



KL79 • 8□ Absolute Transmitter & Switches

OUTLINE




This is a ceramic capacitance sensor, which senses the deviation of the absolute pressure by utilizing capacitance.
The measurement of the vacuum range of 0 kPa abs. to 20 kPa abs. and pressures of around the atmospheric pressure is possible. Additionally, an electronic switch type sensor with 2 contact output is also provided. (Model: KL81)

FEATURES

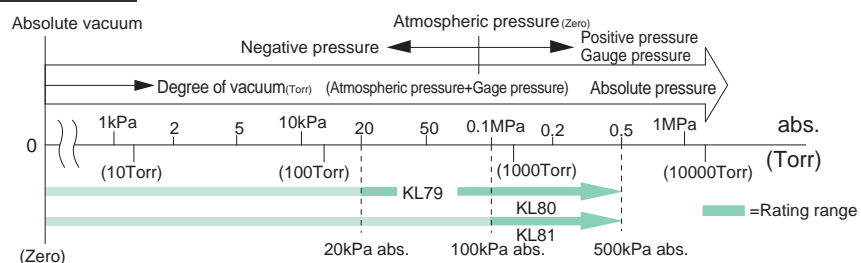
- By ceramic sensor introduction
 - * Superior in repeatability
 - * Superior in temperature characteristic
 - * High corrosion resistance
- This ceramic capacitance sensor can resist a pressure of as high as 5 times of respective ranges.
- This ceramic capacitance sensor is highly reliable with rigid construction requiring no liquid charge.
- Various types of fittings are prepared.

APPLICATION

- Pressure monitor of vacuum exhaust steam system (vacuum dissolution, vacuum heat treatment)
- Process pressure monitor of make film system. It is pressurization vacuum application pressurization reducing furnace.
- A monitor of vacuum drying and vacuum distillation
- A monitor of gas charging and gas permutation
- Another, to a wide field of the equipment that vacuum was applied.

KL79 Absolute pressure transmitter	KL80 Absolute pressure sensor	KL81 Absolute pressure switch
		
<ul style="list-style-type: none"> • This ceramic capacitance sensor demonstrates high corrosion resistance, high-pressure resistance and excellent temperature characteristics. • Capacitance sensed is calculated for compensation by a microcomputer, realizing a precision of $\pm 0.3\%$ for the respective range. • This ceramic capacitance sensor complies with the variation of various type fittings. 	<ul style="list-style-type: none"> • Because of small type and lightweight, this ceramic capacitor sensor is a general usage type being appropriate for built-in usage for equipment and apparatus. • Two choices for an output of 0.5V to 4.5V or 1V to 5V with 4 mA to 20 mA exist. 	<ul style="list-style-type: none"> • Two types of open collector outputs are mounted, and upper-upper limitation, lower-lower limitation or upper-lower limitation can be selected. • Setting is easily implemented by performance display and setting trimmer. • The ceramic capacitance sensor with an analogue output terminal can be selected as an option.

DETECTION RANGE BAND

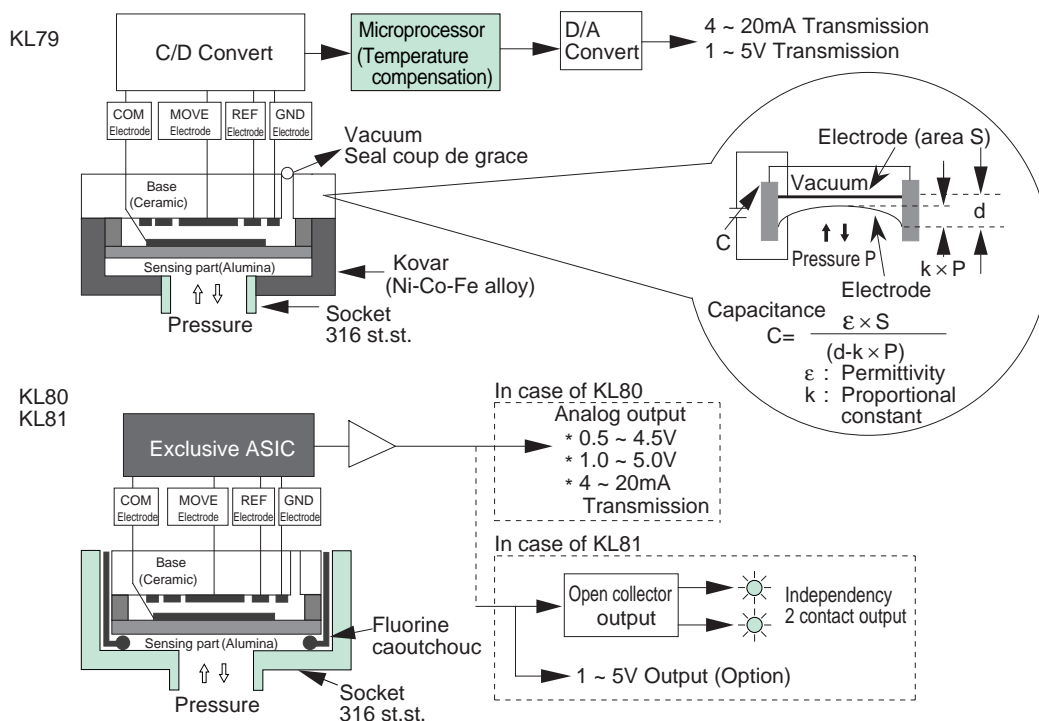


SPECIFICATION

	KL79 Absolute pressure transmitter	KL80 Absolute pressure sensor	KL81 Absolute pressure switch			
Fluid	Non corrosive fluid for 316 st.st. and alumina	Non corrosive fluid for 316 st.st. alumina and fluorine caoutchouc				
Connection	12.7 DIA. Straight, VCR, VCO, R1/4	G1/8B				
Gas contact parts	Sensing part: Alumina, 316st.st., Kovar, Socket, Base: 316st.st.	Sensing part: Alumina, 316st.st., Fluorine caoutchouc Socket, base: 316st.st.				
Measuring range	0 ~ 20kPa abs. 0 ~ 0.2MPa abs. 0 ~ 0.05MPa abs. 0 ~ 0.3MPa abs. 0 ~ 0.1MPa abs. 0 ~ 0.5MPa abs.	0 ~ 0.1MPa abs. 0 ~ 0.2MPa abs.	0 ~ 0.3MPa abs. 0 ~ 0.5MPa abs.			
Max. operating pressure	500% of each pressure range (Limit to 1 MPa)					
Operating temperature	0 ~ 60°C (But should not be frozen)					
Accuracy	±0.3%F.S.	±0.5%F.S.	±0.5%F.S. (Repeatability: ±0.2%F.S. or less)			
Output type	Open collector Contact output (2 output)	Rating: 30V DC, 80mA max. × 2 Setting: Choose from HH, LL or HL Display: LED display × 2 (light at ON) Dead band: 1 % F.S. fixed				
	Analog output (Load resistance)	4 ~ 20mA DC [2 wire system] (500Ω or less)	1 ~ 5V DC [3 wire system] (10kΩ or less)	(Option) 1 ~ 5V DC (10kΩ or less)		
Supply power source	24V DC ±10%	10 ~ 24V DC	5V DC ±5%	10 ~ 24V DC	24V DC ±10%	10 ~ 24V DC
Response time	50ms or less		5ms or less			
Temperature coefficient	Zero	±0.03%F.S./°C		±0.05%F.S./°C		
	Span	±0.03%F.S./°C		±0.05%F.S./°C		
Function	Zero and span are internal adjustment only			Setting 2 output external adjustment is available		
Cable mounting	6.2 DIA. Shielded cable (Connector type 2 m)		4.0 DIA. Cable 2m			
Weight	Approx. 300g (Main body only)		Approx. 170g (Main body only)		Approx. 180g (Main body only)	

DETECTION PRINCIPLE AND CONSTRUCTION

A ceramic capacitance sensor is a sensor which senses the displacement derived from the ceramic diaphragm bending of the pressure receiving portion by sensing the capacitance variation between a moving electrode installed on the diaphragm and the standard electrode (fixed) of other side.



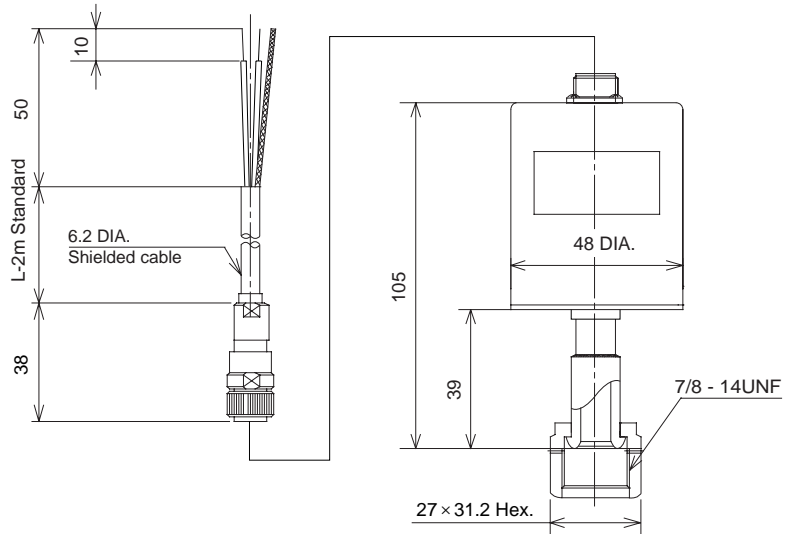
DIMENSIONS

KL79

Connector
(In case of 2 wire system)

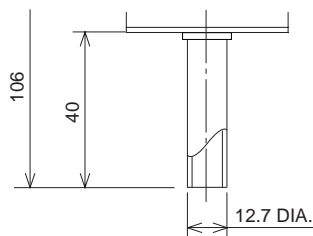


A (Red) +24V DC
C (White) Signal output

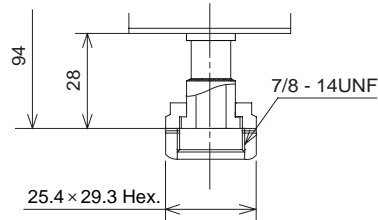


VCR type

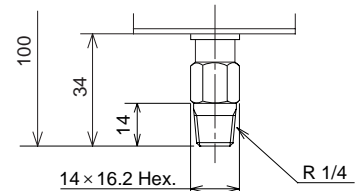
Other connection



12.7 DIA. Straight type

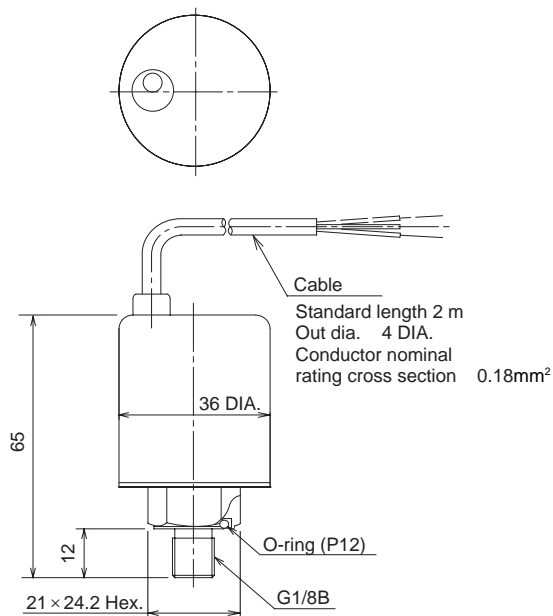


VCO type

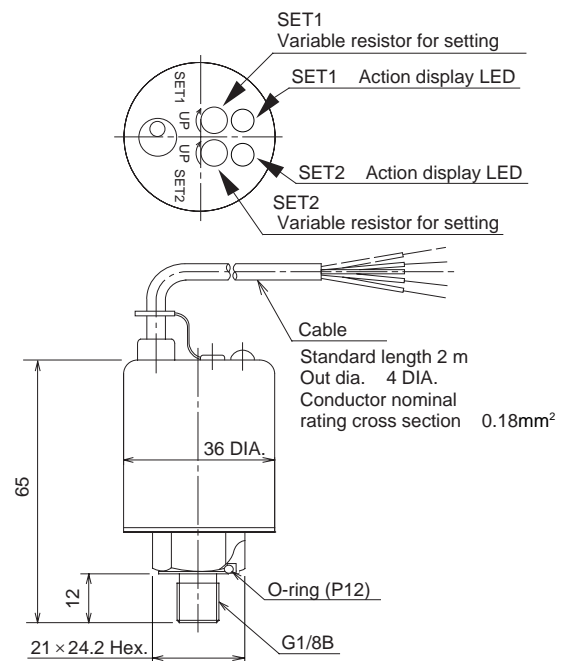


R 1/4 Screw type

KL80



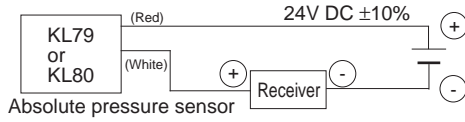
KL81



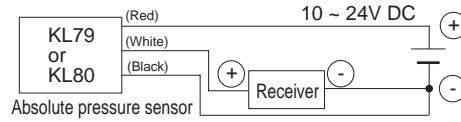
WIRING

In case of KL79 • KL80

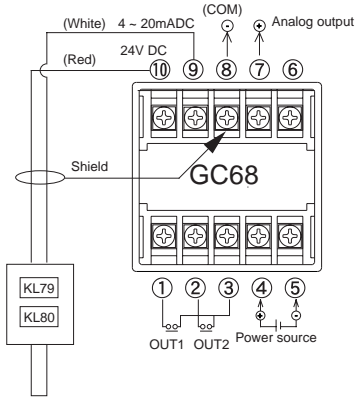
2 wire system In case of current output 4 ~ 20 mA



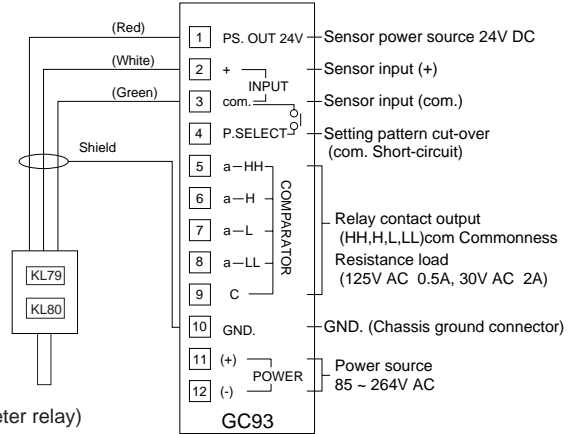
3 wire system In case of voltage output 1 ~ 5V
(3 wire system Power source 5 V ± 5 %
in case of voltage output 0.5 ~ 4.5 V)



<Connection example with receiver (GC68) >



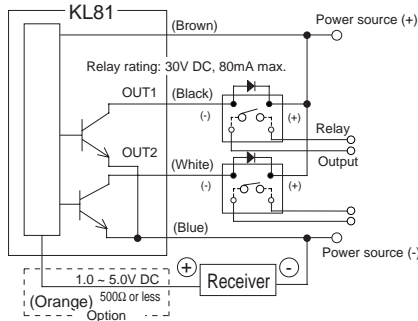
<Connection example with receiver (GC93) >



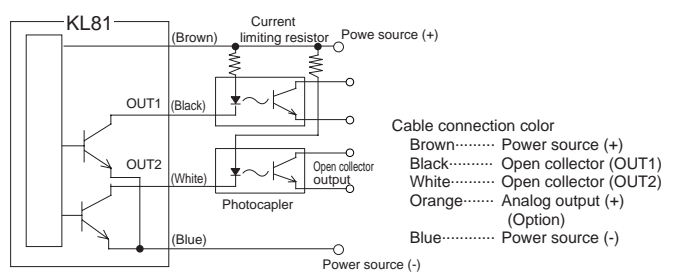
- * GC68 (digital indicator), GC93 (digital bar graph meter relay) are 1 ~ 5 V, 4 ~ 20 mA input only.
- * With shielded cable is KL79 only.
- * Please refer to catalogs about dimensions and panel cut dimensions of GC68 (digital indicator) and GC93 (digital bar graph meter relay)

In case of KL81 (Open collector connecting example)

① Relay connecting



② Photocapler connecting



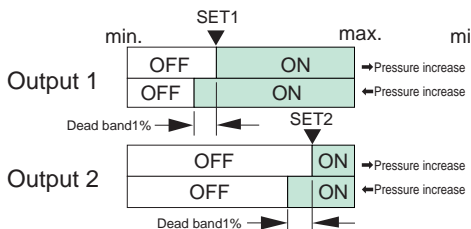
- * It is recommended that a transistor protective diode be installed in the relay.

OPEN COLLECTOR ACTUATION FORMULA

(Dead band is 1 % fixed)

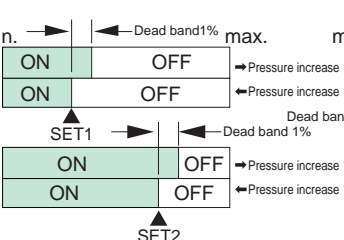
① Upper and upper limit setting (HH)

This type's output is turned on at the setting point, when pressure increases.



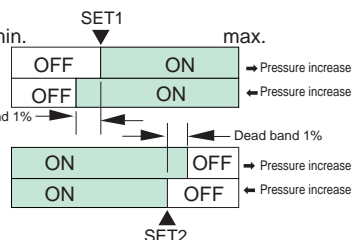
② Lower and lower limit setting (LL)

This type's output is turned on at the setting point, when pressure decreases.



③ Upper and lower limit setting (HL)

Output 1 is upper limit setting
Output 2 is lower limit setting



Type No. constitution 1

Please specify Type No., each specification and range when ordering.

Note: For this Model, there is no applicable item for the figures X, but please specify X when ordering.

Absolute pressure transmitter

Type No. **K L 7 9** — **3** — **3** — **0** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X**

Selection spec. Additional spec. (Option)

1 Type _____

3 Connector type (6.2 DIA. With 2 m shielded cable)

2 Connection _____

1	Cajon VCR
2	12.7 DIA. Straight
3	Cajon VCO
4	R1/4

3 Wetted parts material _____

3	Base, Socket: 316 st.st. Sensing parts diaphragm: Alumina
---	--

4 Pressure range _____
(When ordering, please specify pressure range & unit.)

1	0 ~ 20kPa abs.	4	0 ~ 0.2MPa abs.
2	0 ~ 0.05MPa abs.	5	0 ~ 0.3MPa abs.
3	0 ~ 0.1MPa abs.	6	0 ~ 0.5MPa abs.

5 Accuracy _____

0	±0.3%F.S.
---	-----------

7 Output _____

1	4 ~ 20mA DC (2 wire system)
8	1 ~ 5V DC (3 wire system)

6 Power source _____

1	24V DC ±10%
M	10 ~ 24V DC

9 Treatment _____

0	Nil
1	Use no oil
2	Use no water
3	Use no oil & water

15 Document _____

0	Nil
1	Please specify your requirement Drawing one sheet, Instruction manual, Inspection procedure, Mill sheet, Test report

Absolute pressure sensor

Type No. **K L 8 0** — **1** — **1** — **3** — **4** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X** — **X**

Selection spec. Additional spec. (Option)

1 Type _____

1	Cable type (With 2 m cable)
---	-----------------------------

2 Connection _____

1	G1/8B
---	-------

3 Wetted parts material _____

3	Base, Socket: 316 st.st. Sensing parts diaphragm: Alumina
---	--

4 Pressure range _____
(When ordering, please specify pressure range & unit.)

1	0 ~ 0.1MPa abs.
2	0 ~ 0.2MPa abs.
3	0 ~ 0.3MPa abs.
4	0 ~ 0.5MPa abs.

5 Accuracy _____

4	±0.5%F.S.
---	-----------

7 Output _____

1	4 ~ 20mA DC (2 wire system) (Power source is 24V DC)
8	1 ~ 5 V DC (3 wire system)
Y	0.5 ~ 4.5V DC (3 wire system) (In case of power source 5 V DC only)

6 Power source _____

D	5V DC ±5% (Output 0.5 ~ 4.5 V DC select only)
M	10 ~ 24V DC

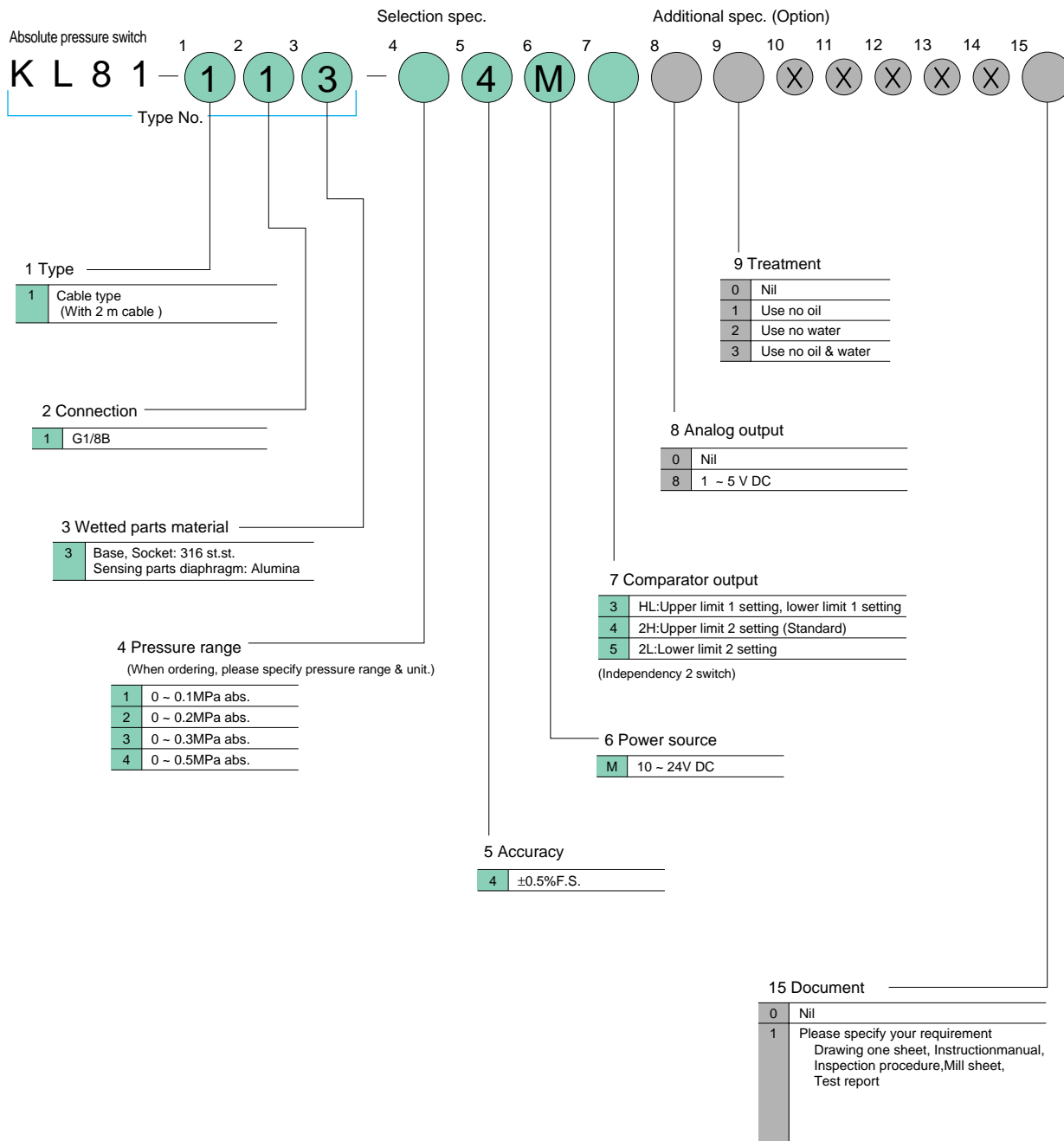
9 Treatment _____

0	Nil
1	Use no oil
2	Use no water
3	Use no oil & water

15 Document _____

0	Nil
1	Please specify your requirement Drawing one sheet, Instruction manual, Inspection procedure, Mill sheet, Test report

Note: For this Model, there is no applicable item for the figures X, but please specify X when ordering.



The contents in the catalogue are subject to change without notice.

 **NAGANO KEIKI CO., LTD.**



UEDA FACTORY (JQA-0794)
MARUKO FACTORY (JQA-0789)

HEAD OFFICE & OVERSEAS : 1-30-4, HIGASHIMAGOME OHTA-KU, TOKYO, JAPAN.
TELEPHONE : 03 (3776)5328
SALES DEPT FAX : 03 (3776)5447
TELEX : 2468452 NKSTKY J

OVERSEAS PLANTS
OR AFFILIATES: U.S.A., KOREA, GERMANY
OVERSEAS SALES NETWORK: AUSTRALIA, HONG KONG, INDONESIA,
KOREA, MALAYSIA, PHILIPPINES,
SINGAPORE, TAIWAN, THAILAND, U.S.A.

