

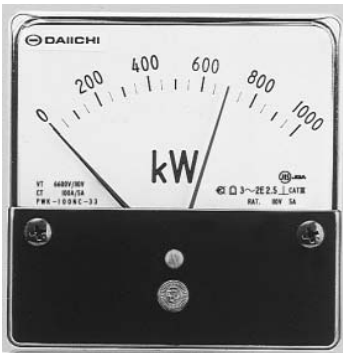
## Square Shape Instrument - PK Series



PK-60C



PK-80C



PK-100C



PK-120C

PK-series is a square type meter. 4 difference degree type for this square PK-series:120mm, 100mm, 80mm & 60mm. Panel cut dimension is conformity with JIS C 1103.

PK-series is a reliable meter be fully satisfied with standard JISC 1102-1~9 (conformity with IEC 60051-1) and adopt a most suitable operating principle for measuring object.

Our product improve with realibility special specification for overdue environmental conditions as cold resistance and tropical specification. Please consider to use our product on oversea such as the Frigid Zone and Tropical Zone.

### FEATURES

- ▶ High quality and high performance meter.
- ▶ 4 types: 120mm, 100mm, 80mm, 60mm degree.  
Select the most suitable type according to your panel space.
- ▶ Flame Retardant Material Meter can be manufacture by specify.
- ▶ Meter with knife-edge pointer also can be manufacture.
- ▶ Locked panel by 2 screws.

# Square Shape Instrument - PK Series

## TYPE CODE DESIGNATION

P (1) K - (2) (3) C (4) - (5)

**(1)** Type of measurand

Mark	Measurand	Operation Principle
M	DC current, voltage	Permanent magnet moving coil
X	DC receiving indicator	Permanent magnet moving coil
Y	AC receiving indicator	Rectifier
S	AC current, voltage	Moving iron
C	AC current, voltage	Rectifier, RMS value rectifier
W	AC power	Transducer
WVB	Reactive power (balanced)	Transducer
WV	Reactive power (unbalanced)	Transducer
PB	Power factor (balanced)	Transducer
P	Power factor (unbalanced)	Transducer
A	Frequency meter	Transducer

**(2)** Shape

Mark	Square Shape Meter
120	120 × 120
100	100 × 100
80	80 × 80
60	60 × 60

**(4)** Special Specifications

Mark	Specification
H	For SCR
C	Cycle Control
L	With Lamp
S	With Shield

**(3)** Structure

Mark	Structure
N	Transducer all-in-one type

**(5)** Kind of Circuit

Mark	Circuit
12	Single phase
13	Single phase 3-wire
33	3 phase 3-wire
34	3 phase 4-wire

## Square Shape Instrument - PK Series

### COMMON STANDARD SPECIFICATIONS

ITEM	SPECIFICATION	
Standard	JISC 1102: 2007 [Electric Indicating Meter Direct Acting Type]	
	JISC 1103 [Dimensions Electric Indicating Meter Switchboards]	
	IEC 60051-1 conformity	
Class	Refer to [List of PK series]	
Support system	Pivot system (Part of system is Taut band)	
Swing angle of pointer	86°	
Dimensions meter from front	PK-120C: 120×120mm	PK-80C: 80×80mm
	PK-100C: 100×100mm	PK-60C: 60×60mm
Length of scale	PK-20C: 95mm	PK-80C: 61mm
	PK-100C: 80mm	PK-60C: 45mm
Color of scale plate	White	
Pointer	Lance shape (Black)	
Installation posture	Vertical (⊥)	
Material panel	Iron & non-iron plate	
Thickness panel	10mm or less (6mm or less for PK-80C,PK-60C)	
Color of cover	Black (Munsell N1.5) Dark blue (Munsell 7.5BG 4/1.5)	
Material of case	Cover: Methacrylic acid resin molding (Antistatic treatment)	
Insulation resistance	Between electric circuit and outer case	DC500V, 50MΩ or more
Voltage test	Between electric circuit and outer case	AC3320V, between 5sec.
Safety requirements	Standard	JIS C 1010-1
	Insulation	Between electric circuit and outer case : Base of insulation
	Use	For indoor use (Cubicle etc.)
	High altitude	2000m or less
	Pollution	Pollution level 2
	Measure category	CAT III
	Max. circuit voltage	600V (Ammeter)
Operated temperature/ Humidity limit	-10~55°C, Average day temperature 40°C or less, 25~85% RH (Reference to steel ship rules ambient temperature 45°C)	
Storage temperature range	-20~70°C	

### STANDARD SCALE DIVISION FOR LANCET SHAPE METER

Max. scale value (10 times)		1	1.5	2	2.5	3	4	5	6	7.5	8	9
Type	PK-120(N)C	20	30	40	25	30	40	25	30	37.5	40	45
	PK-100(N)C, PK-80C, PK-60C	20	30	20	25	30	20	25	30	15	16	18

### STANDARD SCALE DIVISION FOR KNIFE SHAPE METER

Max. scale value (10 times)		1	1.5	2	2.5	3	4	5	6	7.5	8	9
Type	PK-120(N)C	50	75	40	50	60	80	50	60	75	80	45
	PK-100(N)C, PK-80C, PK-60C	50	30	20	50	30	40	50	30	37.5	40	45

## Square Shape Instrument - PK series

### COMMON SPECIAL SPECIFICATIONS (Please Specify)

ITEM		SPECIFICATION
Scale	Color line	Red, Green, Yellow (please specify)
	Extend scale	PCK, PSK: 2~5-time extend
	Color area (bar)	Red, Green, Yellow (please specify)
	Double scale	Please specify
	Double seal	Please specify
	Max. scale division	120 angle = 100 division, 100 angle = 80 division 80 angle = 60 division, 60 angle = 50 division
	Special scale	Please specify
Vibration proof specification	Vibration	Frequency 2~55Hz, 29.4m/s <sup>2</sup>
	Shock	147m/s <sup>2</sup> , 30-time
Tropical specification	Rust preventative, 「FOR TROPICS」 will display at the name plate	
Pointer	Knife shape (red), Rod shape (black), combine use with multiple scale etc.	
Control pointer	Lancet shape (red), 2 control pointer also possible to manufacture (red×2)	
Installation posture	Horizontal, or Inclined (specify the angle)	
Flame-retardant materials	Cover	Polycarbonate resin
Protection circuit of meter	Overcurrent	Specify necessary tolerated dose
	Overvoltage	Specify necessary tolerated dose
Extended part of scale	Voltmeter	Up to ±10%, ±20%, ±30% of central scale value 75% or more of scale length
	Ammeter	Up to 20% of upper limit value of effective measuring range 95% or more of scale length
		Up to 50% of upper limit value of effective measuring range 75% or more of scale length
For SCR control waves use	AC current, AC voltage, frequency	
For cycle control use	AC current, AC voltage (Rectifier Type)	
With lamp (Not for 120 angle)	DC6V (10mA), DC12, 24, 48V (6mA)	
Test report	Specify the useful frequency and number copies of report require	
Scale (single item)	Not JIS mark	
Color of cover	Specified color	
Terminal cover	Please consultation with us	
Others	Please consultation with us for special frequency	

### ITEM TO SPECIFY WHEN MAKE PURCHASE

- 1).Type Name
- 2).Rated (Max. scale/ Input) \*1
- 3).Color of cover
- 4).Terminal cover
- 5).Units
- 6).Options (Refer to Common Special Specification)
- 7).Test report (specify use frequency and number of copies require)

\*1. For max.scale value watt or var meter, please refer to List of Standard Max. Scale Value.  
Please specify frequency of the power factor meter according to the specification.

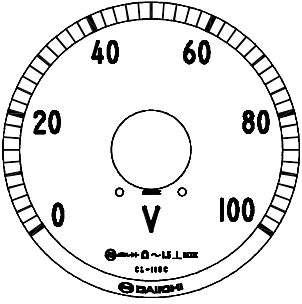
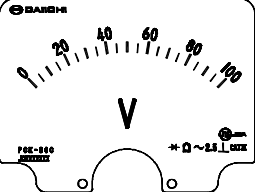
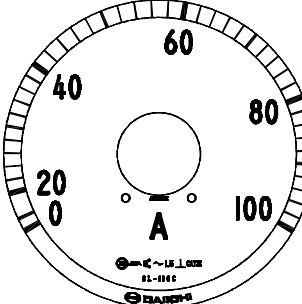
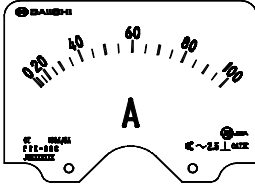
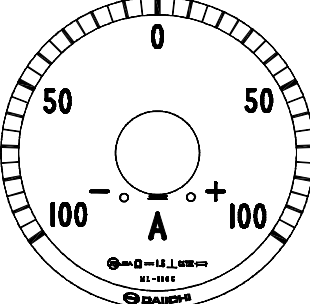
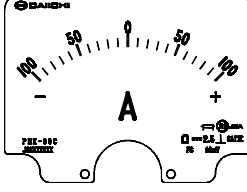
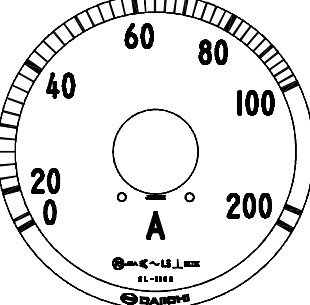
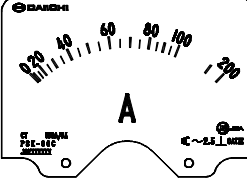
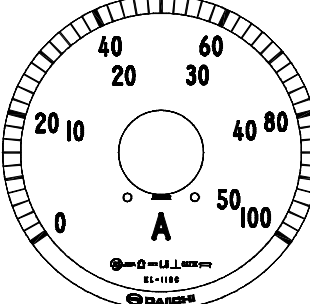
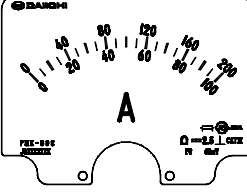
# Square Shape Instrument - PK Series

## LIST OF PK SERIES

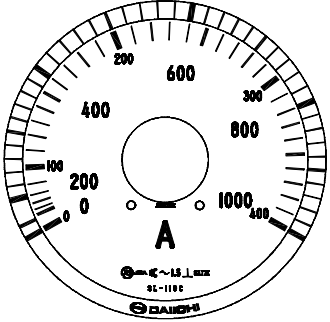
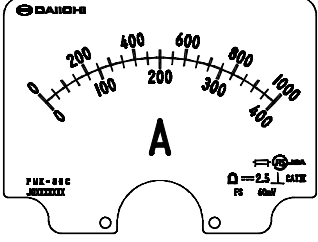
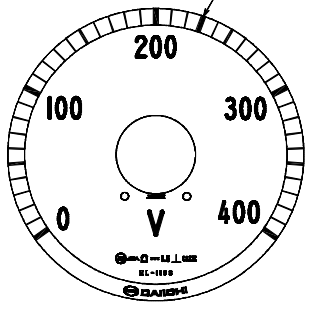
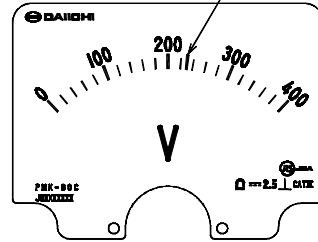
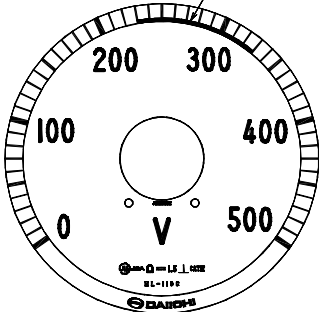
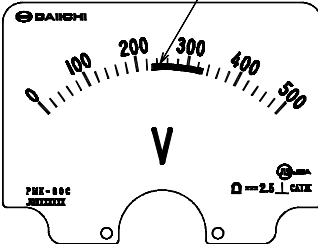
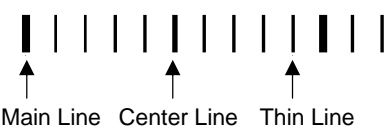
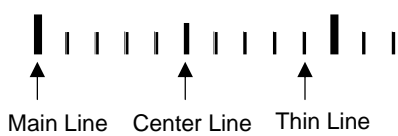
MODEL		PK-120(N)C		PK-100(N)C		PK-80C		PK-60C	
JIS MARK		KS-3b		KS-5a		KS-6a		KS-7	
Product	Principle	Type	Class	Type	Class	Type	Class	Type	Class
DC Ammeter	Moving coil	PMK-120C	1.5	PMK-100C	2.5	PMK-80C	2.5	PMK-60C	2.5
DC Voltmeter		PMK-120C	1.5	PMK-100C	2.5	PMK-80C	2.5	PMK-60C	2.5
DC Receiving Indicator	Moving coil	PXK-120C	1.5	PXK-100C	2.5	PXK-80C	2.5	PXK-60C	2.5
AC Receiving Indicator	Rectifier	PYK-120C	1.5	PYK-100C	2.5	PYK-80C	2.5	PYK-60C	2.5
AC Ammeter	Moving iron	PSK-120C	1.5	PSK-100C	2.5	PSK-80C	2.5	PSK-60C	2.5
AC Voltmeter		PSK-120C	1.5	PSK-100C	2.5	PSK-80C	2.5	PSK-60C	2.5
AC Ammeter	Rectifier	PCK-120C	1.5	PCK-100C	2.5	PCK-80C	2.5	PCK-60C	2.5
AC Voltmeter		PCK-120C	1.5	PCK-100C	2.5	PCK-80C	2.5	PCK-60C	2.5
Watt Meter	Single phase	PWK-120NC-12	1.5	PWK-100NC-12	2.5	PWK-80C-12	2.5	PWK-60C-12	2.5
	Single phase 3-wire	PWK-120NC-13	1.5	PWK-100NC-13	2.5	PWK-80C-13	2.5	PWK-60C-13	2.5
	3 phase	PWK-120NC-33	1.5	PWK-100NC-33	2.5	PWK-80C-33	2.5	PWK-60C-33	2.5
	3 phase 4-wire	PWK-120NC-34	1.5	PWK-100NC-34	2.5	PWK-80C-34	2.5	PWK-60C-34	2.5
Var Meter	Single phase	PWVK-120NC-12	1.5	PWVK-100NC-12	2.5-	PWVK-80C-12	2.5	PWVK-60C-12	2.5
	3 phase (balanced)	—	—	—	—	PWVBK-80C-33	2.5	PWVBK-60C-33	2.5
	3 phase (unbalanced)	PWVK-120NC-33	1.5	PWVK-100NC-33	2.5	PWVK-80C-33	2.5	PWVK-60C-33	2.5
	3 phase 4-wire	PWVK-120NC-34	1.5	PWVK-100NC-34	2.5	PWVK-80C-34	2.5	PWVK-60C-34	2.5
Power Factor Meter	Single phase	PPK-120NC-12	5.0	PPK-100NC-12	5.0	PPK-80C-12	5.0	PPK-60C-12	5.0
	3 phase (balanced)	PPBK-120NC-33		PPBK-100NC-33		PPBK-80C-33		PPBK-60C-33	
	3 phase (unbalanced)	PPK-120NC-33		PPK-100NC-33		PPK-80C-33		PPK-60C-33	
	3 phase 4-wire (balanced)	PPBK-120NC-34		PPBK-100NC-34		PPBK-80C-34		PPBK-60C-34	
	3 phase 4-wire (unbalanced)	PPK-120C-34		PPK-100C-34		PPK-80C-34		PPK-60C-34	
Frequency Meter	Transducer	PAK-120C	1.0	PAK-100C	1.0	PAK-80C	1.0	PAK-60C	1.0

► Keep in mind please, Transducer type meter does transitional indication at voltage input start.

# EX. SCALE

Scale Specification	Wide Angle Meter Ex.: L-110C	Square Shape Meter Ex.: PK-80C
<p><b>Standard Scale</b></p> <p>Scale digit: Black Scale line : Black Unit mark : Black Scale division : Refer to standard lancet shape pointer division</p>		
<p>Moving iron type can be left out the lower value part of scale Scale division : Refer to standard lancet shape pointer division</p>		
<p><b>± Scale Meter (Both Side Deflect Meter)</b></p> <p>Scale digit: Black Scale line : Black Unit mark : Black</p>		
<p><b>Extend Scale (2-Fold Extend)</b></p> <p>Scale digit: Black ; Extend part: Red Scale line : Black ; Extend part: Red Unit mark : Black</p>		
<p><b>Single Scale Double Seal Meter</b></p> <p>Scale digit: Black Scale line : Black Unit mark : Black Standard place a seal of scale figure : Higher value will display at inside &amp; smaller value will display at outside</p>		

# EX. SCALE

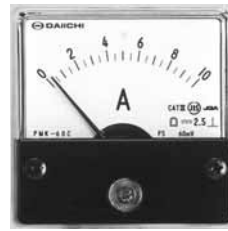
Scale Specification	Wide Angle Meter Ex.: L-110C	Square Shape Meter Ex.: PK-80C
<p><b>Double Scale Double Seal</b></p> <p>Scale digit: Black            Scale line : Black            Unit mark : Black            Scale division :            Refer to standard lancet shape pointer division            Standard place a seal of scale figure :            Higher value will display at outside &amp; smaller value will display at inside            For wide angle meter :            Higher value will display at inside &amp; smaller value will display at outside</p>		
<p><b>Coloring Scale (Color Line)</b></p> <p>Scale color line : Red, Yellow, Green            Possible combine the color line &amp; color figure to use for double scale</p>		
<p><b>Color Belt</b></p> <p>Color Belt : Red, Yellow, Green</p>		
<p><b>Scale line and Scale figure</b></p> <p>1) Type of scale line            Scale figure will print at main line            Please refer to standard lancet shape pointer division &amp; standard knife shape pointer division</p> <p>2) Figure of scale : Max. 4-digit (9999)            If 10000 is exceed, unit will be change like 6.6kV or use multiple like <math>36 \times 1000 \text{min}^{-1}</math></p> <p>3) Please have a consultation with us if scale division is different with standard division (odd scale)            Please specify for Max. division</p> <p>4) Display 「0」 will be left out if the scale figure after decimal point is Zero. (like scale figure 1 as below)</p> <p>5) Display 「0」 will be left out if the scale figure before decimal point is Zero. (like scale figure 0.5 as below)</p> <p>Ex. : For range value 1.5</p> <p>Wide Angle Meter            Scale will display by 「1.0」 for wide angle meter (except BRL &amp; RL series)</p> <p>Square Share Meter            BRL &amp; RL series is same scale as square share meter</p>		

## § Wide Angle METER §

### STANDARD DIVISION OF LANCET-SHAPED POINTER



L series



PK series

MODEL	L-65C PK-60C, 80C, 100C LK-8C, 10C BRL-110CH Instant Meter		RL-80C PK-120C LK-12C F-10	
MAX. SCALE VALUE	SCALE DIVISION DIAGRAM	DIV.	SCALE DIVISION DIAGRAM	DIV.
1		20		20
1.5		30		30
2		20		40
2.5		25		25
3		30		30
4		20		40
5		25		25
6		30		30
7.5		15		37.5
8		16		40
9		18		45



## § Wide Angle METER §



LK series



F series



F series

MODEL	RL-110C BRL-110CH Utility meter		F-15, 17 Note) 4-digit scale of 2T is not manufacturable. L-110C L-80C EL-110C			
	MAX. SCALE VALUE	SCALE DIVISION DIAGRAM	DIV.	SCALE DIVISION DIAGRAM	DIV.	
1	*2	0 2 4 6 8 10	50	*2	0 2 4 6 8 10	50
1.5		0 5 10 15	30	*8	0 5 10 15	75
2	*2	0 5 10 15 20	40		0 5 10 15 20	40
2.5	*4	0 5 10 15 20 25	50		0 5 10 15 20 25	50
3		0 10 20 30	30	*8	0 5 10 15 20 25 30	60
4	*2	0 10 20 30 40	40		0 10 20 30 40	40
5	*4	0 10 20 30 40 50	50		0 10 20 30 40 50	50
6		0 20 40 60	30	*8	0 10 20 30 40 50 60	60
7.5		0 20 40 60 75	37.5	I-110 & I-80: 37.5 DIVISION *9	0 20 40 60 75	75
8		0 20 40 60 80	40		0 20 40 60 80	40
9		0 30 60 90	45	*5	0 20 40 60 80 90	45

## § Wide Angle METER §

### STANDARD DIVISION OF KNIFE-EDGE POINTER

MODEL	PK-60C, 80C, 100C LK- 8C, 10C FK- 5C,		PK-120C LK- 12C FK- 7C		
	MAX. SCALE VALUE	SCALE DIVISION DIAGRAM	DIV.	SCALE DIVISION DIAGRAM	DIV.
1	0 2 4 6 8 10		50	0 2 4 6 8 10	50
1.5	0 5 10 15		30	0 2 4 6 8 10 12 14 15	75
2	0 5 10 15 20		40	0 5 10 15 20	40
2.5	0 5 10 15 20 25		50	0 5 10 15 20 25	50
3	0 10 20 30		30	0 5 10 15 20 25 30	60
4	0 10 20 30 40		40	0 10 20 30 40	80
5	0 10 20 30 40 50		50	0 10 20 30 40 50	50
6	0 20 40 60		30	0 10 20 30 40 50 60	60
7.5	0 20 60 60 75		37.5	0 20 40 60 75	75
8	0 20 40 60 80		40	0 20 40 60 80	80
9	0 30 60 90		45	0 30 60 90	45

- ▶ Division line part of is omitted for moving iron type meter.
- ▶ For scale extended meter, red color line and numbers of extended part.
- ▶ Have a consultation with us for +/- meter, notation of max. scale value, multiple scale meter, etc.
- ▶ \*1, becomes 15 divisions for scale extended ammeter PK-60C, PK-80C and LK-8C.
- ▶ \*2, becomes 20 divisions for scale extended ammeter PK-120C, LK-12C, F-10, 15, 17, RL-80C and RL-110C.
- ▶ \*3, becomes 15 divisions for scale extended ammeter PK-120C, LK-12C, F-10, 15, 17 and RL-80C.
- ▶ \*4, becomes 25 divisions for scale extended ammeter RL-110C.
- ▶ \*5, seal numbers: 0, 30, 60, 90 for type meter F-15, and 17.
- ▶ \*6, becomes 16 divisions for scale extended ammeter PK-120C, LK-12C, F-10, RL-80C.
- ▶ \*7, becomes 18 divisions for scale extended ammeter PK-120C, LK-12C, F-10, RL-80C.
- ▶ \*8, becomes 30 divisions for scale extended ammeter F-15, 17.
- ▶ \*9, becomes 37.5 divisions for scale extended ammeter F-15, 17.