4 ½ Digit *WATT METER* with Alarm, A/O, RS485 Options

DKW

DESCRIPTION

- The DKW Watt Meter provides high accuracy measurement, display and communication functions.
- Options include 2 Relay outputs, 2 External Control Inputs and 1 RS485(Modbus RTU Mode) with versatile functions such as remote I/O, alarm and communication for a wide range of applications.

FEATURES

- Measures AC Watts / 1P2W, 1P3W, 3P3W, 3P4W Unbalanced systems
- Direct input 500V / 50A maximum with high accuracy current transformer.
- 2 relays can be programmed individual to be a Hi / Lo / Hi Latch / Lo, Latching, with Start Delay / Hysteresis / Energized & De-energized Delay functions, remotely controlled via Modbus.
- 2 external control inputs can be programmed individualy
- Relative PV / PV Hold / Maximum or Minimum Hold
- Other applications include: DI (remote monitoring) / Reset for Energized Latc.
- RS 485 communication port in option
- Outside dimensions is DIN standard (96 x 48 mm)
- CE Approved & RoHS

ORDERING INFORMATION

DKW– [Connection] – [A Input range | V Input range] [Input Frequency] – [Optional Output 1] [Optional Output 2] – [Aux. Power]

OPTION 1 OPTION 2 OPTION 4

CODE	CONNECTION
12	1P2W Unbalanced
13	1P3W Unbalanced
33	3P3W Unbalanced
34	3P4W Unbalanced

CODE		INPUT RANGE
A1		0 ~ 1 A
A5		0 ~ 5 A
AA		0 ~ 10 A
AF		0 ~ 50 A (with CT module YMWH-CT10A)
	V1	50 ~ 500V
	V2	220-110 V(1P3W)
AO	VO	Specify (A & V i/p)

CODE	INPUT FREQ.
5	50Hz ±3Hz
6	60Hz ±3Hz
E	400Hz ±3Hz
F	Specify

CODE	OUTPUT 1
N	None
I1	0~10 mA
I2	0~20 mA
I3	4~20mA
V	0~10 V
R	Relay(1st)

CODE	OUTPUT 2
N	None
8	RS485
R	Relay(2nd)

CODE	AUX. POWER
A	AC 115/230V
OPTION 4	
ADH*	AC/DC 85~264V
ADL*	AC/DC 20~90V

TECHNICAL SPECIFICATION

Measurement & Connection

Connection	AC Input			Input Burden
	Voltage	Current	Freq.	
1P2W	50~500V$_{ln}$	1A	50 Hz	Voltage:≤0.5VA/phase or Current:≤0.1VA/phase
1P3W	220V$_{ll}$-110V$_{ln}$	5A	60 Hz	
3P3W	50~500V$_{ll}$	50A	400 Hz	
3P4W	50~500V$_{ll}$			

* The maximum input is 500V and 5A. If the input over the level please connects with CT or PT to the meters. The 50A input is connected to a CT module(YMWH-CT10A).

Accuracy & Resolutions

Parameters	Accuracy	Resolution(Programmable)	Display Range
Active Power	0.5%	1/0.01K/0.1K/1K/0.01M/0.1M/1M	0~29999

Input

Measurement: True rms measurement
Waveform effect: ≤ 0.2% of F.S. at 30% distortion
A/D Converter: 16 bits resolution
Accuracy: ≤ 0.5% of FS ± 1C;
Sampling Rate: 15 cycles/sec
Response Time: ≤100 msec.(when the AvG = "1") in standard
Connection: 1P2W, 1P3W, 3P3W, 3P4W, Unbalance
Input Range: Voltage: *0 ~ 500V$_{ll}$ (max.)*
Unit for primary of PT programmable: V and KV
PT ratio(primary) programmable: 50.0V~999.99KV
PT ratio(secondary) programmable:50.0~500.0V
Direct input: primary = secondary = under 500V
Current: *0 ~ 1/ ~ 5/ ~ 10/~ 50A (max.)*
CT ratio(primary) programmable: 1~9999.9A
CT ratio(secondary) programmable: 1.000~9.999A
50A Direct input with optional module
Frequency: 50/60 Hz±3 Hz, 400 Hz±3 Hz

Max. Input over capability:
Voltage: 2 x rated continuous;
4 x rated for 2 seconds
Current: 3 x rated continuous;
10 x rated for 10 seconds;
50 x rated for 1 second(for 5A input type)

Control Functions (Optional)

Set-Points: Two set-points
Relay: Dual FORM-A, 1A/230Vac, 3A/115V
Relay Energized Mode:
Relative Power: *Hi / Lo / Hi.HLd / Lo.HLd / do / oFF*
Functions: Start delay / Energized & De-energized delay / Hysteresis / Energized Latch
Start band: 0~9999 counts
Start delay time: 0:00.0~9(Minutes):59.9(Second)
Energized delay time: 9(Minutes):59.9(Second)
De-energized delay time: 9(Minutes):59.9(Second)
Hysteresis: 0~5000 counts

External Control Inputs

Input Mode: 2 ECI points, Contact or open collect input, Level trigger
Functions: *There are flexible functions can be programmed for*
Power: *Relative PV / PV Hold / Reset Max or Mini. Hold / Reset for Relay latch.*
Digital Input(DI): *Remote monitoring*
Debouncing Time: *5 ~255 x 8mseconds*

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RS 485 Communication(optional)

Protocol:	Modbus RTU mode
Baud Rate:	1200/2400/4800/9600/19200/38400 programmable
Data Bits:	8 bit programmable
Parity:	Even, odd or none (with 1 or 2 stop bit) programmable
Address:	1 ~ 255 programmable
Remote Display:	*to show the value from RS485 command of master*
Distance:	1200M
Terminate Resistor:	150Ω at latest unit.

Electrical Safety

Dielectric Strength:	AC 2.0 KV for 1 min, Between Power / Input / Output / Case
Insulation Resistance:	≥ 100M ohm at 500Vdc, Between Power / Input / Output
Isolation:	Between Power / Input / Relay / RS485 / E.C.I.
EMC:	EN 55011:2002; EN 61326:2003
Safety(LVD):	EN 61010-1:2001

Environmental

Operating Temp.:	0~60 ˚C
Operating	20~95 %RH, Non-condensing
Temp. Coefficient:	≤ 100 PPM/˚C
Storage Temperature:	-10~70 ˚C
Enclosure:	Front panel: IEC 549 (IP54); Housing: IP20

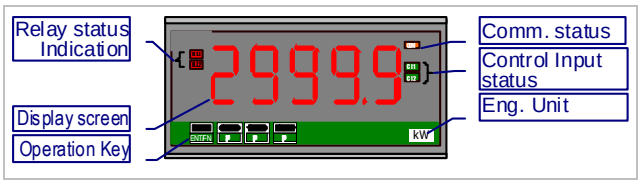
Mechanical

Dimensions:	96mm(W) x 48mm(H) x 120mm(D)
Panel Cutout:	93mm(W) x 45mm(H)
Case Materiel:	ABS fire-protection (UL 94V-0)
Mounting:	Panel flush mounting
Terminal Block:	Plastic NYLON 66 (UL 94V-0) Relay, A/O and RS485: 5A 300Vac, M2.6, 22~16AWG Other: 10A 600Vac, M3.0, 15~10AWG(1.5~2.5mm²)
Weight:	550g / 350g(Aux. Power Code: AH, D25)

Power

Power Supply:	AC115/230V,50/60Hz; Optional: AC/DC 20~90V or AC/DC 85~264V
Excitation Supply:	DC24V/30mA maximum in standard
Power Consumption:	5.0VA maximum
Back Up Memory:	By EEPROM

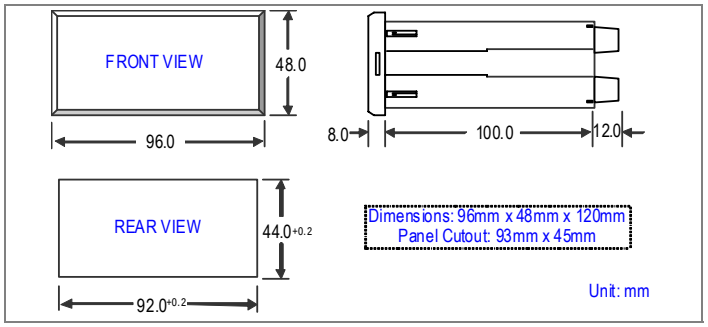
■ FRONT PANEL



Display:	4 1/2 digital; 0.8"(2.0mm) red high-brightness LED
I/O Status	RS 485 communication: 1 square orange LED
COM	will flash when the meter is receive or send data, and COM flash quickly means the data transient quickly
	E.C.I. function indication: 2 square green LED
ECI1	display when External Control input 1 close(dry contact)
ECI2	display when External Control input 2 close(dry contact)
	Relay energized indication: 2 square red LED
RL1	display when Relay 1 energized;
RL2	display when Relay 2 energized;
Symbols:	For symbol of function
HH Hi Lo LL DO	Symbol of function for Relay: HH / Hi / Lo / LL / DO
PV.H Tare DI M.RS R.RS	Symbol of function for E.C.I.: PV.H(PV Hold) / Tare / DI / M.RS(Maximum or Minimum Reset) / R.RS(Reset for Relay Latch)
Operation Keys:	4 keys for Enter(Function) / Shift(Escape) / Up / Down
	Up key: Increment the value / Back to previous function
	Down key: Decrement the value / Go to next function
	Shift key: Move the flash digit position / Return back to upper level / Escape
	Enter/Fun key: Access setting status / Stores selected parameter or set value and index to next parameter.

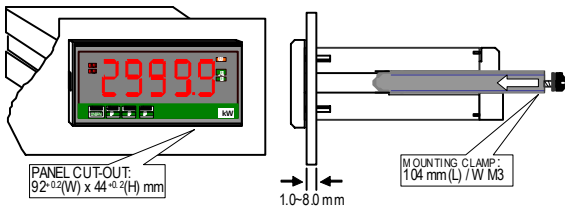
Security Function:	4 digits password settable from 0000~9999 You have to enter correct pass word so that access Programming Level for configuration. the meter can be changed the pass word in Engineer Level. If you forget the pass word, please contact with our company.
Lock Function:	4 lock mode for None / Normal Level / Programming Level / All(Normal Level & Programming Level) None: No lock, all function can be set and change Normal Level: The functions in normal level can not be set, but, they still can access the level and view. Programming Level: The functions in programming level can not be set, but, they still can access the level and view. All: Normal Level and Programming Level have been locked.
UP Key Function:	The UP key on front panel can be set to be same function as what was ECI 1 set.
Down Key Function:	The DOWN key on front panel can be set to be same function as what was ECI 2 set.
For example:	If the【ECi.1】in【ECi GroUP】was set to be【Pv.HLd】function, and【E.1=UP】was set to be【YES】. It means, when you press the UP key, the PV will be hold and the square LED of ECI1 will be bright until you press UP key again. In case of UP or Down Key function have been set, the terminal of ECI will be locked out.

■ DIMENSIONS



■ INSTALLATION

The meter should be installed in a location that dose not exceed the maximum operating temperature and provides good air circulation.

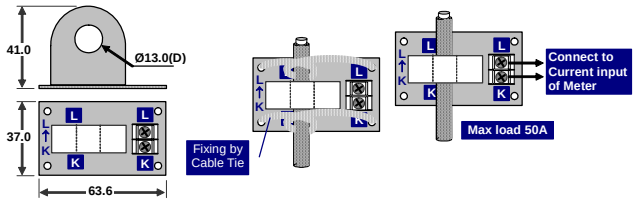


■ CONNECTION DIAGRAM

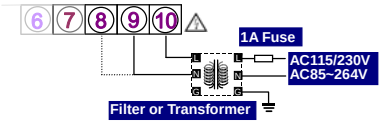
Please check the voltage of power supplied first, and then connect to the specified terminals. It is recommended that power supplied to the meter be protected by a fuse or circuit breaker.

Relay, RS485, A/O: wiring: M2.6, AWG22~16(0.5~1.3mm^2)
Other: Wiring: M3.0, AWG15~10(1.5~2.5mm^2)

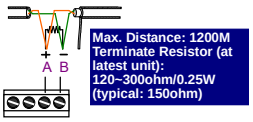
High precision CT module – YMWH-CT10A – 0.1class



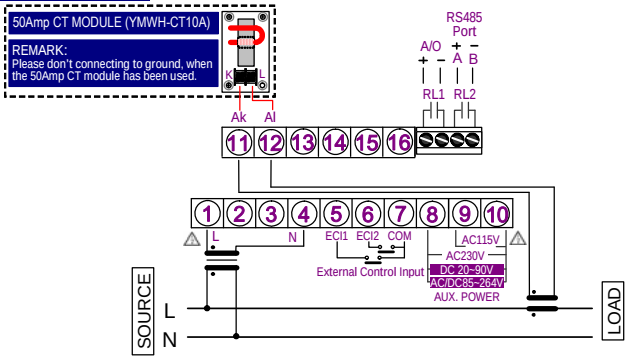
Aux. Power Connection



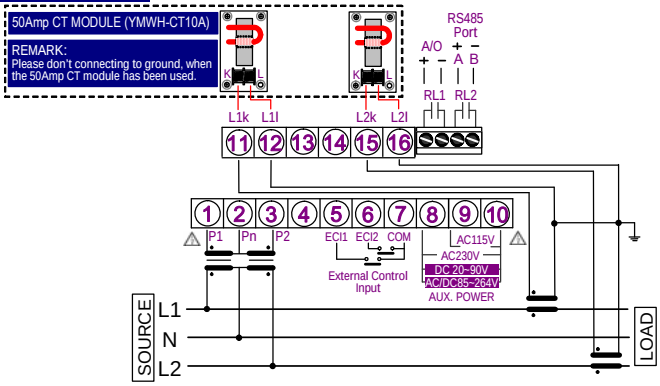
RS485 Communication Port



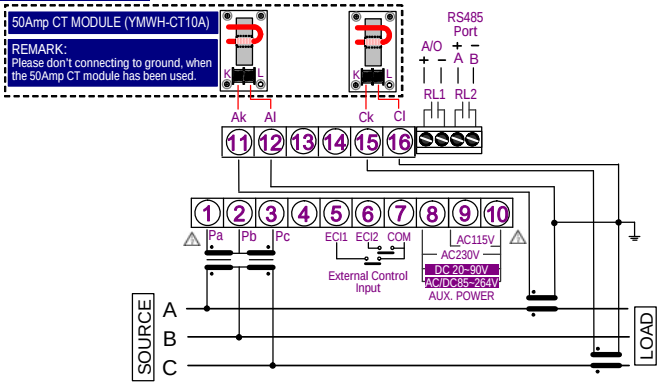
1Phase 2Wire



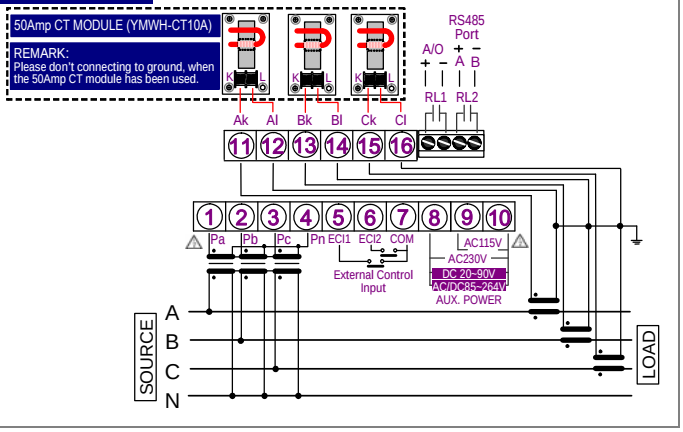
1Phase 3Wire



3Phase 3Wire



3Phase 4Wire



■ FUNCTION DESCRIPTION

- MINIMUM OR MAXIMUM VALUE HOLD
- PRESENT VALUE HOLD
- PRESET MINIMUM VALUE DISPLAY (LO CUT)
- SAMPLE AVERAGING
- MOVING AVERAGES
- DIGITAL FILTER
- FIELD CALIBRATION FINE ADJUSTMENT
- PROGRAMMABLE CT & VT RATIOS
- ALARM RELAYS NORMAL OR LATCHING MODE
- DIGITAL INPUTS FOR USER PROGRAMMABLE FUNCTIONS
- RESET BY EXTERNAL INPUT OR ASSIGNED FRONT KEY
- ALARM RELAY DELAY AND START DELAY
- RS485 MODBUS BIDIRECTIONAL FUNCTIONALITY

Ask for 'Functions' data sheet for full description.