

# M8/M12 Sensor Connector Selection Guide

**M12 TypeXS2**



**M8 TypeXS3**



**e-CON Type XN2**



**M12 Smartclick Type XS5**



**1. Fast Connection**

Shortest locking rotation of 1/8th of a turn greatly reduces time and effort when wiring

**2. Click Feeling**

An audible "click" and tactile response tells you that the Connector is securely locked.

**3. Backward Compatibility**

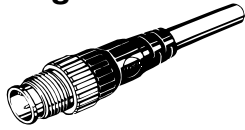
Possible to connect with standard screw-type M12 connector

**4. Same degree of protection**

Meeting IP67 requirement

## M12 Cable type

### Plug (Male) Straight



3 pole



- 1 Brown
- 3 Blue
- 4 Black

4 pole



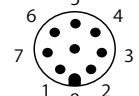
- 1 Brown
- 2 White
- 3 Blue
- 4 Black

5 pole



- 1 Brown
- 2 White
- 3 Blue
- 4 Black
- 5 Grey

8 pole



- 1 White
- 2 Brown
- 3 Green
- 4 Yellow
- 5 Grey
- 6 Pink
- 7 Blue
- 8 Shield

**Cable Length (m)**

PVC	0.3	XS2H-D421-AC0-A	XS2H-D421-A80-A	XS2H-D521-AG0-A	XS2H-D821-AH0-C
	1.0	XS2H-D421-CC0-A	XS2H-D421-C80-A	XS2H-D521-CG0-A	XS2H-D821-CH0-C

**Technical data**

Rated voltage	125VDC,250VAC			36VDC
Rated current	4A			1.5A
Protection class (IEC60529)	IP67			IP67
Temperature range	-25C to +70C			-25C to +70C

**PVC Cable**

Color	Light Grey	Light Grey	Light Grey	Light Grey
Outer diameter	Ø6mm	Ø6mm	Ø6mm	Ø6mm
Conductor size	AWG20 (49 x 0.12)	AWG20 (49 x 0.12)	0.3mm <sup>2</sup> (30 x 0.12)	0.25mm <sup>2</sup> (20 x 0.127)
Approvals	UL Approved	UL Approved	-	-

## M12 Smartclick Cable type

### Socket (Female) Straight



4 pole



- 1 Brown
- 2 White
- 3 Blue
- 4 Black

**Cable Length (m)**

PVC	2.0	XS5F-D421-D80-A
	5.0	XS5F-D421-G80-A
	10.0	XS5F-D421-J80-A

### Angled



**Cable Length (m)**

PVC	2.0	XS5F-D422-D80-A
	5.0	XS5F-D422-G80-A
	10.0	XS5F-D422-J80-A

### Plug (Male) Straight



4 pole



- 1 Brown
- 2 White
- 3 Blue
- 4 Black

**Cable Length (m)**

PVC	0.3	XS5H-D421-A80-A
	1.0	XS5H-D421-C80-A

### Angled



**Cable Length (m)**

PVC	0.3	XS5H-D422-A80-A
	1.0	XS5H-D422-C80-A
	2.0	XS5H-D422-D80-A

**Technical data**

Rated voltage	125VDC,250VAC		
Rated current	4A		
Protection class (IEC60529)	IP67		
Temperature range	-25C to +70C		

**PVC Cable**

Color	Light Grey
Outer diameter	Ø6mm
Conductor size	AWG20 (49 x 0.12)
Approvals	UL Approved

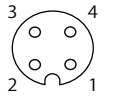
# M12 / M12 Smartclick Panel Mount Type

## Socket (Female)



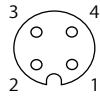
Front Lock Model  
Solder Cup or With cable

4 pole



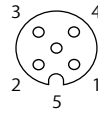
XS5P-D427-5

4 pole



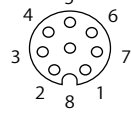
XS2P-D422-2

5 pole

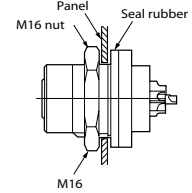
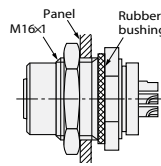
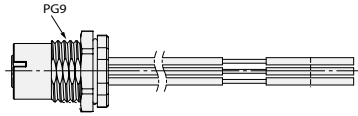


XS2P-D522-2

8 pole

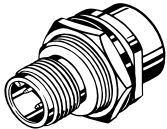


XS2P-D822-2



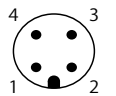
1 Brown 2 White 3 Blue 4 Black  
Cable Length : 50cm

## Plug (Male)



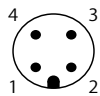
Front Lock Model  
Solder Cup or With cable

4 pole



XS5M-D427-5

4 pole



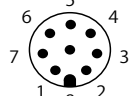
XS2M-D424-2

5 pole

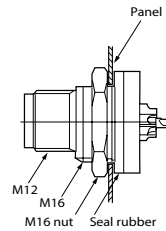
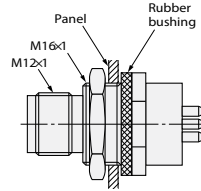
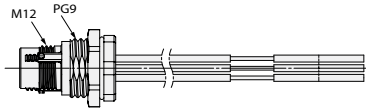


XS2M-D524-2

8 pole

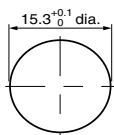


XS2M-D824-4

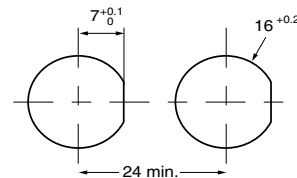


1 Brown 2 White 3 Blue 4 Black  
Cable Length : 50cm

### Panel Cutout



### Panel Cutout



Note: The panel thickness is 1 to 4 mm.

### Technical data

Rated voltage	125VDC, 250VAC	36VDC
Rated current	4A	1.5A
Protection class (IEC60529)	IP67	IP67
Temperature range	-25C to +70C	-25C to +70C

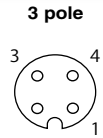
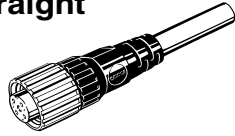
### Material

Contact / Surface	Copper Alloy / Nickel base, Au0.4µm	
Connector housing	4,8 Pole:PBT resin (UL94V-0) / 5 Poles:PA resin(UL94V-0)	
Nut /Surface	Copper Alloy / Nickel plated	

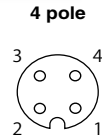
# M12 Cable type

## Socket (Female)

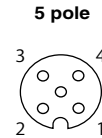
### Straight



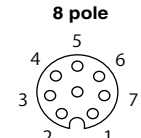
- 1 Brown
- 3 Blue
- 4 Black



- 1 Brown
- 2 White
- 3 Blue
- 4 Black



- 1 Brown
- 2 White
- 3 Blue
- 4 Black
- 5 Yellow/Green

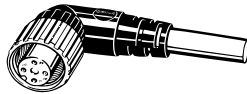


- 1 White
- 2 Brown
- 3 Green
- 4 Yellow
- 5 Grey
- 6 Pink
- 7 Blue
- 8 Shield

### Cable Length (m)

PVC	2.0	XS2F-M12PVC3S2M	XS2F-M12PVC4S2M	XS2F-M12PVC5S2M	XS2F-D821-DH0-C
	5.0	XS2F-M12PVC3S5M	XS2F-M12PVC4S5M	XS2F-M12PVC5S5M	XS2F-D821-GH0-C
	10.0	XS2F-M12PVC3S10M	XS2F-M12PVC4S10M	-	-
PUR	2.0	XS2F-M12PUR3S2M	XS2F-M12PUR4S2M	XS2F-M12PUR5S2M	-
	5.0	XS2F-M12PUR3S5M	XS2F-M12PUR4S5M	XS2F-M12PUR5S5M	-
	10.0	XS2F-M12PUR3S10M	XS2F-M12PUR4S10M	-	-

### Angled



### Cable Length (m)

PVC	2.0	XS2F-M12PVC3A2M	XS2F-M12PVC4A2M	XS2F-M12PVC5A2M	-
	5.0	XS2F-M12PVC3A5M	XS2F-M12PVC4A5M	XS2F-M12PVC5A5M	-
	10.0	XS2F-M12PVC3A10M	XS2F-M12PVC4A10M	-	-
PUR	2.0	XS2F-M12PUR3A2M	XS2F-M12PUR4A2M	XS2F-M12PUR5A2M	-
	5.0	XS2F-M12PUR3A5M	XS2F-M12PUR4A5M	XS2F-M12PUR5A5M	-
	10.0	XS2F-M12PUR3A10M	XS2F-M12PUR4A10M	-	-

### Technical data

Rated voltage	125VDC,250VAC	36VDC
Rated current	4A	1.5A
Protection class (IEC60529)	IP67	IP67

### Material

Contact / Surface	Copper Alloy / Nickel base, Au0.4µm		
Connector housing	3,4,8 Pole:PBT resin (UL94V-0) / 5 Poles:PA resin(UL94V-0)		
Cover	3,4,8 Pole:Polyester elastomer / 5 Poles:PVC		
Nut /Surface	Copper Alloy / Nickel plated		

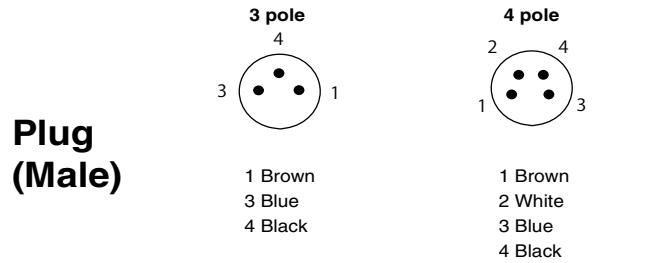
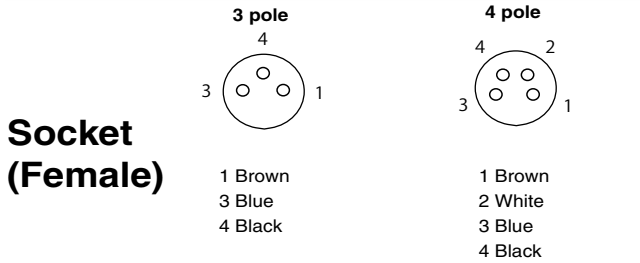
### PVC Cable

Color	Black	Black	Black	Light Grey
Outer diameter	Ø5mm	Ø5.4mm	Ø5.8mm	Ø6mm
Conductor size	AWG22 (43 x 0.1)	AWG22 (43 x 0.1)	AWG22 (43 x 0.1)	0.25mm <sup>2</sup> (20 x 0.127)
Approvals	UL/cUL approved	UL/cUL approved	UL/cUL approved	-
Features	Flame retardant	Flame retardant	Flame retardant	-
Temperature range	-25C to +70C			

### PUR Cable

Color	Black	Black	Black
Outer diameter	Ø4.3mm	Ø4.7mm	Ø5mm
Conductor size	AWG22 (43 x 0.1)	AWG22 (43 x 0.1)	AWG22 (43 x 0.1)
Approvals	UL/cUL approved	UL/cUL approved	UL/cUL approved
Features	Flame retardant Halogen free Oil resistance	Flame retardant Halogen free Oil resistance	Flame retardant Halogen free Oil resistance
Temperature range	Cable fixed : -50C to +80C / Cable moved : -25C to +80C		

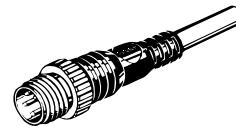
# M8 Cable type



## Straight



Cable Length (m)			
PVC	2.0	XS3F-M8PVC3S2M	XS3F-M8PVC4S2M
	5.0	XS3F-M8PVC3S5M	XS3F-M8PVC4S5M
	10.0	XS3F-M8PVC3S10M	XS3F-M8PVC4S10M
PUR	2.0	XS3F-M8PUR3S2M	XS3F-M8PUR4S2M
	5.0	XS3F-M8PUR3S5M	XS3F-M8PUR4S5M
	10.0	XS3F-M8PUR3S10M	XS3F-M8PUR4S10M



Cable Length (m)			
PVC	0.3	XS3H-M8PVC3S03M	XS3H-M8PVC4S03M
	1.0	XS3H-M8PVC3S1M	XS3H-M8PVC4S1M
PUR	0.3	XS3H-M8PUR3S03M	XS3H-M8PUR4S03M
	1.0	XS3H-M8PUR3S1M	XS3H-M8PUR4S1M

## Angled



Cable Length (m)			
PVC	2.0	XS3F-M8PVC3A2M	XS3F-M8PVC4A2M
	5.0	XS3F-M8PVC3A5M	XS3F-M8PVC4A5M
	10.0	XS3F-M8PVC3A10M	XS3F-M8PVC4A10M
PUR	2.0	XS3F-M8PUR3A2M	XS3F-M8PUR4A2M
	5.0	XS3F-M8PUR3A5M	XS3F-M8PUR4A5M
	10.0	XS3F-M8PUR3A10M	XS3F-M8PUR4A10M



Cable Length (m)			
PVC	0.3	XS3H-M8PVC3A03M	XS3H-M8PVC4A03M
	1.0	XS3H-M8PVC3A1M	XS3H-M8PVC4A1M
PUR	0.3	XS3H-M8PUR3A03M	XS3H-M8PUR4A03M
	1.0	XS3H-M8PUR3A1M	XS3H-M8PUR4A1M

### Technical data

Rated voltage	125VDC
Rated current	3A
Protection class (IEC60529)	IP67

### Material

Contact / Surface	Copper Alloy / Nickel base, Au0.4µm
Connector housing	PBT resin (UL94V-0)
Cover	Polyester elastomer (UL94V-0)
Nut /Surface	Copper Alloy / Nickel plated

### PVC Cable

	Black	Black
Color	Black	Black
Outer diameter	Ø5mm	Ø4.8mm
Conductor size	AWG22 (43 x 0.1)	0.25mm <sup>2</sup> (32 x 0.1)
Approvals	UL approved	UL approved
Features	Flame retardant	Flame retardant
Temperature range	-25C to +70C	

### PVC Cable

	Black	Black
Color	Black	Black
Outer diameter	Ø5mm	Ø4.8mm
Conductor size	AWG22 (43 x 0.1)	0.25mm <sup>2</sup> (32 x 0.1)
Approvals	UL approved	UL approved
Features	Flame retardant	Flame retardant
Temperature range	-25C to +70C	

### PUR Cable

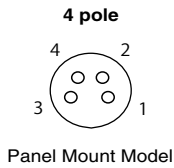
	Black	Black
Color	Black	Black
Outer diameter	Ø4.3mm	Ø 4.7mm
Conductor size	AWG22 (43 x 0.1)	AWG22 (43 x 0.1)
Approvals	UL approved	UL approved
Features	Flame retardant Halogen free Oil resistance	Flame retardant Halogen free Oil resistance
Temperature range	Cable fixed : -50C to +80C / Cable moved : -25C to +80C	

### PUR Cable

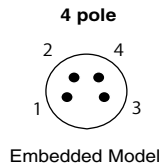
	Black	Black
Color	Black	Black
Outer diameter	Ø4.3mm	Ø4.7mm
Conductor size	AWG22 (43 x 0.1)	AWG22 (43 x 0.1)
Approvals	UL approved	UL approved
Features	Flame retardant Halogen free Oil resistance	Flame retardant Halogen free Oil resistance
Temperature range	Cable fixed : -50C to +80C / Cable moved : -25C to +80C	

## M8 Panel Mount /Embedded/Y-Joint Type

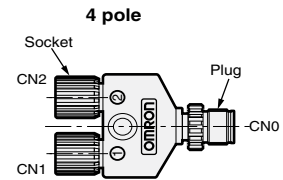
### Socket (Female)



### Plug (Male)



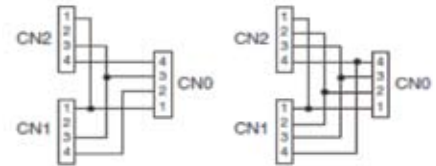
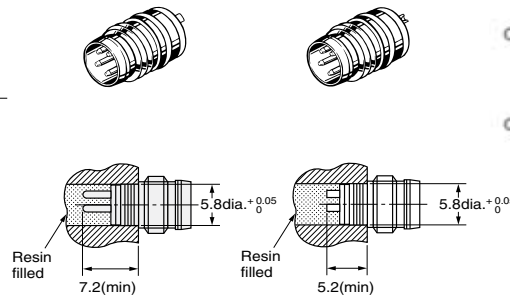
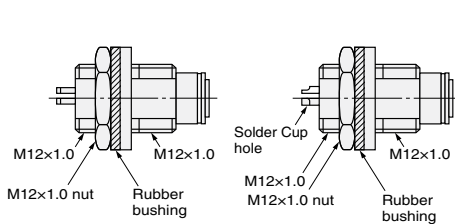
### Y-Joint (Plug/Socket)



PCB Terminal	Solder Cup
XS3P-M421-1	XS3P-M421-2

PCB Terminal	Solder Cup
XS3M-K421-1	XS3M-K421-2

XS3R-M426-1	XS3R-M426-5
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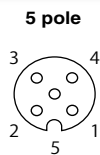


#### Technical data

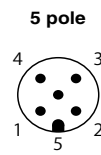
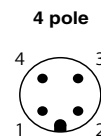
Rated voltage	125VDC
Rated current	1A
Protection class (IEC60529)	IP67
Temperature range	-25C to +70C

## M12 Smartclick Assembled Type

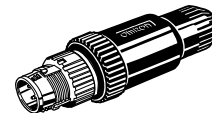
### Socket (Female)



### Plug (Male)



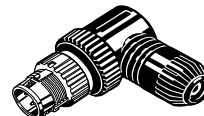
#### Straight



Cable Diameter	4 pole	5 pole
3-4mm	XS5C-D4S5	XS5C-D5S5
4-5mm	XS5C-D4S3	XS5C-D5S3
5-6mm	XS5C-D4S1	XS5C-D5S1
6-7mm	XS5C-D4S9	XS5C-D5S9
7-8mm	XS5C-D4S7	XS5C-D5S7

Cable Diameter	4 pole	5 pole
3-4mm	XS5G-D4S5	XS5G-D5S5
4-5mm	XS5G-D4S3	XS5G-D5S3
5-6mm	XS5G-D4S1	XS5G-D5S1
6-7mm	XS5G-D4S9	XS5G-D5S9
7-8mm	XS5G-D4S7	XS5G-D5S7

#### Angled



Cable Diameter	4 pole	5 pole
3-4mm	XS5C-D4S6	-
4-5mm	XS5C-D4S4	-
5-6mm	XS5C-D4S2	-

Cable Diameter	4 pole	5 pole
3-4mm	XS5G-D4S6	-
4-5mm	XS5G-D4S4	-
5-6mm	XS5G-D4S2	-

Contact terminations are screws

#### Technical data

Rated voltage	125VDC, 250VAC
Rated current	4A
Protection class (IEC60529)	IP67
Temperature range	-25C to +70C

# e-CON Connectors

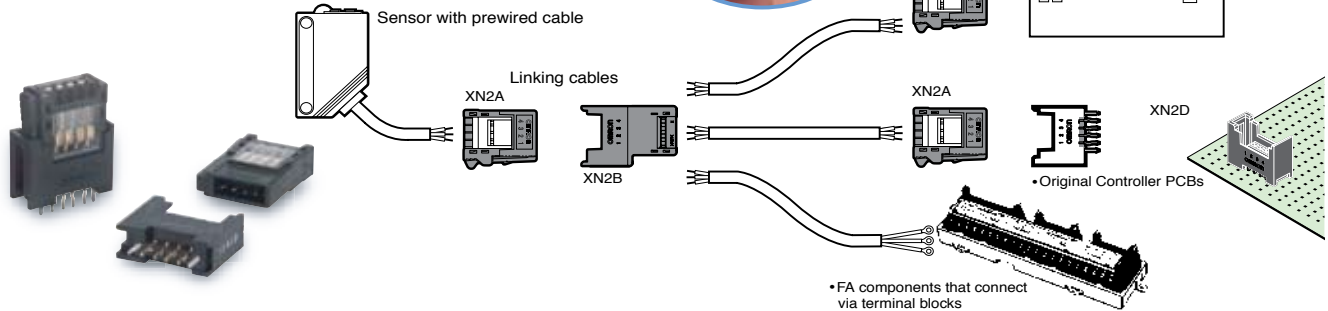
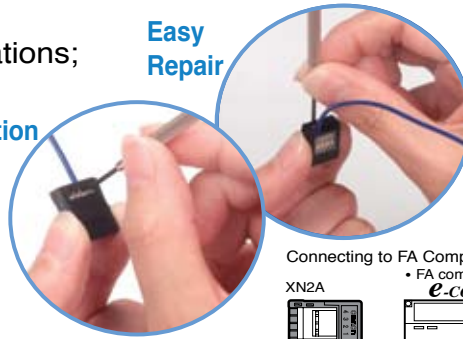
## Industrial PCB Connectors XN2 Series

Easy-wire Connectors with **e-CON** Specifications; Ideal for Connecting Sensors.

- Use industry-proven spring clamps for wiring.
- No special tools required.
- Easy to rewire and repair.
- Each Connector accepts any size wire from AWG28 (0.08mm<sup>2</sup>) to AWG20 (0.5mm<sup>2</sup>). (External sheath diameter: 1.5 mm max.)
- Available contacts: 3,4,5,6,8.

Easy Connection

Easy Repair



### Ordering Information

Type	Cable Plug Connector	Cable Socket Connector	Single-socket PCB Socket Connector	Four-socket PCB Socket Connector
Appearance				
Model	XN2A-1*70	XN2B-1430	XN2D-1*71	XN2D-4471

\*=No. of contacts: 3,4,5,6 or 8

### Ratings and Specifications

Rated current	3 A/pole (Using 0.5 mm <sup>2</sup> wire) 2 A/pole (Using 0.3 mm <sup>2</sup> wire) 1 A/pole (Using 0.2 mm <sup>2</sup> wire) 0.5 A/pole (Using 0.1 mm <sup>2</sup> wire)
Rated voltage	32 VDC
Contact resistance *1	30mΩ max. (20 mVDC max., 100 mA max.)
Insulation resistance	1000MΩ min. (at 500 VDC)
Dielectric strength	1,000 VAC for 60 s (leakage current: 1 mA max.)
Insertion tolerance	50 times
Ambient temperature *2	Operating: -30°C to 75°C
Applicable wires	0.08 mm <sup>2</sup> (AWG28) to 0.5mm <sup>2</sup> (AWG20),The external diameter of the cable sheath is 1.5 mm max.

\*1. This value is the contact resistance of the connector.

\*2. The temperature is limited, however, to the maximum operating temperature for the cables.

Cat. No. G017-E-02 **In the interest of product improvement, specifications are subject to change without notice.**

#### OMRON ELECTRONIC COMPONENTS LLC

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# Omron Electronic Components, LLC

## Terms and Conditions of Sales

### I. GENERAL

- Definitions:** The words used herein are defined as follows.
  - Terms:** These terms and conditions
  - Seller:** Omron Electronic Components LLC and its subsidiaries
  - Buyer:** The buyer of Products, including any end user in section III through VI
  - Products:** Products and/or services of Seller
  - Including:** Including without limitation
- Offer; Acceptance:** These Terms are deemed part of all quotations, acknowledgments, invoices, purchase orders and other documents, whether electronic or in writing, relating to the sale of Products by Seller. Seller hereby objects to any Terms proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
- Distributor:** Any distributor shall inform its customer of the contents after and including section III of these Terms.

### II. SALES

- Prices; Payment:** All prices stated are current, subject to change without notice by Seller. Buyer agrees to pay the price in effect at the time the purchase order is accepted by Seller. Payments for Products received are due net 30 days unless otherwise stated in the invoice. Buyer shall have no right to set off any amounts against the amount owing in respect of this 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 (a) the invoice is paid according to Seller's payment terms and (b) Buyer has no past due amounts owing to Seller.
- Interest:** Seller, at its option, may charge Buyer 1.5% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms.
- Orders:** Seller will accept no order less than 200 U.S. dollars net billing.
- Currencies:** If the prices quoted herein are in a currency other than U.S. dollars, Buyer shall make remittance to Seller at the then current exchange rate most favorable to Seller; provided that if remittance is not made when due, Buyer will convert the amount to U.S. dollars at the then current exchange rate most favorable to Seller available during the period between the due date and the date remittance is actually made.
- Governmental Approvals:** Buyer shall be responsible for all costs involved in obtaining any government approvals regarding 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 Seller or required to be collected directly or indirectly by Seller 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 Seller.
- Financial:** If the financial position of Buyer at any time becomes unsatisfactory to Seller, Seller 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, Seller 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.
- Cancellation; Etc:** Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Seller fully against all costs or expenses arising in connection therewith.
- Force Majeure:** Seller 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.
- Shipping; Delivery:** Unless otherwise expressly agreed in writing by Seller:
  - All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Products shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Products until the full purchase price is paid by Buyer;
  - Delivery and shipping dates are estimates only; and
  - Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- Claims:** Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier or any claim related to pricing or other charges must be presented in detail in writing to Seller within 30 days of receipt of shipment.

### III. PRECAUTIONS

- Suitability:** IT IS THE BUYER'S SOLE RESPONSIBILITY TO ENSURE THAT ANY OMRON PRODUCT IS FIT AND SUFFICIENT FOR USE IN A MOTORIZED VEHICLE APPLICATION. BUYER SHALL BE SOLELY RESPONSIBLE FOR DETERMINING APPROPRIATENESS OF THE PARTICULAR PRODUCT WITH RESPECT TO THE BUYER'S APPLICATION INCLUDING (A) ELECTRICAL OR ELECTRONIC COMPONENTS, (B) CIRCUITS, (C) SYSTEM ASSEMBLIES, (D) END PRODUCT, (E) SYSTEM, (F) MATERIALS OR SUBSTANCES OR (G) OPERATING ENVIRONMENT. Buyer acknowledges that it alone has determined that the Products will meet their requirements of the intended use in all cases. Buyer must know and observe all prohibitions of use applicable to the Product/s.
- Use with Attention:** The followings are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible use of any Product, nor to imply that any use listed may be suitable for any Product:
  - Outdoor use, use involving potential chemical contamination or electrical interference.
  - Use in consumer Products or any use in significant quantities.

- Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
  - Systems, machines, and equipment that could present a risk to life or property.
- Prohibited Use:** NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
  - Motorized Vehicle Application:** USE OF ANY PRODUCT/S FOR A MOTORIZED VEHICLE APPLICATION MUST BE EXPRESSLY STATED IN THE SPECIFICATION BY SELLER.
  - Programmable Products:** Seller shall not be responsible for the Buyer's programming of a programmable Product.

### IV. WARRANTY AND LIMITATION

- Warranty:** Seller'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 Seller (or such other period expressed in writing by Seller). SELLER MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT ALL OTHER WARRANTIES, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS.
- Buyer Remedy:** Seller's sole obligation hereunder shall be to replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product or, at Seller's election, to repay or credit Buyer an amount equal to the purchase price of the Product; provided that there shall be no liability for Seller or its affiliates unless Seller's analysis confirms that the Products were correctly 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 Seller before shipment.
- Limitation on Liability:** SELLER AND ITS AFFILIATES 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 SELLER OR ITS AFFILIATES EXCEED THE INDIVIDUAL PRICE OF THE PRODUCT ON WHICH LIABILITY IS ASSERTED.
- Indemnities:** Buyer shall indemnify and hold harmless Seller, its affiliates and its employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Seller 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.

### V. INFORMATION; ETC.

- Intellectual Property:** The intellectual property embodied in the Products is the exclusive property of Seller and its affiliates and Buyer shall not attempt to duplicate it in any way without the written permission of Seller. Buyer (at its own expense) shall indemnify and hold harmless Seller and defend or settle any action brought against Seller to the extent that it is based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party.
- Property; Confidentiality:** Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Seller. All information and materials supplied by Seller to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.
- Performance Data:** Performance data is provided as a guide in determining suitability and does not constitute a warranty. It may represent the result of Seller's test conditions, and the users must correlate it to actual application requirements.
- Change In Specifications:** Product specifications and descriptions may be changed at any time based on improvements or other reasons. It is Seller's practice to change part numbers when published ratings or features are changed, or when significant engineering changes are made. However, some specifications of the Product may be changed without any notice.
- Errors And Omissions:** The information on Seller's website or in other documentation has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.
- Export Controls:** Buyer shall comply with all applicable laws, regulations and licenses regarding (a) export of the Products or information provided by Seller; (b) sale of Products to forbidden or other proscribed persons or organizations; (c) disclosure to non-citizens of regulated technology or information.

### VI. MISCELLANEOUS

- Waiver:** No failure or delay by Seller in exercising any right and no course of dealing between Buyer and Seller shall operate as a waiver of rights by Seller.
- Assignment:** Buyer may not assign its rights hereunder without Seller's written consent.
- Law:** These Terms are governed by Illinois law (without regard to conflict of laws). Federal and state courts in Cook County, Illinois have exclusive jurisdiction for any dispute hereunder.
- Amendment:** These Terms constitute the entire agreement between Buyer and Seller relating to the Products, and no provision may be changed or waived unless in writing signed by the parties.
- Severability:** If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision.