

PHOTOELECTRIC NON-CONTACT METER RELAY

EK

EK SERIES LIST

* Use relay box DM-61 for EK-12C. DM-63 is for special specification.

* Relay box for type EP-12NC is integral type.

Product		Operation Principle	Type	Class	Max. scale value/ rated value	Internal resistance / Voltage fall / Consumption current / Consumption VA		Accessory Transducer	Diagram	Note
DC Current		Permanent Magnet Moving Coil Type	MEK-12C MEK-12NC	1.5	100μA	1500Ω		—	C-1	* When 750mA is exceeded, shunt will external for MEK-12NC
					1mA	90Ω				
					5mA	20Ω				
					20mA	3Ω				
					30mA~30A	60mV		Shunt		50mV, 100mV can manufactured
30A~10kA	60mV									
DC Voltage		Permanent Magnet Moving Coil Type	MEK-12C MEK-12NC	1.5	50~900mV	4.5mA		—	C-2	—
					1~600V	1mA				
					750V~25kV	1mA		Series resistor		
DC Receiving meter		Permanent Magnet Moving Coil Type	XEK-12C XEK-12NC	1.5	1mA	90Ω		—	C-1 C-2	—
					4~20mA	2.1Ω				
					1~300V	1mA				
AC Current		Rectifier Type	CEK-12C CEK-12NC	1.5	10mA~15A	1VA or less		—	C-3	* When 350mA exceeded, MR-CTN will external for CEK-12NC
					20~100A	1VA		MR-CTN		
AC Current		Transducer Type	CEK-12CE		10mA~15A	1VA or less		—	C-3	* When 350mA exceeded, MR-CTN will external for CEK-12NC
					20~100A			MR-CTN		
AC Voltage		Rectifier Type	CEK-12C CEK-12NC	1.5	3~600V	1mA		—	C-4	—
					750V~25kV	1mA		Series resistor		
AC Voltage		Transducer Type	CTEK-12NC CTEK-12C	1.5	50-300V	1VA		VT-62ME	C-16	—
AC Receiving meter		Rectifier Type	YEK-12C YEK-12NC	1.5	1mA	1300Ω		—	C-3	—
					3~300V	1mA			C-4	
Watt Meter	single phase	Transducer Type	WEK-12C-12 WEK-12NC-12	1.5	110V, 5A 220V, 5A	Voltage 2VA Voltage 3.5VA	Current 1VA Current 1VA	WT-62M-12	C-8	* Refer to accessory transducer outline drawing. * Refer to meter manufacturing limit and max. scale value.
	single phase 3 wire		WEK-12C-13 WEK-12NC-13	1.5	110V, 5A	Voltage each phase 2VA	Current each phase 1VA	WT-83M-13	C-5	
	3 phase		WEK-12C-33 WEK-12NC-33	1.5	110V, 5A 220V, 5A	Voltage each phase 2VA Voltage each phase 3.5VA	Current each phase 1VA Current each phase 1VA	WT-83M-33	C-5	
	3 phase 4 wire		WEK-12C-34 WEK-12NC-34	1.5	110/√3V, 5A 220/√3V, 5A	Voltage each phase 1.5VA Voltage each phase 3VA	”	WT-83M-34	C-6	
Var Meter	single phase	Transducer Type	WVEK-12C-12 WVEK-12NC-12	1.5	110V, 5A 220V, 5A	Voltage each phase 3.5VA Voltage each phase 3.5VA	Current each phase 1.5VA Current each phase 1.5VA	* WVT-62M-12	C-8	* Specify frequency (50/ 60Hz). * Scale: Lead□var~0~Lag□var * Refer to accessory transducer outline drawing. * Refer to meter manufacturing limit and max. scale value.
	3 phase (balanced)		WVBEK-12C-33 WVBEK-12NC-33	1.5	110V, 5A 220V, 5A	Voltage each phase 3.5VA Voltage each phase 3.5VA	Current each phase 1.5VA Current each phase 1.5VA	WVBT-83M-33	C-5	
	3 phase (unbalanced)		WVEK-12C-33 WVEK-12NC-33	1.5	110V, 5A 220V, 5A	”	”	* WVT-83M-33	C-5	
	3 phase 4 wire		WVEK-12C-34 WVEK-12NC-34	1.5	110V, 5A 220V, 5A	”	”	WVT-83M-34	C-7	
Power Factor Meter	single phase	Rectifier Type	PEK-12C-12 PEK-12NC-12	5.0	110V, 5A 220V, 5A	Voltage 1VA Voltage 2VA	Current 1VA Current 1VA	* PT-62M-12	C-8	* Specify frequency (50/ 60Hz). * Scale: Lead0.5~1~Lag0.5 * Refer to accessory transducer outline drawing.
	3 phase (balanced)		PBEK-12C-33 PBEK-12NC-33		110V, 5A 220V, 5A	Voltage each phase 1VA Voltage each phase 2VA	Current each phase 1VA Current each phase 1VA	PBT-62M-33	C-9	
	3 phase (unbalanced)	Transducer Type	PEK-12C-33 PEK-12NC-33		110V, 5A 220V, 5A	”	”	* PT-63M-33	C-10	
	3 phase 4 wire (balanced)		PBEK-12C-34 PBEK-12NC-34		110V, 5A 220V, 5A	”	”	PBT-62M-34	C-11	
	3 phase 4 wire (unbalanced)		PEK-12C-34 PEK-12NC-34		110V, 5A 220V, 5A	”	”	* PT-64M-34	C-12	
Frequency		Transducer Type	AEK-12C AEK-12NC	1.0	110V 220V	45~55Hz 55~65Hz 45~65Hz 350~450Hz	For 110V, 1.7VA For 220V, 2.5VA	FT-62M for AEK-12NC only	C-13	* AEK-12C (external with DM-61) starting current protection circuit will external with FT-62M



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PHOTOELECTRIC NON-CONTACT METER RELAY

EK

COMMON STANDARD SPECIFICATION

Item		Specification
Class		Please refer to [EK Series List]
Support System		Pivot system
Meter deflection angle		75°
Dimension meter from front		EK-12C: 120 × 100mm
Scale length		EK-12C: 82.5mm
Scale plate		White paint
Pointer		Stick-type (black)
Meter mounting position		Vertical (⊥)
Material panel		Iron or non-iron plate
Mounting panel thickness		10mm or less
Length of special cable (integral type excluded)		1m
Type according to output signal		Continuance output type
Pointer moving range		Passing full scale type
Setting range		Full scale
Tolerance of pick up value		±1.0% of scale length
Dead band		0.5% of scale length
Min. setting width		3% of scale length
Relay operation control system		H (upper limit), L (lower limit), HL (upper and lower limit)
Setting index		Lance type, H: Red L: Yellow
Relay control power		AC110V, 220V (2VA): +10% -15% (50/60Hz) DC24V (2.5W), 48V (5W), 110V (12W) ±15%
Contact configuration		2C contact for HL
Contact capacity		AC200V, 5A (resistance load) DC30V, 5A (resistance load)
Color of cover (F series: color of mounting frame)		Dark blue: (Munsell 7.5BG 4/ 1.5) Black: (Munsell N1.5)
Material of base (F series: Material of mounting frame)		Cover: Methacrylic acid resin (anti-static treatment)
		Base: Phenol resin (EK-N: Flame-retarded ABS resin)
Insulation resistance		Between electric circuit and outer case DC500V, 50MΩ or more
Voltage test		Between electric circuit and outer case AC2230V, between 5sec.
Safety requirement	Standard	JISC 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	CATⅢ
	Max. circuit voltage	600V (Am meter)
Operation temperature / Humidity range		-10~55℃, Average day temperature is 40℃ or less, 25~85% RH
Storage temperature range		-20~70℃

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COMMON SPECIAL SPECIFICATION

Item		Specification	
Measurement Frequency		Please specify	
Scale	Extend scale	CEK: 2~5 time extend (Please specify)	
	Color line	Red, Green, Yellow (Please specify)	
	Color area (bar)	Red, Green, Yellow (Please specify)	
	Double scale	Please specify	
	Double seal	Please specify	
	Max. scale section	100 sections	
	Special scale	Please specify	
Indicator manufacturing limit		DC50μA, DC15mV	
DC relay control power		DC50V until 350V (specify for variation range).	
Total length of dedicated cable		2.5m, 5m, 10m (Junction cable use)	
Relay operation control system		HH (upper limit 2 steps) ; LL (lower limit 2 steps)	
Start current protection circuit		Variable or Fixed within 0~60 sec. (Except: EK-12NC)	
Contact delay circuit		Variable or Fixed within 0~60 sec. (Relay box: DM-63) Except: EK-12NC	
Mounting panel thickness		Auxiliary fixture used for 12mm or more.	
Tropical specification		Rust preventative, 「FOR TROPICS」 will display at the name plate.	
Pointer		Knife-edge (Red), Stick-type (Black), combine use with multiple scale etc.	
Meter mounting position		Horizontal, inclination installation (specify for angle)	
Flame-retarded material		Cover Polycarbonate resin	
Protection circuit of meter		Overcurrent Specify for necessary tolerated dose.	
		Overvoltage Specify for necessary tolerated dose.	
Extended part of scale		Voltmeter ±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 RMS value rectifier type		AC Current, AC Voltage	
For SCR control waves use		AC Current, AC Voltage, Wattmeter, Frequency	

EXTERNAL SERIES RESISTOR (DC Control Power)

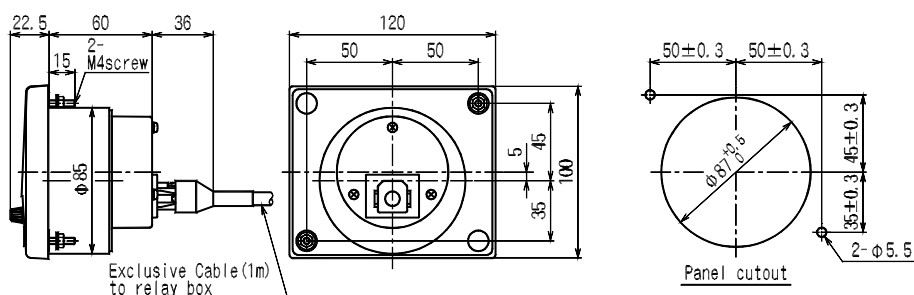
Rated value	Series resistor	Note
DC48V	CRH 30G	Only for EK-12NC
DC110V	CRH 60G	

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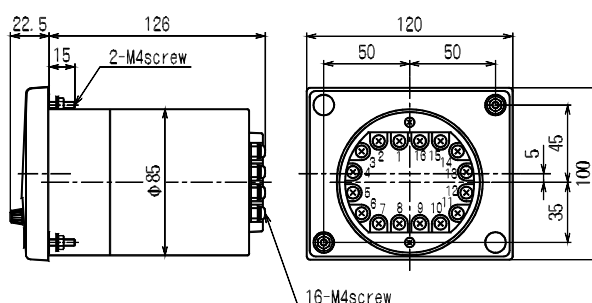
EK

Outline Drawing

EK-12C



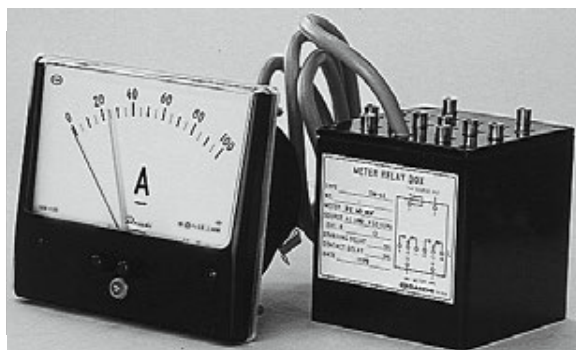
EK-12NC
(integrated type)



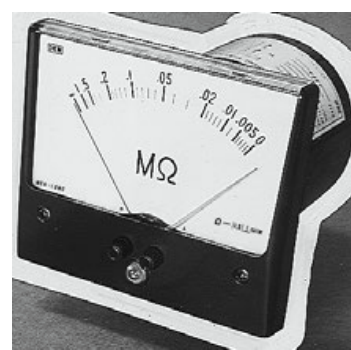
Type	Mass (g)
EK-12C	1030
EK-12NC	750

STANDARD SCALE SECTION

Max. scale value (10 times)	1	1.5	2	2.5	3	4	5	6	7.5	8	9
EK-12NC, EK-12C	20	30	40	25	30	40	25	30	37.5	40	45



EK-12C



EK-12NC (integrated type)