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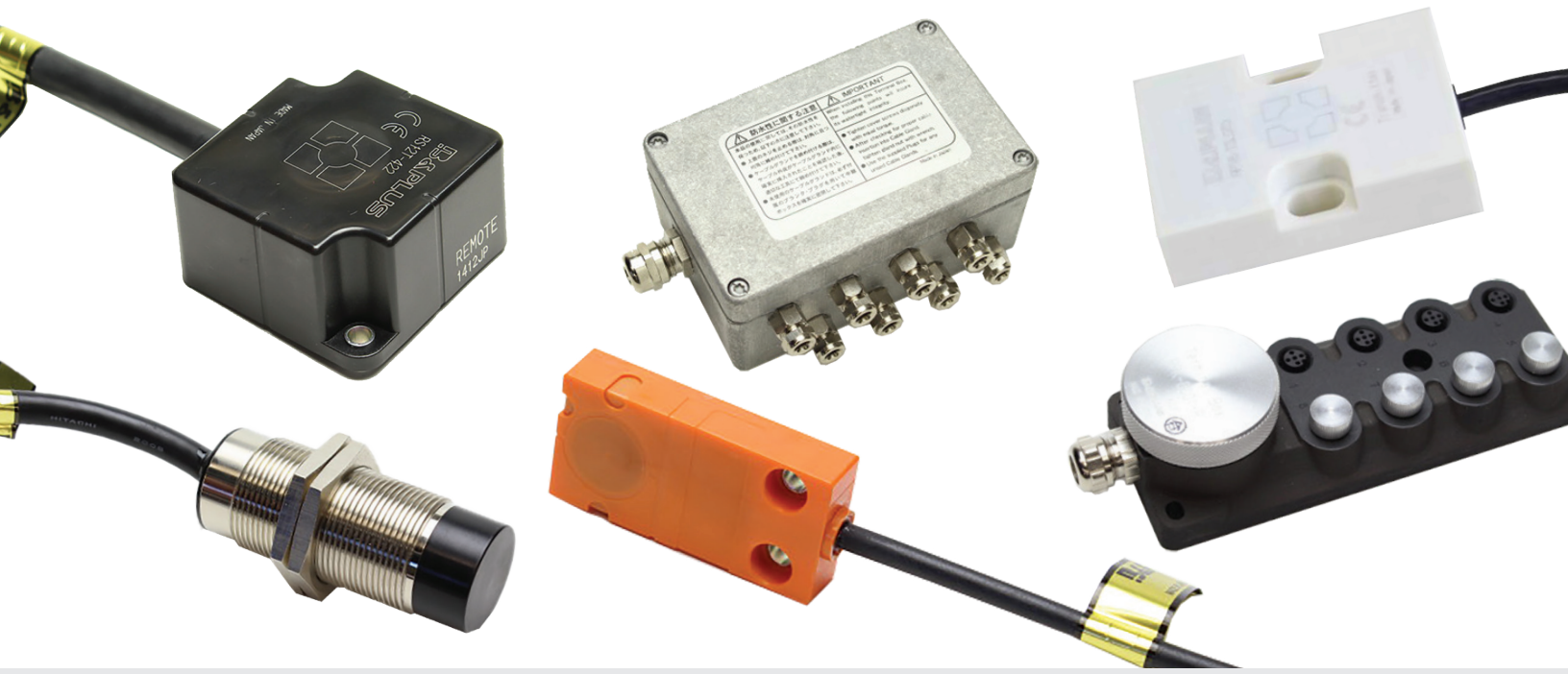
Setting Up Your Wireless System

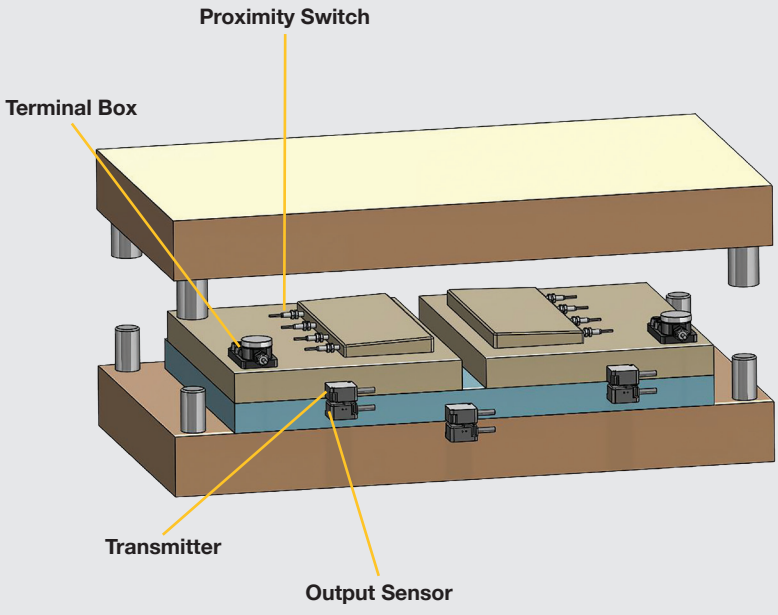
Using a wireless transmitter system saves you time and money by eliminating the need for standard multi pin connectors. Standard connectors require regular maintenance, or daily replacement which can also lead to errors. A wireless transmitter system will eliminate machine, fixture, or die downtime caused by a broken sensor connection. Learn how you can set up a wireless transmitter system that works for your needs.



Complete Wireless System

Some key features of this system include:

- The output sensor connects directly to the power source and I/O of any programmable logic controller and provides power to the transmitter as well as inputs to the PLC
- The transmitter, inductively coupled with the output sensor, provides power to the detector sensors and transmits the outputs to the output sensor
- The detector sensors can be any type of inductive, opto, capacitive, or magnetic field sensors to suit your application needs



Making the Right Selection for Your Wireless Transmitters

Choosing the right wireless transmitters for your needs is vital to having a properly functioning wireless system. The following steps and tables will guide you through choosing the wireless transmitters that work best for you.

1. Verify the number of input signals

Please refer to Table 1 to select the correct transmitter part number for your system.

The investigation on proximity switches needs to be done on the following basis:

- Operational voltage
- PNP/NPN Type or DC 2wire
- Current consumption

If you don't have existing proximity sensors and are trying to build a wireless system, please refer to the MISUMI recommended proximity sensors found on Table 2.

Table 1

TRANSMITTER									OUTPUT SENSOR		TERMINAL BOX	PROXIMITY SENSOR
No.	No. of Input Signals	Drive Voltage	Drive Current	Cable	Protection Class per IEC60529	Size / Additional specification	PNP/NPN / Type	Part Number	PNP/NPN / Type	Part Number	**Part Number**	**Part Number**
1	1	12V ±1.5 V DC	max. 30mA	PUR / Ø5, 3x0.34mm²	IP67	M18	NPN	RPT-1804N-PU-01	NPN	RPE-1804N-PU-02	–	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
2							PNP	RPT-1804P -PU-01	PNP	RPE-1804P-PU-02	–	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
3	1	12V ±1.5 V DC	max. 30mA	PUR / Ø5, 3x0.34mm²	IP67	M30	NPN	RPT-3008N-PU-01	NPN	RPE-3008N-PU-02	–	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
4							PNP	RPT-3008P -PU-01	PNP	RPE-3008P-PU-02	–	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
5	4	12V ±1.5 V DC	max. 30mA	PUR / Ø6.3, 7x0.3mm²	IP67	M18	NPN & PNP	RPTA-1803-PU-01	NPN	RPEA-1803N-PU-02	RPK-2102, (RPK-4C01-N -with M12 connectors)	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RPEA-1803P-PU-02	RPK-2102, (RPK-4C01-P -with M12 connectors)	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
6	4	12V ±1.5 V DC	max. 40mA	PUR / Ø6.3, 7x0.3mm²	IP67	M30	NPN & PNP	RPTA-3005-PU-01	NPN	RPEA-3005N-PU-02	RPK-2102, (RPK-4C01-N -with M12 connectors)	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RPEA-3005P-PU-02	RPK-2102, (RPK-4C01-P - -with M12 connectors)	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
7	8	12V ±1.5 V DC	max. 150mA	PUR / Ø7.7, 2x0.5mm² + 9x 0.18mm²	IP67	M30	NPN & PNP	RGPT-3005-V1215-PU-01	NPN	RGPE-3005-V1215N-PU-02	RPK-2101, RPK-2103, RPK-A098-02, RPK-A098-03, (RPK-8C01-N -with M12 connectors)	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RGPE-3005-V1215P-PU-02	RPK-2101, RPK-2103, RPK-A098-02, RPK-A098-03, (RPK-8C01-P -with M12 connectors)	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
8	8	20...26V ±1.5 V DC	max. 80mA	PUR / Ø7.7 2x21AWG +9x25AWG	IP67	M30	NPN & PNP	RPT8-3005-PU-01	NPN	RPE8-3000N-PU-02	RPK-2101, RPK-2103, RPK-A098-02, RPK-A098-03, (RPK-8C01-N -with M12 connectors)	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RPE8-3000P-PU-02	RPK-2101, RPK-2103, RPK-A098-02, RPK-A098-03, (RPK-8C01-P -with M12 connectors)	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
9	1	12V ±1.5 V DC	max. 5mA	PUR / ϕ4.5, 2x0.34mm²	IP67	50 x 25 x 10 mm	NPN & PNP	RPT-F0D-PU-01	NPN	RPE-F0N-PU-02	–	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RPE-F0P-PU-02	–	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
10	4	12V ±1.5 V DC	max. 60mA	PUR / ϕ6.3, 7x0.259mm²	IP67	35 x 35 x 15 mm	NPN & PNP	RS04T-F1-PU-01	NPN	RS04E-F1N-PU-02	RPK-2102, (RPK-4C01-N -with M12 connectors)	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RS04E-F1P-PU-02	RPK-2102, (RPK-4C01-P -with M12 connectors)	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
11	12	12V ±1.5 V DC	max. 230mA	PUR / ϕ8.6, 2x0.5mm²+ 13x0.18mm²	IP67	45 x 45 x 25 mm	NPN & PNP	RS12T-422-PU-01	NPN	RS12E-422N-PU-02	Customer terminal box up to 12 signals.	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RS12E-422P-PU-02	Customer terminal box up to 12 signals.	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
12	12	12V ±1.5 V DC	DC 3-wire• • ≤150mA DC 2-wire• • 6mA/1pc	PUR / ϕ8.6, 2x0.5mm²+ 16x0.18mm²	IP67	45 x 45 x 25 mm	NPN	RS12T-422N-PU-01	NPN	RS12E-422N-PU-02	Customer terminal box up to 12 signals.	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
							PNP	RS12T-422P-PU-01	PNP	RS12E-422P-PU-02	Customer terminal box up to 12 signals.	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
13	8	20...26V ±1.5 V DC	5 mA / output.	PUR / ϕ7.7, 2x21AWG+ 9x25AWG	IP67	58 x 80 x 20 mm	NPN & PNP	RPT8-TSLOTD-PU-01	NPN	RPE8-TSLOTN-PU-02	RPK-2101, RPK-2103, RPK-A098-02, RPK-A098-03, (RPK-8C01-N -with M12 connectors)	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RPE8-TSLOTP-PU-02	RPK-2101, RPK-2103, RPK-A098-02, RPK-A098-03, (RPK-8C01-P -with M12 connectors)	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
14	8	12V ±1.5 V DC	max. 150mA	PUR / ϕ7.7, 2x21AWG+ 9x25AWG	IP67	58 x 80 x 20 mm	NPN & PNP	RPT8-TSLOT-PU-01	NPN	RPE8-TSLOTN-PU-02	RPK-2101, RPK-2103, RPK-A098-02, RPK-A098-03, (RPK-8C01-N -with M12 connectors)	NPN sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch
									PNP	RPE8-TSLOTP-PU-02	RPK-2101, RPK-2103, RPK-A098-02, RPK-A098-03, (RPK-8C01-P -with M12 connectors)	PNP sensor with oerational volatage 12...24V Recommended from Table 2: Proximity Switch

2. Based on the number of input signals, the appropriate terminal box can be selected on Table 1. For more technical data on terminal boxes, please refer to Table 3.

If your existing terminal box cannot be utilized, please see Table 1 for the MISUMI recommended terminal box. If you require a transmitter wire connector for your existing terminal box, you can install one by yourself or contact the MISUMI Engineering team at **tooling@misumiusa.com** with a special request.

Special requests for custom connectors will require a selected connector part number, as well as a manufacturer and wire diagram.

3. The final step to finish your wireless system is to select the appropriate output sensor from Table 1.

Table 2

Proximity Switch										
No.	Supply Voltage Ub	Rated Operational Voltage Ue	Rated operational current La	PNP/NPN	N.O./P.O.	Protection Class per IEC60529	Size	Assured Operating Distance Sa	**Product Name**	**Part Number**
				Type	Operation		Additional specification	Additional specification		
1	10...30 V DC	12...24 V DC	200mA	PNP	N.O.	IP 67	M8	0...1.2mm	PROXIMITY SWITCH	BES516-324-E3R-03
2					N.C.				PROXIMITY SWITCH	BES516-377-E3R-03
3				NPN	N.O.				PROXIMITY SWITCH	BES516-343-E3R-03
4					N.C.				PROXIMITY SWITCH	BES516-378-E3R-03
5	10...30 V DC	12...24 V DC	130mA	PNP	N.O.	IP 67	M12	0...1.6mm	PROXIMITY SWITCH	BES516-325-E3R-03
6					N.C.				PROXIMITY SWITCH	BES516-370-E3R-03
7				NPN	N.O.				PROXIMITY SWITCH	BES516-329-E3R-03
8					N.C.				PROXIMITY SWITCH	BES516-375-E3R-03
9	10...30 V DC	12...24 V DC	130mA	PNP	N.O.	IP 67	M18	0...6.4mm	PROXIMITY SWITCH	BES516-360-E3R-03
10				NPN	N.O.				PROXIMITY SWITCH	BES516-361-E3R-03
11	10...30 V DC	12...24 V DC	130mA	PNP	N.O.	IP 67	M30	0...8mm	PROXIMITY SWITCH	BES516-327-E3R-03
12				NPN	N.O.				PROXIMITY SWITCH	BES516-359-E3R-03
13	10...30 V DC	12...24 V DC	130mA	PNP	N.O.	IP 67	M18 (* for M12 connector)	0...4mm	PROXIMITY SWITCH	BC5-1805P-03
14					N.C.				PROXIMITY SWITCH	BC5-1805P1-03
15				NPN	N.O.				PROXIMITY SWITCH	BC5-1805N-03
16					N.C.				PROXIMITY SWITCH	BC5-1805N1-03

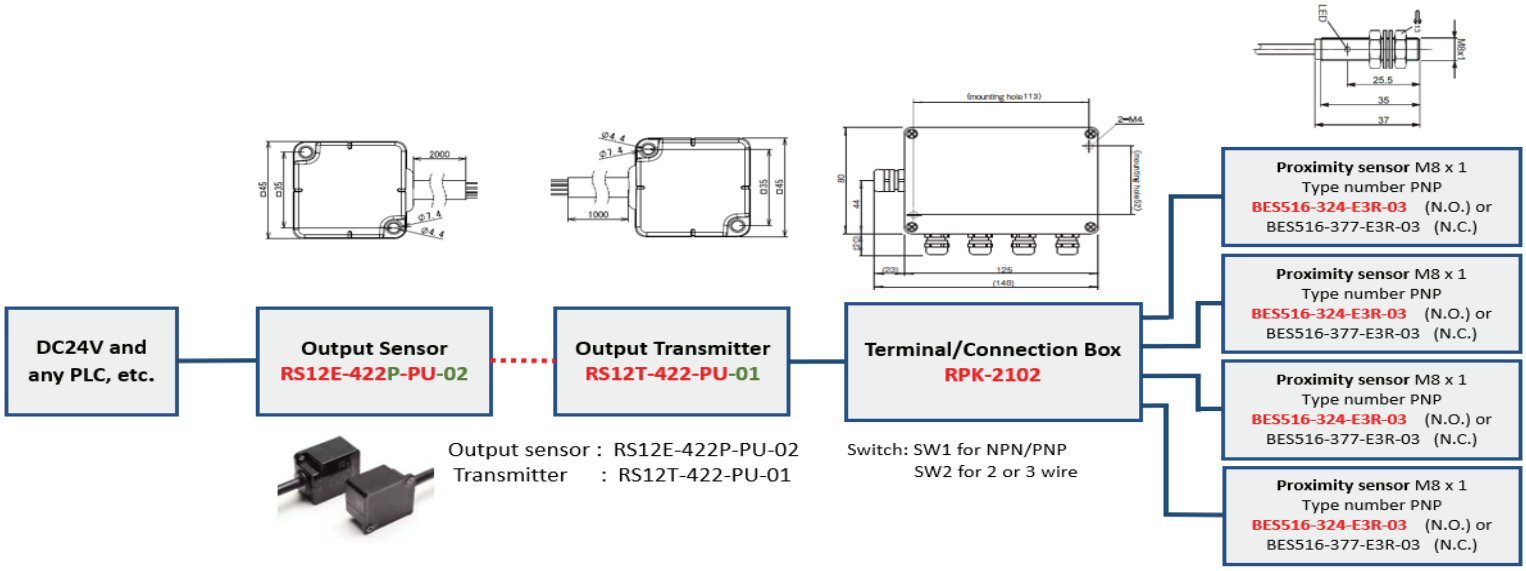
* Proximity Switch comes with cable connector. The connector cable length is 3m.

Table 3

TERMINAL BOX					
No.	No. of Input Signals	Protection Class per IEC60529	**Product Name**	**Part number**	Additional specification
1	4	IP65	TERMINAL BOX	RPK-2102	Wire connection
2	8	IP65	TERMINAL BOX	RPK-2101	Wire connection
3	8	IP65	TERMINAL BOX	RPK-2103	Wire connection
4	8	IP67	TERMINAL BOX	RPK-A098-02	Wire connection
5	8	IP67	TERMINAL BOX	RPK-A098-03	Wire connection
6	4	IP67	TERMINAL BOX	RPK-4C01-N	Connector M12 -4 Pins
7	4	IP67	TERMINAL BOX	RPK-4C01-P	
8	8	IP67	TERMINAL BOX	RPK-8C01-N	Connector M12 -4 Pins
9	8	IP67	TERMINAL BOX	RPK-8C01-P	

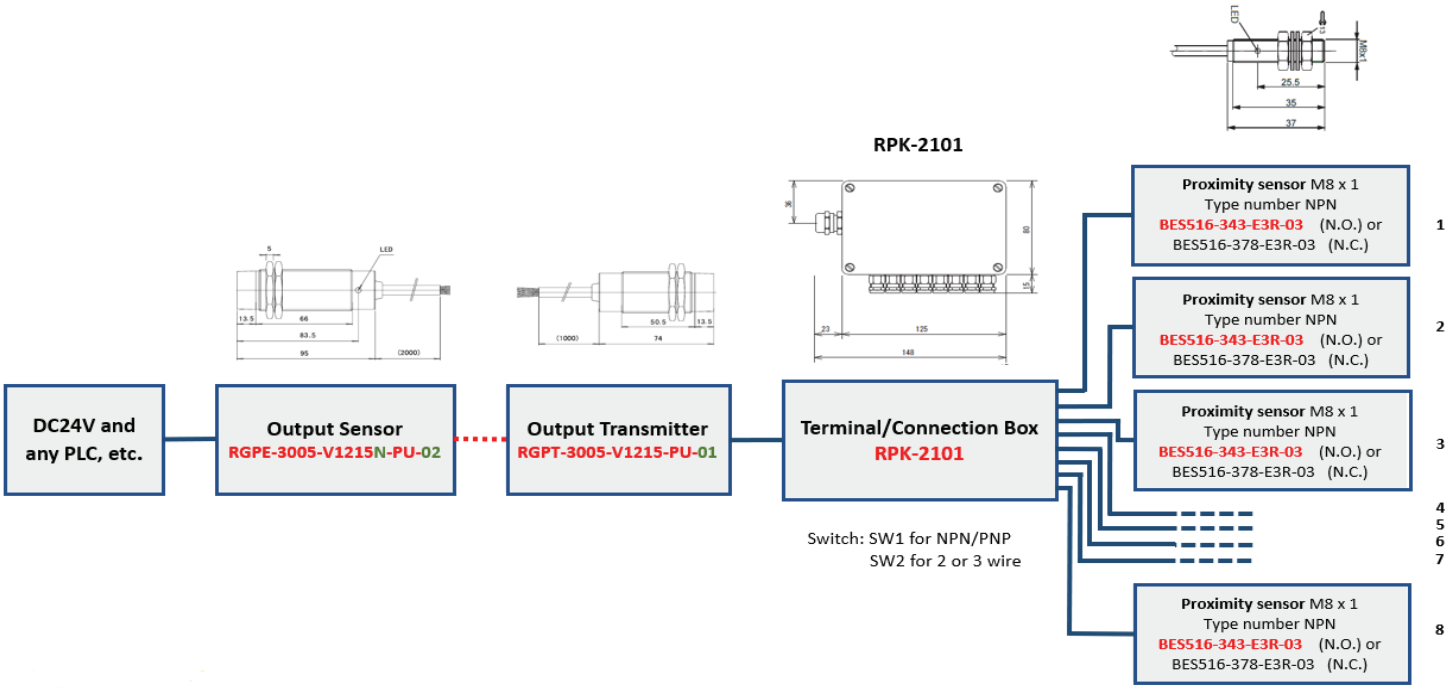
Example of 4 Sensors connection (4 detectors PNP TYPE)

The diagram below shows a wireless system that utilizes a four sensor connection.



Example of 8 Sensors connection (8 detectors NPN TYPE)

The diagram below shows an example of a wireless system that requires 8 sensor connections.



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To find the right wireless parts for your system, visit: **misumi.info/wirelesstransmitters**

To learn more about wireless systems and how to build the right system for you, contact us at: **tooling@misumiusa.com**