

OPTICAL-PNEUMATIC CONVERTER

The optical-pneumatic converter is used for converting optical signal to pneumatic signal proportional with the set value given from master station in order to operate a pneumatic final control element such as pneumatic positioner or diaphragm valve.

A fiber optical cable used for the signal transmission line forms an optical field instrumentation system together with an optical star coupler and a master station.

FEATURES

1. Resistive to noise and lightning

Optical signal ensures a reliable signal transmission, because it is not affected by external noise and inductive lightning. Use of a nonmetallic optical (fiber) cable prevents propagation of inductive lightning through the cable, so a signal transmission immune to lightning can be realized.

2. Reliability due to redundant configuration

Host system can be duplicated by using two optical cable trunk lines (between an optical star coupler and host system). This enhances reliability of users' systems.

3. Intrinsic safety type explosion-proof

Each equipment with a built-in battery can be constructed so as to be an intrinsic safety type individually (intrinsic safety type barrier unnecessary).

SPECIFICATIONS

Functional specifications

Input: Optical digital signal
Output: Pneumatic signal within 20 to 100 kPa
Air supply pressure: 140 kPa
Power supply: Built-in lithium battery (2 cells), expected life; about 3 years/cell
Explosion-proof: Intrinsic safety type, JIS ib IIC T3
Self-diagnosis: Displayed on indication unit (option) and transmitted to master station.

Item	Host system	Indication unit
Deviation error	○	○
Detecting unit failure	○	○
Amplifier abnormal	○	○
Battery voltage	○	-
Battery voltage low alarm	○	○



Remote control function

(Items readable and setting from hand-held communicator)

Item	Reading	Setting	Description
Output value	○	-	Read-back value
Control constant	○	○	P and I parameters
Battery voltage	○	-	Voltage of built-in battery
Emergency operation	○	○	Direction of emergency operation
Error indication	○	-	Detector error and deviation error

Emergency operation:

Operating direction of output air pressure when input turns off.

Selectable among the following operations. ... Refer to CODE SYMBOLS.

- Holding of the latest normal value
- Scale out below 0% (5 kPa or less)
- Scale out above 100% (120 kPa or more)

Optical cable: Code set type, silica fiber ... core/clad diameter 100/140 μm

Optical connector: FC connector

Transmission distance: 1.5 km max. (when transmission loss of optical cable is 4 dB/km)

Ambient temperature: -20 to +60°C
 -10 to +60°C for intrinsic safety explosion-proof type

Storage temperature: -30 to +70°C

Performance specifications

Accuracy rating: ±0.5% of full scale (Output ripple about ±0.1%)
Response speed: 3 sec or less (90% response time at load capacity 0.5 L)
Input/output characteristic: Linear
Air consumption: Standard (output constant); 8 NL/min
 Maximum (output under sudden change); 60 NL/min

Physical specifications

Environmental protection: JIS C0920 splash-proof type (equivalent to IEC IP54)
Air piping connection: Rc 1/4 or 1/4-18NPT
Optical cable connection: G1/2 or 1/2 -14NPT
Mounting method: Mounted on horizontal or vertical 50A (2B) pipe with U-bolt
Finish: Epoxy-polyurethane double coat, Color: silver (blue for amplifier case cover)
Mass: Approx. 5.3 kg
External dimensions: See OUTLINE DIAGRAM.

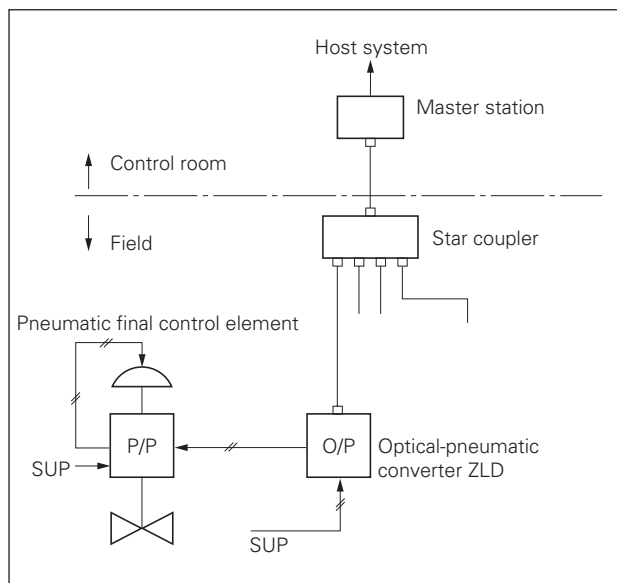
Optional specifications

Indication unit: 5-digit LCD indication, % or real scale indication (as specified by code symbol)

CODE SYMBOLS

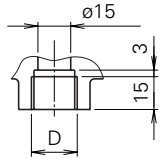
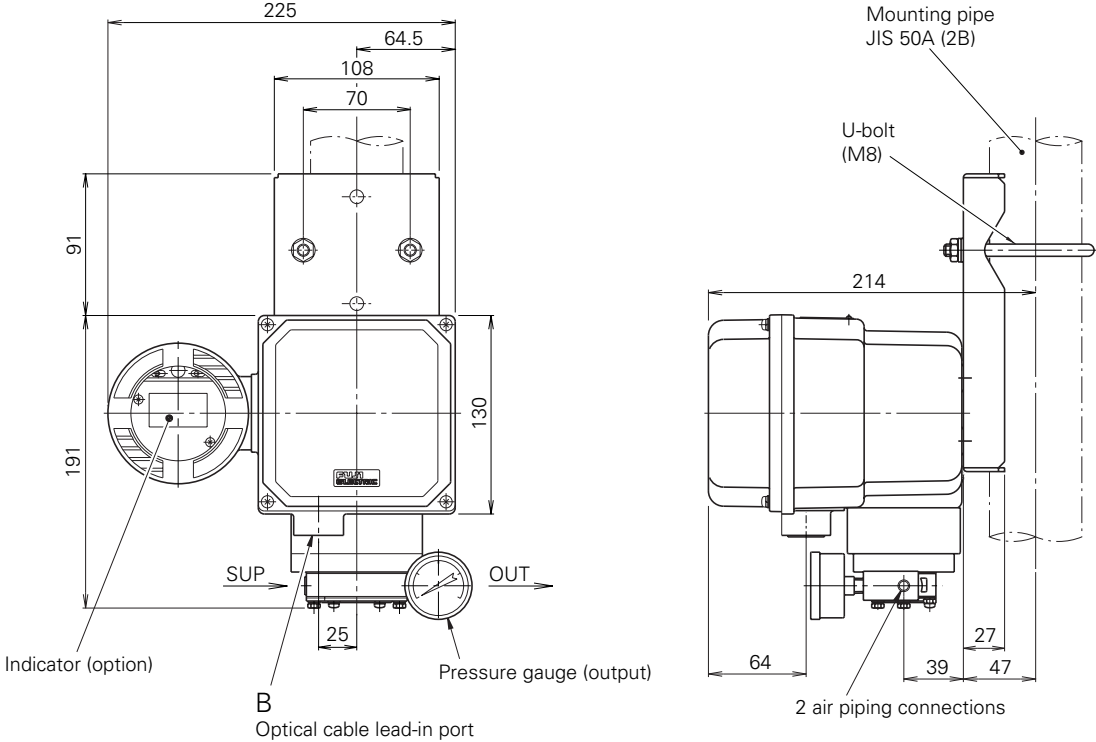
1	2	3	4	5	6	7	8	9	10	11	Description
Z	L	D	1	F	3	-					Output signal/supply pressure (4th digit) 20 to 100 kPa/140 kPa
			1								Air piping connection/ cable lead-in port (5th digit) Rc1/4 / G1/2 1/4-18NPT / 1/2-14NPT
			S								Indicator (7th digit) Not provided Digital, % indication Digital, real scale indication
			A								Explosion-proof (9th digit) Non-explosion proof Intrinsic safety, JIS
											Emergency operation (when input turns off)(10th digit) A Holding of the latest normal value B Scale out below 0% C Scale out above 100%
											Air set (11th digit) Y Without A With air set

SYSTEM BLOCK DIAGRAM



OUTLINE DIAGRAM (Unit : mm)

ZLD1 3- Y



Details of "B"

Type	ZLD1S	ZLD1T
Air piping connections	Rc 1/4	1/4-18NPT
Optical cable lead-in port D	G 1/2	1/2-14NPT

SCOPE OF DELIVERY

Instrument body and pipe fixture

ORDERING INFORMATION

1. Model type
2. Indication scale for real scale specification
3. Others

⚠ Caution on Safety

*Before using this product, be sure to read its instruction manual in advance.

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