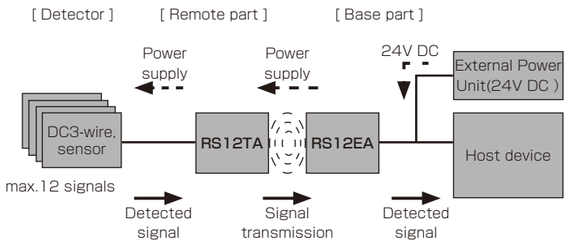
Remote System
User's Guide

Remote sensor sysytem
12 signal transmission / Compact shape
24V1A type

Base part : **RS12EA-422N-PU-_ _(NPN)**
RS12EA-422P-PU-_ _(PNP)
Remote part : **RS12TA-422-PU-_ _**

System configuration



【Function of each component】

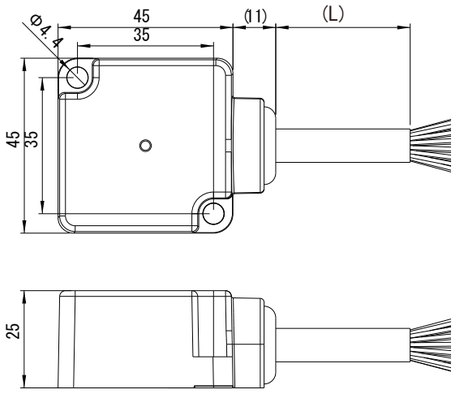
Detector : Connects Detector sensor (max.12) and transmits the detected signals to Remote part.

Remote part : Provides power for Detector, also passes detected signals from Detector to Base part.

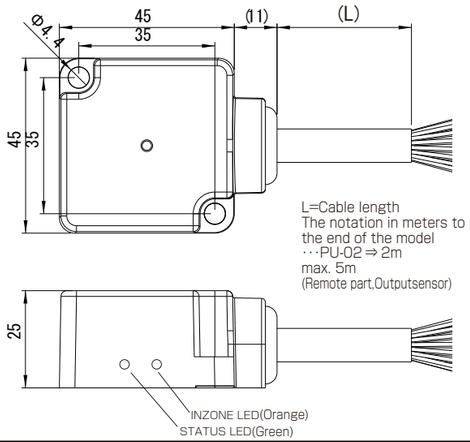
Base part : Puts out detected signal to external controller, also sends power for operating of Detector and Remote part.

Dimension

Remote part : RS12TA-422-PU-_ _



Base part : RS12EA-422N-PU-_ _ , RS12EA-422P-PU-_ _



Specification of the System

Type	RS12TA-422-PU-_ _
Applicable sensor	DC 3-wire sensor
Output voltage	24V ± 1.5V DC
Total Output current	≦ 1A
Number of Input signals	12 signals
Operating distance	0...3mm
Center offset	Transmission distance is within 2 mm ± 4 mm
	Transmission distance 2 ... 3 mm ± 1.5mm
Operating temperature	0...+50℃
Protection class	IP67
Cable	PUR φ 8.6mm (2x0.5mm² + 13x0.18mm²)
Material	Case : PBT
Weight	Body 110g +Cable 105g/m

Type NPN	RS12EA-422N-PU-_ _
Type PNP	RS12EA-422P-PU-_ _
Supply voltage (input voltage)	24 V DC ± 5 % (include ripple)
Current onsumption active/static	Max 1.4 A (with 1A drive) /Max 0.1 A (when not facing)
Number of output signals	12+1(IN ZONE)
Load current	≦ 50mA/ 1output
Frequency of operation	600Hz
LED indication	STATUS (Green), IN ZONE(Orange)
Operating temperature	0...+50℃
Protection class	IP67
Protection circuit	Short circuit protection , Overtemperature protection, Converse protection , Over current protection, Output surge suppression, Overheationg protection when facing metal *
Cable	PUR φ 8.6mm (2x0.5mm² + 13x0.18mm²)
Material	Case : PBT
Weight	Body 110g+ Cable 105g/m

*Metal protection is a function of metal heat prevention when metal opposed. Since it is not guaranteed to operate with all metals, please do not deliberately confront the metal against the communication surface.

Applicable sensor

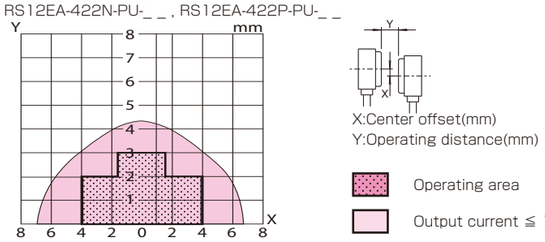
Use a sensor that operates correctly within the conditions shown in the table below.

Supply voltage	24V DC
Total currenconsumptoion	≦ 1A
Residual voltage	≦ 6.5V
Load current	-

2023.09.15 T318C01Le

Typical Transmitting Diagram (Supply voltage at 24V /non-flush mount)

RS12TA-422-PU-_ _
RS12EA-422N-PU-_ _ , RS12EA-422P-PU-_ _



Wiring color

RS12TA-422-PU-_ _			
+24 V output	WH		
0V output	PaleBU		
Polarity switching POL	BK		
SW1 (SI1)	BN	SW7 (SI7)	VT
SW2 (SI2)	RD	SW8 (SI8)	GY
SW3 (SI3)	OG	SW9 (SI9)	BN ＊■■
SW4 (SI4)	YE	SW10 (SI10)	RD ＊■■
SW5 (SI5)	GN	SW11 (SI11)	OG ＊■■
SW6 (SI6)	BU	SW12 (SI12)	YE ＊■■

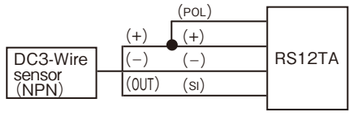
RS12EA-422N/P-PU-_ _			
+24 V input	WH		
0V input	PaleBU		
In zone	BK		
SW1 (SO1)	BN	SW7 (SO7)	VT
SW2 (SO2)	RD	SW8 (SO8)	GY
SW3 (SO3)	OG	SW9 (SO9)	BN ＊■■
SW4 (SO4)	YE	SW10 (SO10)	RD ＊■■
SW5 (SO5)	GN	SW11 (SO11)	OG ＊■■
SW6 (SO6)	BU	SW12 (SO12)	YE ＊■■

■ Polarity switching POL is wiring for switching the polarity (NPN / PNP) of the sensor connected to the transmission section. Check the wiring diagram and wire according to the sensor to be connected. No signal will be detected if not wired.

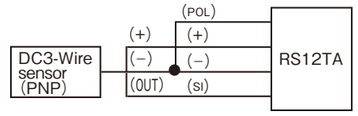
■ At the time of shipment from the factory, the unused core wire of the cable is cut. If the cable is shortened due to wiring reasons, the unused core wire will be exposed.
Please process so as not to short-circuit. The unused lines are green *, blue *, and purple *. (*··· Is the line where ■■ is printed on the core wire of each color)

Wiring diagram When wiring the power supply and signal lines, carefully check the wiring diagram and wire correctly.

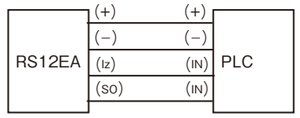
<When DC3-wire NPN type sensors are connected>



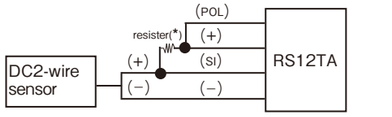
<When DC3-wire PNP type sensors are connected>



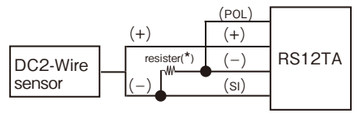
<Connection to external PLC>



<When DC2-wire sensors are connected (When NPN is set) >



<When DC2-wire sensors are connected (When setting PNP) >



*When connecting DC 2-wire sensors, wire a resistor with a resistance value of 3 to 4 k Ω and a rated power of 1/2 W or more.
The resistance value can be calculated by the following formula. To operate properly, select a resistance value smaller than the caluculated value.
Resistance value [Ω] ≤ (Output voltage lower limit 22.5 [V] - Sensor residual voltage [V]) / Sensor minimum load current [A]
We have the resistor (10 pieces/bag) as an option. Type name:RGPT-RKIT

Protective function

The explanation about the built-in protection function is as follows.

Reverse connection protection ・・・This function protects the circuit by preventing current from flowing to the internal circuit when +24V and 0V are connected in reverse on the power supply line of the base.

Overheat protection ・・・This function measures the temperature inside the Base part and stops the power supply when a certain temperature is exceeded. It will restart when the temperature drops.

Short-circuit protection ・・・This function protects the circuit by turning off the output for a certain period of time when a current exceeding the specifications flows through the signal output line due to unloaded wiring.

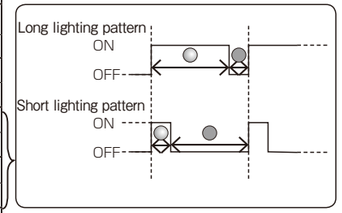
Overcurrent protection ・・・A function that protects the circuit by detecting the current inside the Base part and stopping transmission for a certain period of time when a certain current value is exceeded.

Output surge absorption protection ・・・A surge absorption circuit is built in to protect the output circuit.

Metal facing protection of the head ・・・When metal is detected, transmission is stopped for a certain period of time to protect the circuit.

About LED display contents

	Status	pattern		Contents
IN ZONE LED (Orange)	ON	—	—	Communication is possible because the transmission unit and Base part are facing each other.
	OFF	—	—	Communication is not possible because the transmission unit and Base part are not facing each other.
STATUS LED (Green)	ON	—	—	Power is being supplied correctly
	OFF	—	—	Power is not supplied
	Blink	Turns off for 1.4 seconds/Lights up for 0.1	Turn-off time is long	When the temperature is abnormal
	Blink	On for 1.4 seconds / off for 0.1 seconds	Lightning time is long	Overcurrent in the oscillator circuit
	Blink	Off for 0.55 seconds / On for 0.05 seconds	Turn-off time is long	High working voltage
	Blink	Lights up for 0.55 seconds / turns off for 0.05 seconds	Lightning time is long	The working voltage is low
	Blink	Turns on for 0.2 seconds / turns off for 0.2 seconds	ON/OFF same interval	Short circuit protection is working



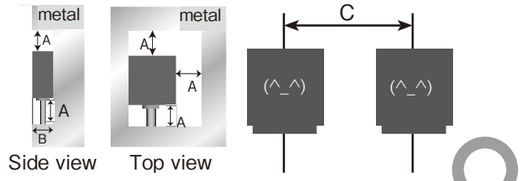
・In-zone signal: A backup signal for checking whether the output signal is established when used within the specified range. We do not guarantee signals outside the specifications.

B&PLUS K.K.
https://www.b-plus-kk.jp/ E-mail sales@b-plus-kk.jp

Installation method

・To avoid the influence of surrounding metals and mutual interference between products, be sure to open a space larger than the value shown in the table below. In addition to the mounting surface, only one surface of A (periphery) can be in contact with metal. (Fig. 1)
The screw tightening torque is 1.5N·m.

Type code	A(Surroundings)	B(depth)	C (Parallel installation)
RS12TA-422-PU-_ _	6mm	25mm	135mm
RS12EA-422N-PU-_ _			
RS12EA-422P-PU-_ _			



(Fig. 1) Arranged with a space

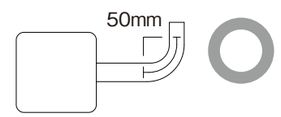
・When wiring the cable by bending it, use the cable outlet.
Install so that the cable is straight (approximate: about 10 mm)
Install the cable with a bending radius of 50 mm or more. (Figure 2)

・Excessive force on the cable during installation to avoid excessive stress
Please do not pull with.

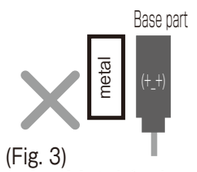
・Fix the cable so that the sensor, the base of the sensor, and the cable itself are not shaken or shocked.

・Since metal overheating and internal elements may be damaged, install the Base part so that it does not face metal, and then turn on the power. (Fig. 3)

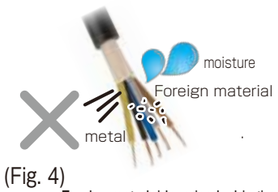
・If foreign matter get inside the device from the end of the cable, it may cause fire, smoke, fire, electric shock, or malfunction due to malfunction or short circuit. (Fig. 4)



(Fig. 2) Cable bending radius



(Fig. 3) Metal facing output



(Fig. 4) Foreign material invades inside the sensor

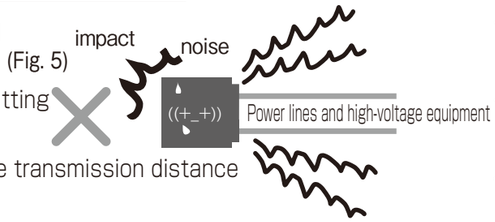
⚠ Precautions for installation and design

■ Be sure to check it as there are various dangers such as failure if it is installed incorrectly.

・To avoid heat generation and ignition due to induction heating, do not put metal objects between the operating heads.

・To avoid heat generation and unexpected accidents, remove metal chips and cutting chips from the transmission surface of the head.

・To avoid damaging the product due to abnormal heat generation, do not hold the transmission distance / center offset / overload condition outside the specifications for a long time.



(Fig. 5)

・Impact and external noise may cause malfunction or failure. Route the cable away from power lines and high-voltage equipment without giving a shock. (Fig. 5)

・Make sure that the total current consumption of the connected devices does not exceed the Output current value.

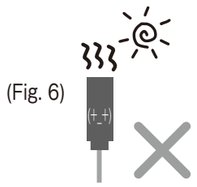
・In order to consider and reduce the self-heating of this product, take measures so that it can be used below the specified ambient temperature.

・To reduce the effect of self-heating (heat dissipation), it is recommended to mount it on metal using case mounting screws.

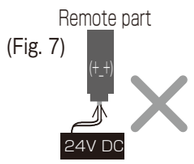
・If it is installed in a place where it is exposed to direct sunlight or hot air from a heater, it may cause a fire or malfunction. (Fig. 6)

・If you apply power to the transmission section or energize either one with the Base part facing each other, a failure may occur. (Fig. 7)

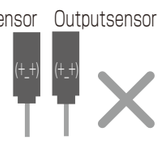
・Please use in an environment where it is not exposed to organic solvents or liquids containing them. (Fig. 8)



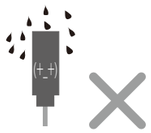
(Fig. 6) Direct sunlight and hot air



(Fig. 7) Power apply



Energized by facing each other



(Fig. 8) Liquids such as organic solvents

・A remote sensor system is a system that supplies and transmits power and signals in a non-contact manner. Please do not use it for any purpose other than this purpose.

・Design with the combination described in the instruction manual or user's guide. Opposition in any other combination may cause malfunction or damage.

・Use a constant voltage power supply such as a switching power supply.
(If a power supply with ripples above the rating, such as a full-wave rectified power supply, is used, it may cause malfunction.)

・If the power supply exceeds the rated voltage, there is a risk of overheating and ignition.
Before supplying power, be sure to check that the power supply is specified in the specifications.

・Design it so that it can be used under the wiring and surrounding environment conditions specified in the specifications. Also, design to satisfy the "transmission distance", "center offset", "Output voltage", and "Output current". Designs outside the specifications may cause unexpected malfunctions, troubles, and malfunctions due to deterioration of internal parts.

・When wiring for installation, maintenance, failure, etc., be sure to check that the main breaker (power panel) is cut before performing the work. If you work while the line is live, you may get an electric shock or malfunction.

・As with other electronic devices, inrush current may be generated when the system starts up, so please set the power supply in consideration of the inrush current.

・Design the system so that the entire system works safely even if the external power supply is abnormal or the product fails.

・Please be careful about the influence on the material degradation due to the installation environment and the intrusion of foreign material.
Especially when using it outdoors, please install it with less influence from ultraviolet rays.

⚠ Other notes

■ About product handling

・Do not disassemble or modify our products. It may cause a malfunction, fire, electric shock, etc., or cause serious damage.
In addition, the warranty will be void if the product is disassembled or modified.

・If you are in an abnormal condition such as smoke, abnormal noise, or strange odor, discontinue use immediately as there is a risk of malfunction, fire, electric shock, or accident.

・Be sure to use accessories and specified parts. If you do not use it, it may cause malfunction, accident, malfunction, fire, etc.

・If you add or move equipment, please check the installation conditions again.

・When disposing of this product, dispose of it as industrial waste.

・Please note that the contents and specifications of this manual are subject to change without notice.
If you have any questions about the contents of this manual, please contact us.

■ Standards and regulations

・The control communication device installed in the product corresponds to a "weak radio station (weak radio wave device)", so the Minister of Internal Affairs and Communications' radio station permit (diploma) is not required.
However, please be careful when operating it as it may affect electronic devices and medical devices (pacemakers, etc.).

Product failures due to mishandling are increasing.
Please be sure to read this manual, and if you have any concerns, please contact the following before energizing.

B&PLUS K.K.
https://www.b-plus-kk.jp/ E-mail sales@b-plus-kk.jp