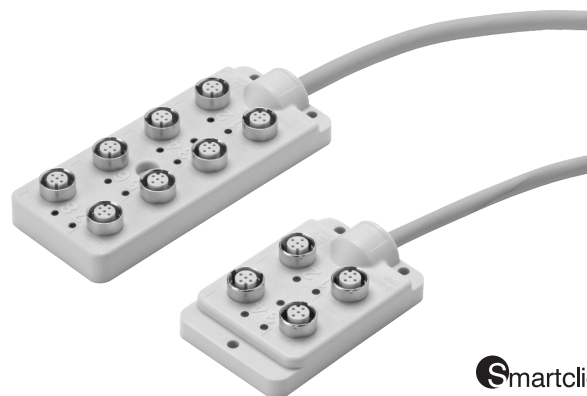


# Connector Terminal Boxes (M12)

# XW3D

## Simple Wiring of Sensor Actuators

- Compatible with XS5 and XS2 style M12 connectors
- Greatly reduces wiring work in combination with the XS5 Smartclick.
- Insert the connector and turn 1/8 of a turn to lock the connectors. (XS5 Smartclick connectors)
- Higher rated current to enable output applications.
- Compatible with other M12 screw connectors.
- Degree of protection : IP67 (IEC60529)



Smartclick™

## ■ Ratings and Specifications

Rated current	4 A/port, 12 A/Box (power line)
Rated voltage	10 to 30 VDC
Contact resistance (connector)	40 mΩ max. (20 mV max., 100 mA max.)
Insulation resistance	100 MΩ min. (at 500 VDC)
Dielectric strength (connector)	500 VAC for 1 min (leakage current: 1 mA max.)
Degree of protection	IP67 (IEC60529)
Insertion tolerance	50 times min.
Lock strength	Pulling: 100 N/15 s, Twisting: 1 N·m/15 s
Cable holding strength	100 N/15 s
Lock operating force	0.1 N·m to 0.25 N·m
Ambient operating temperature range	-25 to 70°C

## ■ Materials and Finish

Item	Materials/finish
Contacts	Brass/nickel base, 0.4-μm gold-plating
Fixtures	Nickel-plated zinc alloy
Case	PBT resin (UL94V-0), light gray
Bushing	Rubber
O-ring	Rubber
PCB	Glass epoxy board
Sealing resin	Urethane resin (UL94V-0)
Cable	UL AWM2464 Signal lines: AWG22 Power and ground lines: AWG18

## ■ Connection Combinations

OMRON Model No.		Twist-and-Click Plug Connectors	M12 Plug Connectors
		XS5H, XS5G XS5W (plug end) XS5R (plug end)	XS2H, XS2G XS2W (plug end) XS2R (plug end)
Connector Terminal Box	XW3D	⊗	○

Note: Smartclick™ is a registered trademark of the OMRON Corporation.

⊗: Connected by Smartclick twisting.

○: Connected by screwing.

## Ordering Information

Sensor type and wiring		3-Wire DC NPN/2-Wire DC 3-4	2-Wire DC 1-4/Without polarity 3-4	3-Wire DC PNP/2-Wire DC 1-4
Actuator wiring		Actuator wiring 1-4	—	Actuator wiring 3-4
No. of ports	No. of I/O	Model	Model	Model
4	4	XW3D-P455-G11	XW3D-P452-G11	XW3D-P453-G11
8	8	XW3D-P855-G11	XW3D-P852-G11	XW3D-P853-G11
4	8	XW3D-P458-G11	—	XW3D-P457-G11

**Note:** 1. "1-4" and "3-4" are the connector pin numbers that are wired.  
 2. All cables are 5 m long.

### Waterproof Cover (Sold Separately) XS2Z-22



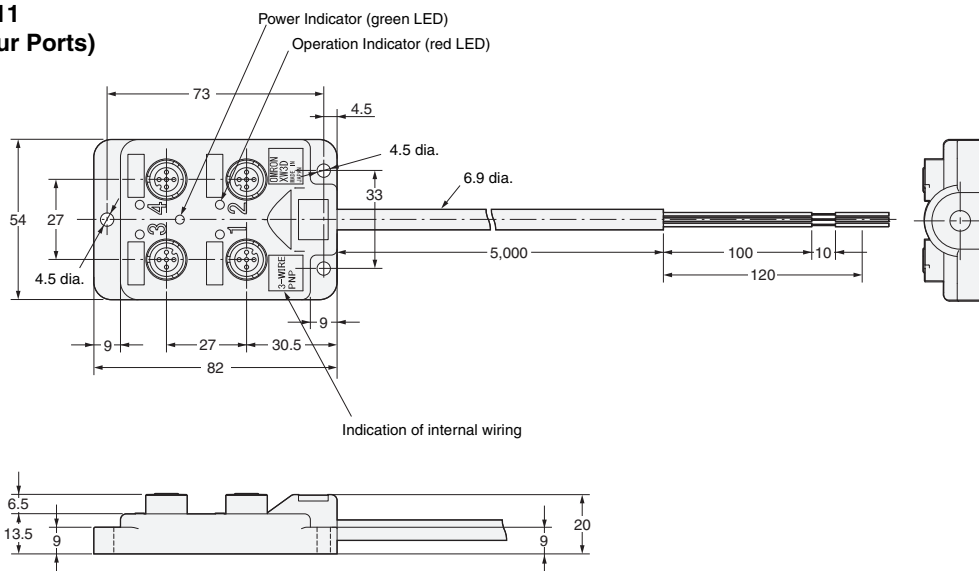
Model	No. per box	Material
XS2Z-22	50	Brass with Ni plating

**Note:** 1. The XW3D comes with a dust cover. Use the optional XS2Z-22 Waterproof Cover when an IP67 degree of protection is required.  
 2. The XS2Z-22 connection is threaded.

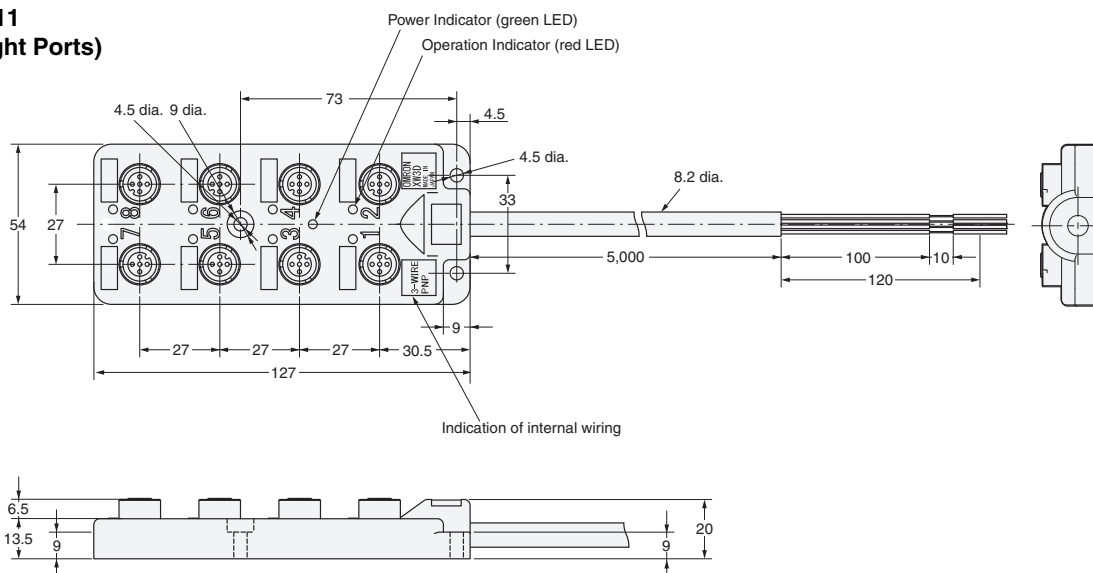
## Dimensions

(Unit : mm)

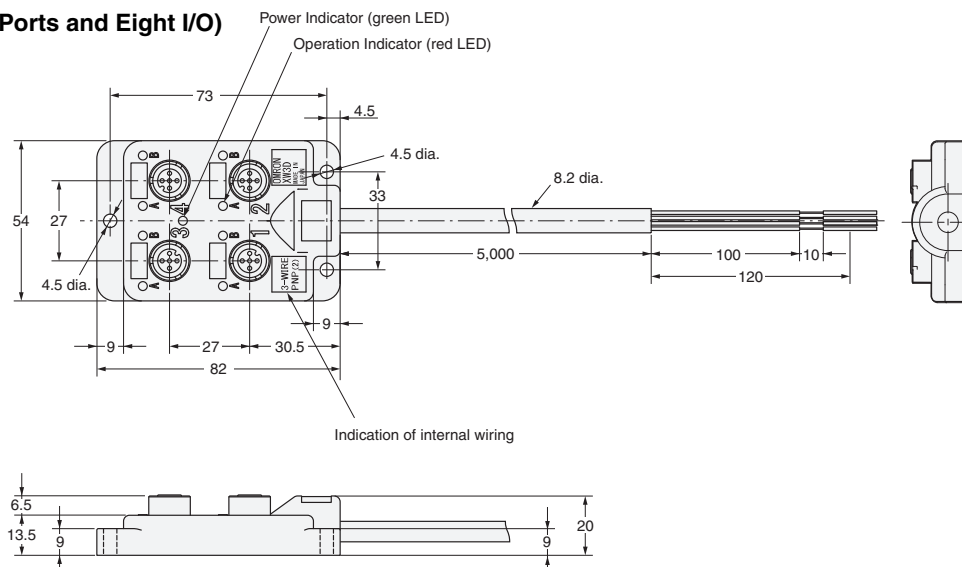
### XW3D-P45□-G11 (Model with Four Ports)



### XW3D-P85□-G11 (Model with Eight Ports)



**XW3D-P457-G11**  
**(Model with Four Ports and Eight I/O)**



**Wiring Diagrams**

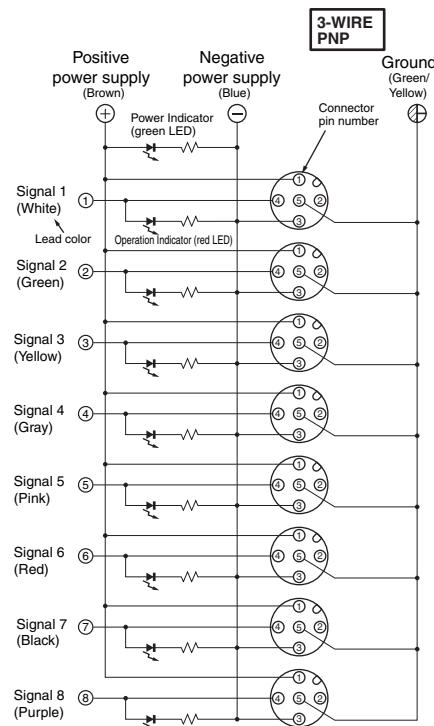
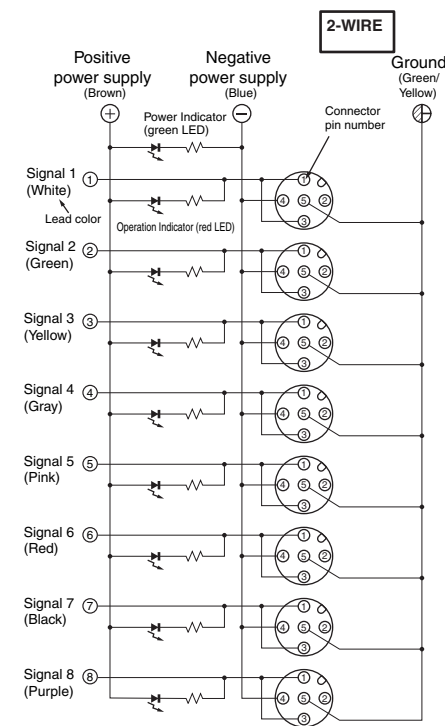
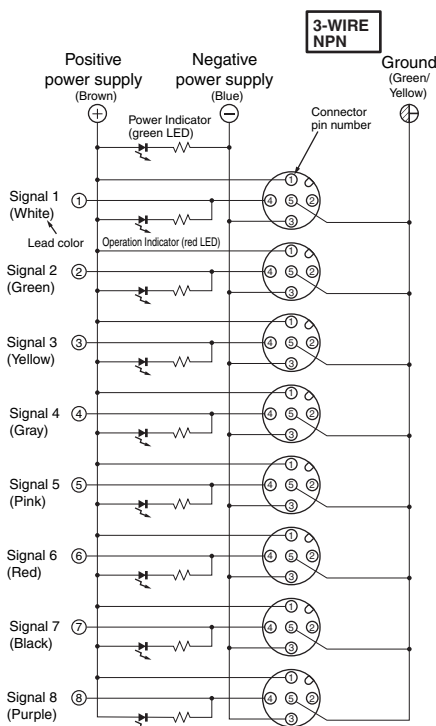
**Models with One I/O and One Port**

**NPN Sensor Specifications**  
**XW3D-P□55-□11**  
**for 3-Wire DC NPN,**  
**2-Wire DC (Without polarity 3-4), and**  
**Actuator (1-4)**

**2-Wire Sensor Specifications**  
**XW3D-P□52-□11**  
**for 2-Wire DC (polarity 1-4, without**  
**polarity 3-4)**

**PNP Sensor Specifications**  
**XW3D-P□53-□11**  
**for 3-Wire DC PNP,**  
**2-Wire DC (with polarity 1-4), and**  
**Actuator (3-4)**

**Note:** Cannot be used with NPN-type Photoelectric and Proximity Sensors. Cannot be used with Proximity Sensors with polarity 3-4.

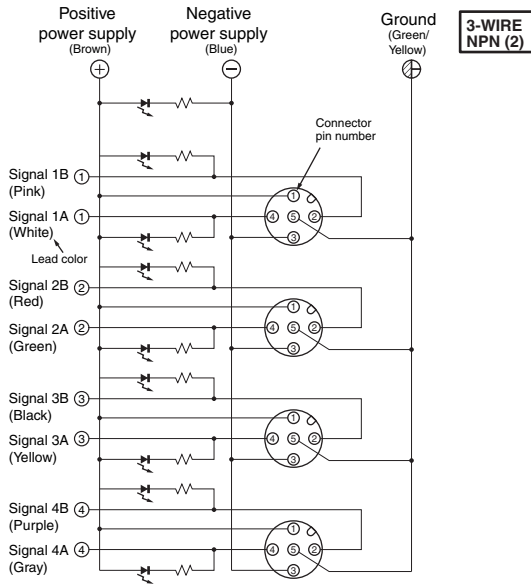


- Note:**
1. The above wiring diagrams are for eight-port use.
  2. Figures in parentheses indicate lead colors.
  3. The expression "white/red" means white and red stripes.
  4. Here, "1-4" and "3-4" are pin numbers.
  5. Contact numbers 5 through 8 in the above diagrams do not exist on Terminal Boxes with four ports. The lead colors for signals 1 through 4, power supply, and ground are the same.

## Models with Two I/O and One Port

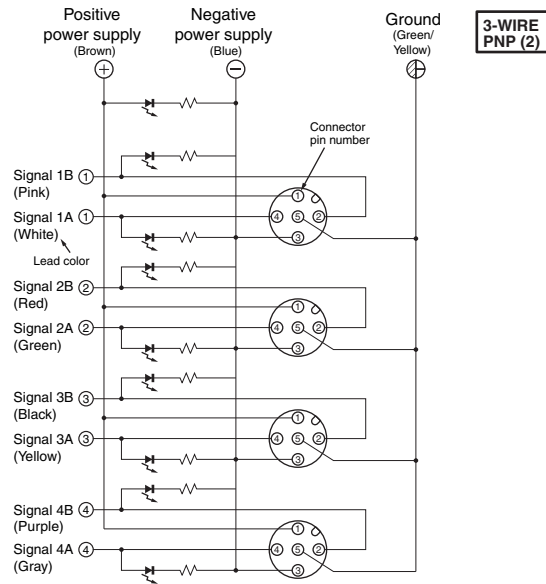
### XW3D-P458-G11

for 3-Wire DC NPN and Actuator (1-4 or 1-2)



### XW3D-P457-G11

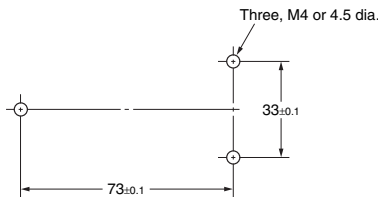
for 3-Wire PNP and Actuator (3-4 or 3-2)



**Note:** Colors given in the connection diagram are lead colors.

## Mounting Dimensions

(Unit: mm)



**Note:** Mounting dimensions are the same for any models.

## Safety Precautions

### Precautions for Correct Use

Do not use the Connectors in an atmosphere or environment that exceeds the specifications.

### Connector Connection and Disconnection

- Mate the connectors according to the procedure given in this datasheet.
- When joining Connectors, be sure to insert the plug all the way to the back of the socket before attempting to lock the Connectors.
- Do not use tools of any sort to mate the Connectors. Always use your hands. Pliers or other tools may damage the Connectors.
- When mating the Connectors to XS2 or other screw on M12 Connectors, tighten the lock by hand to a torque of 0.39 to 0.49 N-m.
- Confirm in the catalog that sensors and actuators are applicable before using them.
- Always turn OFF the power supply before connecting or disconnecting connectors.
- Do not touch the mating surface of the connectors with wet hands.
- Wipe away any water around the connectors.
- Do not allow metal scraps or dust to enter the mating section.

### Cable Lead Polarity

- Connect the cables leads using the correct polarity (Blue: Negative power supply, Brown: Positive power supply).
- If the polarity is not correct, the load may not operate or the operation indicator may not light.
- Always connect a load to the signal lines to operate a sensor or actuator.

### Applicable Connectors

- Always mount a Waterproof Cover (XS2Z-22) or Dust Cover (XS2Z-15) to any unused connector on the Connector Terminal Box.

### Power Supply and Operation Indicators

- The power supply indicator will be lit green while power is being supplied. The operation indicator will be lit red while the sensor or actuator is operating.
- The XW3D is for a DC sensor or actuator. Do not use it for an AC sensor or actuator.
- Connector Terminal Boxes are available with either 2-wire or 3-wire internal connections, as indicated on the case.

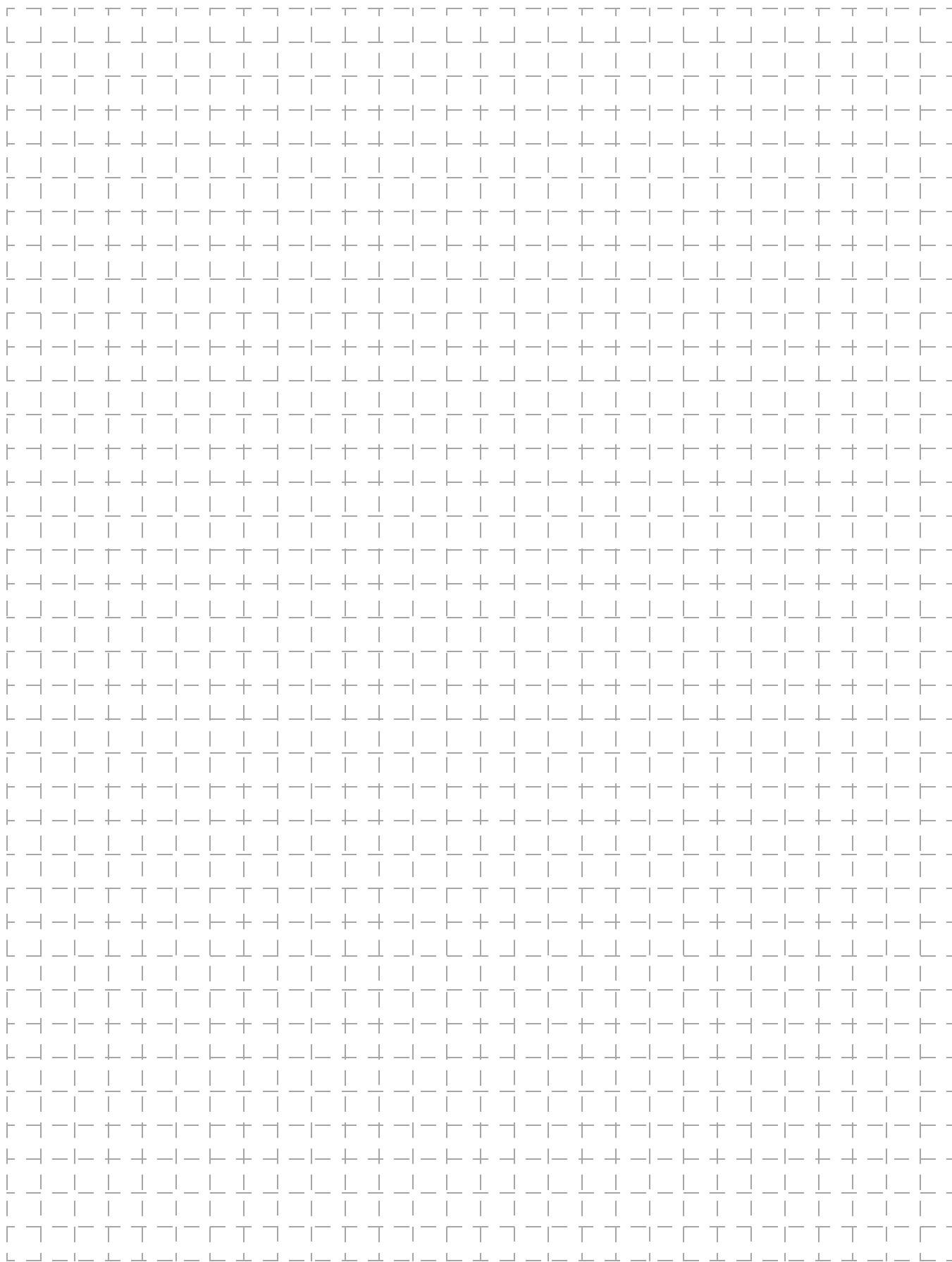
3-WIRE NPN

2-WIRE

3-WIRE PNP

3-WIRE NPN (2)

3-WIRE PNP (2)



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**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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Connector Terminal Boxes (M12) **XW3D**