OMRON® General Purpose Relay

- Designed small, 2- and 3-pole types break 5 A loads and 4-pole type, 3 A load
- High reliability, long life
- Ultra-high sensitivity with quick response
- High vibration/shock resistance
- 3- and 4-pole types have an arc barrier
- UL and CSA approved
- Withstands dielectric strength of 2,000 V
- Relays with high-capacity, LED indicator, diode surge suppression, push-to-test button, or RC circuit are available
- Changes due to aging are negligible because of use of special magnetic materials, thus ensuring long continuous holding time
- Little change in characteristics such as contact follow, contact pressure, etc., throughout long life

Ordering Information_

To Order: Select the part number and add the desired coil voltage rating (e.g., MY4-DC6).

				Part numb	er				
				Single cont	tact		Bifurcated contact		
Туре	Terminal	Contact form	Construction	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket
Standard	Plug-in/solder	DPDT	Unsealed	MY2	MY2F	MY2S	MY2Z	MY2ZF	MY2ZS
		3PDT		MY3	MY3F	MY3S	_	_	_
		4PDT		MY4	MY4F	MY4S	MY4Z	MY4ZF	MY4ZS
	РСВ	DPDT		MY2-02	_	—	MY2Z-02	_	_
		3PDT		MY3-02	_	—	_	_	_
		4PDT		MY4-02	_	—	MY2Z-02	_	_
	Plug-in/solder	4PDT	Sealed	MYQ4	_	—	MYQ4Z	_	_
	PCB 4PDT		MYQ4-02	_	—	MYQ4Z-02	_	_	
	Plug-in/solder	4PDT	Hermetically	MY4H	_	—	MY4ZH	_	_
	РСВ	4PDT	Sealed	MY4H-0	_	—	MY4ZH-0	_	

Note: 1. For SEV approved type, order the following: MY4-*SV*-DC6. (Lloyd's Register approval. See "Approvals" section.) 2. To order connecting sockets and mounting tracks, see "Accessories" section.

AgCdO contacts are also available (MY2E, MY3E, MY4E). Contact your OMRON sales representative for details.





MY



= MY

Ordering information (continued)

				Part numb	er				
				Single con	tact		Bifurcated of	contact	
Туре	Terminal	Contact	Construction	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket
LED indicator	Plug-in/solder	DPDT		MY2N	_	_	MY2ZN	_	_
		3PDT		MY3N	_	_	_	_	—
		4PDT		MY4N	_	_	MY4ZN	_	_
High-capacity		DPDT	w/o LED indicator	MY2-Y	_	_	_	_	—
			LED indicator	MY2N-Y	—	—	—	—	—
Diode surge		DPDT		MY2-D	—	—	MY2Z-D	—	—
suppression*		3PDT		MY3-D	—	—	—	—	—
		4PDT		MY4-D	—	—	MY4Z-D	—	—
LED indicator		DPDT		MY2N-D2	—	—	MY2ZN-D2	—	—
and diode surge		3PDT		MY3N-D2	—	—	—	—	—
suppression*		4PDT		MY4N-D2	—	—	MY4ZN-D2	—	—
RC circuit**		DPDT	w/o LED	MY2-CR	—	—	MY2Z-CR	_	—
		3PDT	indicator	MY3-CR	_	—	—	_	—
		4PDT		MY4-CR	_	—	MY4Z-CR	_	—
		DPDT	LED indicator	MY2N-CR	—	—	—	_	—
		4PDT		MY4N-CR	—	—	—	—	—
Push-to-test		DPDT		MY214	—	—	MY2Z12	—	—
button		4PDT		MY414	—	—	MY4Z12	_	—
LED indicator		DPDT		MY214N	—	—	MY2Z12N	_	—
and RC circuit		4PDT		MY414N	—	—	MY4Z12N	_	—

Туре	Terminal	Contact form	Part number
Latching	Plug-in	DPDT	MY2K-US
	PC board		MY2K-02-US

Note: 1. For SEV approved type, order as the following: MY4-SV-DC6. (Lloyd's Register approval. See "Approvals" section.)

2. To order connecting sockets and mounting tracks, see "Accessories" section.

3. AgCdO contacts are also available. Contact your OMRON sales representative for details.

4. * DC coils only

** AC coils only

ACCESSORIES

Connecting Sockets

To Order: Select the appropriate part numbers for sockets, clips, and mounting tracks (if required) from the available types chart.

Available Types

Track mounted sockets

		Relay hold-down clip		
Relay	Socket*	Standard	RC circuit	Mounting track
DPDT	PYF08A-E	PYC-A1	Y92-H3	PFP-100N/PFP-50N &
3PDT	PYF11A	•		PFP-M or PFP-100N2
4PDT	PYF14A-E			PFP-S (Optional spacer)

* Track mounted socket can be used as a front connecting socket.

Back connecting sockets

	Solder terminal	Wire wrap terminal	Relay hold-	down clip			Socket Mounting Plate		
Relay	socket	socket	Standard	Push-to-test	RC circuit	Mtg. plate	1	18	36
DPDT	PY08	PY08QN	PYC-P	PYC-P2	PYC-1	PYC-S	PYP-1	PYP-18	PYP-36
3PDT	PY11	PY11QN							
4PDT	PY14	PY14QN]						

Note: Types PYP-18, PTP-12 and PTP-10 may be cut to any desired length.

	PC terminal	Relay hold-down clip					
Relay	socket	Standard	Push-to-test	RC circuit			
DPDT	PY08-02	PYC-P	PYC-P2	PYC-1			
3PDT	PY11-02						
4PDT	PY14-02						

Specifications _____

■ CONTACT DATA

Non-latching - Unsealed

	DPDT, 3PDT		4DPT		High-capacity	
	Resistive load	Inductive load	Resistive load	Inductive load	Resistive load	Inductive load
	(p.f. = 1)	(p.f. = 0.4)	(p.f. = 1)	(p.f. = 0.4)	(p.f. = 1)	(p.f. = 0.4)
Load		(L/R = 7 ms)		(L/R = 7 ms)		(L/R = 7 ms)
Rated load	5 A at 220 VAC	2 A at 220 VAC	3 A at 220 VAC	0.8 A at 220 VAC	7 A 220 VAC	3.5 A 220 VAC
	5 A at 24 VDC	2 A at 24 VDC	3 A at 24 VDC	1.5 A at 24 VDC	7 A 24 VDC	3.5 A 24 VDC
Contact material	Ag		Ag (Au Flash)		AgCdO	
Carry current	5 A	3 A	1 A	3 A	7 A	
Max. operating	250 VAC					
voltage	125 VDC					
Max. operating	5 A		1 A	3 A	7 A	
current						
Max. switching	1,100 VA	440 VA	660 VA	176 VA	1,540 VA	770 VA
capacity	120 W	48 W	72 W	36 W	168 W	84 W
Min. permissible	Standard type: 1	mA, 5 VDC	Standard and hig	h sensitivity types:	100 μA, 1 VDC	
			1 mA, 1 VDC			
load (see note)	Bifurcated type: 1	00 μA, 1 VDC				

Non-latching - Sealed/Hermetically sealed

	Sealed, 4PDT		Hermetically sealed, 4DPT	
	Resistive load	Inductive load	Resistive load	Inductive load
	(p.f. = 1)	(p.f. = 0.4)	(p.f. = 1)	(p.f. = 0.4)
Load		(L/R = 7 ms)		(L/R = 7 ms)
Rated load	1 A at 220 VAC 1 A at 24 VDC	0.5 A at 220 VAC 0.5 A at 24 VDC	3 A at 110 VAC 3 A at 24 VDC	0.8 A at 110 VAC 1.5 A at 24 VDC
Contact material	Ag (Au Flash)			
Carry current	1 A		3 A	
Max. operating	250 VAC		125 VAC	
voltage	125 VDC		125 VDC	
Max. operating	1 A		3 A	
current				
Max. switching	220 VA	110 VA	330 VA	88 VA
capacity	24 W	12 W	72 W	36 W
Min. permissible	Standard and high sensitivi	ty types: 1 mA, 1 VDC		
load (see note)	Bifurcated type: 100 µA, 1 \	/DC		

= MY

COIL DATA

Non-latching – AC

			Coil	Coil inductance (ref. value) (H)		Pick-up	Dropout	Maximum	Power
Rated	Rated currer	nt (mA)	resistance	Armature	Armature	voltage	voltage	voltage	consumption
voltage (V)	50 Hz	60 Hz	(Ω)	OFF	ON	(% of rated	voltage)		(VA, W)
6	214.10	183	12.20	0.04	0.08	80% max.	30% min.	110% max.	Approx.
12	106.50	91	46	0.17	0.33				1.00 to 1.20
24	53.80	46	180	0.69	1.30				
50	25.70	22	788	3.22	5.66				
100/110	11.70/12.90	10/11	3,750	14.54	24.60				Approx.
110/120	9.90/10.80	8.40/9.20	4,430	19.20	32.10				0.90 to 1.10
200/220	6.20/6.80	5.30/5.80	12,950	54.75	94.07				
220/240	4.80/5.30	4.20/4.60	18,790	83.50	136.40				

Non-latching – DC

		Coil	Coil inductance (ref. value) (H)		Pick-up	Dropout	Maximum	Power
Rated		resistance	Armature	Armature	voltage	voltage	voltage	consumption
voltage (V)	Rated current (mA)	(Ω)	OFF	ON	(% of rated	voltage)		(VA, W)
6	150	40	0.17	0.33	80% max.	10% min.	110% max.	Approx.
12	75	160	0.73	1.37				0.90
24	36.90	650	3.20	5.72				
48	18.50	2,600	10.60	21.00				
100/110	9.10/10	11,000	45.60	86.20				

Latching – AC

Rated	Rated	current (r	nA)			Pick-up	Dropout	Maximum	Power consumption	
voltage	Set coi		Reset coil	Coil resista	nce (Ω)	voltage	voltage	voltage	(VA, W)	•
(V)	50 Hz	60 Hz	50/60 Hz	Set coil	Reset coil	(% of rated	voltage)		Set coil	Reset coil
6	146	142	68	13	32	80% max.	80% max.	110% max.	Approx.	Approx.
12	57	56	39	72	130				0.60 to 0.90	0.20 to 0.50
24	27.40	26.40	18.60	320	550					
50	14	13.40	3.50	1,400	3,000					
120	15.80	5.60	3.50	8,300	3,000					

Latching – DC

Rated	Rated current (r	nA)			Pick-up	Dropout	Maximum	Power consu	umption
voltage	Set coil	Reset coil	Coil resista	nce (Ω)	voltage	voltage	voltage	(VA, W)	•
(V)	50/60 Hz	50/60 Hz	Set coil	Reset coil	(% of rated voltage)		Set coil	Reset coil	
6	230	100	26	60	80% max.	80% max.	110% max.	Approx.	Approx.
12	110	50	110	235				1.30	0.06
24	52	25	470	940					

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with tolerances of +15%, -20% for AC rated current, and ±15% for DC rated coil resistance.

2. The AC coil resistance and inductance are reference values at 60 Hz.

3. The performance characteristics are measured at a coil temperature of 23°C (73°F).

4. Because the coil is designed for low power consumption, connect a bleeder (if necessary after confirming the leakage current), when the coil is driven by an SCR.

5. For AC type latching coils, the rated current values are half-wave rectified current values measured with a DC ammeter.

■ CHARACTERISTICS

Non-latching

Contact resistance		50 mΩ max.		
Operate time		20 ms max.		
Release time		20 ms max.		
Operating frequency	Mechanically	18,000 operations/hour		
	Under rated load	1,800 operations/hour		
Insulation resistance		100 MΩ min. (at 500 VDC)		
Dielectric strength	Single contact type	Unsealed: 2,000 VAC, 50/60 Hz for 1 minute 1,000 VAC, 50/60 Hz for 1 minute between contacts of same polarity		
		Sealed: 1,500 VAC, 50/60 Hz for 1 minute 1,000 VAC, 50/60 Hz for 1 minute between contacts of same polarity		
		Hermetically sealed: 1,000 VAC, 50/60 Hz for 1 minute 700 VAC, 50/60 Hz for 1 minute between contacts of same polarity		
	Bifurcated contact type	1,500 VAC, 50/60 Hz for 1 minute 1,000 VAC, 50/60 Hz for 1 minute between non-continuous contacts		
Vibration	Mechanical durability	10 to 55 Hz, 1.00 mm (0.04 in) double amplitude		
	Malfunction durability	10 to 55 Hz, 1.00 mm (0.04 in) double amplitude		
Shock	Mechanical durability	1,000 m/s² (approx. 100 G)		
	Malfunction durability	200 m/s ² (approx. 20 G)		
Ambient temperature	Operating	Unsealed: -55° to 70°C (-67° to 158°F)		
		Sealed: -55° to 60° C (- 67° to 140° F)		
Sonvice Life	Machanically			
	Mechanically	AC: 50 million operations min. (at operating frequency of 18,000 operations/hour) DC: 100 million operations min. (at operating frequency of 18,000 operations/hour)		
	Mechanically	Bifurcated contact type: AC: 50 million operations min. DC: 20 million operations min. (5 million operations for the sealed/hermetically sealed types) (at operating frequency of 1,800 operations/hour)		
	Electrically	See "Characteristic Data"		
Weight		Sealed/unsealed: Approx. 35 g (1.23 oz) Hermetically sealed: Approx. 50 g (1.76 oz)		

Latching

Contact resistance		50 mΩ max.	
Operate time		AC: 30 ms max.; DC: 15 ms max.	
Release time		AC: 30 ms max.; DC: 15 ms max.	
Operating frequency	Mechanically	18,000 operations/hour	
	Under rated load	1,800 operations/hour	
Insulation resistance		100 MΩ min. (at 500 VDC)	
Dielectric strength		1,500 VAC, 50/60 Hz for 1 minute	
		1,000 VAC, 50/60 Hz for 1 minute between contacts of same polarity, and between	
		set and reset coils	
Vibration Mechanical durability		10 to 55 Hz, 1.00 mm (0.04 in) double amplitude	
	Malfunction durability	10 to 55 Hz, 1.00 mm (0.04 in) double amplitude	
Shock	Mechanical durability	1,000 m/s ² (approx. 100 G)	
Malfunction durability		200 m/s² (approx. 20 G)	
Ambient temperature Operating		-55° to 70°C (-67° to 158°F)	
Humidity		45% to 85% RH	
Service Life	Mechanically	100 million operations min. (at operating frequency of 18,000 operations/hour)	
	Electrically	See "Characteristic Data"	
Weight		Approx. 30 g (1.06 oz)	

Note: Data shown are of initial value.

: MY

■ CHARACTERISTIC DATA







Service life (operations x 10⁶)

Service life (operations x 10⁶)

500

100

100

Electrical service life

110 pac 220 VAC resisti

resistive

2

Rated operating current (A)

MY2K(-02)-US (Resistive load)

15

(Inductive load)

220

0.5

Rated operating current (A)

(operations x 106)

Service life

500

100

100

c

Maximum switching capacity - Latching MY2K(-02)-US



Rated operating voltage (V)

Dimensions

Unit: mm (inch)

RELAYS



Note: The above dimensioned drawing shows the 4-pole type. The dimensions of the 2- and 3-pole types are identical to the 4-pole type.

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38.10 (1.50) max.

6.09 (.24)

3.55 14)

~ 22.60 (.89) max.

.50 (.02)

- 36.06 (1.42) max.



MY□-5

Mounting holes









MY4, MYQ4(Z), MY4(Z)H, MY4H-0



1

Note: The above dimensioned drawing shows the 4-pole type. The dimensions of the 2- and 3-pole types are identical the 4-pole type.

MYQ4(Z)



MY2K-US



MYQ4(Z)-02





Mounting holes (Bottom view)



■ ACCESSORIES

Track mounted sockets (UL File No. E87929) (CSA Report No. LR46088)



PYF14A-E

Terminal arrangement/ mounting holes (Top view)

Mounting height of relay with socket



Back connecting socket (UL File No. E87929) (CSA Report No. LR46088) – DPDT PY08 PY08QN



Back connecting socket (UL File No. E87929) (CSA Report No. LR46088) – 3PDT PY11 PY11QN



Note: 1. UL/CSA does not apply to wire wrap (Q) type sockets.2. Value in brackets is for MY□CR.

ACCESSORIES (continued)

Back connecting socket (UL File No. E87929) (CSA Report No. LR46088) - 4PDT



Y92-HC

for RC circuit

Relay hold-down clip

PYC-P2

for test button self-contained type with PYDA socket

I (.39)



PFP-100N/PFP-50N mounting track



PFP-100N2 mounting track



This dimension is 14.99 mm	(0.59 in) d	on both ends in the ca	se of PFP-100N.	but on one end in t	he case of PFP-50N.

16.00 (.63)

1.52

29.21 (1.15)

1.01 (.04)

24.13 (.95)

26.92 35.05±.02 (1.06) (1.38±.01)

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** L = Length

PFP-50N	L = 497.84 mm (19.60 in)
PFP-100N	L = 990.60 mm (39.00 in)
PFP-100N2	L = 990.60 mm (39.00 in)

*** A total of twelve 24.89 x 4.57 mm (0.98 x 0.18 in) elliptic holes are provided, with six holes cut from each end of the track at a pitch of 9.91 (0.39) between holes.

PFP-M end plate



PFP-S spacer



PYC-1 for RC circuit



ACCESSORIES (continued)

Socket mounting plates [t=1.52 (.06)]

PYP-1

PYP-18





	Number of s	socket specs.	
Socket needed	1	18	36
PY08, PY11, PY11QN, PY14, PY4QN	PYP-1	PYP-18	PYP-36

■ RELAY OPTIONS

LED Indicator

Specifications and dimensions same as the standard type with the following exception. Because an LED indicator is employed as the operation indicator, the rated current is approximately 3.8 mA higher in the DC types and 0.5 to 5 mA higher in the AC types than in the standard type.

Ambient operating temperature: -55° to 60°C (-67° to 140°F).

Green LED DC Red LED AC



491.99 (19.37)

431.8 x 27.43=465.83±.50

PYP-36

Terminal arrangement/Internal connections (Bottom view) MY4N

DC coil rating type







Terminal arrangement/

Internal connections (Bottom view)

- Note: 1. In MY2N and MY3N, only the contact circuit is different from the illustration below. The coil terminals 10 and 11 of MY3N become (-) and (+), respectively.
 - 2. Pay special attention to the polarities when using the DC type.
 - 3. The AC coil-type is provided with a self-diagnostic function that detects a breakage in the coil.

RC Circuit

Specifications and dimensions same as the standard type with the following exceptions.

The panel cutout dimensions are the same as those of the standard type. However, the height is higher by 17.02 mm (0.67 in).



- Note: 1. The above dimensioned drawing shows the 4-pole type. The dimensions of the 2- and 3-pole types are identical to the 4-pole type.
 - 2. Available on AC versions only.
 - 3. Terminal arrangement/internal connections: MY2-Y is the same as the standard type; MY2N-Y is the same as the LED indicator type.

Characteristic Data



Push-to-test button

MY 12



With RC circuit



Mounting holes

When mounting the relay, use the connecting socket PYC-P2 shown in "ACCESSORIES" section. The mounting hole dimensions shown here are applicable to the relay with mounting stud.



Note: The dimension drawings show the 4-pole type. The dimensions of the 2- and 3-pole types are identical to the 4-pole type.

Diode Surge Suppression

Specifications and dimensions same as the standard type with the following exceptions.

Terminal arrangement/internal connections: MY2(N)-D(2) is the same as the MY4(N)-D(2) with the exception of the contact configuration.

Ambient operating temperature: -55° to 60°C (-67° to 140°F).

MY4-D 6, 12, 24, 48 100/110 VDC



MY4N-D2 6, 12, 24, 48 VDC

Terminal arrangement/Internal connections (Bottom view)



MY4N-D2

100/110 VDC

Note: 1. Pay special attention to the polarities when using the DC type.

- 2. The release time is somewhat longer, but satisfies the standard specifications of 25 ms.
- 3. The reverse-breakdown voltage of the diode is 1,000 VDC.

10 11 12

SET

RESET

14

4. Available on DC versions only.

Connecting sockets

Use the standard MY4 (4PDT) sockets with the terminal arrangements listed below.

Terminal arrangement/Internal connections (Bottom view)



Note: 1. R is a resistor for ampere-turn compensation, and is incorporated in the relays rated at 50 VAC or above.

2. Pay attention to the polarity of the set and reset coils, as incorrect connection of positive and negative terminals will result in malfunctioning of the relay.

APPROVALS

UL recognized type (File No. E41515)

Туре	Contact form	Coil ratings	Contact ratings
MY□	DPDT	6 to 240 VAC	5 A, 120 VAC (Resistive)
		6 to 120 VDC	5 A, 28 VDC (Resistive)
			5 A, 240 VAC (Inductive)
	3PDT		5 A, 28 VDC (Resistive)
			5 A, 240 VAC (Resistive)
	4PDT		3 A, 28 VDC (Resistive)
			3 A, 120 VAC (Inductive)
			1.5 A, 240 VAC (Inductive)
			5 A, 240 VAC (Inductive, same polarity)
			5 A, 28 VDC (Resistive, same polarity)
MY2K-□	DPDT	5 to 120 VAC	3 A, 240 VAC (Resistive)
		5 to 48 VDC	3 A, 28 VDC (Resistive)

CSA certified type (File No. LR31928)

Туре	Contact form	Coil ratings	Contact ratings
MY□	DPDT	6 to 240 VAC	5 A, 28 VDC (Resistive)
	3PDT	6 to 120 VDC	5 A, 240 VAC (Inductive)
	4PDT		3 A, 28 VDC (Resistive)
			3 A, 240 VAC (Inductive)
			5 A, 240 VAC (Inductive, same polarity)
			5 A, 28 VDC (Resistive, same polarity)
MY2K-□	DPDT	5 to 120 VAC	3 A, 240 VAC (General purpose)
		5 to 48 VDC	3 A, 30 VDC (Resistive)

LR (Lloyd's Register) approved type (File No. 563KOB-204524)

Туре	Contact form	Coil ratings	Contact ratings
MY□	DPDT	6 to 240 VAC	2 A, 30 VDC (Inductive)
	4PDT	6 to 120 VDC	2 A, 200 VAC (Inductive)
			1.5 A, 30 VDC (Inductive)
			0.8 A, 200 VAC (Inductive)
			1.5 A, 115 VAC (Inductive)

SEV listed type (File No. D791/63 [2- & 4-pole], D791/91 [3-pole])

Туре	Contact form	Coil ratings	Contact ratings
MY⊡-SV	DPDT	6 to 240 VAC	5 A, 220 VAC (Resistive)
	3PDT	6 to 110 VDC	5 A, 24 VDC (Resistive)
	4PDT		

Note: 1. The rated values approved by each of the safety standards (e.g., UL, CSA, VDE, and SEV) may be different from the performance characteristics individually defined in this catalog.

2. In the interest of product improvement, specifications are subject to change.

■ HINTS ON CORRECT USE

When using the relay rated at 120 VAC at a supply voltage of 240 VAC, be sure to connect external resistors Rs and Rr to the relay.



Terms and Conditions of Sale

- Offer: Acceptance. These terms and conditions (these "Terms") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "<u>Products</u>") by Omron Electronics LLC and its subsidiary companies ("<u>Omron</u>"). Omron objects to any terms or conditions proposed in Buyer's purchase_order or other documents which are inconsistent with, or in addition to, these Terms
- Prices: Payment Terms. All prices stated are current, subject to change with-out notice by Omron. Omron reserves the right to increase or decrease prices 2. on any unshipped portions of outstanding orders. Payments for Products are due net 30 days unless otherwise stated in the invoice.
- biscounts. Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (i) the invoice is paid according to Omron's payment terms З.
- and (ii) Buyer has no past due amounts. Interest. Omron, at its option, may charge Buyer 1-1/2% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the 4 stated terms
- Orders. Omron will accept no order less than \$200 net billing.
- Governmental Approvals. Buyer shall be responsible for, and shall bear all 6 costs involved in, obtaining any government approvals required for the impor-tation or sale of the Products.
- Taxes. All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Omron or required to be collected directly or 7. indirectly by Omron for the manufacture, production, sale, delivery, importa-tion, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Omron.
- Financial. If the financial position of Buyer at any time becomes unsatisfactory 8. to Omron, Omron reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Omron may (without liabil-ity and in addition to other remedies) cancel any unshipped portion of Prod-ucts sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
- Cancellation; Etc. Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.
- 10. Force Majeure. Omron shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
- <u>Shipping: Delivery</u> Unless otherwise expressly agreed in writing by Omron:
 a. Shipments shall be by a carrier selected by Omron; Omron will not drop ship except in "break down" situations.
 - b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer, c. All sales and shipments of Products shall be FOB shipping point (unless oth-
 - erwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid; d. Delivery and shipping dates are estimates only; and e. Omron will package Products as it deems proper for protection against nor-
- and handling and extra charges apply to special conditions.
 <u>Claims</u>. Any claim by Buyer against Omron for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron within 30 days of receipt of shipment and include the original trans-portation bill signed by the carrier noting that the carrier received the Products from Omron in the candition claims of the products. from Omron in the condition claimed.
- Warranties. (a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed 13 (b) <u>Limitations</u>. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABIL-

Certain Precautions on Specifications and Use

- Suitability of Use. Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, 1. Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given: Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.

 (ii) Use in consumer products or any use in significant quantities.
 (iii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equip-(iv) Systems, machines and equipment that could present a risk to life or prop-erty. Please know and observe all prohibitions of use applicable to this Product

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO

ITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Omron further disclaims all warranties and responsibility of IN ISNDED USE. Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or oth-erwise of any intellectual property right. (c) <u>Buyer Remedy</u>. Omron's sole obli-gation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsi-ble for warapty consisting the non-the complex of the non-complying Product the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Compa-nies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty See http://www.omron247.com or contact your Omron representative for published information

- Iished information.
 Limitation on Liability: Etc. OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.
 Indemnities. Buyer shall indemnify and hold harmless Omron Companies and their employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim inves-
- 15 expenses (including attorney's fees and expenses) related to any claim, inves-tigation, litigation or proceeding (whether or not Omron is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless Omron and defend or setthe any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property
- that any Product made to buyer specifications immiged interfectual property rights of another party. <u>Property: Confidentiality.</u> Any intellectual property in the Products is the exclusive property of Omron Companies and Buyer shall not attempt to duplicate it in any way without the written permission of Omron. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Omron. All information and materials supplied to the Products are confidential and proprietary. 16 by Omron to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly
- Export Controls. Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (iii) sale of products to 17 "forbidden" or other proscribed persons; and (ii) disclosure to non-citizens of regulated technology or information. <u>Miscellaneous</u>. (a) <u>Waiver</u>. No failure or delay by Omron in exercising any right
- 18 <u>Miscellaneous</u>. (a) <u>Waiver</u>. No failure or delay by Omron in exercising any right and no course of dealing between Buyer and Omron shall operate as a waiver of rights by Omron. (b) <u>Assignment</u>. Buyer may not assign its rights hereunder without Omron's written consent. (c) <u>Law</u>. These Terms are governed by the law of the jurisdiction of the home office of the Omron company from which Buyer is purchasing the Products (without regard to conflict of law princi-ples). (d) <u>Amendment</u>. These Terms constitute the entire agreement between Buyer and Omron relating to the Products, and no provision may be changed or waived unless in writing signed by the parties. (e) <u>Severability</u>. If any provi-sion hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision. (f) <u>Setoff</u>. Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice. (a) Definitions. As used against the amount owing in respect of this invoice. (g) <u>Definitions</u>. As used herein, "<u>including</u>" means "including without limitation"; and "<u>Omron Compa-nies" (or similar words) mean Omron Corporation and any direct or indirect</u> subsidiary or affiliate thereof.

ADDRESS THE RISKS, AND THAT THE OMRON'S PRODUCT IS PROP-ERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

- 2.
- Programmable Products. Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof. <u>Performance Data</u>. Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitabil-ity and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application require-ments. Actual performance is subject to the Omron's Warranty and Limitations of Limiting. 3. of Liability.
- <u>Change in Specifications</u>. Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our prac-4 or when significant construction changes are made. However, some specifica-tions of the Product may be changed without any notice. When in doubt, spe-cial part numbers may be changed without any notice. When in doubt, spe-cial part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to applicate the provident of the product provident specifications for
- Errors and Omissions. Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Note: This datasheet is provided as a guideline for selecting products. Do not use this document to operate the Unit.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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Cat. No. DS_MY_GCRLY6 09/97

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