OPTICAL-PNEUMATIC CONVERTER

DATA SHEET ZLD···3

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.

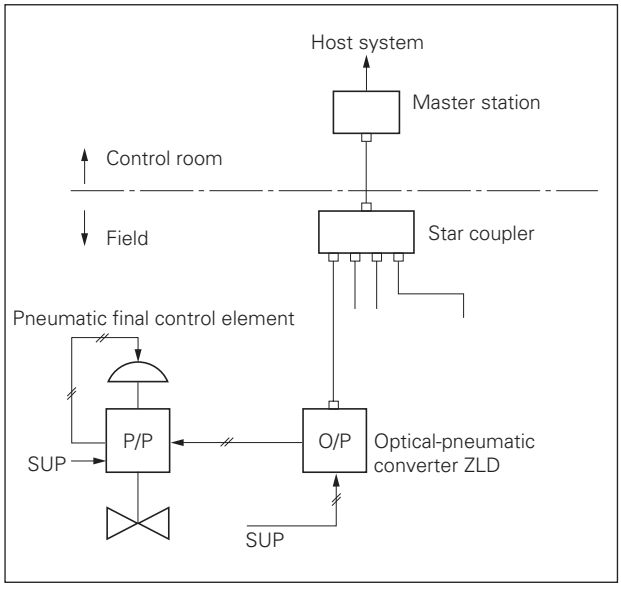
Optional specifications

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

CODE SYMBOLS

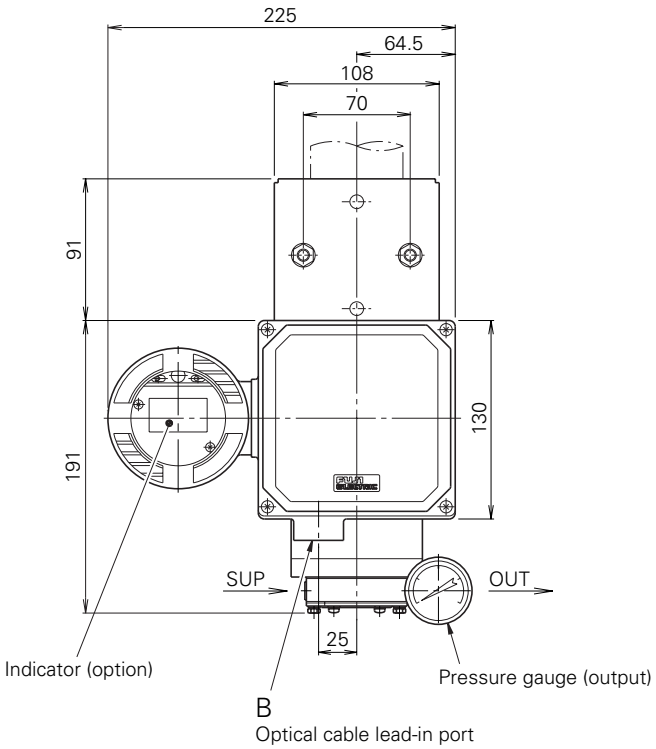
1 2 3 4 5 6 7 8 9 10 11	Description
Z L D 1 F 3 –	Output signal/supply pressure (4th digit)
1	20 to 100 kPa/140 kPa
	Air piping connection/ cable lead-in port (5th digit)
S	Rc1/4 / G1/2
T	1/4-18NPT / 1/2-14NPT
	Indicator (7th digit)
A	Not provided
L	Digital, % indication
P	Digital, real scale indication
	Explosion-proof (9th digit)
A	Non-explosion proof
G	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

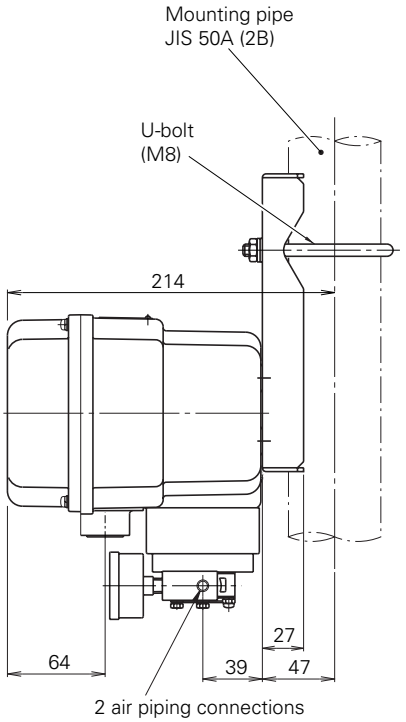
SYSTEM BLOCK DIAGRAM

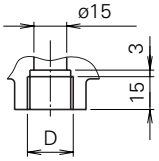


OUTLINE DIAGRAM (Unit : mm)

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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