G2R-□**-S**(**S**)

J140I-E-02

Slim and Space-saving Power Plug-in Relay

- Reduces wiring work by 60% when combined with the P2RF-□-PU Push-In Plus Socket (according to actual OMRON measurements).
- Lockable test button models available.
- Built-in mechanical operation indicator.
- Provided with nameplate.
- AC type is equipped with a coil-disconnection self-diagnostic function (LED type).
- High switching power (1-pole: 10 A).



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Model Number Structure

Model Number Legend

G2R -| - S

1. Number of Poles

1 pole 1: 2. 2 poles

2. Terminals

Plua-in

3. Classification

Blank: General-purpose N: LED indicator D: Diode

LED indicator and diode ND: LED indicator with test button

NDI: LED indicator and diode with test button

4. Rated Coil Voltage

5. Mechanical operation indicator and Nameplate

(S): Models with mechanical operation indicator and Nameplate

Note: Contact your OMRON representative for Relays with gold-plated contacts.

Ordering Information When your order, specify the rated voltage.

List of Models

Classification	Cail rations	Contact form		
	Coil ratings	SPDT	DPDT	
General-purpose		G2R-1-S (S)	G2R-2-S (S)	
LED indicator	AC 24, 110, 120, 230, 240 DC 6, 12, 24, 48	G2R-1-SN (S)	G2R-2-SN (S)	
LED indicator with test button	00 0, 12, 24, 40	G2R-1-SNI (S)	G2R-2-SNI (S)	
Diode		G2R-1-SD (S)	G2R-2-SD (S)	
LED indicator and diode	DC 6, 12, 24, 48	G2R-1-SND (S)	G2R-2-SND (S)	
LED indicator and diode with test button		G2R-1-SNDI (S)	G2R-2-SNDI (S)	

Note: 1. The standard models are compliant with UL/CSA and VDE standards. Also, an EC compliance declaration has been made for combinations with the P2RF-□-E, P2RF-□-S and P2RF-□-PU. The Relays bear the CE Marking.

- 2. Refer to Connecting Sockets, below, for applicable Socket models.
- 3. When ordering, add the rated coil voltage and "(S)" to the model number. Rated coil voltages are given in the coil ratings table. Example: G2R-1-S 12 VDC (S)

-Rated coil voltage

Accessories (Order Separately)

Connecting Sockets

Applicable Relay model Push-In Plus Terminal Blocks Screw terminals		nounting Socket	Back-mounting Socket		
			Screw terminals *		Solder terminals
No. of poles		Model	Models	Models	Model
1 pole	G2R-1-S (S)	P2RF-05-PU	P2RF-05 P2RF-05-E	P2R-05P P2R-057P	P2R-05A
2 poles	G2R-2-S (S)	P2RF-08-PU	P2RF-08 P2RF-08-E	P2R-08P P2R-087P	P2R-08A

^{*}The structure of P2RF-E models provides finger protection. Round terminals cannot be used. Use forked crimp terminals.

Accessories for Push-In Plus Terminal Block Sockets (P2RF-□-PU) **Short Bars**

Pitch	No. of poles	Colors	Model *	Minimum order (quantity)
	2	Red (R) Blue (S) Yellow (Y)	PYDN-7.75-020□	
7.75 mm	3		PYDN-7.75-030□	
7.75 111111	4		PYDN-7.75-040□	10
	20		PYDN-7.75-200□	
15.5 mm	8		PYDN-15.5-080□	

Note: Use the Short Bars for crossover wiring within one Socket or between Sockets. * Replace the box (\square) in the model number with the code for the covering color.

Labels

Model	Minimum order (sheet) (quantity per sheet)
XW5Z-P4.0LB1	5 1 sheet (60 pieces)

Mounting Tracks

Applicable Socket	Description		Model	Minimum order (quantity)
		50 cm (ℓ) × 7.3 mm (t):	PFP-50N	
	Mounting track	1 m (ℓ) × 7.3 mm (t):	PFP-100N	
Track-connecting Socket		1 m (<i>l</i>) × 16 mm (t):	PFP-100N2	
	End plate *1		PFP-M	10
	Spacer		PFP-S	- 10
Back-connecting Socket	Mounting plate *2		P2R-P	1

^{*1.} When mounting DIN rail, please use End Plate (PFP-M).

^{*2.} Used to mount several P2R-05A and P2R-08A Connecting Sockets side by side.

Specifications

Coil Ratings

Rated voltage		Rated current*		Coil resistance	Coil inductance (H) (ref. value)		Must operate voltage	Must release voltage	Max. voltage	Power consumption
	50		60 Hz	resistance	Armature OFF	Armature ON	% of rated vol		age	(approx.)
	24 V	43.5 mA	37.4 mA	253 Ω	0.81	1.55				
	110 V	9.5 mA	8.2 mA	5,566 Ω	13.33	26.83				
AC	120 V	8.6 mA	7.5 mA	7,286 Ω	16.13	32.46	80% max.	30% max.	110%	0.9 VA at 60 Hz
	230 V	4.4 mA	3.8 mA	27,172 Ω	72.68	143.90				
	240 V	3.7 mA	3.2 mA	30,360 Ω	90.58	182.34				

Rated voltage		Rated current*	current* Coil resistance		Coil inductance (H) (ref. value)		Must release voltage	Max. voltage	Power consumption
			resistance	Armature Armature OFF ON		% of rated voltage		(approx.)	
	6 V	87.0 mA	69 Ω	0.25	0.48				
DC	12 V	43.2 mA	278 Ω	0.98	2.35	70% max.	15% min.	. 110%	0 F2 W
ЪС	24 V	21.6 mA	1,113 Ω	3.60	8.25	70% Max.	15% Min.		0.53 W
	48 V	11.4 mA	4,220 Ω	15.2	29.82				

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/-20% for the AC rated current and ±10% for the DC coil resistance.

- 2. The AC coil resistance and inductance values are reference values only (at 60 Hz).
- 3. Operating characteristics were measured at a coil temperature of 23 $^{\circ}\text{C}.$
- 4. The maximum voltage is the maximum possible value of the voltage that can be applied to the relay coil. It is not the maximum voltage that can be applied continuously.

Contact Ratings

Number of poles	1 pole		2 poles		
Load	Resistive load (cosφ = 1)			Inductive load (cosφ = 0.4; L/R = 7 ms)	
Rated load	10 A at 250 VAC; 10 A at 30 VDC	7.5 A at 250 VAC; 5 A at 30 VDC	5 A at 250 VAC; 5 A at 30 VDC	2 A at 250 VAC; 3 A at 30 VDC	
Rated carry current	10 A		5 A		
Max. switching voltage	440 VAC, 125 VDC		380 VAC, 125 VDC		
Max. switching current	10 A		5 A		
Max. switching power	2,500 VA, 300 W	1,875 VA, 150 W	1,250 VA, 150 W	500 VA, 90 W	
Failure rate (reference value) *	100 mA at 5 VDC		10 mA at 5 VDC		

Note: P level: λ_{60} = 0.1 x 10-6/operation *This value was measured at a switching frequency of 120 operations per minute.

Characteristics

Item		1 pole	2 poles				
Contact configration	SPDT						
Contact structure	Single						
Contact resistance	100 mΩ max.	00 mΩ max.					
Operate (set) time	15 ms max.						
Release (reset) time		x.; DC: 5 ms max. le: 20 ms max.)	AC: 15 ms max.; DC: 10 ms max. (w/built-in diode: 20 ms max.)				
Max. operating frequency	Mechanical: Electrical:						
Insulation resistance	1,000 MΩ min	1,000 M Ω min. (at 500 VDC)					
Dielectric strength *	5,000 VAC, 50/60 Hz for 1 min between coil and contacts; 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity		5,000 VAC, 50/60 Hz for 1 min between coil and contacts; 3,000 VAC, 50/60 Hz for 1 min between contacts of different polarity 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity				
Vibration resistance	Destruction: Malfunction:		amplitude (1.5 mm double amplitude) amplitude (1.5 mm double amplitude)				
Shock resistance	Destruction: Malfunction:	1,000 m/s ² 200 m/s ² when energized; 100 m/s	s ² when not energized				
Endurance	Mechanical: Electrical:	AC coil: 10,000,000 operations min.; DC coil: 20,000,000 operations min. (at 18,000 operations/hr) 100,000 operations min. (at 1,800 operations/hr under rated load)					
Ambient temperature	Operating:	erating: -40°C to 70°C (with no icing or condensation)					
Ambient humidity	Operating:	perating: 5% to 85%					
Weight	Approx. 20 g						

Note: Values in the above table are the initial values.

Approved Standards UL 508 (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings	Opera- tions
G2R-1-S (S)	SPDT		10 A, 30 VDC (resistive) 10 A, 250 VAC (general use)	100 × 10 ³
, ,		0 10 110 100	TV-3 (NO contact only)	25×10^{3}
G2R-2-S (S)	DPDT		5 A, 30 VDC (resistive) 5 A, 250 VAC (general use)	100 × 10 ³
			TV-3 (NO contact only)	25×10^{3}

CSA 22.2 No.0, No.14 (File No. LR31928)

-		=		
Model Contact form		Coil ratings	Contact ratings	Opera- tions
G2R-1-S (S)	SPDT		10 A, 30 VDC (resistive) 10 A, 250 VAC (general use)	100 × 10 ³
		0 10 110 100	TV-3 (NO contact only)	25 × 10 ³
G2R-2-S (S)	DPDT		5 A, 30 VDC (resistive) 5 A, 250 VAC (general use)	100 × 10 ³
			TV-3 (NO contact only)	25×10^{3}

IEC/VDE (Certificate No. 40015012 EN 61810-1)

Contact form	Coil ratings	Contact ratings	Operations
1 pole	6, 12, 24, 48 VDC 24, 110, 120, 230, 240 VAC	5 A, 440 VAC (cosφ = 1.0) 10 A, 250 VAC (cosφ = 1.0) 10 A, 30 VDC (0 ms)	100 × 10 ³
2 poles	6, 12, 24, 48 VDC 24, 110, 120, 230, 240 VAC	5 A, 250 VAC (cos	100 × 10 ³

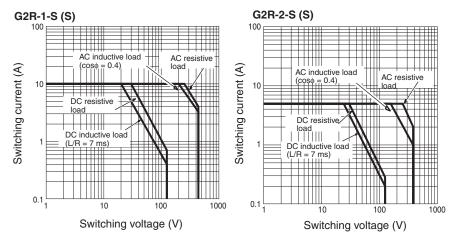
LR

Number of poles	Coil ratings	Contact ratings	Operations
1 pole	5 to 110 VDC 6 to 240 VDC	10 A, 250 VAC (general use) 7.5 A, 250 VAC (PF0.4) 10 A, 30 VDC (resistive) 5A, 30VDC (L/R=7ms)	100 × 10 ³
2 poles	5 to 110 VDC 6 to 240 VDC	5 A, 250 VAC (general use) 2 A, 250 VAC (PF0.4) 5 A, 30 VDC (resistive) 3A, 30VDC (L/R=7ms)	100 × 10 ³

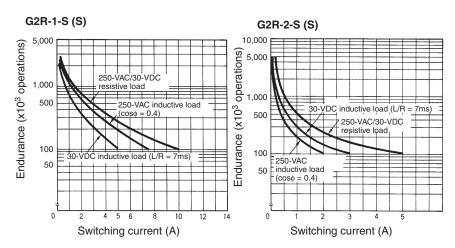
^{*}These values are relay only. Prease refer to the "Products Related to Common Sockets and DIN Tracks Data Sheet" for connecting sockets.

Engineering Data

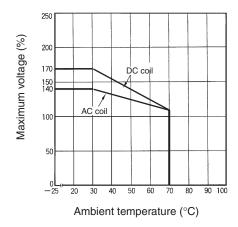
Maximum Switching Power



Endurance



Ambient Temperature vs Maximum Coil Voltage

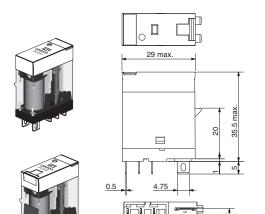


Dimensions (Unit: mm)

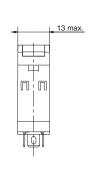
Note: All units are in millimeters unless otherwise indicated.

SPDT Relays

G2R-1-S (S), G2R-1-SN (S), G2R-1-SNI (S) G2R-1-SD (S), G2R-1-SND (S), G2R-1-SNDI (S)



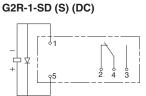
17.5



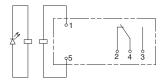
Terminal Arrangement/Internal Connections (Bottom View)

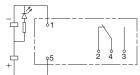
G2R-1-S (S)

91 05 2 4 3

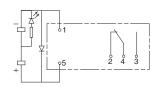


G2R-1-SN (S), G2R-1-SNI (S) (AC) G2R-1-SN (S), G2R-1-SNI (S) (DC)





G2R-1-SND (S), G2R-1-SNDI (S) (DC)

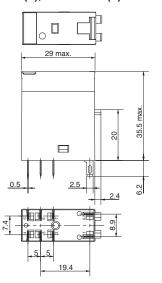


DPDT Relays

G2R-2-S (S), G2R-2-SN (S), G2R-2-SNI (S) G2R-2-SD (S), G2R-2-SND (S), G2R-2-SNDI (S)





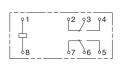


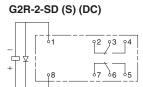
Terminal Arrangement/Internal Connections (Bottom View)

G2R-2-S (S)

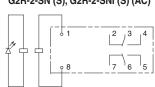
13 max.

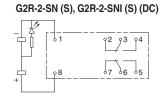
916



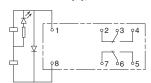


G2R-2-SN (S), G2R-2-SNI (S) (AC)

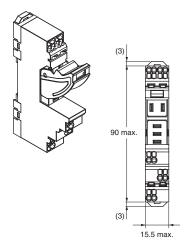


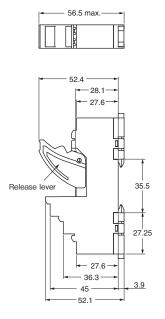


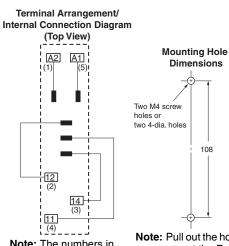
G2R-2-SND (S), G2R-2-SNDI (S) (DC)



Track/Surface Mounting Sockets P2RF-05-PU



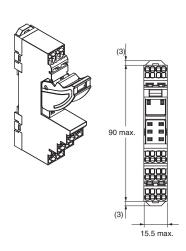


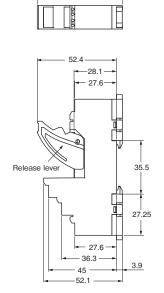


Note: The numbers in parentheses are traditionally used terminal numbers.

Note: Pull out the hooks to mount the Relay with screws.

P2RF-08-PU





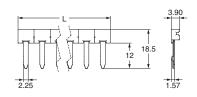
-56.5 max.

Terminal Arrangement/ Internal Connection Diagram (Top View) **Mounting Hole** A2 A1 **Dimensions** Two M4 screw holes or two 4-dia. holes 108 12 22 (2) 14 24 (4) (5) 11 21 (3)

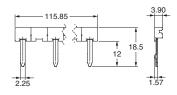
Note: The numbers in parentheses are traditionally used terminal numbers.

Note: Pull out the hooks to mount the Relay with screws.

Accessories for P2RF-□-PU Short Bars PYDN-7.75-□□ (7.75 mm)



PYDN-15.5-080□ (15.5 mm)



Application	Pitch	No. of poles	L (Length)	Colors	Model *	Maximum carry current
For Contact terminals (common)	7.75 mm	2	15.1	Red (R) Blue (S)	PYDN-7.75-020□	20 A
		3	22.85		PYDN-7.75-030□	
		4	30.6		PYDN-7.75-040□	
		20	154.6	Yellow (Y)	PYDN-7.75-200□	2071
For Coil terminals	15.5 mm	8	115.85		PYDN-15.5-080□	

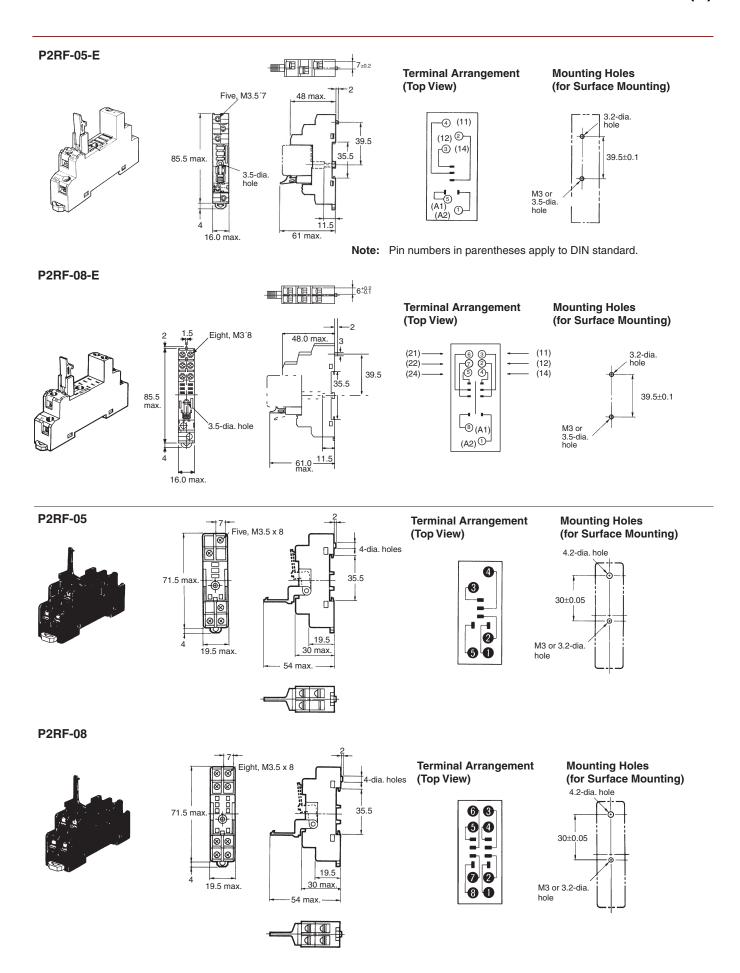
^{*}Replace the box (
) in the model number with the code for the covering color.

Note: 1. Use the Short Bars for crossover wiring within one Socket or between Sockets.

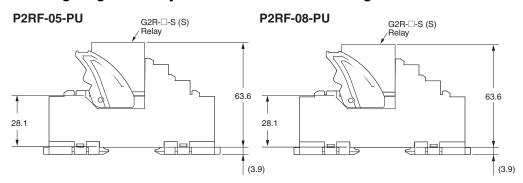
When using short bar to coil terminals of P2RF-□□-PU, A1 terminal cannot be used.
 In case crossover wiring of A1 terminal side is needed, crossover wiring using A1 terminals by wire is possible.

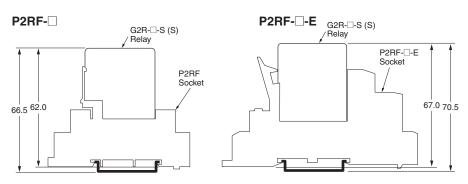
Short bar correspondence table

	Contact terminal (Common)	Coil terminal		
		A1	A2	
P2RF-□□-PU	Available		0	

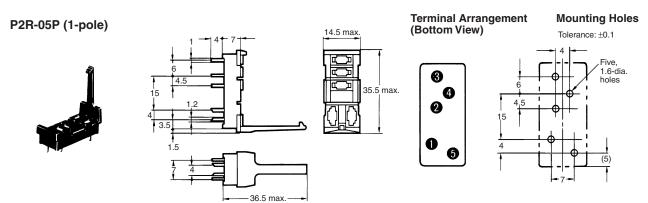


Mounting Height of Relay with Track/Surface Mounting Sockets

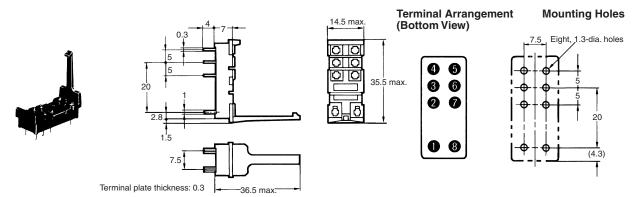


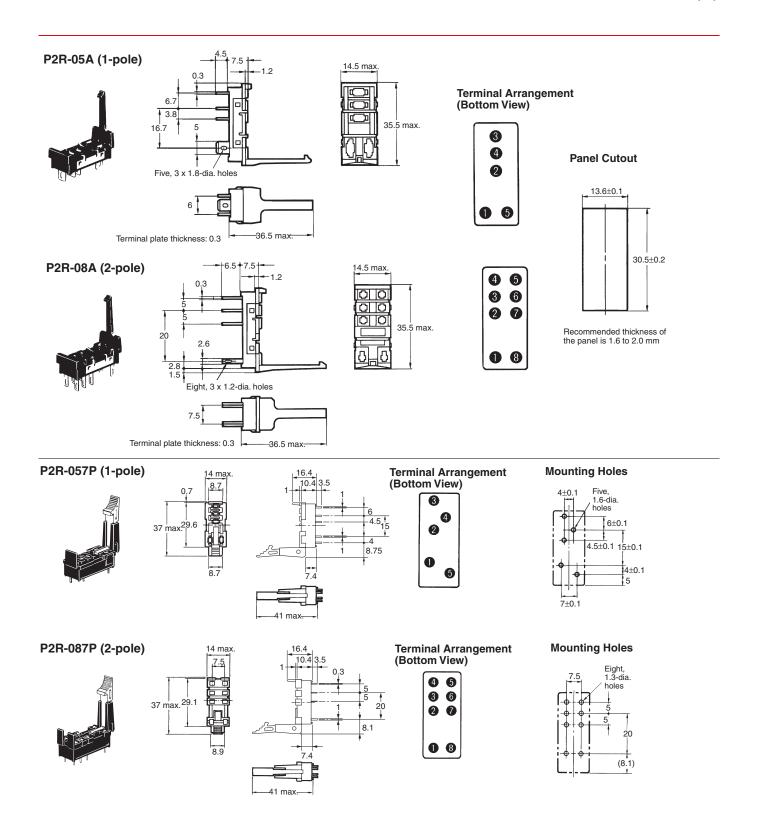


Back-connecting Sockets

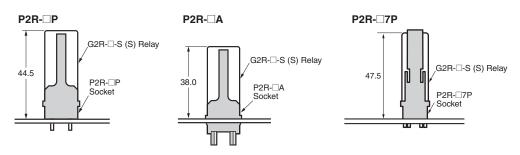


P2R-08P (2-pole)





Mounting Height of Relay with Back-connecting Sockets



Mounting Tracks

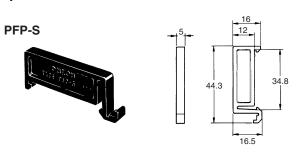
PFP-100N, PFP-50N 7.3±0.15 15 25 25 25 15 (5) 15 (5)

It is recommended to use a panel 1.6 to 2.0 mm thick.

End Plate

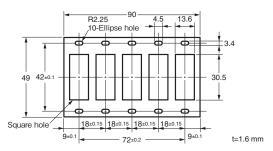
PFP-M 10 6.2 1,8 35.5 35.3 1.8 1.3 1.3 1.3 1.3 1.4 1.8 1.8

Spacer



Mounting Plate

P2R-P



Safety Precautions

Be sure to read the *Common Precautions for All Relay* in the website at the following URL: http://www.ia.omron.com/.

Refer to *Products Related to Common Sockets and DIN Tracks* for precautions on the applicable Sockets. Refer to *PYF-*__-PU/P2RF-_-PU for precautions on Push-In Plus Terminal Block Sockets.

Warning Indications



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

∴ Cation

- Do not use the test button for any purpose other than testing. Be sure not to touch the test button accidentally as this will turn the contacts ON. Before using the test button, confirm that circuits, the load, and any other connected item will operate safely.
- Check that the test button is released before turning ON relay circuits.
- If the test button is pulled out too forcefully, it may bypass the momentary testing position and go straight into the locked position.
- Use an insulated tool when you operate the test button.

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 catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "Products") by Omron Electronics LLC and its subsidiary companies ("Omron"). 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 without notice by Omron. Omron reserves the right to increase or decrease prices on any unshipped portions of outstanding orders. Payments for Products are due net 30 days unless otherwise stated in the invoice. Discounts. 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 and (ii) Buyer has no past due amounts.

- 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
- Orders. Omron will accept no order less than \$200 net billing.

 Governmental Approvals. Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation 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 indirectly by Omron for the manufacture, production, sale, delivery, importation, 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
- <u>Financial</u>. If the financial position of Buyer at any time becomes unsatisfactory 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 liability and in addition to other remedies) cancel any unshipped portion of Products 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. 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.

 11. Shipping: Delivery. 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-
- c. All sales and shipments of Products shall be FOB shipping point (unless otherwise 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 normal handling and extra charges apply to special conditions.

 12. Claims. 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 transportation bill signed by the carrier noting that the carrier received the Products. portation bill signed by the carrier noting that the carrier received the Products from Omron in the condition claimed.
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