





POWERGAP™

**Inductive Power Supply
& Signal Transmission**



www.trelectronic.com/powergap

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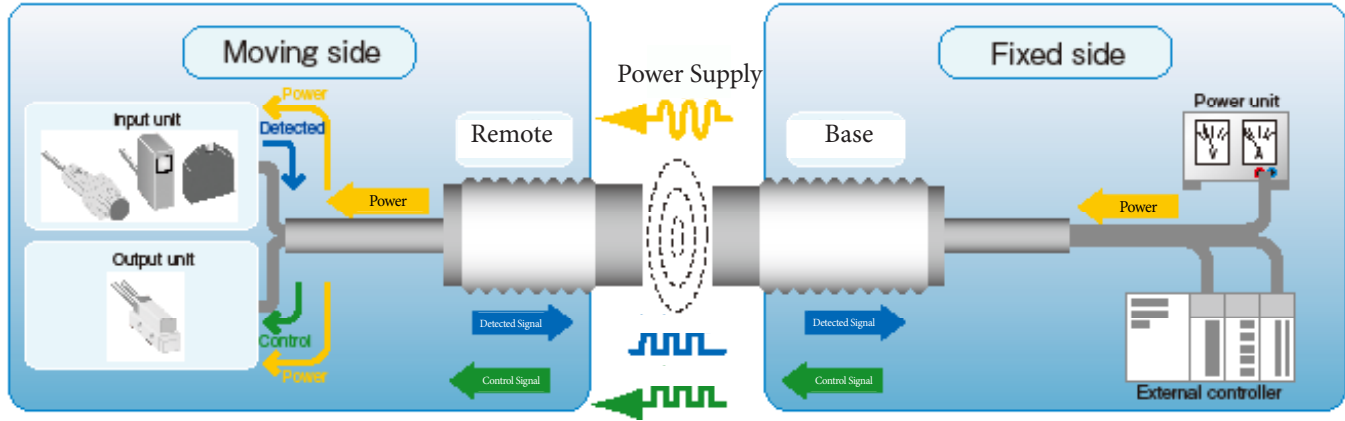


All units in this catalog are CE compliant.

Functions and Features of Power Gap

In machines or equipment which have rotating tables, moving pallets, tool changing or forming dies; it is always difficult to install sensors or other devices because the equipment movement is restricted by the fixed cabling.

Power Gap can meet customers' demands for wire free solutions. Power Gap inductively supplies power from a fixed part to a moving part and transmits signals between each.



The Power Gap System is composed of the Remote attached to the moving part and the Base attached to the fixed part.

Functions of the Remote

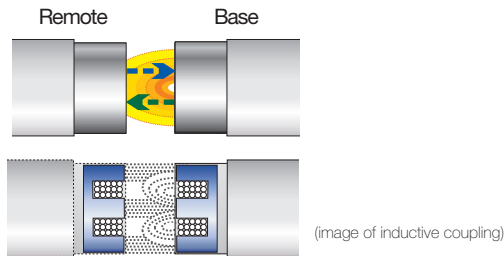
Accept power from the Output Sensor on fixed part and supply power to the connecting Detector or driving unit, and simultaneously communicate between the Output Sensor.

Functions of the Base

The Output Sensor is connected to 24 VDC and the controller. It inductively supplies power to the Transmitter at the moving part as well as communicates with the Transmitter and the controller.

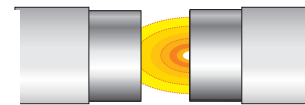
Inductive Coupling Principle

Power and signal transmission are performed by the inductive coupling principle. When the Transmitter comes into the transmittable field of the Output Sensor; inductive power is supplied, and signal transmission to the Transmitter is completed,

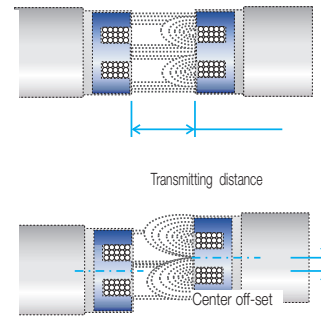


Power Supply

The power supplied from the Transmitter to the Signal unit is contained in this catalogue as driving voltage and driving current. Driving current varies depending on the operating distance and center off-set. The total current consumption of Sensors or driving unit should not exceed the driving current.



Driving current varies depending on the operating distance and center off-set.



Advantages

Since Power Gap supplies power and transmits signal inductively, there are no worries of cable breakage or poor contact of the connector.

Rotating Table:

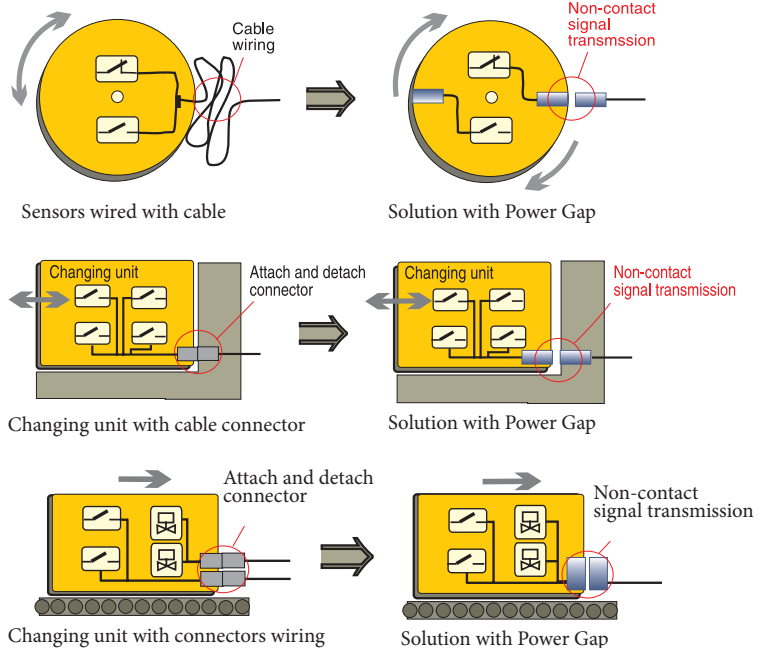
360 degree rotation is possible, no need to reverse the table movement.
No bending cable that causes cable breakage.
No tangled cable.
No Slip Rings or Wearing Contacts.

Removable unit:

The loss time of connector attachment or detachment is reduced.
Resolve troubles such as poor contact of the connector.

Moving work pallet:

Power supply and signal transmission start as soon as a pallet arrives.
As electrical part is not exposed, it is safer for operators.



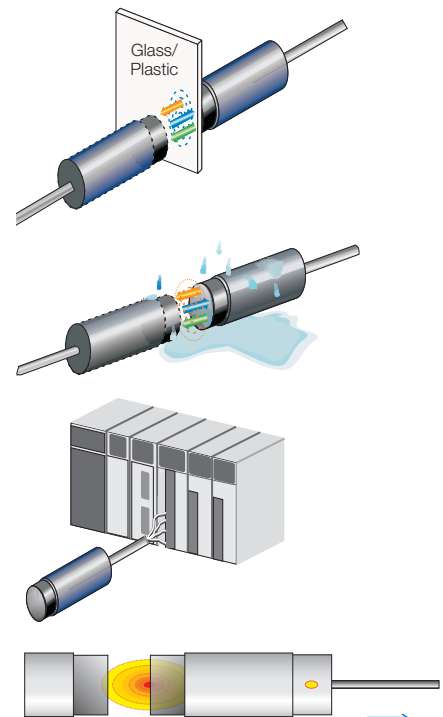
Features

The existence of plastic or glass in the air gap will not influence the effectiveness of power supply or signal transmission.

Protection class of our Power Gap System is IP67, and can be used under heavy duty factory automation conditions.
(with minor exceptions)

Input and Output signals can be connected directly to I/O card on PLC.

If Remote, comes in the transmission area of Base, it outputs an In-Zone signal and begins transmission of signal input and output.



Note: Remote and Base must be used in the correct combination as in this catalogue.

Power Gap Sensor System



Simultaneously supply operation power to the sensor, switch, etc., and transmit detected signal to a controller.

Power Gap Coupler System



Simultaneously supply operation power to sensors and/or actuators, while transmitting interactively detected signals and control signals, and output to the external device.

Supply power function

12 VDC or 24 VDC
5mA...300 mA

Signal transmission function

Detected signal

Switch signal



Sensor (Inductive, photoelectric or magnetic switch)

- Transmitting signals
1,2,4,8,15 and 16 sensors
- Interface between the controller
NPN or PNP parallel output

Supply power function

24 VDC
300 mA...2A

Signal transmission function

Detected signal and control signal

Switch signal



Sensor (inductive, photoelectric or magnetic switch etc.)
Actuator (solenoid valve, fan etc.)

- Transmitting signals
- Interface between the controller
NPN or PNP parallel output

Remarks: Solenoid valve, motor or fan etc. can be also connected to Power Gap to be driven and controlled.

Data transmission

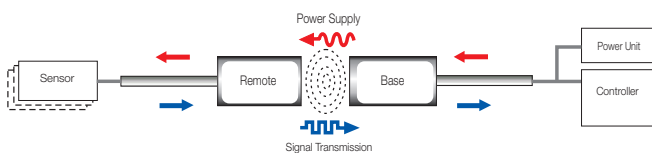
Data



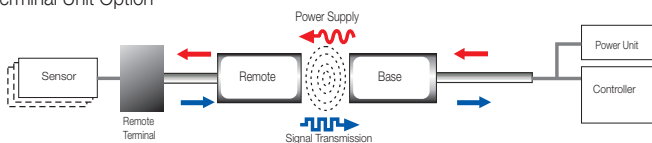
CC-Link data
DeviceNet data

Remarks: CC-Link data transmission is performed by optical transmission principle, using inductive technology.

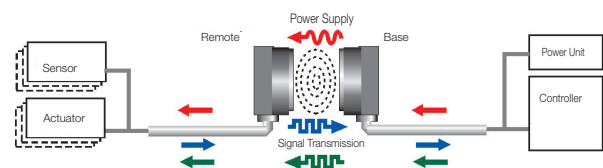
System configuration



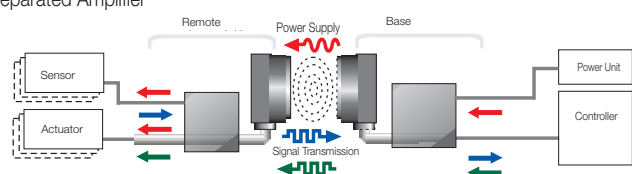
Terminal Unit Option



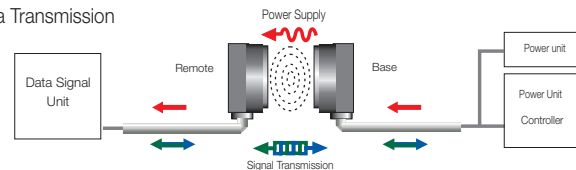
System configuration



Separated Amplifier



Data Transmission



Power Gap Link System



Power Gap Link allows the simultaneous connection of Sensors and/or Actuators to I/O units for transmitting signal at the same time providing power to the Sensors and Actuators.

Supply power function

Voltage 24 V DC
Current 2A

Signal transmission function

Detected signal and control signal

Switch signal



Sensor
(inductive, photoelectric or magnetic switch etc.)
Actuator
(solenoid valve, fan etc.)

- Transmitting signals
64 sensors + 32 actuators
- Interface between the controller
NPN or PNP Parallel output,
DeviceNet, EtherNet/IP, CC-Link

Power Gap Power System



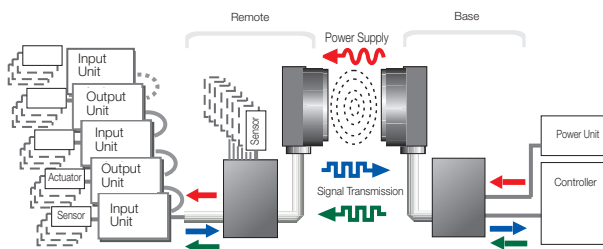
Power Gap Power System inductively transmits power from Base to Remote.

Supply power function

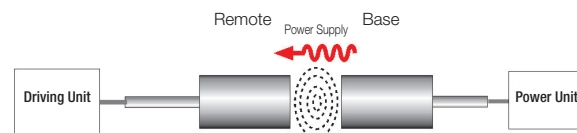
Voltage 24 V DC
Current 1A...2A

System configuration

Separated Amplifier



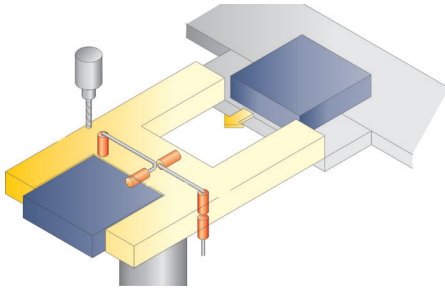
System configuration



All units in this catalog are CE compliant.

Check pallet positioning on rotating jig

rotating



Rotate jig continuously, processing one side while a workpiece is loaded/unloaded on the other side.

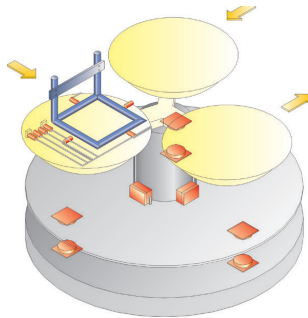
- Advantages**
- Can be used without wires/cables getting tangled.
 - Eliminates need for complex slip rings.
 - No wear and tear, reducing maintenance.

Solution

Power Gap Sensor System

Identify and check workpiece positioning on dial table

rotating



Set a workpiece, manufacture it on rotary table and then remove.

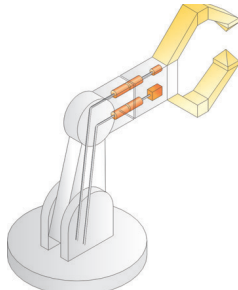
- Advantages**
- Can be used without wires/cables getting tangled.
 - Eliminates need for complex slip rings.
 - No wear and tear, reducing maintenance.

Solution

Power Gap Sensor System / Power Gap Coupler System

Non-contact connection for robotic cell with end of arm tools

removable



Sensors can be integrated to end of arm tooling.

- Advantages**
- Automated tooling changes.
 - Eliminates manual exchange process by an operator.
 - Reduces maintenance and downtime while improving change-over time.

Solution

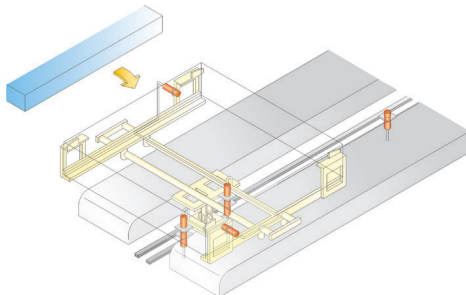
Power Gap Sensor System

Check the positioning of workpiece on conveyor holder

moving



removable



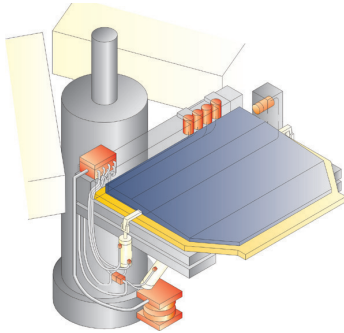
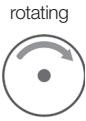
Transmit signals inductively in multiple locations/steps in a process, with intelligent work holders. A work holder can be interchanged depending on panel size, and move between stations on a manufacturing line.

- Advantages**
- Reduces maintenance and downtime while improving change-over time.
 - Multiple workholder designs can be used on the same line.

Solution

Power Gap Sensor System

Identify workpiece, check positioning and supply power/control for solenoid valve on rotating jig

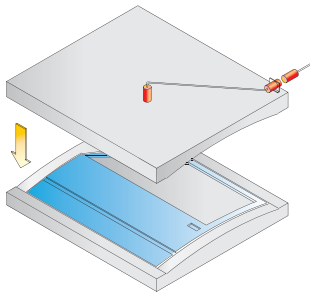


Rotate a processing plate with 3 jigs; set a workpiece, process and unload. Jigs are interchangeable depending on the workpiece. Inductive sensors for identifying, an opto sensor for presence, cylinder switches and solenoid valves for controlling cylinders mounted on each jig.

- Advantages**
- Can be used without wires/cables getting tangled.
 - Eliminates need for complex slip rings.
 - No wear and tear, reducing maintenance.

Solution
Power Gap Coupler System

Check presence of workpiece on press-die



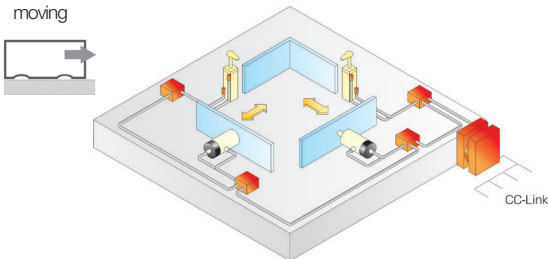
The sensor mounted on the upper-die detects if the workpiece is left in the die after the press operation, an alarm signal prohibits feeding of the next workpiece.

- Advantages**
- No direct cable connection, therefore no possibility of cable wear and breakage.
 - Eliminates manual cable connection at die change-outs.
 - The die-exchange work becomes more efficient and can be automated.

Solution
Power Gap Sensor System

Jig adjustment on assembly line

moving



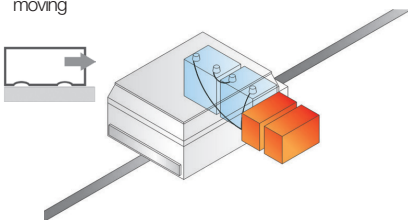
Holders of processing pallets are adjusted depending on a workpiece. The fieldbus controls motors and encoders which are used to adjust the holder, as well as switches and solenoid valves for the cylinders.

- Advantages**
- Power is automatically supplied and fieldbus communication starts as soon as Power Gap is In-Zone.
 - As holders are adjusted depending on a workpiece, there is no need to interchange jigs.
 - No direct cable connection, therefore no possibility of cable wear and breakage.

Solution
Power Gap Coupler System

Charge station of automated guided vehicle

moving



Automated charging of batteries on automated guided vehicles.

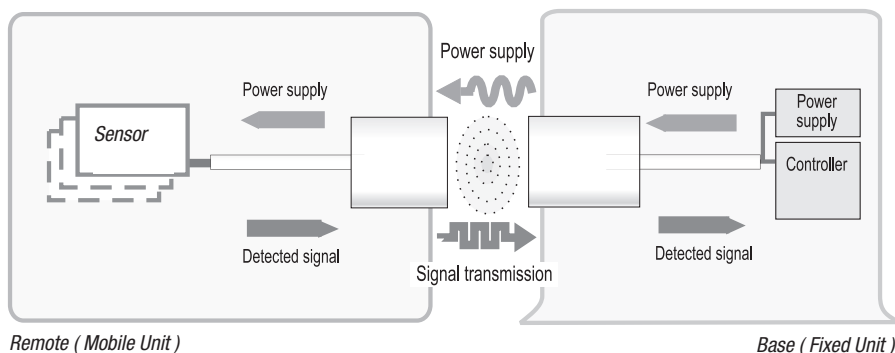
- Advantages**
- No physical cable connection, therefore no requirement for operator involvement.
 - Increased operator safety as all current carrying components are covered.

Solution
Power Gap Power System

Power Gap Sensor System

Product Table of Power Gap Sensor System

	For DC 3-Wire Sensor with Flying Leads	10
	For DC 3-Wire Sensor Terminal Block Type M12	15



POWER GAP - Sensor System Ordering Guide

PGS - **-** **-** **-** **-** **-** **-** **-** **-**

R or B (Remote or Base)
Physical size (ie: / M30, M18, 90x90x45mm)
Cable: 01 = 1m
 02 = 2m
 0/C = 1m with Connector
of Channels (1,8 ,16)
Type: U = Universal (PNP or NPN)
 P= PNP N= NPN
Maximum Operating Distance
 (04mm, 05mm, 08mm, 10mm)

example:

PGS -8-R30M05 U-01

8 Channel
Remote side
M30 size
05mm Operating Distance
U = Universal
01 = 1m Cable

For DC 3-wire sensor type

System Configuration				Characteristics		Number of Signals
Standard Type				<div><div>- Power Gap System for standard DC 3-wire sensor</div><div>- DC 3-wire, 2 wire, or mechanical limit switch can be connected in various combinations.</div><div>- Standard discrete sensors can be used.</div></div>		<div>1</div>
<div><div><div><div>[Detector]</div><div><div>DC3W</div><div>DC2W</div><div>Mechanical Limit switch</div></div></div><div>Remote</div><div><div>Base</div><div><div>Power supply</div><div>Signal transmission</div><div><div>NPN</div><div>PNP</div></div></div></div><div><div>Power unit (24V DC)</div><div>External Controller</div></div></div></div>						<div>4</div>
						<div>8</div>

Sensor type	Number of Signals (sensors)	Operating distance	Size	Type code		Page
				Remote	Base Sensor	
DC 3-wire - Standard Sensor	1	4 mm	M18	PGS-1-R18M04-01	PGS-1-B18M04-02	11
		8 mm	M30	PGS-1-R30M08-01	PGS-1-B30M08-02	12
	8	5 mm	M30	PGS-8-R30M05U-01	PGS-8-B30M05-02	13
		12 mm	90 x 90	PGS-8-R90Q12U-01	PGS-8-B90Q12-02	14

System configuration				Characteristics			Number of Signals
Terminal Unit Type				<div><div><div>Power Gap System for standard DC 3-wire sensor, using terminal block</div><div>All wiring performed with M12 connectors</div><div>Base Head can be connected directly to PLC</div><div>Standard discrete sensors can be used</div></div></div>			<div>8</div> <div>16</div>
<div><div><div>[Detector]</div><div><div>DC3W</div></div></div><div>Remote</div><div>Base</div><div><div>Terminal Block</div><div>Power supply</div><div>Signal transmission</div><div>Power unit (24V DC)</div><div>External Controller</div><div>NPN</div><div>PNP</div></div></div>							
Sensor type	Number of Signals (sensors)	Operating distance	Size	Type code			Page
				Remote Terminal	Remote Head	Base Head	
DC 3-wire	8	8 mm	M30	PGS-8-RBLOCK	PGT-8-R30M08P-01C	PGS-8-B30M08-02	15,16
- Standard Sensor	16	8 mm	M30	PGS-16-RBLOCK	PGT-16-R30M08P-01C	PGS-16-B30M08-02	17,18

Type code

- N→NPN-P→PNP-D→DC 2-wire (Transmitter only)
 - _ at the end means cable length(m).
- Examples are showed below.

Remote
PGS-1-R18M04N-01

N=NPN
P=PNP
D=2-wire

— cable length(m)
01=1m
02=2m
03=3m

Standard cable length is 1m.

Base Sensor
PGS-1-B18M04N-02

N=NPN
P=PNP

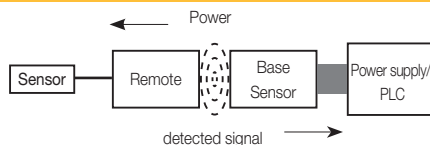
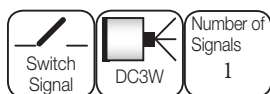
— cable length(m)
02=2m
03=3m
05=5m

Standard cable length is 2m.

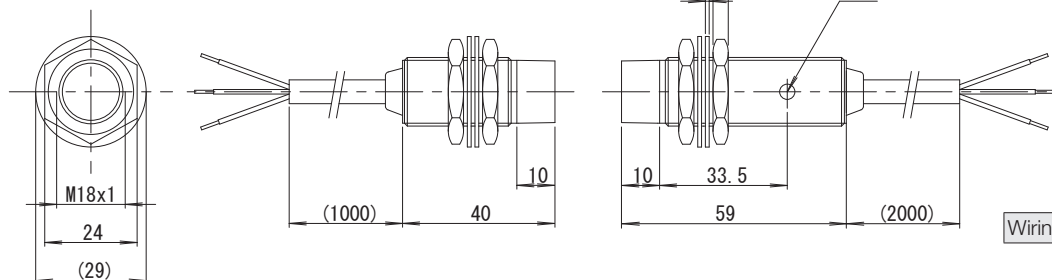
- Remote and Base units must have the same body size.



For DC 3-Wire Sensor Standard Type



Size	Operating distance
M 18	0...4 mm



Wiring C001/P.39

A001

Remote				Base Sensor			
Type code	NPN	PGS-1-R18M04N-01			Type code	NPN	PGS-1-B18M04N-02
	PNP	PGS-1-R18M04P-01				PNP	PGS-1-B18M04P-02
Drive Voltage		12 V ± 1.5V DC			Drive Voltage		24 V DC ± 5 incl. ripple
Drive Current		max.30 mA			Current Consumption		150 mA
Input Signal		1			Output Signal		1
Operating Distance		0...4 mm	0...3 mm	0...2.5 mm	Load Capacity		max.50 mA
Center Offset		±3 mm	±2.5 mm	±2 mm	Frequency of operation		25Hz
Drive Current		5mA	20 mA	30 mA	LED		Signal output indication
Operating Temperature		0...+50			Operating Temperature		0...+50
Protection Class		IP67			Protection Class		IP67
Cable		PUR / φ5 3x0.3 mm ²			Cable		PUR / φ5 3x0.3 mm ²
Material	Housing	Nickel plated brass			Material	Housing	Nickel plated brass
	Active surface	Nylon12				Active surface	Nylon12
Weld-Immune	NPN	PGS-1-R18M04N-01			Weld-Immune	NPN	PGS-1-B18M04N-02
	PNP	PGS-1-R18M04P-01				PNP	PGS-1-B18M04P-02
	Material	Housing:fluorinated resin coated / Active surface: fluorinated resin				Material	Housing:fluorinated resin coated / Active surface: fluorinated resin

Applicable Switch

Supply voltage	12 V DC
Current consumption	30 mA
Residual voltage	3.5 V
Load capacity	---

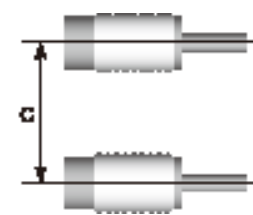
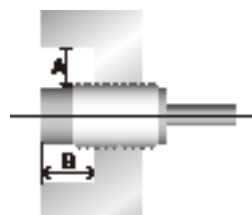
-The total current consumption of sensors and driving units must not exceed the rated current and supply specs.

Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

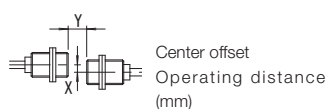
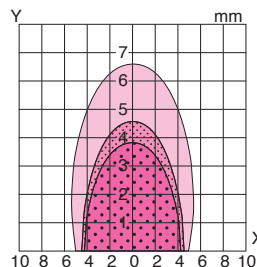
Influence of Surrounding Metal

Mutual Interference



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

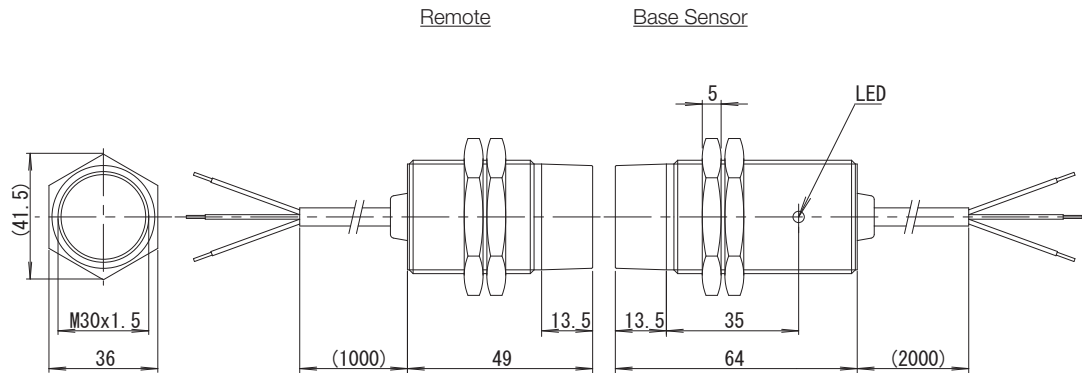
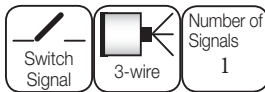
PGS-1-R18M04-01 / PGS-1-B18M0-02



- Drive current 30 mA
- Drive current 20 mA
- Drive current 5mA

Type Code	A(mm)	B(mm)	C(mm)
PGS-1-R18M04N/P-01	20	15	110
PGS-1-B18M04N/P-02			

For DC 3-Wire Sensor Standard Type



A002

Wiring C001/P.39

Remote				Base Sensor			
Type code	NPN	PGS-1-R30M08N-01			Type code	NPN	PGS-1-B30M08N-02
	PNP	PGS-1-R30M08P-01				PNP	PGS-1-B30M08P-02
Drive Voltage		12 V ± 1.5V DC			Operational voltage		24 V DC ± 5incl. ripple
Drive Current		max.30 mA			Current Consumption		150 mA
Input Signal		1			Output signal		1
Operating Distance		1...8 mm	1...6 mm	1...4.5 mm	Load capacity		max.50 mA
Center Offset		±5 mm	±4 mm	±3 mm	Frequency of operation		25Hz
Drive Current		5 mA	20 mA	30 mA	LED		Signal output indication
Operating Temperature		0...+50			OperatingTemperature		0...+50
Protection Class		IP67			Protection class		IP67
Cable		PUR / φ5 3x0.3 mm ²			Cable		PUR / φ5 3x0.3 mm ²
Material	Housing	Nickel plated brass			Material	Housing	Nickel plated brass
	Active surface	Nylon12				Active surface	Nylon12

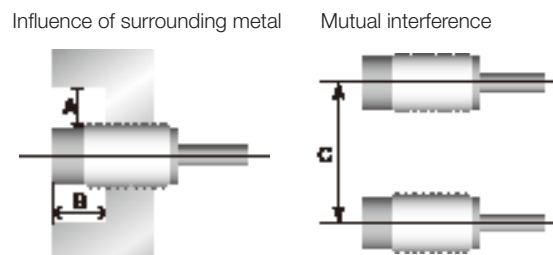
Applicable switch

Supply Voltage	12 V DC
Current Consumption	30 mA
Residual Voltage	3.5 V
Load Capacity	---

-The total current consumption of sensors and driving units must not exceed the rated current and supply specs.

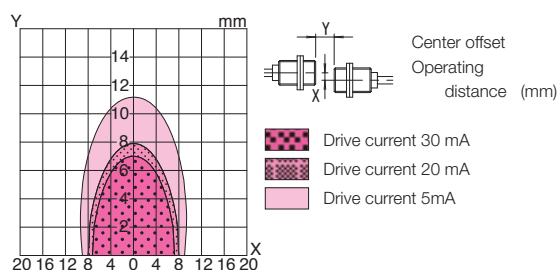
Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.



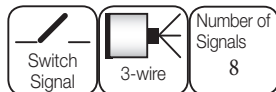
Typical Transmitting Diagram Supply voltage at 24 V / non-flush mount

PGS-1-R30M08-01/ PGS-1-B30M08-02



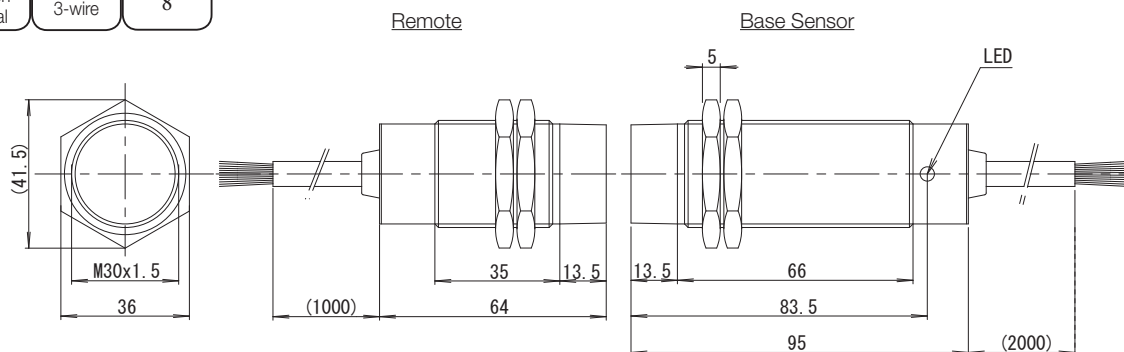
Type code	A(mm)	B(mm)	C(mm)
PGS-1-R30M08N/P-01	30	20	300
PGS-1-B30M08N/P-02			

For DC 3-Wire Sensor Standard Type



Size
M30

Operating distance
2...5 mm



A004

Wiring C004/P.39

Remote		Base Sensor	
Type code	NPN PNP	Type code	NPN PNP
	PGS-8-R30M05U-01		PGS-8-B30M05N-02 PGS-8-B30M05P-02
Drive Voltage	12 V \pm 1.5V DC	Operational Voltage	24 V DC \pm 10incl. ripple
Drive Current	max.150 mA	Current Consumption	400 mA
Input Signal	8	Output Signal	8+1 inZone
Operating Distance	2...5 mm	Load Capacity	max.50 mA per 1 output
Center Offset	\pm 3 mm	Frequency of Operation	60Hz
Drive Current	150 mA	LED	In-Zone
Operating Temperature	0...+50	Operating Temperature	0...+50
Protection class	IP67	Protection Class	IP67
Cable	PUR / \varnothing 7.7 2x0.5 mm ² + 9x0.18 mm ²	Cable	PUR / \varnothing 7.7 2x0.5 mm ² + 9x0.18 mm ²
Material Housing	Nickel plated brass	Material Housing	Nickel plated brass
Active surface	Nylon12	Active surface	Nylon12
Note		Note	

Applicable Switch

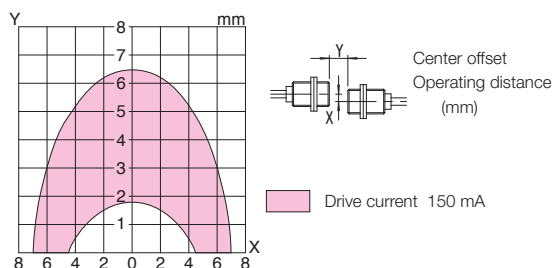
Supply Voltage	12 V DC
Total current consumption*	150 mA
Residual Voltage	3.5 V
Load Capacity	---

*Total current consumption of connected sensor.

-The total current consumption of sensors and driving units must not exceed the rated current and supply specs.

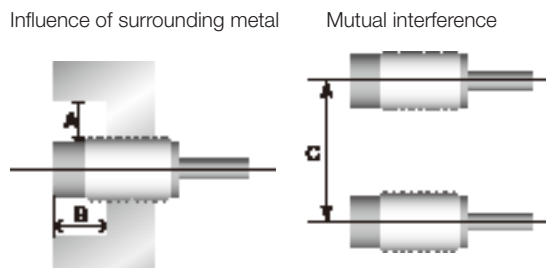
Typical Transmitting Diagram-Supply voltage at 24 V / non-flush mount

PGS-8-R30M05U-01 / PGS-8-B30M05-02



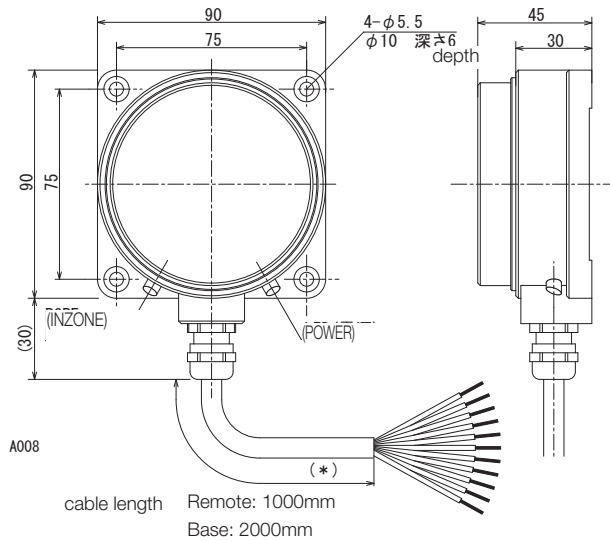
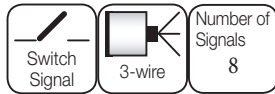
Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.



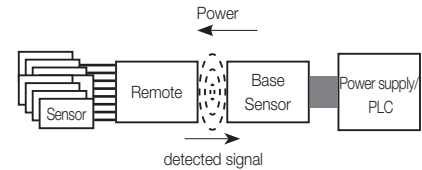
Type Code	A(mm)	B(mm)	C(mm)
PGS-8-R30M05U-01	30	20	200
PGS-8-B30M05-02			

For DC 3-Wire Sensor Standard Type



Size	90x90
Operating distance	4...12 mm

Remote Base Sensor common diagram



Wiring C004/P.39

Remote		
Type code	NPN PNP	PGS-8-R90Q12U-01
Drive Voltage	24 V ± 1.5V DC	
Drive Current	max.300 mA	
Input Signal	8	
Operating Distance	4...12 mm	
Center Offset	±7mm	
Drive Current	300 mA	
Operating Temperature	0...+50	
Protection Class	IP67	
Cable	PUR / φ7.7 2x0.5 mm ² + 9x0.18 mm ²	
Material	Housing	Aluminum+alumite treated metal
	Active surface	ABS+PBT resin
Note		

Base Sensor		
Type code	NPN PNP	PGS-8-B90Q12N-02 PGS-8-B90Q12P-02
Operational Voltage	24 V DC ± 10incl. ripple	
Current Consumption	1A	
Output Signal	8+1inZone	
Load Capacity	max.50 mA per 1 output	
Frequency of Operation	60Hz	
LED	In-Zone / Power Indication	
Operating Temperature	0...+50	
Protection Class	IP67	
Cable	PUR / φ7.7 2x0.5 mm ² + 9x0.18 mm ²	
Material	Housing	Aluminum+alumite treated metal
	Active surface	ABS+PB Tresin
Note		

Applicable switch

Supply Voltage	24 V DC
Total current consumption*	300 mA
Residual Voltage	6 V
Load Capacity	---

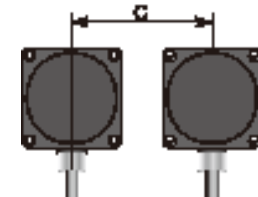
*Total current consumption of all connected sensor.

Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

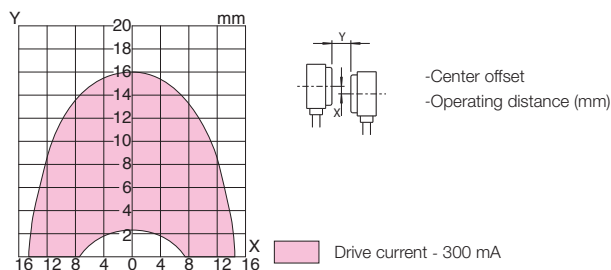
Influence of surrounding metal

Mutual interference



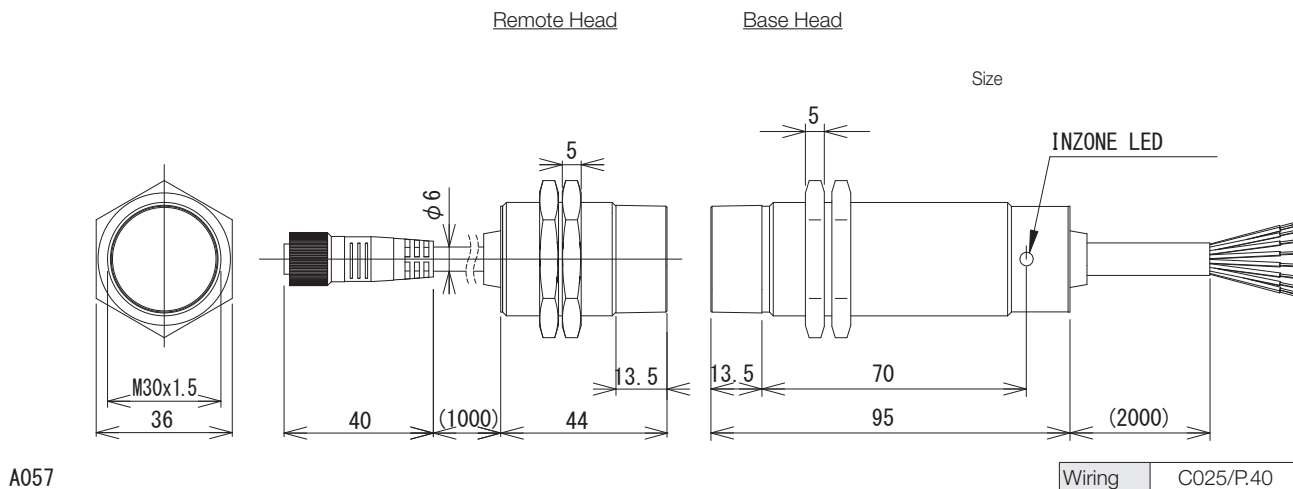
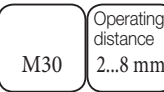
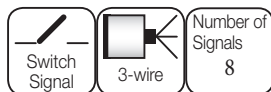
Typical Transmitting Diagram-Supply voltage at 24 V / non-flush mount

PGS-8-R90Q12U-01 / PGS-8-B90Q12-02



Type code	A(mm)	B(mm)	C(mm)
PGS-8-R90Q12U-01	50	45	300
PGS-8-B90Q12-02			

For DC 3-Wire Sensor/ Terminal Unit Type



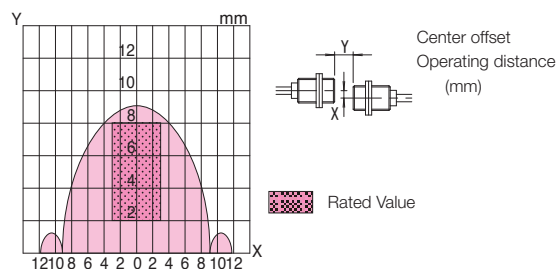
A057

Wiring C025/P.40

Remote Head		Base Head	
Type code	PGT-8-R30M08P-01C	Type code	PGS-8-B30M08N-02
			PGS-8-B30M08P-02
Drive Voltage	22V ± 1.5V DC	Operational Voltage	24 V DC ± 10-incl. ripple
Drive Current	120 mA	Current Consumption	500 mA
Applicable Remote Terminal	PGS-8-RBLOCK	Output Signal	8+1 inZone
Operating Distance	2...8 mm	Load Capacity	max.50 mA per 1 output
Center Offset	±3 mm	Frequency of operation	20Hz
		LED	In-Zone
Operating Temperature	0...+50	Operating Temperature	0...+50
Protection class	IP67	Protection class	IP67
Cable	M12 connector cable-1m-3m-5m	Cable	PUR/φ7.7 2x0.5 mm ² +9x0.18 mm ² -2 , 3 , 5m)
Material	Housing: Nickel plated brass	Material	Housing: Nickel plated brass
	Active surface: Nylon12		Active surface: Nylon12
Note	Used with Remote Terminal PGS-8 type	Note	

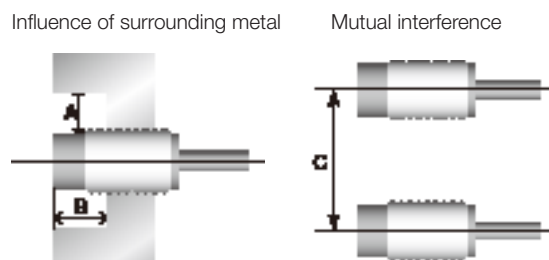
Typical Transmitting Diagram-Supply voltage at 24 V /non-flush mount

PGT-8-R30M08P-01C / PGS-8-B30M08-02



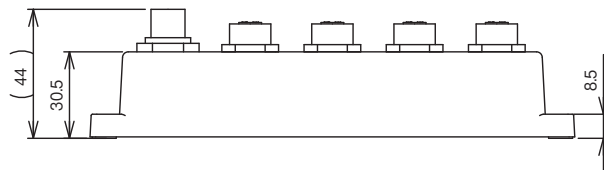
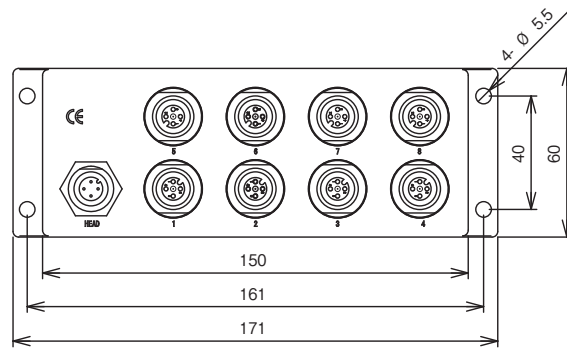
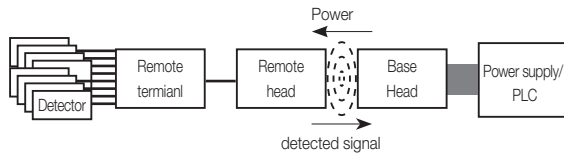
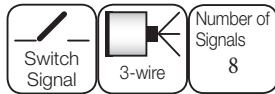
Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.



Type code	A(mm)	B(mm)	C(mm)
PGS-8-R30M08P-01C	30	30	160
PGS-8-B30M08-02			

For DC 3-Wire Sensor/ Terminal Unit Type



A059

Wiring C025/P.40

Remote Terminal	
Type code	PNP
PGS-8-RBLOCK	
Applicable Sensor	DC 3-wirePNP/1:+,3:-,4: Signal
Drive Voltage	12 V DC \pm 10
Drive Current	150 mA
Connection	Sensor
Transmitting head	M12 connector female x 8
Material	Housing
	PPS
Operating Temperature	0...+50
Protection class	IP67
Pin assignment of connector for Sensor/Switch	
Note	The unused connectors should be protected by a protection cap. (62.000.1344)

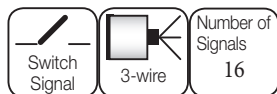
Applicable switch

Supply voltage	12 V DC
Total current consumption*	150 mA
Residual voltage	---
Off-state current	---

*Total current consumption of all connected sensor.

-The total current consumption of sensors and driving units must not exceed the rated current and supply specs.

For DC 3-Wire Sensor/ Terminal Unit Type

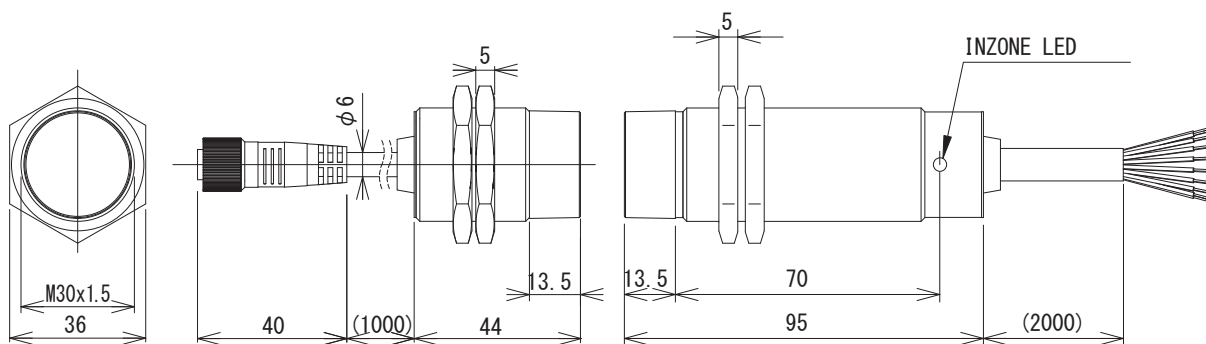


Remote

Base sensor

Size
M30

Operating distance
2...8 mm



A057

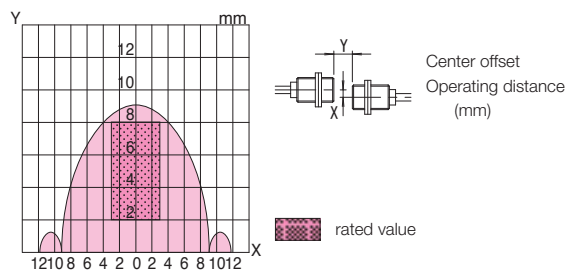
Wiring C026/P.40

Remote Head	
Type code	PGT-16-R30M08P-01C
Drive Voltage	22V ± 1.5V DC
Drive Current	120 mA
Applicable Remote Terminal	PGS-16-RBLOCK
Operating Distance	2...8 mm
Center Offset	±3 mm
Operating Temperature	0...+50
Protection class	IP67
Cable	M12 connector cable-1m-3m-5m
Material Housing	Nickel plated brass
Active surface	Nylon12
Note	used with Remote Terminal PGS-16

Base Head	
Type code	NPN PGS-16-B30M08N-02
	PNP PGS-16-B30M08P-02
Operational Voltage	24 V DC ± 10-incl. ripple
Current Consumption	500 mA
Output Signal	16+1-inzone
Load Capacity	max.50 mA per 1 output
Frequency of Operation	20Hz
LED	In-Zone
Operating Temperature	0...+50
Protection class	IP67
Cable	PUR/φ8.5-2x0.5 mm ² +17x0.18 mm ² -2 , 3 , 5m)
Material Housing	Nickel plated brass
Active surface	Nylon12
Note	

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

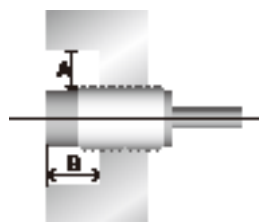
PGT-16-R30M08P-01C / PGS-16-B30M08-02



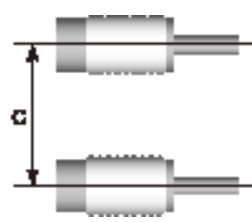
Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

Influence of surrounding metal

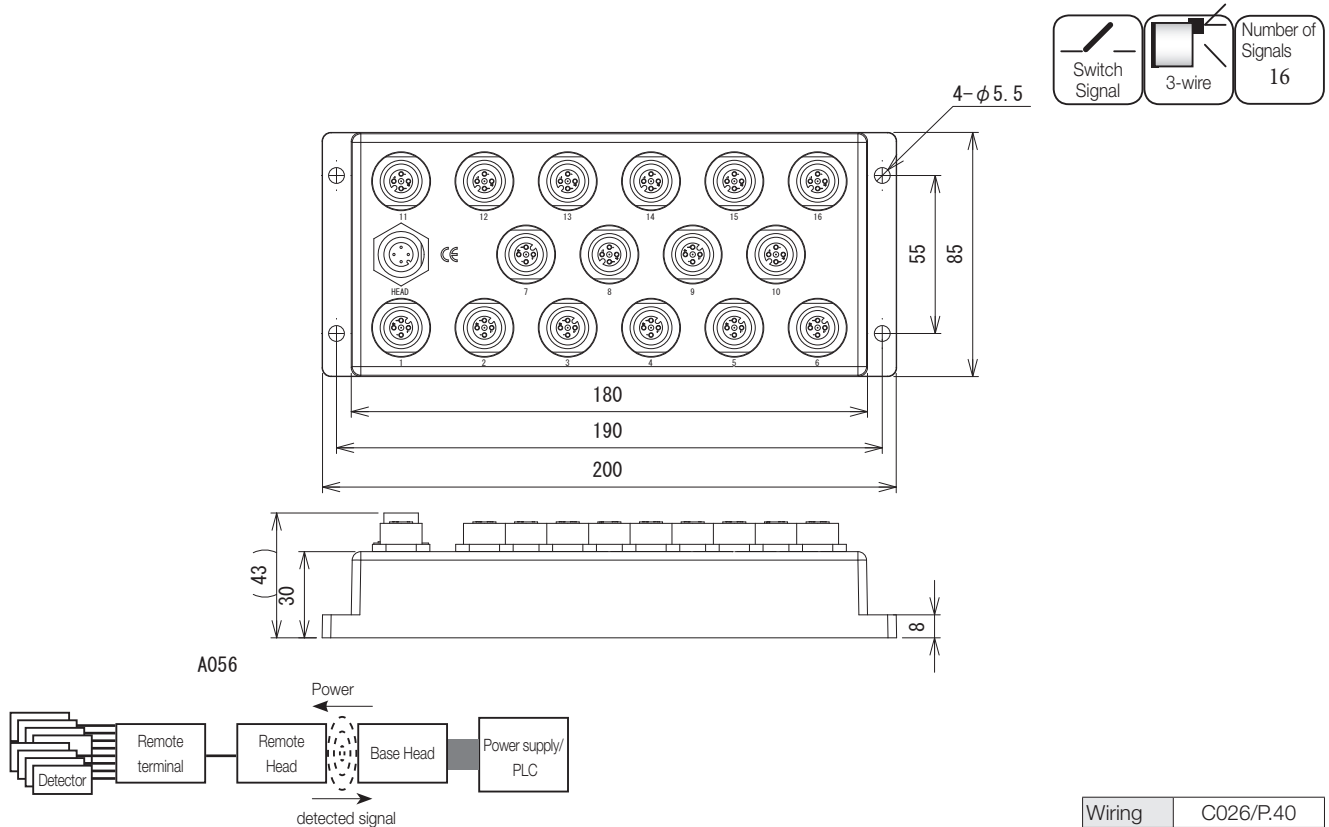


Mutual interference



Type code	A(mm)	B(mm)	C(mm)
PGS-16-R30M08P-01C	30	30	160
PGS-16-B30M08-02			

For DC 3-Wire Sensor/ Terminal Unit Type



	Remote Terminal
Type code PNP	PGS-16-RBLOCK
Applicable Sensor	DC 3-wire-PNP/1:+,3:-,4:Signal
Drive Voltage	12 V DC \pm 10
Drive Current	150 mA
Connection Sensor	M12 connector-female - x 16
Transmitting head	M12 connector-male - x 1
Material Housing	PPS
Operating Temperature	0...+50
Protection class	IP67
Pin assign of connector (for Sensor)	
Note	The unused connectors should be protected by a protection cap. (62.000.1344)

Applicable switch

Supply voltage	12 V DC
Total current consumption*	150 mA
Residual voltage	---
Off-state current	---

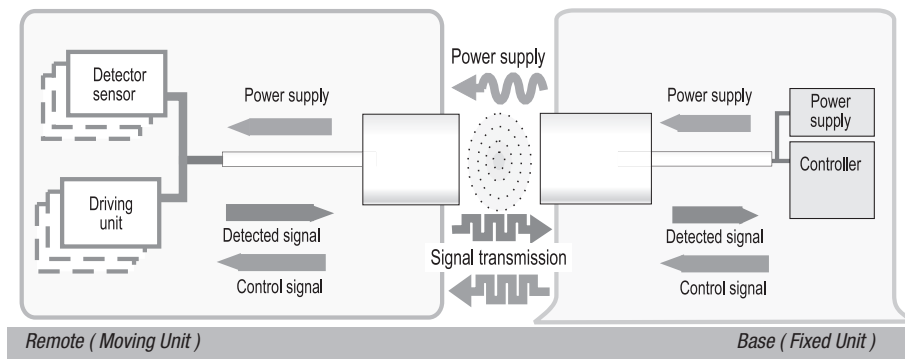
*Total current consumption of all connected sensor.

-The total current consumption of sensors and driving units must not exceed the rated current and supply specs.

Notes:

Power Gap Coupler System

Power Gap Coupler System		
Specification	Products Table	21
	Switch Signal Transmission	22
	RS-232 Transmission	23
	DeviceNet Data Transmission	24



POWER GAP - Coupler System Ordering Guide

PGC - - - - -

R or B (Remote or Base)
90Q

Cable: 05 = 5m
02 = 2m
03 = 3m

Communication Type:
RS = RS 232c
DN = DeviceNET
44 = 4 input / 4 output

P= PNP N= NPN or BLANK for RS and DN Systems

Maximum Operating Distance
(05mm, 06mm, or 10mm - Device Specific)

example:

PGC-44-R-90Q10P-01

Remote side

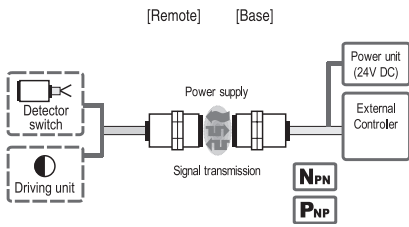
4 input 4 output

1m cable

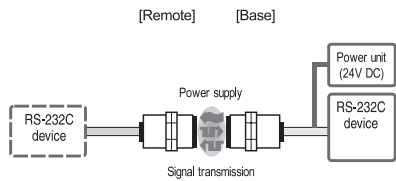
10mm Operating Distance

Products Table

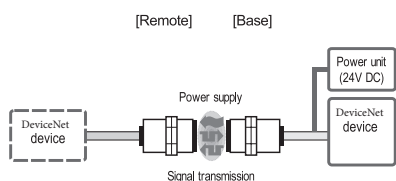
Switch Signal Transmission

System Configuration		Characteristics		Number of Signals
		<ul style="list-style-type: none"> - Power Gap Coupler System with 4 inputs and 4 outputs - Available for standard switches (PNP or NPN) - Solenoid valves and motor are also be connected to drive or control - Maximum 2A (24 VDC) can be supplied 		4 + 4
Drive voltage/current	Operating distance max.	Remote	Base	Page
24 V DC / 300 mA	10 mm	PGC-44-R90Q10*-01	PGC-44-B90Q10*-02	22
* N= NPN P = PNP				

RS-232 Data Transmission

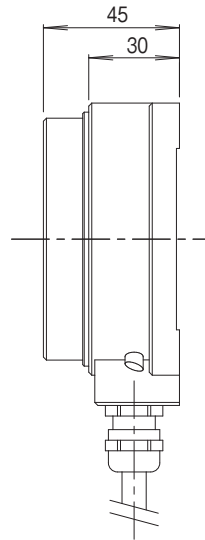
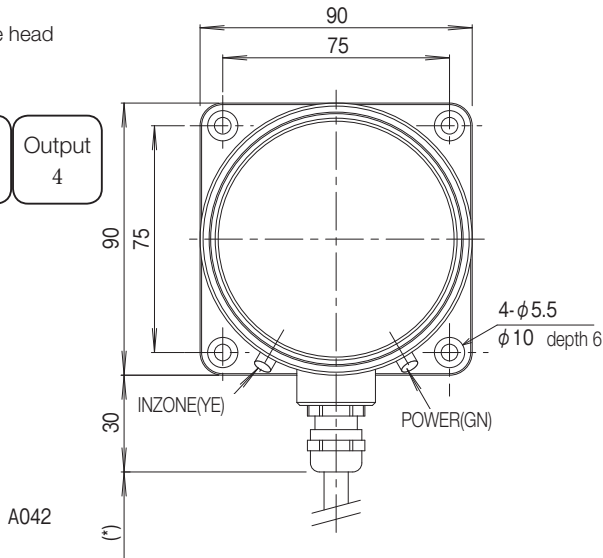
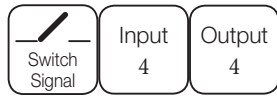
System Configuration		Characteristics		Number of Signals
		<ul style="list-style-type: none"> - Power Gap Coupler System for RS232 communications - Maximum 1 A (24 V DC) can be supplied 		1 RS232
Drive voltage/current	Operating distance max.	Type code Remote	Base	
24 V DC / 1 A	10 mm	PGC-RS-R90Q06-01	PGC-RS-B90Q06-02	23

DeviceNet Data Transmission

System Configuration		Characteristics		Number of Signals
		<ul style="list-style-type: none"> -Power Gap Coupler System for DeviceNet fieldbus data transmission. -Maximum 2 A (24 V DC) can be supplied. 		1 DeviceNet
Drive voltage/current	Operating distance max.	Type code Remote	Base	Page
24 V DC / 2 A	6 mm	PGC-DN-R90Q05	PGC-DN-B90Q05	24

Switch Signal Transmission / 4 Input + 4 Output

Remote head/Base head
common diagram



Size	Operating distance
90x90	3...10mm

(*)Cable length
Transmitter=1m/standard, max.5m
Base=2m/standard, max.10m

Wiring	C019/P.42
--------	-----------

Remote	
Type code	PNP
	PGC-44-R90Q10P-01
Drive Voltage	24 V \pm 1.5V DC
Drive Current	max.300 mA
Number of Signal	Input 4 + Output 4
Operating Distance	3...10mm
Center Offset	\pm 7mm
Drive Current	300 mA
Operating Temperature	0...+50
Protection class	IP67
Cable	PUR / ϕ 7.7 2x0.5 mm ² +9x0.18 mm ²
Material	Housing: Aluminum+alumite treated metal
	Active surface: ABS + PBT resin
Note	

Base	
Type code	PNP
	PGC-44-B90Q10P-02
Operational Voltage	24 V DC \pm 10 incl. ripple
Current Consumption	1.5A
Number of Signal	Input 4 + Output 4
Load Capacity	max.50 mA per 1 Output
Frequency of Operation	40Hz
LED	In-Zone / Power indication
Operating Temperature	0...+50
Protection class	IP67
Cable	PUR / ϕ 7.7 2x0.5 mm ² +9x0.18 mm ²
Material	Housing: Aluminum+alumite treated metal
	Active surface: ABS + PBT resin
Note	

Applicable device

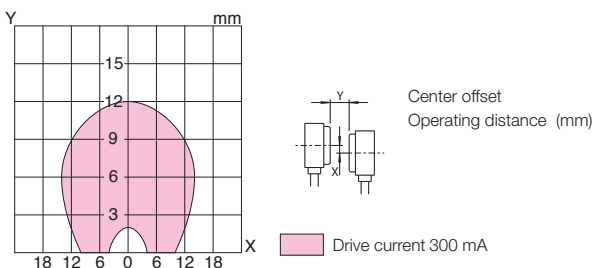
- A Remote can be connected to a maximum of 4 inputs and 4 outputs.

Supply Voltage	24 V DC
Current Consumption	300 mA
Residual Voltage	---
Load Capacity	---

-The total current consumption of sensors and driving units must not exceed the rated current and supply specs.

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

PGC-44-R90Q10P-01 / PGC-44-B90Q10P-02



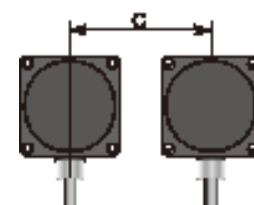
Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

Influence of surrounding metal



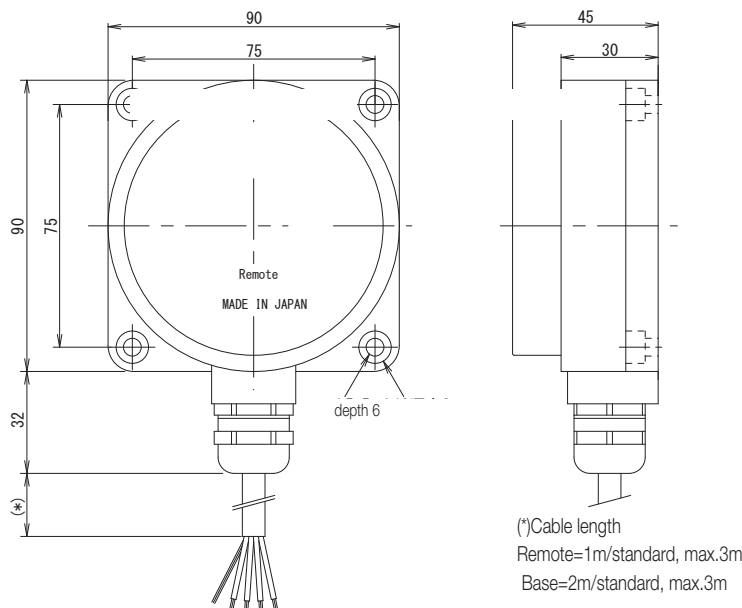
Mutual interference



Type code	A(mm)	B(mm)	C(mm)
PGC-44-R90Q10P-01	50	45	300
PGC-44-B90Q10P-02			

RS-232 Data Transmission

Remote Head / Base Head
common diagram



Size
90x90

Operating
distance
3...10mm



Wiring	
+24 V	Red
0 V	Black
TXD	White
RXD	Green
GND	Shield

Remote			
Type code	RS-232	PGC-RS-R90Q06-01	
Drive Voltage		24 V ± 1.5V DC	
Drive Current		max.1A	
Operating Distance		3...10mm	4...6 mm
Center Offset		±5 mm	±5 mm
Drive Current		500 mA	1A
Operating Temperature		0...+50	
Protection Class		IP67	
Cable		PUR / φ7.6 4x0.75 mm ² shielded	
Material	Housing	Aluminum+alumite treated metal	
	Active surface	ABS + PBT resin	
Note			

Base	
Type code	RS-232
Operational Voltage	24 V DC \pm 5incl. ripple
Current Consumption	3A
Communication	RS-232C, duplex, asynchronous
speed	4800...38400bps, without data check
delay	20 μ sec
Operating Temperature	0...+50
Protection Class	IP67
Cable	PUR / \varnothing 7.6 4x0.75 mm ² shielded
Material	Housing
	Active surface
Note	

Applicable device

Supply voltage	24 V DC	- The total current consumption of sensors and driving units must not exceed the rated current and supply specs.
Current consumption	1A	
Residual voltage	---	
Load capacity	---	

Mounting

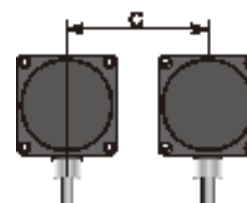
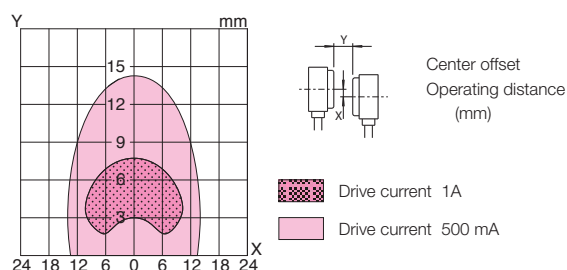
In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

Influence of surrounding metal

Mutual interference

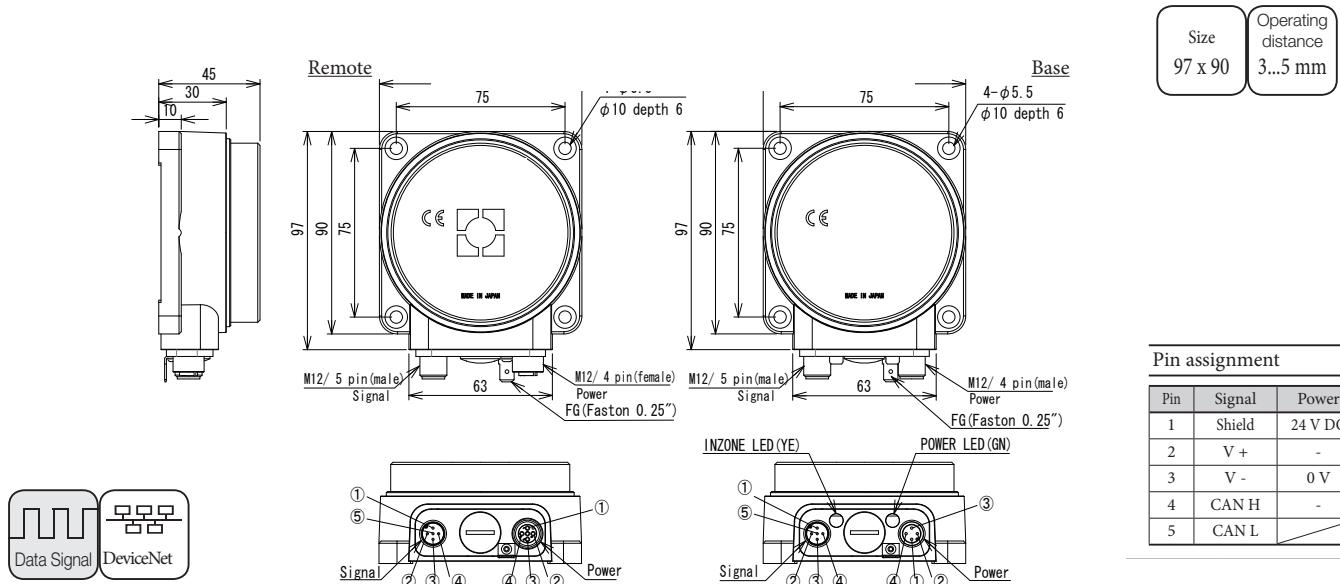
Typical Transmitting Diagram Supply voltage at 24 V / non-flush mount

PGC-RS-R90Q06-01 / PGC-RS-B90Q06-02



Type code	A(mm)	B(mm)	C(mm)
PGC-RS-R90Q06-01	50	45	300
PGC-RS-B90Q06-02			

DeviceNet Data Transmission



Remote		Base	
Type code	DeviceNet	Type code	DeviceNet
	PGC-DN-R90Q05		PGC-DN-B90Q05
Drive Voltage	24 V ± 1.5V DC	Operational Voltage	24 V DC ± 5- (incl. Ripple)
Drive Current	2A	Current Consumption	3A
Operating Distance	3...5 mm	Communication	DeviceNet (CAN-Bus) data
Center Offset	±4 mm	Delay	0.5μsec.
Drive Current	2A	Start-up time	2sec.*
Operating Temperature	0...+50	Operating Temperature	0...+50
Protection class	IP 67	Connector	M12 / Signal-5 pin (Male), Power-4 pin (Female)
Connector	M12 / Signal-5 pin (Male), Power-4 pin (Female)	Protection class	IP 67
Material Housing	Aluminum+alumite treated-metal	Material Housing	Aluminum+alumite treated-metal
Active surface	ABS + PBT-resin	Active surface	ABS + PBT (resin)
Note		Note	

* Start-up time of Power Gap System.
The start-up time of DeviceNet varies with system.

Note

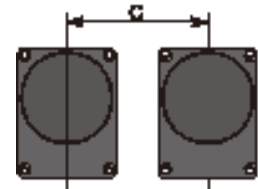
- Baud rate is 125K ... 500K bps.
- The connector and cable should be prepared separately.
- Devices do not have bus termination.

Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

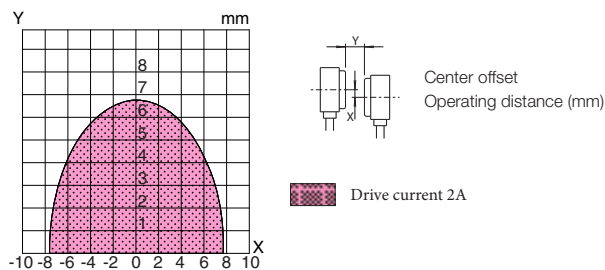
Influence of surrounding metal

Mutual interference



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

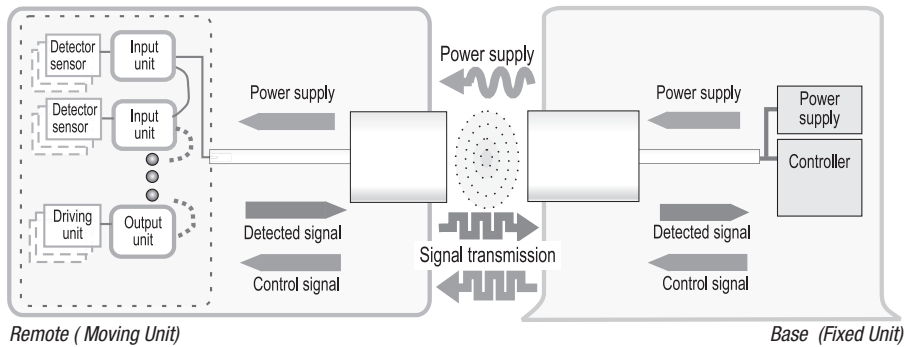
PGC-DN-R90Q05 / PGC-DN-B90Q05



Type code	A(mm)	B(mm)	C(mm)
PGC-DN-R90Q05	50	45	300
PGC-DN-B90Q05			

Power Gap Link System

Products Table of Power Gap Link System	27
Specification	64 + 32 Link System
	8 + 8 Link System
	34



POWER GAP - Link System Ordering Guide

Remote

- A. **Head** PGL-R90Q08-01
- B. **Amplifier** PGL-88-RAIO _____
 PGL-32-RA _____
 NPN or PNP
- C. **I/O** PGL-8-RI _____
 PGL-8-RO _____
 NPN or PNP

Base

- A. **Head** PGL-B90Q08-02
- B. **Amplifier** PGL-88-BAIO _____
 PGL-BA _____
 NPN or PNP
- PP = PNP
 PN = NPN
 DN = DeviceNet
 EI = Ethernet/IP
 CL = CC-Link

Switch Signal Transmission

System Configuration	Characteristics	Number of Signals
<p>Separate Amplifier</p>	<ul style="list-style-type: none"> - Power Gap Link System with up to 64 inputs and 32 outputs - Available for standard switches (PNP or NPN) - Solenoid valves and motor are also be connected to drive or control - The PGL I/O units connect sensors (inputs) and actuators (outputs) to the remote. A 4 wire cable is used to link the I/O units together - Maximum 2 A (24 V DC) can be supplied 	64 + 32
		8 + 8

Drive voltage/current	Number of signals (sensors + actuators)	Operating distance max.	Type code				Page
			Remote	Base	Base Head	Base Amplifier	
24 V DC / 2 A	64 + 32	9 mm	PGL-32-RA_	PGL-R90Q08-01	PGL-B90Q08-02	PGL-BAP PGL-BADN PGL-BAEI PGL-BACL	29-33
24 V DC / 2A	8 + 8	9 mm	PGL-88-RAIO	PGL-R90Q08-01	PGL-B90Q08-02	PGL-88-BAIO	34-35

I/O Unit (connect with Remote Amplifier)

Unit	Number of Signals (per a unit)	Type code	Note	Page
Input Unit	8	PGL-8-RI	max. 4	33
Output Unit	4	PGL-4-RO	max. 8	33

Type code

N→NPN-P→PNP

'_' at the end means cable length(m).

Examples are showed below.

Remote Head
PGL-R90Q08-01
└─cable length(m)
01=1m
02=2m
03=3m

Standard cable length: 1m

Base Head
PGL-B90Q08-02
└─cable length(m)
02=2m
03=3m
05=5m

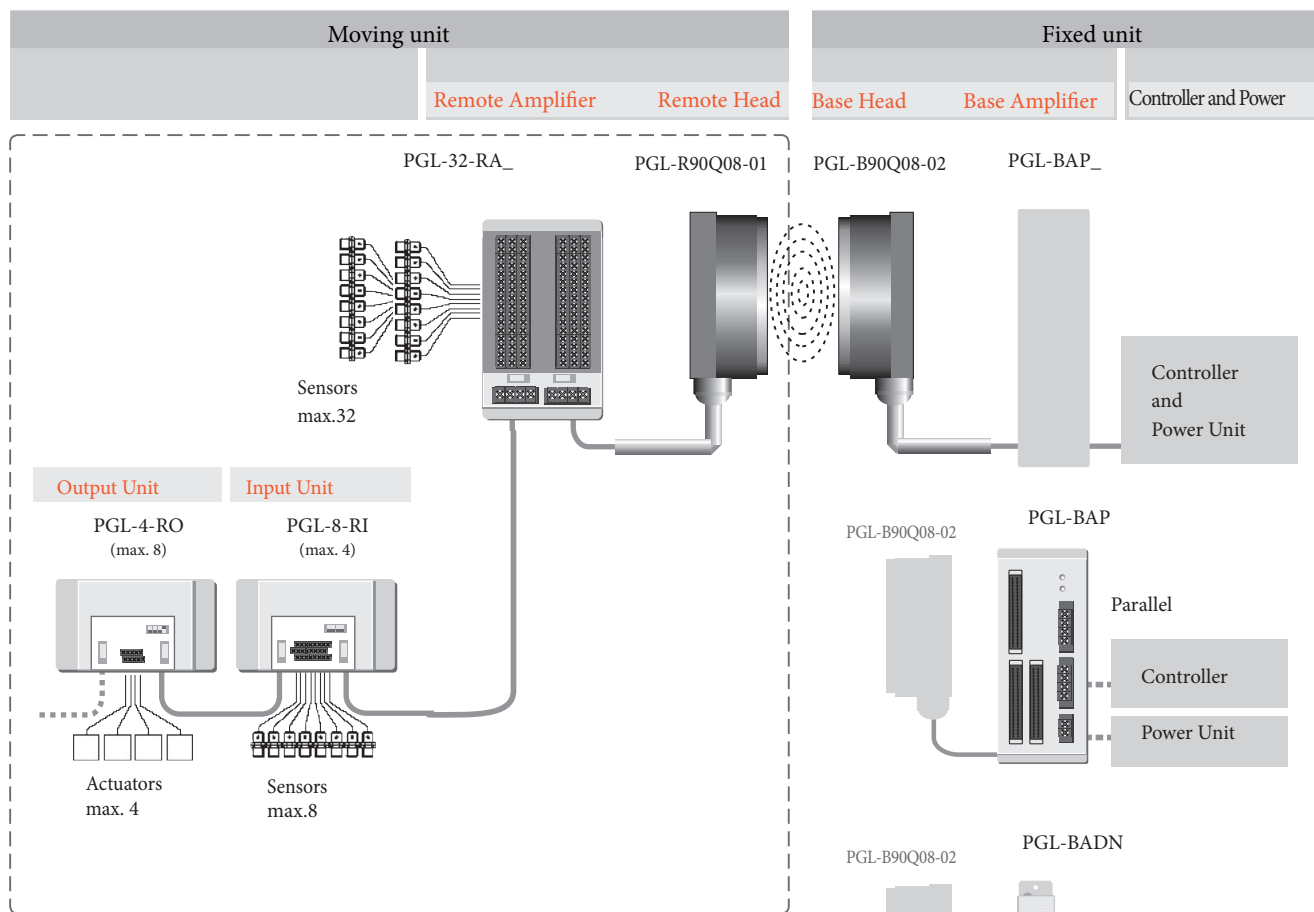
Standard cable length: 2m

Remote Amplifier
PGL-32-RAN
└─N=NPN
P=PNP

Base Amplifier
PGL-BAPN
└─N=NPN
P=PNP



System Components of Power Gap Link System



Remote

Remote Head / Remote Amplifier

Receives power from the Base Unit and supplies power to connected sensors, or Input/Output units, and transmits Input/Output signals. Up to 32 sensors can be connected directly to Remote Amplifier. Max 2 Amplifiers per system.

Extension Units

Input Unit

Supply power to detection switches and transmits detecting signals to Remote amplifier. Max. 8 signals can be connected. Up to 4 units per 1 system can be linked.

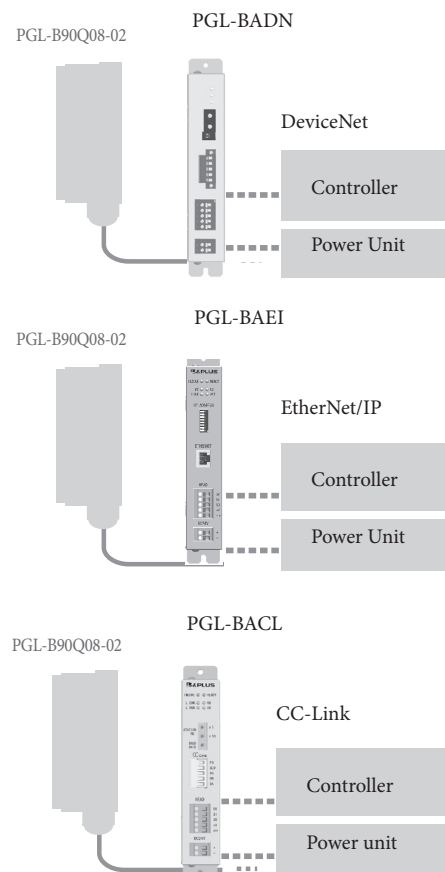
Output Unit

Operates connected driving units such as solenoid valve or small motor. Max. 4 signals can be connected. Up to 8 units per 1 system can be linked.

Base

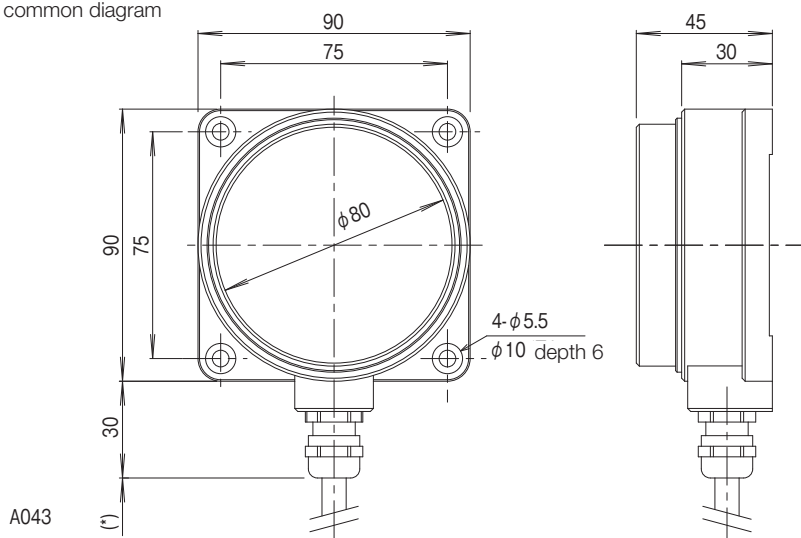
Base Head / Base Amplifier

Supplies power 24 VDC/2A to Remote unit without physical contact and transmits max. 64+32 input/output signals and executes input/output data communication with controller.



Switch Signal Transmission/ 64 Input + 32 Output

Remote Head/Base Head
common diagram



Size 90x90	Operating distance 3...9mm
Switch Signal	Input 64
	Output 32

Wiring C023/P.42

Remote Head	
Type code	PGL-R90Q08-01
Drive Voltage	24 V \pm 1.5V DC
Drive Current	max.2A
Operating Distance	3...9mm 6...8 mm
Center Offset	\pm 5 mm \pm 3 mm
Drive Current	1A 2A
Operating Temperature	0...+50
Protection Class	IP67
Cable	PUR / ϕ 7.6 4x0.75 mm ² shielded
Material Housing	Aluminum+alumite treated metal
Active surface	ABS + PBT-resin
Note	

Base Head	
Type code	PGL-B90Q08-02
Operational Voltage	24 V DC \pm 5 Vdc incl. ripple
Current Consumption	4A
Load Capacity	---
Frequency of Operation	---
LED	---
Operating Temperature	0...+50
Protection Class	IP67
Cable	PUR / ϕ 7.6 4x0.75 mm ² shielded
Material Housing	Aluminum+alumite treated metal
Active surface	ABS + PBT-resin
Note	

Applicable device

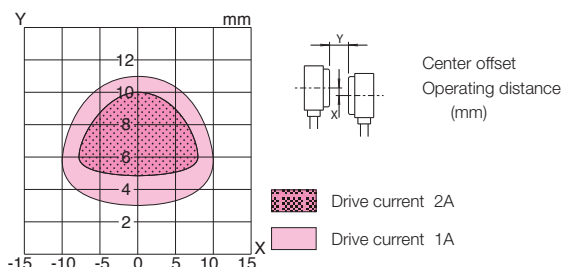
- A Remote can be connected to a maximum of 64 inputs and 32 outputs.

Supply voltage	24 V DC
Current consumption	2A
Residual voltage	---
Load capacity	---

-The total current consumption of connecting switch and driving units must not exceed the rated current and supply specs.

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

PGL-R90Q08-01 / PGL-B90Q08-02



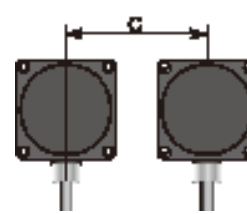
Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

Influence of surrounding metal



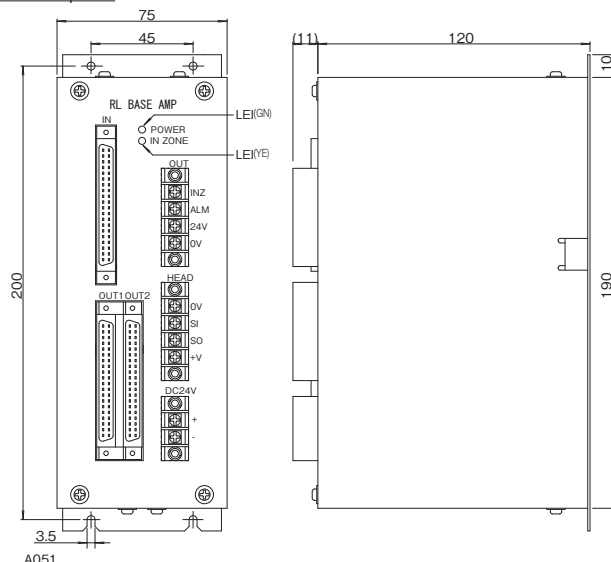
Mutual interference



Type code	A(mm)	B(mm)	C(mm)
PGL-R90Q08-01	50	45	300
PGL-B90Q08-02			

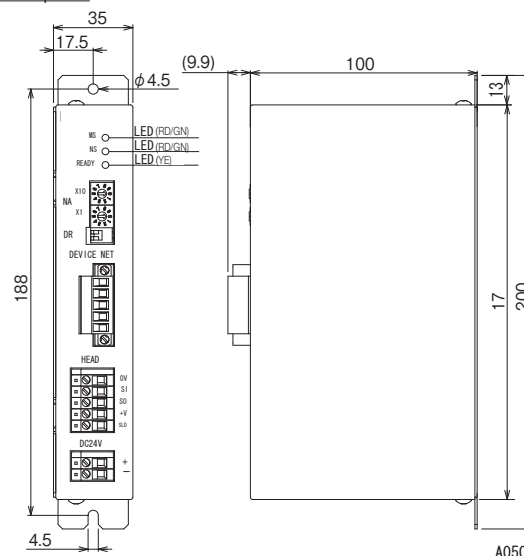
Switch Signal Transmission/ 64 Input + 32 Output

Base Amplifier



Wiring Refer to product user's guide.

Base Amplifier



Wiring Refer to product user's guide.

Base Amplifier Parallel I/O		
Type code	NPN	PGL-BAPN
	PNP	PGL-BAPP
Applicable Remote Amplifier	PGL-32-RA_	
Input Logic	NPN (current sink)-PNP (current source)	
Input Signal	32	
Load Capacity	7mA per 1 input	
Output Logic	NPN (current sink)-PNP (current source)	
Output Signal	67 (data:64-inzone:2_ detecting short circuit:1)	
Load Capacity	max.20 mA per 1 output	
Operational Voltage	24 V DC \pm 5%	
Current Consumption	150 mA	
Frequency of Operation	20Hz	
LED	Power indication(GN)READY(YE)	
Material	Housing:SPCC-SD(steel plate)	
Connection	Power	Terminal block-2pole x 1
	Head	Terminal block-4pole x 1
	Input	Square connector-40P x 1
	Output	Square connector-40P x 2
Operating temperature	0...+50	
Note	Connectors are attached	

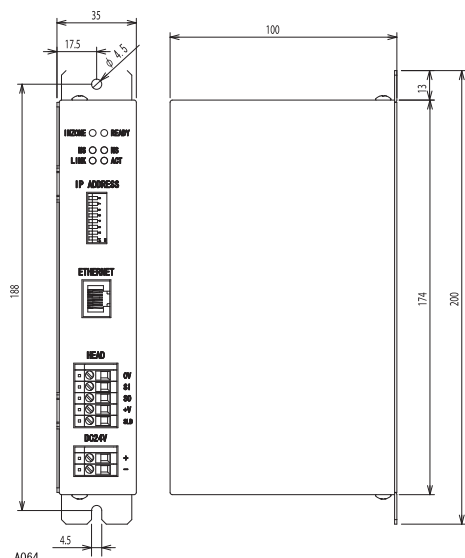
Base Amplifier DeviceNet		
Type code	DeviceNet	PGL-BADN
Applicable Remote Amplifier	PGL-32-RA	
Function	Remote I/O (Poll)	
Baud Rate	500k/250k/125k Baud Set by Dip SW	
Naud Address	0-63 Set by rotary SW	
Input Signal ¹⁾	64 + 1 Ready signal (9 bytes)	
Output Signal ²⁾	32 (4 bytes)	
Operational Voltage	24 V DC \pm 5 %	
Current Consumption	150 mA	
LED	MS:RD/GN,NS:RD/GN,READY-YE	
Material	Housing-SPCC-SD (steel plate)	
Connection	Power	Terminal block-2 pole x 1
	Head	Terminal block-5 pole x 1
	DeviceNet	Open connector
Operating temperature	0 ... +50	
Note		

- 1) Output signals from Power Gap system
2) Input signals to Power Gap system

Switch Signal	Input 64	Output 32
---------------	----------	-----------

Switch Signal Transmission/ 64 Input + 32 Output

Base Amplifier

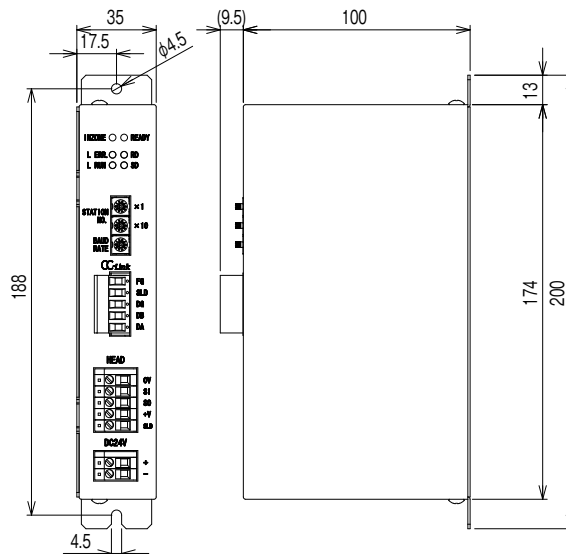


A064

Wiring

Refer to product user's guide.

Base Amplifier



A063

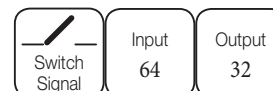
Wiring

Refer to product user's guide.

Base Amplifier EtherNet/IP		Base Amplifier CC-Link	
Type code	EtherNet/IP	Type code	CC-Link
	PGL-BAEI		PGL-BACL
Applicable Remote Amplifier	PGL-32-RA	Applicable Remote Amplifier	PGL-32-RA
Function	Remote I/O (Cyclic)	Communication protocol	CC-Link (Ver. 1.10)
Communication	Full-duplex / Half-duplex (automatic recognition)	Station type	Remote device station
Speed	100 Mbps / 10 Mbps (automatic recognition)	Number of stations occupied	3 stations
IP address	Setting up by DIP switch, configuration tool	Address	1 ... 62 (set by rotary switch)
Input signal ¹⁾	64 + 1 In-Zone signal (9 bytes)	Baud rate	156k/625k/2.5M/5M/10M Baud (set by rotary switch)
Output signal ²⁾	32 (4 bytes)	Number of Input ¹⁾	64 + In-Zone signal 1
Operational voltage	24 V DC \pm 5% Ripple 1 V	Number of Output ²⁾	32
Current consumption	200 mA	Operational voltage	24 V DC \pm 5% Ripple 1V
Material	SPCC-SD (steel plate)	Current consumption	150 mA
Connection Power	Terminal block-2 pole x 1	Material	SPCC-SD (steel plate)
Head	Terminal block-5 pole x 1	Connection Power	Terminal block-2pole x 1
Ethernet	Connector : RJ 45 female x 1	Head	Terminal block-5 pole x 1
Operating temperature	0...+50 °C	CC-Link	Open connector : 5 pole x 1
Note		Operating temperature	0 ... +50
		Note	

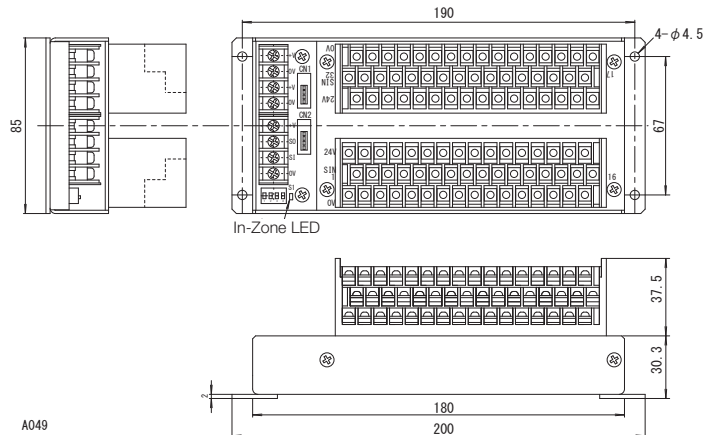
1) Output signals from Power Gap system

2) Input signals to Power Gap system



Switch Signal Transmission/ 64 Input + 32 Output

Remote Amplifier



Wiring Refer to product user's guide.

Remote Amplifier Ring terminal	
Type	NPN PNP
Applicable Remote Amplifier	PGL-BAPN-PGL-BAPP PGL-BADN
Input Logic	NPN or PNP
Input Signals	32
Load Capacity	7mA per 1 input
Frequency of operation	20Hz
Current consumption	70 mA
LED	READY
Material Housing	SPCC-SD Glass-epoxy

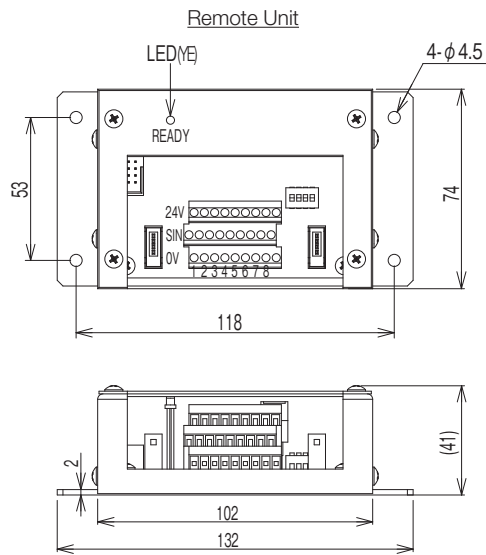
Sensor	Terminal block: 3pole x 32
Sensor	Terminal block: 4pole x 1
Link	Connector: e-con , 4P x 2
Operating Temperature	0...+50 C
Note	

Applicable device

- A Remote can be connected to a maximum of 64 inputs and 32 outputs.
- Remote amplifier PGL-32-RA can connect up to 32 detectors directly.

Supply voltage	24 V DC	-Please use the switch which correctly operates under left-had specification.
Total current consumption	2A	
Residual voltage	6V	-The total current consumption of connecting switch and driving units must not exceed the value of Drive current.
Residual current	1mA	

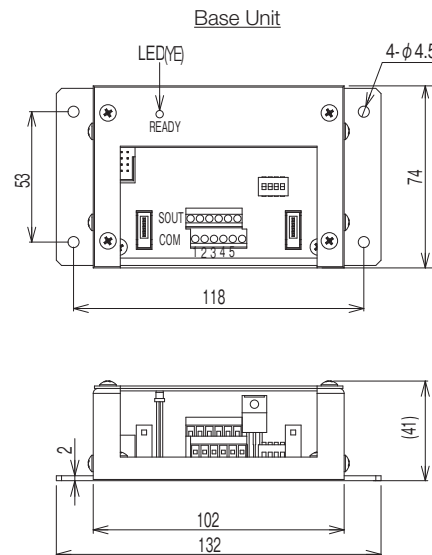
Switch Signal Transmission/ 64 Input + 32 Output



A052

Wiring

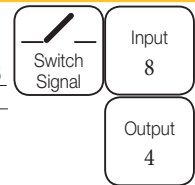
Refer to product user's guide.



A053

Wiring

Refer to product user's guide.



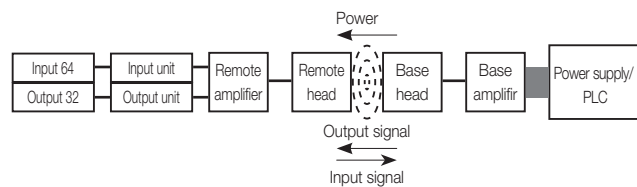
		Remote Unit	Base Unit
Type code	NPN	PGL-8-RIN	PGL-4-RON
	PNP	PGL-8-RIP	PGL-4-ROP
Input Logic		NPN or PNP	---
Input Signals		8	---
Load Capacity		7mA per 1 input	---
Output Logic		---	NPN or PNP
Output Signals		---	5 (Data: 4, Data valid : 1)
Load Capacity		---	max.200 mA per 1 output
Current Consumption		40 mA	40 mA
Frequency of Operation		20Hz	20Hz
LED		READY	READY
Material	Housing	SPCC-SD	SPCC-SD
	Cover plate	Acrylic resin	Acrylic resin
Connection	Sensor	Terminal block: 3 x 8 pole	---
	Cover plate	Acrylic resin	Acrylic resin
Driving unit	Link	---	Terminal block: 3 x 4 pole
	Link	Connector : e-con 4 pole (two pieces included)	Connector : e-con 4 pole (two pieces included)
Operating temperature		0...+50 °C	0...+50 °C
Note			

Applicable device

- A Remote can be connected to a maximum of 64 inputs and 32 outputs.

Supply voltage	24 V DC
Current consumption	-2A
Residual voltage	-6V
Residual current	-1mA

Note

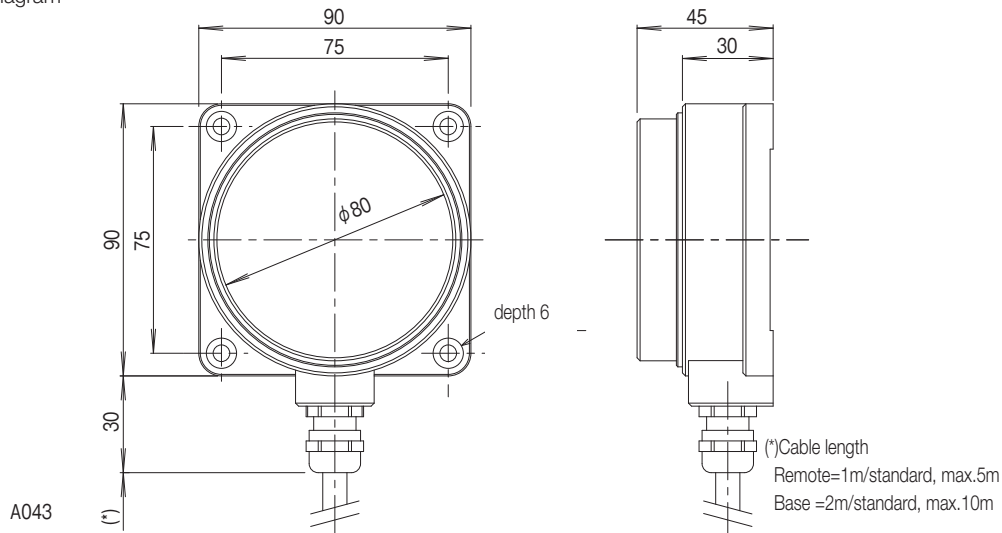


Switch Signal Transmission/ 8 Input + 8 Output

Remote Head / Base Head
common diagram

Size
90x90

Operating
distance
3...9mm

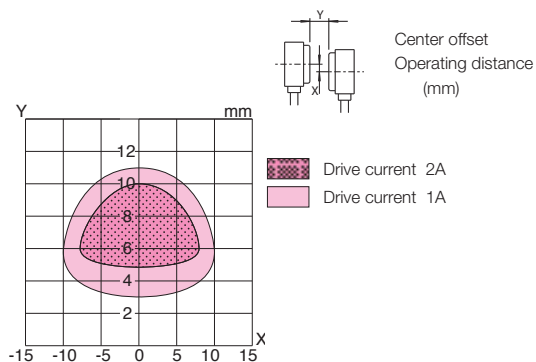


Wiring C020/P.41

Remote Head				Base Head		
Type code		PLG-R90-Q08-01		code	PLG-B90-Q08-02	
Drive Voltage		24 V ± 1.5V DC		Operational Voltage	24 V DC ± 5 incl. ripple	
Drive Current		max.2A		Current Consumption	4A	
Operating Distance		3...9mm	6...8 mm	Load Capacity	---	
Center Offset		±5 mm	±3 mm	Frequency of Operation	---	
Drive Current		1A	2A	LED	---	
Operating Temperature		0...+50		Operating Temperature	0...+50	
Protection Class		IP67		Protection Class	IP67	
Cable		PUR / ϕ7.6 4x0.75 mm² shielded		Cable	PUR / ϕ7.6 - 4x0.75 mm² shielded	
Material	Housing	Aluminum+alumite treated-metal		Material	Housing	Aluminum+alumite treated metal
	Active surface	ABS + PBT resin				Active surface
Note				Note		

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

PLG-R90Q08-0 / PLG-R90Q08-0_



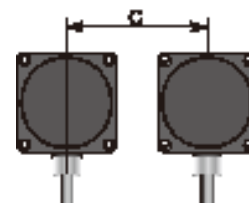
Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

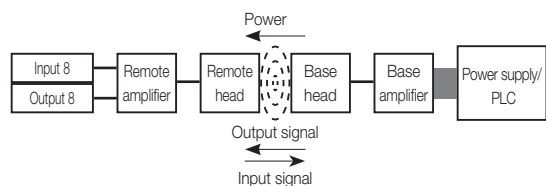
Influence of surrounding metal



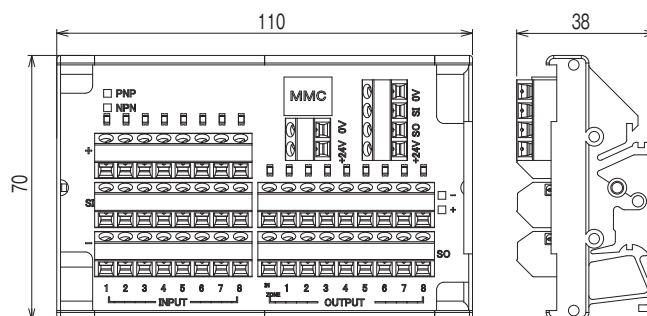
Mutual interference



Type code	A(mm)	B(mm)	C(mm)
PLG-R90Q08-0_	50	45	300
PLG-R90Q08-0_			

Switch Signal Transmission/ 8 Input + 8 Output


Switch Signal	Number of Signals 8+8	Size 110x70
---------------	--------------------------	----------------



Wiring	C020/P.41
--------	-----------

Remote Amplifier	
Type code	NPN
	PGL-88-RAIN
	PNP
	PGL-88-RAIOP
Drive Voltage	---
Drive Current	---
Input Signal	8 Input + 8 Output
Operating Distance	---
Center Offset	---
Drive Current	---
Operating Temperature	0...+50
Protection Class	IP67
Mounting	DIN 32/35 mm rail
Material Housing	Nylon
Note	

Base Amplifier	
Type code	NPN
	PGL-88-BAION
	PNP
	PGL-88-BA10P
Operational Voltage	24 V DC \pm 5incl. ripple
Current Consumption	150 mA
Output Signal	8 Input + 8 Output + 1 in zone
Load Capacity	max.300 mA
Frequency of Operation	100Hz
LED	I/O Signal, In-Zone
Operating Temperature	0...+50
Protection Class	IP67
Mounting	DIN 32/35 mm rail
Material Housing	Nylon
Note	

Applicable device

- A Remote can be connected to a maximum of 8 inputs and 8 outputs.

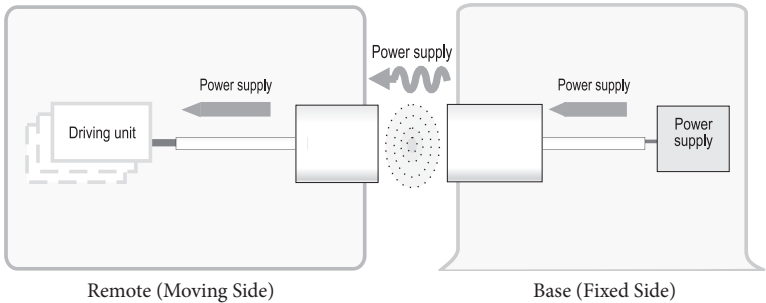
Supply voltage	24 V DC	-The total current consumption of sensors and driving units must not exceed the rated current and supply specs.
Total current consumption*	2A	
Residual voltage	---	
Load capacity	---	

Notes:

Power Gap Power System

Products Table of Power Gap Power System

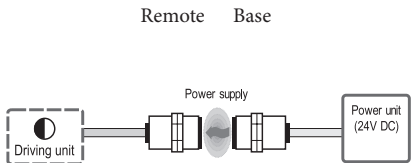
Specification	Parallel Coupling Type	38
---------------	------------------------	----



Parallel Coupling Type

System Configuration

Characteristics



- Power Gap Power System can supply a maximum of 2 A (24 V DC).

Drive voltage/current	Operating distance max.	Size	Type code		Page
			Remote	Base	
24 V DC / 2 A	9 mm	90 x 90	PGP-R90Q08-01	PGP-B90Q08-02	38

Type code

'_' at the end means cable length(m).
Examples are showed below.

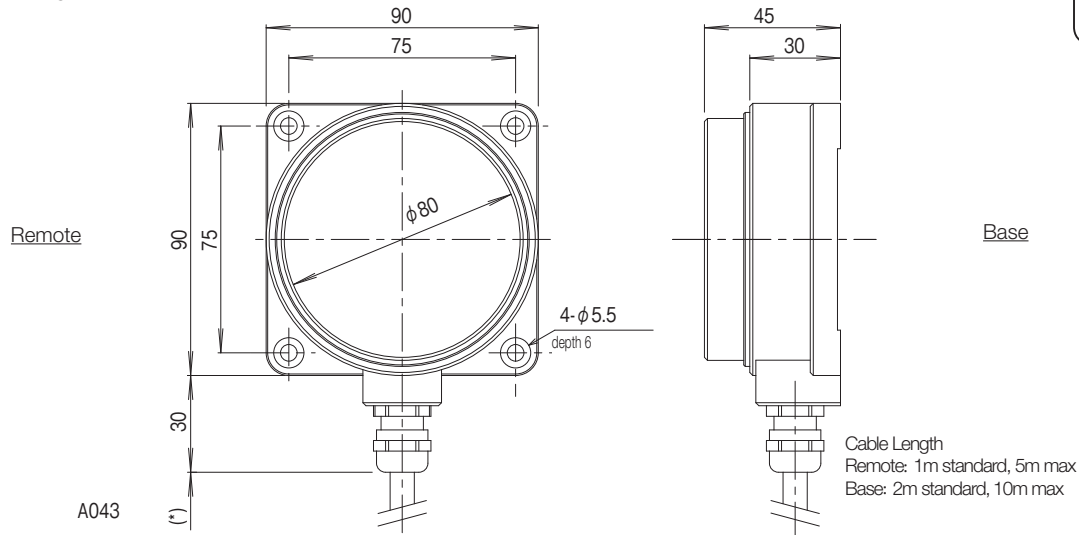
Remote
PGP-R90Q08-01
└─ cable length(m)
01=1m
02=2m
03=3m
Standard cable length: 1m

Base
PGP-B90Q08-02
└─ cable length(m)
02=2m
03=3m
05=5m
Standard cable length: 2m

Parallel Coupling Type /24 V-2A

Remote Head / Base Head
common diagram

Size 90x90	24 V / 2A	Operating distance 3...9mm
---------------	-----------	-------------------------------



Wiring Brown:+ / Blue:-

	Remote		
Type code	PGP-R90Q08-01		
Drive Voltage	24 V \pm 1.5V DC		
Drive Current	max.2A		
Operating Distance	3...9mm	6...8 mm	
Center Offset	\pm 5 mm	\pm 3 mm	
Drive Current	1A	2A	
Operating Temperature	0...+50		
Protection Class	IP67		
Cable	PUR / ϕ 6.2 2x0.75 mm ²		
Material Housing	Aluminum+alumite treated-metal		
Active surface	ABS + PBT resin		
Note			

	Base		
Type code	PGP-B90Q08-02		
Operational Voltage	24 V DC \pm 5%incl. ripple		
Current Consumption	4A		
Load Capacity	---		
Frequency of Operation	---		
LED	---		
Operating Temperature	0...+50		
Protection Class	IP67		
Cable	PUR / ϕ 6.2 2x0.75 mm ²		
Material Housing	Aluminum+alumite treated-metal		
Active surface	ABS + PBT-resin		
Note			

Applicable device

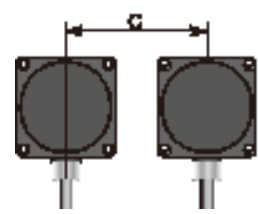
Supply voltage	24 V DC	-The total current consumption of sensors and driving units must not exceed the rated current and supply specs.
Current consumption	2A	
Residual voltage	---	
Load capacity	---	

Mounting

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described below.

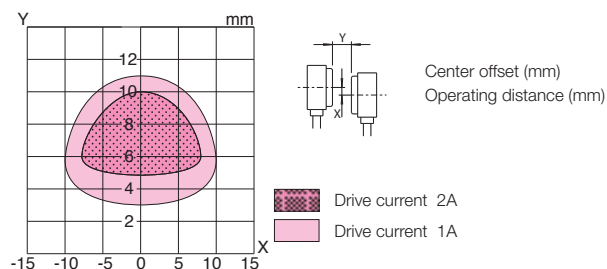
Influence of surrounding metal

Mutual interference



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

PGP-R90Q08-01 / PGP-B90Q08-02

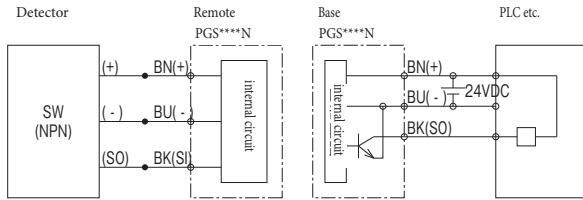


Type code	A(mm)	B(mm)	C(mm)
PGP-R90Q08-01	50	45	300
PGP-B90Q08-01			

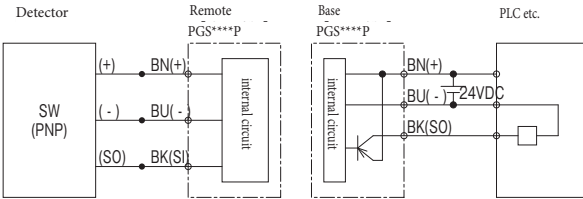
Wiring

C001 DC 3-wire sensor : 1 signal transmittition
 PGS-1-R18M04_-01 / PGS-1-B18M04_-02
 PGS-1-R30M08_-01 / PGS-1-B30M08_-02

■NPN

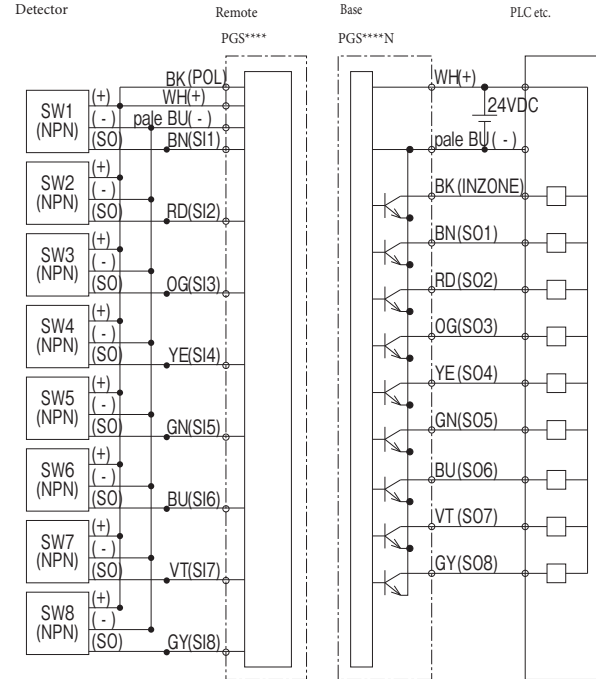


■PNP

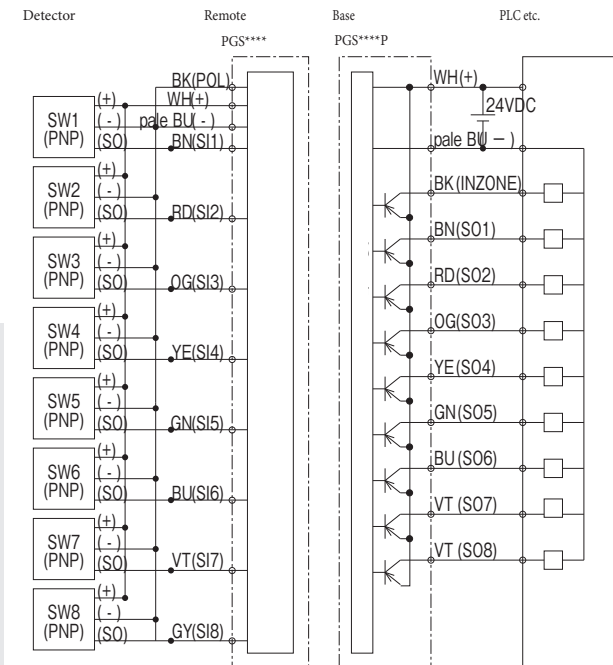


C004 DC 3-wire sensor : 8 signals transmission
 PGS-8-R30M05U-01 / PGS-8-B30M05_-02
 PGS-8-R90Q12U-01 / PGS-8-B90Q12_-02

■NPN



■PNP

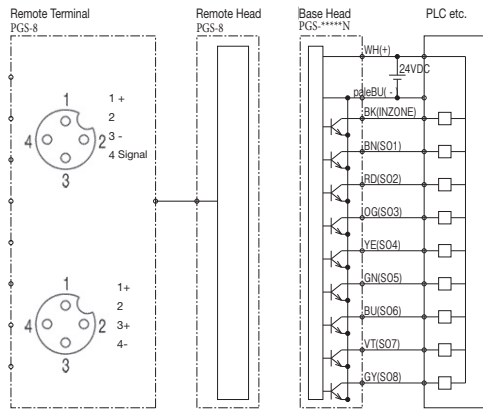


- Please refer to the User's Guide supplied with the products for installation and operation.
- Our Power Gap Products comply with EMC with CE indication attached.
- Please make sure to avoid excessive surge when the cable length exceeds 10m.

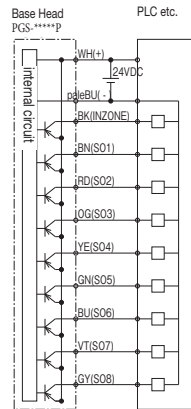
Wiring

C025 DC 3-wire sensor type:8 signals transmission PGS-8-R30M08P-01C / PGS-8-B30M08-02

■NPN

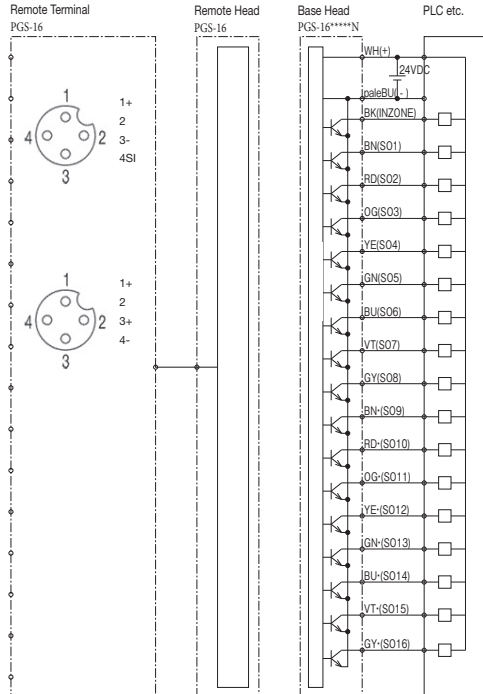


■PNP

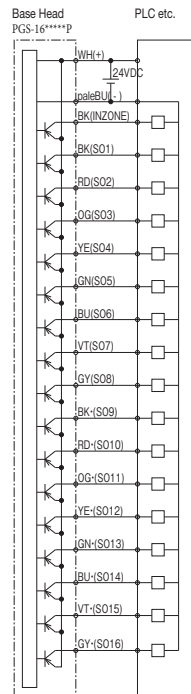


C026 DC 3-wire sensor type:16 signals transmission PGS-16-R30M08P-01C/ PGS-16-R30M08-01C

■NPN



■PNP



- Please refer to the User's Guide supplied with the products for installation and operation.

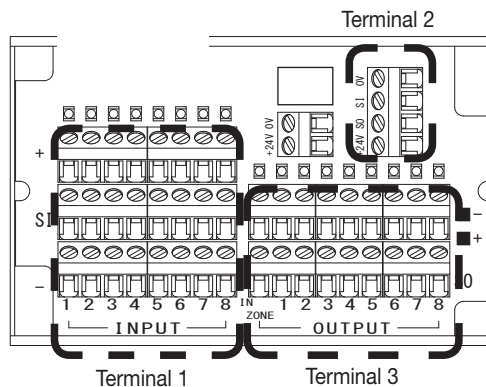
- Our Power Gap Products comply with EMC with CE indication attached.

- Please make sure to avoid excessive surge when the cable length exceeds 10m.

Power Gap Coupler System

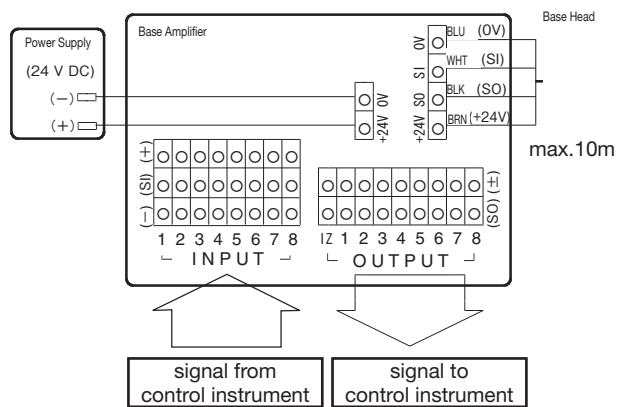
C020 Bi-directional switch signal transmission 8 + 8

Head PGL-R90Q08-01
Remote Amplifier PGL-88-RAIO_
Base Amplifier PGL-88-BAIO_

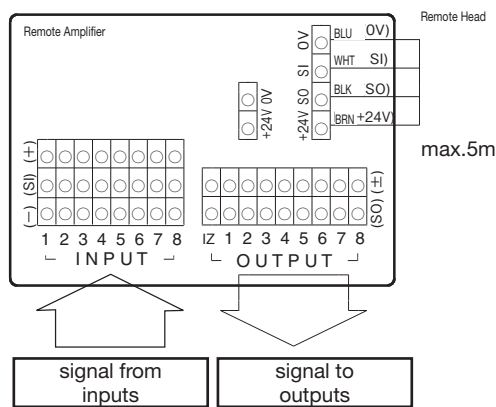


- Wiring

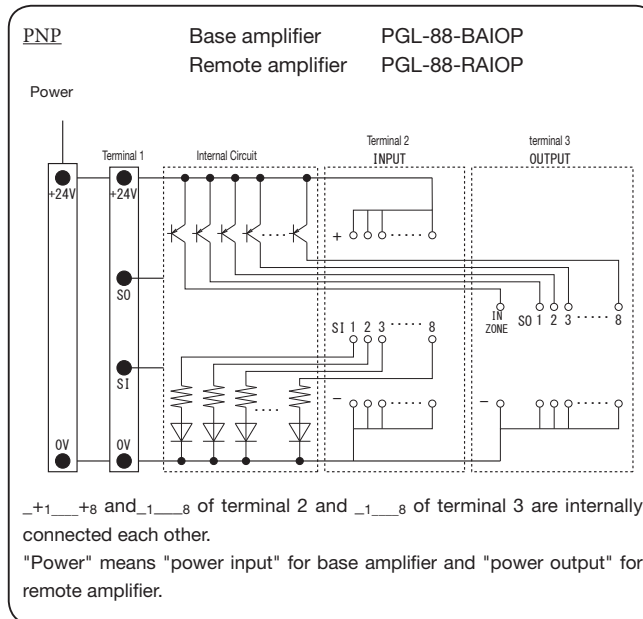
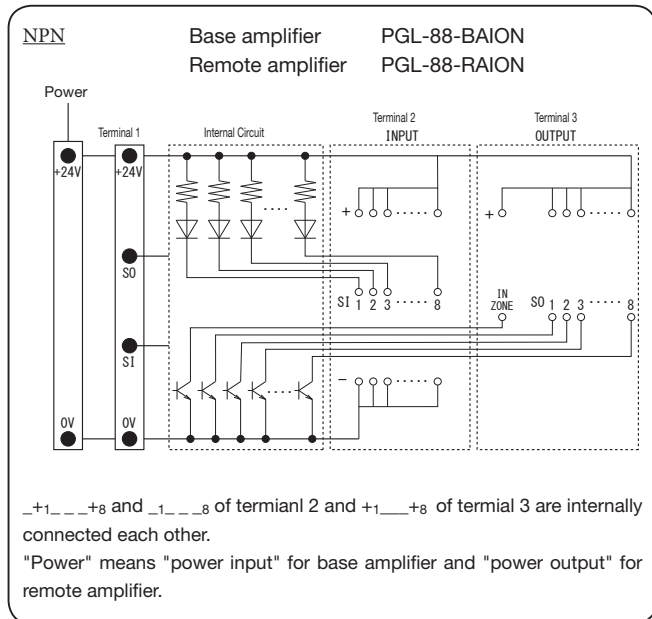
Base Amplifier-PGL-88-BAIO_



Remote Amplifier-PGL-88-RAIO_

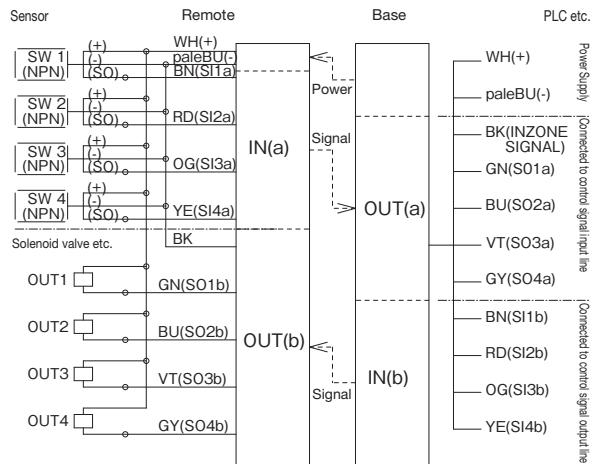


- Internal circuit

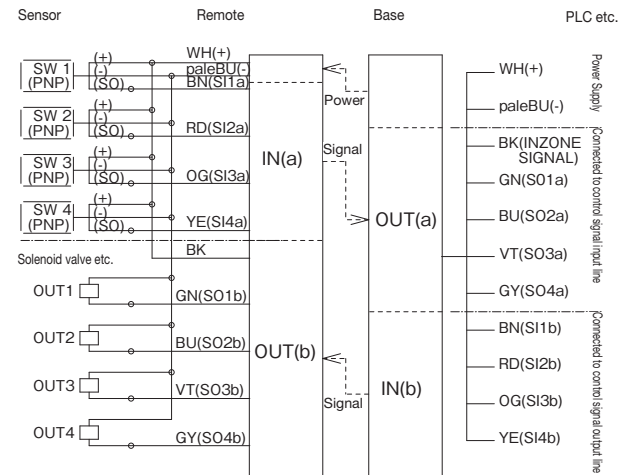


C019 Bi- directional Switch Signal Transmission4+4 PGC-44-R90Q10P-01 / PGC-44-B90Q10P-02

■NPN

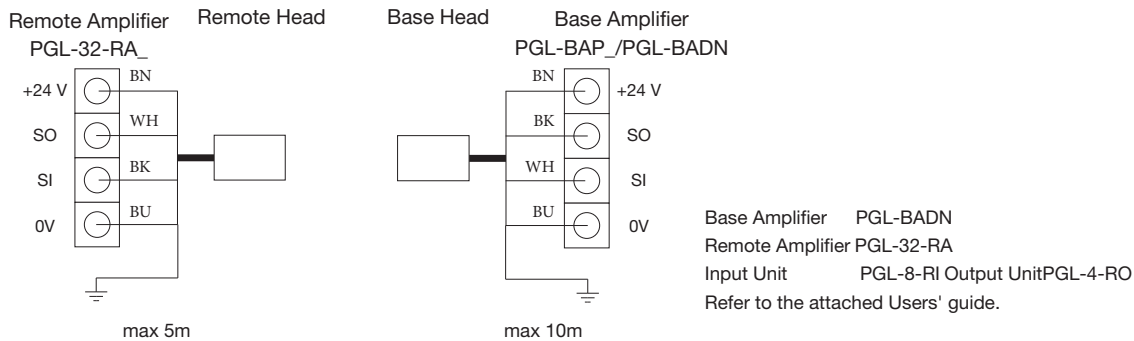


■PNP



Power Gap Link System

C023 Power Gap Link System PGL-R90Q08-01 / PGL-B90Q08-02



- Please refer to the User's Guide supplied with the products for installation and operation.
- Our Power Gap Products comply with EMC with CE indication attached.
- Please make sure to avoid excessive surge when the cable length exceeds 10m.



All units in this catalog are CE compliant.



Power Gap Sensor System



Since 1989, TR Electronic North America has become an industry leader in manufacturing and supporting position feedback, drive technology and sensor solutions world-wide. Through its complete line of absolute encoders, linear measurement systems and industrial sensors, TR Electronic is able to deliver exceptional results every time.

From automotive, to material handling to metal fabrication, TR's flexible product manufacturing process allows for custom product design with the highest quality and precision you demand. TR Electronic provides local service and support with North American factory trained technicians who are ready to assist you.

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