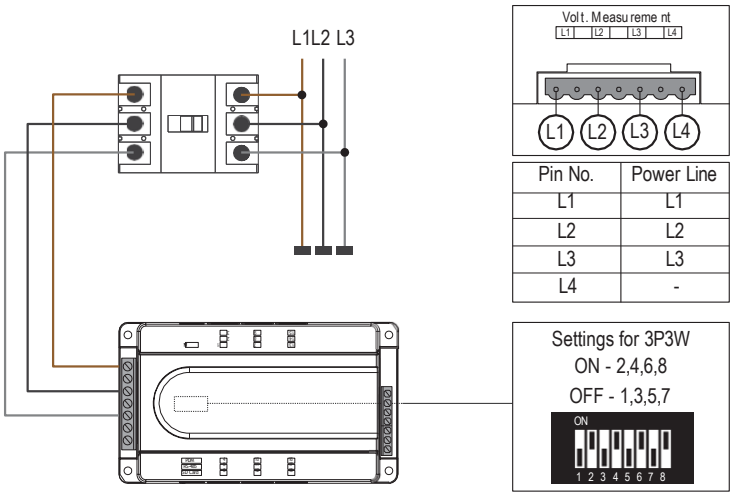
Installation examples

Wiring of 3-Phase 4-Wire system



Pin No.	Power Line
L1	L1
L2	L2
L3	L3
L4	N

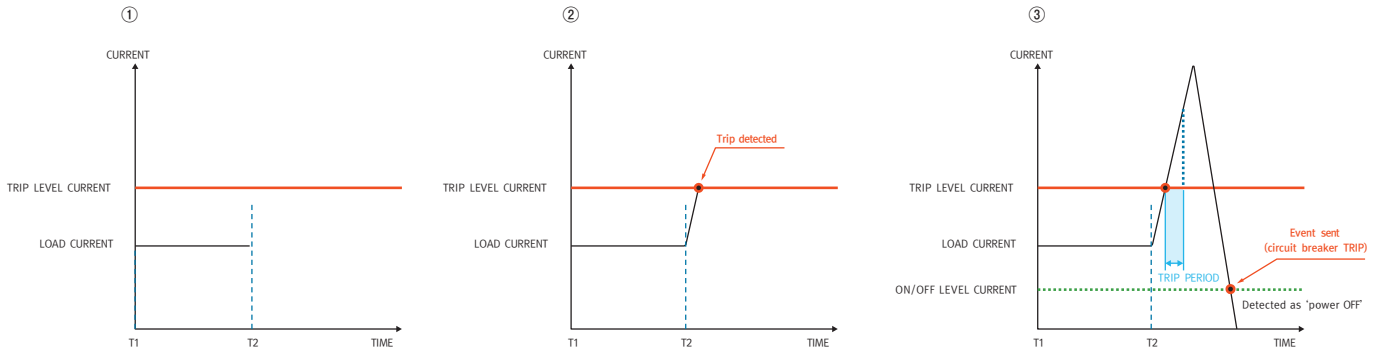
Wiring of 3-Phase 3-Wire system



Pin No.	Power Line
L1	L1
L2	L2
L3	L3
L4	-

1. Detection method of a trip event

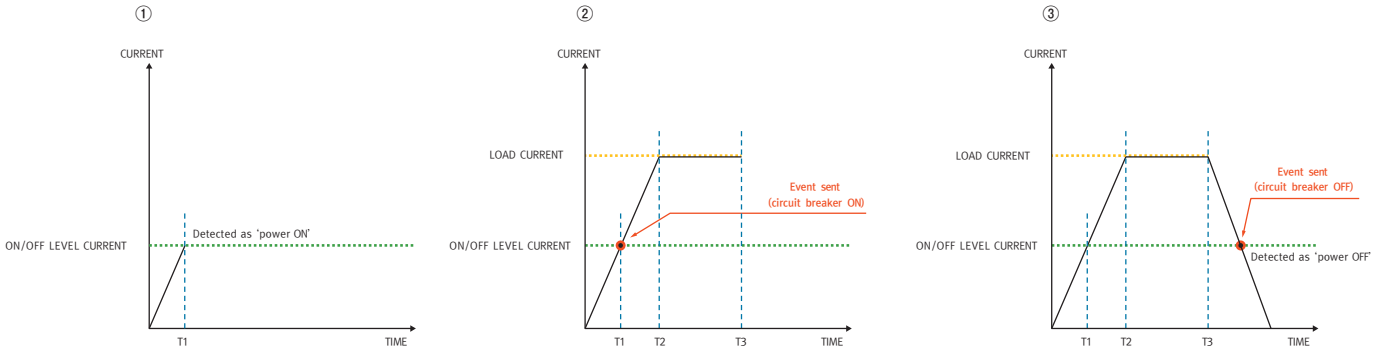
· Trip event occurs when there is larger current (current setpoint of trip detection) than the available capacity of the circuit breaker.



〈Process order of a trip event〉

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

· 'ON' status event is triggered when there is larger current than set value (starting current) detected.
When the circuit breaker status is 'ON', 'OFF' status event is processed when the current value is lower than the starting current.



〈Process order of an ON/OFF event〉