

Watt-hour Meter (Transducer Type) - FWK

WATTHOUR METER ⁽¹⁾

Application	Type	Rating ⁽²⁾	Consumption VA		Accessory (Transducer)
			Voltage side	Current side	
Single phase	FWK-7C-12	110V, 5A(1A)	2VA	1VA	WT-62M-12
	5C-12	220V, 5A(1A)	3.5VA	1VA	
Single phase 3-wire	FWK-7C-13 5C-13	110V, 5A(1A)	Each phase 2VA	Each phase 1VA	WT-83M-13
3 phase	FWK-7C-33	110V, 5A(1A)	Each phase 2VA	Each phase 1VA	WT-83M-33
	5C-33	220V, 5A(1A)	Each phase 3.5VA	Each phase 1VA	
3 phase 4-wire ⁽³⁾	FWK-7C-34	110/√3V, 5A(1A)	Each phase 1.5VA	Each phase 1VA	WT-83M-34
	5C-34	220/√3V, 5A(1A)	Each phase 3VA	Each phase 1VA	

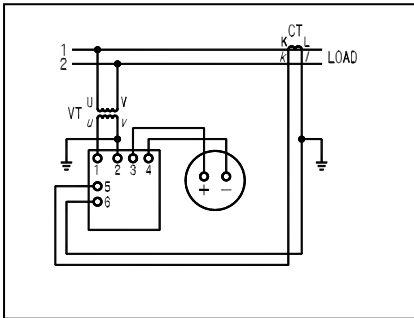
Note:

- ⁽¹⁾ Please refer to Reference List (page 14) for manufactured limit and max. scale value.
 - ⁽²⁾ When above rating is exceeds, please external CT or VT respectively to meter 110V, 5A(1A).
Useable voltage range: 110V: 90~130V, 220V: 180~260V.
 - ⁽³⁾ 3 phase 4-wire is voltage balanced.
- For high frequency ware use. Please specify the frequency.

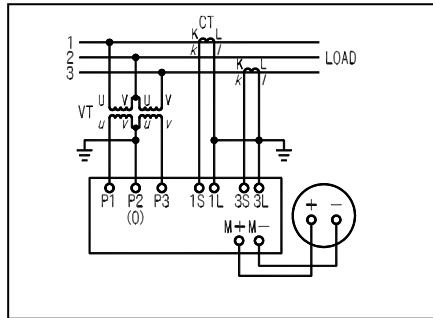
For SCR Control Waveform

Type name: FWK-□CH-□, Aux. power is necessary. (3 phase 4-wire can not be manufacture)

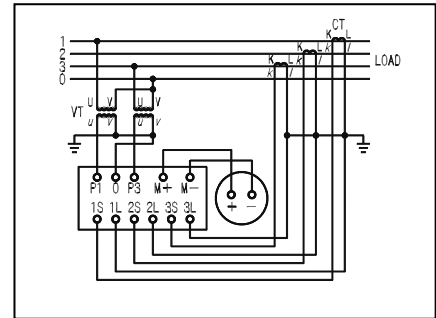
Connection Diagram



Single phase watt-hour meter
External with WT-62M-12

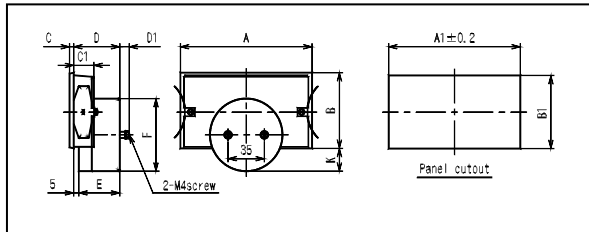


Single phase 3 wire / 3 phase watt-hour meter
External with WT-83M-13/33

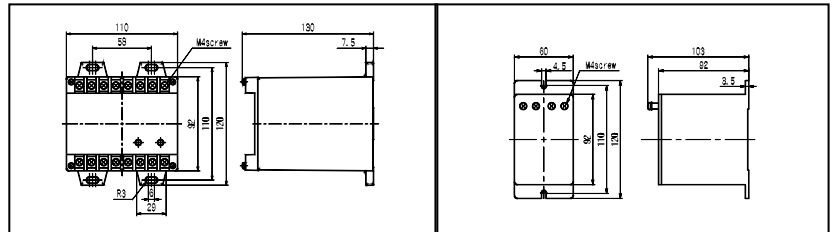


3 phase 4 wire watt-hour meter
External with WT-83M-34

Dimensions



Dimensions Accessory (Transducer)



Dimension For Type: WT-83M

Dimension For Type: WT-62M

Type	A	A1	B	B1	C	C1	D	D1	E	F	K	Weight (g)
FWK-7C	127	121	73	70.5 ±0.2	4	19.5	45	10	40	70 Φ	22	Below 1180
FWK-5C	100	97	57	55 ^{+0.2} / _{-0.1}	4	20	36	10	31	53 Φ	21.5	Below 1120

Var Meter (Transducer Type) - FWVK

VAR METER ⁽¹⁾

Application	Type	Rating ⁽²⁾	Consumption VA		Accessory (Transducer)
			Voltage side	Current side	
Single phase ⁽³⁾	FWVK-7C-12 5C-12	110V, 5A(1A)	3.5VA	1.5VA	WVT-62M-12
		220V, 5A(1A)	3.5VA	1.5VA	
3 phase ⁽⁴⁾ (balanced)	FWVBK-7C-33 5C-33	110V, 5A(1A)	Each phase 3.5VA	Each phase 1.5VA	WVBT-83M-33
		220V, 5A(1A)	Each phase 3.5VA	Each phase 1.5VA	
3 phase ⁽⁴⁾ (unbalanced)	FWVK-7C-33 5C-33	110V, 5A(1A)	Each phase 3.5VA	Each phase 1.5VA	WVT-83M-33
		220V, 5A(1A)	Each phase 3.5VA	Each phase 1.5VA	
3 phase ⁽⁴⁾ 4-wire ⁽⁵⁾	FWVK-7C-34 5C-34	110V, 5A(1A)	Each phase 3.5VA	Each phase 1.5VA	WVT-83M-34
		220V, 5A(1A)	Each phase 3.5VA	Each phase 1.5VA	

Note:

⁽¹⁾ Please refer to Reference List (page 14) for manufactured limit and max. scale value.

Standard scale: Lead □ var ~ 0 ~ Lag □ var

⁽²⁾ When above rating is exceeds, please external CT or VT respectively to meter 110V, 5A(1A).

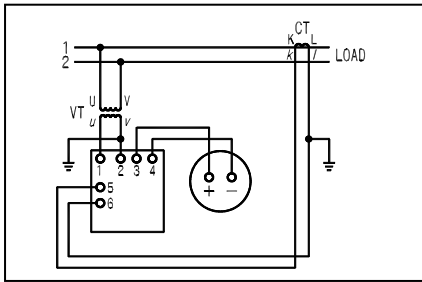
Useable voltage range: 110V: 90~130V, 220V: 180~260V.

⁽³⁾ Please specify the frequency (50Hz or 60Hz) for single phase circuit.

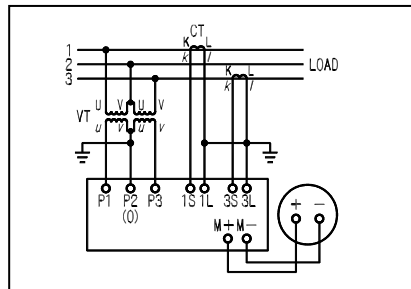
⁽⁴⁾ Please use 3 phase, 3 phase 4-wire in positive phase sequence.

⁽⁵⁾ 3 phase 4-wire is voltage balanced.

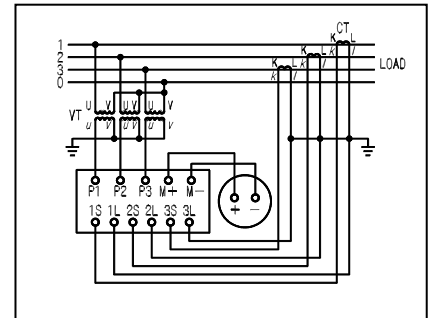
Connection Diagram



Single phase var meter
External with WVT-62M-12

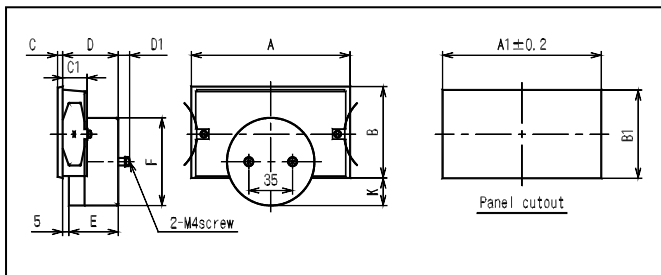


Single phase 3 wire / 3 phase var meter
External with WVT, WVBT-83M-13/33

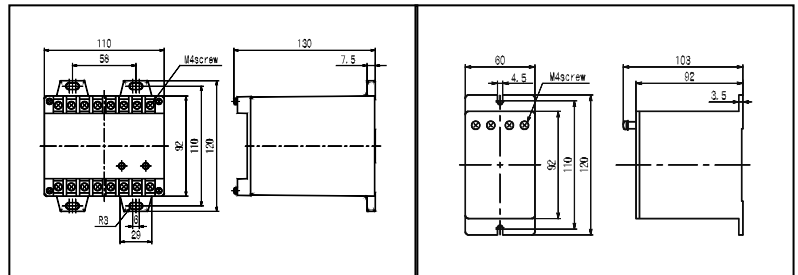


3 phase 4 wire var meter
External with WVT-83M-34

Dimensions



Dimensions Accessory (Transducer)



Type: WVT-83M, WVBT-83M

Type: WVT-62M

Type	A	A1	B	B1	C	C1	D	D1	E	F	K	Weight (g)
FWV(B)K-7C	127	121	73	70.5 ± 0.2	4	19.5	45	10	40	70 Φ	22	Below 1180
FWV(B)K-5C	100	97	57	55 ^{+0.2} _{-0.1}	4	20	36	10	31	53 Φ	21.5	Below 1120

Wattour Meter & Var Meter (Transducer Type) - FWK / FWVK

PRODUCIBLE INTRINSIC MAX. SCALE VALUE METER

Manufacturable range will be limited where intrinsic max. scale value is within the scope as shown in the list at below. But in the case, the meter used external CV or VT, max. scale value will be calculated as following formula:

$$\text{Max. scale value} = \frac{\text{Intrinsic Max. scale value}}{\text{VT ratio} \times \text{CT ratio}}$$

Type Name	Rating			Manufacturable Intrinsic Range
Single phase wattour meter	110V/5A (1A)			350~600W (var)
Single phase var meter	220V/5A (1A)			700~1200W (var)
Single phase 3-wire wattour meter	110V/5A (1A)			600~1200W (var)
3 phase wattour meter 3 phase var meter	110V/5A (1A)			600~1200W (var)
	220V/5A (1A)			1200~2400W (var)
3 phase 4-wire wattour meter 3 phase 4-wire var meter	Line	Phase	Current	—
	110V	110/√3V	5A (1A)	600~1200W (var)
	220V	220/√3V	5A (1A)	1200~2400W (var)

REFERENCE LIST FOR STANDARD MAX. SCALE VALUE THREE PHASE WATTMETER

The following table is the standard of 3 phase wattmeter.

The following table also applies for 3 phase 4-wire wattmeter, single phase 3-wire wattmeter and var meter.

Standard for single phase wattmeter calculation : listed value × 1/2

Line vol. CT ratio	6600V (VT6600 / 110V)			3300V (VT3300 / 110V)			440V (VT440 / 110V)			220V			110V		
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
5 / 5A	60	50	40	30	25	20	4	5	3	2	1.5	1.2	1	0.8	0.6
7.5 / 5A	90	75	60	45	40	30	6	5	4	3	2.5	2	1.5	1.2	1
10 / 5A	120	100	80	60	50	40	8	7.0	6	4	3	2.5	2	1.5	1.2
15 / 5A	200	150	120	100	75	60	12	10	8	6	5	4	3	2.5	2
20 / 5A	240	200	150	120	100	80	15	—	12	8	6	5	4	3	2.5
25 / 5A	300	250	200	150	120	100	20	—	15	10	8	7.5	5	4	3
30 / 5A	400	300	240	200	150	120	24	—	20	12	10	8	6	5	4
40 / 5A	480	400	300	240	200	150	30	—	24	15	12	10	8	7.5	5
50 / 5A	600	500	400	300	250	200	40	—	30	20	15	12	10	8	6
60 / 5A	750	600	480	400	300	240	48	—	40	24	—	20	12	10	8
75 / 5A	900	750	600	450	400	300	60	50	40	30	25	20	15	12	10
100 / 5A	1200	1000	800	600	500	400	80	75	60	40	30	25	20	15	12
150 / 5A	2000	1500	1200	1000	750	600	120	100	80	60	50	40	30	25	20
200 / 5A	2400	2000	1500	1200	1000	800	150	—	120	80	60	50	40	30	25
250 / 5A	3000	2500	2000	1500	1200	1000	200	—	150	100	80	75	50	40	30
300 / 5A	4000	3000	2400	2000	1500	1200	240	—	200	120	100	80	60	50	40
350 / 5A	4000	—	3000	2000	—	1500	300	250	200	150	120	100	75	60	50
400 / 5A	4800	4000	3000	2400	2000	1500	300	—	250	150	120	100	80	75	50
450 / 5A	6000	5000	4000	3000	2500	2000	400	300	250	200	150	120	100	75	60
500 / 5A	6000	5000	4000	3000	2500	2000	400	—	300	200	150	120	100	75	60
600 / 5A	7500	6000	4800	4000	3000	2400	500	—	400	240	—	200	120	100	70
750 / 5A	9000	7500	6000	4500	4000	3000	650	500	400	300	250	200	150	120	100
800 / 5A	10MW	8000	7500	5000	—	4000	700	600	500	300	250	200	150	120	100
1000 / 5A	12MW	10MW	8000	6000	5000	4000	800	750	600	400	300	250	200	150	120
1200 / 5A	15MW	12MW	10MW	7500	6000	5000	1000	800	750	500	400	300	250	200	150
1500 / 5A	20MW	15MW	12MW	10MW	7500	6000	1200	1000	800	600	500	400	300	250	200