

KTD-600 series



Features

- Indicate positive and negative pressure
- Compact design and light weight
- One touch zero adjustment function
- Return function in automatic operating mode
- Independent 2-channel output according to user setting
- Use high precision semiconductor pressure sensor. Widely used, when precise pressure control is required, such as semiconductor manufacturing line, medical equipment, automation line and etc.

How to Order

<p>KTD - 600</p> <p>① Series</p> <table border="1"> <tr> <td>KTD-600</td> <td>Digital Pressure Sensor Switch</td> </tr> </table>	KTD-600	Digital Pressure Sensor Switch	<p>② Pressure range</p> <table border="1"> <tr> <td>Nil</td> <td>-0.95 ~ 9kgf/cm² (Pneumatic)</td> </tr> <tr> <td>V</td> <td>-0.97 ~ 0kgf/cm² (Vacuum)</td> </tr> </table>	Nil	-0.95 ~ 9kgf/cm ² (Pneumatic)	V	-0.97 ~ 0kgf/cm ² (Vacuum)
KTD-600	Digital Pressure Sensor Switch						
Nil	-0.95 ~ 9kgf/cm ² (Pneumatic)						
V	-0.97 ~ 0kgf/cm ² (Vacuum)						

Specifications

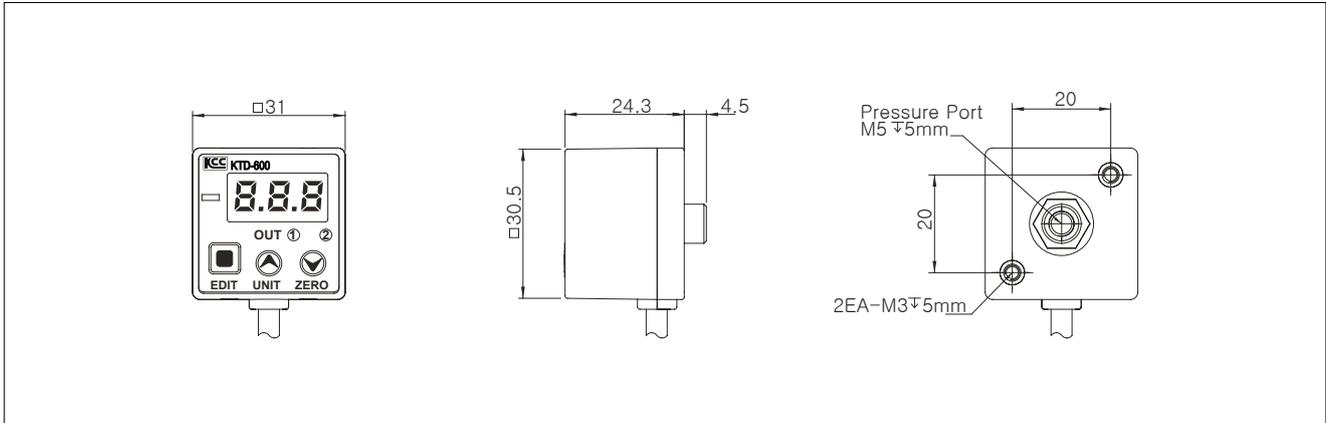
Model	KTD-600	KTD-600V
Pressure type	Compound pressure (Pneumatic)	Negative pressure (Vacuum)
Display pressure range	-0.95 ~ 9kgf/cm ²	-0.99 ~ 0kgf/cm ²
Rated pressure range	-0.95 ~ 9kgf/cm ²	-0.97 ~ 0kgf/cm ²
Proof pressure	2 times of rated pressure	1.5 times of rated pressure
Fluid	Air, Non-corrosive gas	
Power supply	12~24VDC ± 10% (Ripple P-P)	
Current consumption	Below 30mA	
Ambient temperature	0℃~50℃ (at non-freezing status)	
Storage temperature	-40℃~125℃ (at non-freezing status)	
Humidity	30~80%RH (at non-freezing status)	
Output temperature characteristic	-0.1~-0.2% Span/℃ (-20℃~100℃)	-0.2~-0.3% Span/℃ (-20℃~100℃)
Linearity	±0.3% Span	
Response time	1~99 Step (1Step = 5msec)	
Control output	NPN Open collector 2 individual output (Max. load current ≤100mA)	
Analog output	Analog Mode (0~6 Mode) Resolution : 1~5V (≥1/800)	Analog Mode (0~4 Mode) 0~5V (≥1/1000)
Display method	- 1LED (± display), 3 digit 7 segment - (OUT1, OUT2) 2 output displayed by 2 LED	
Material	Case & Panel holder set : PC	
Pressure port	M5 (Built-in)	
Wire	Ø4.2 / 24AWG X 5Core / Approx. 1.5m (±5%)	
Accessory	Manual, Mounting bracket, Panel holder set	
Display pressure unit	kPa, bar, psi	kPa, mbar, psi
Weight	156g	

Function

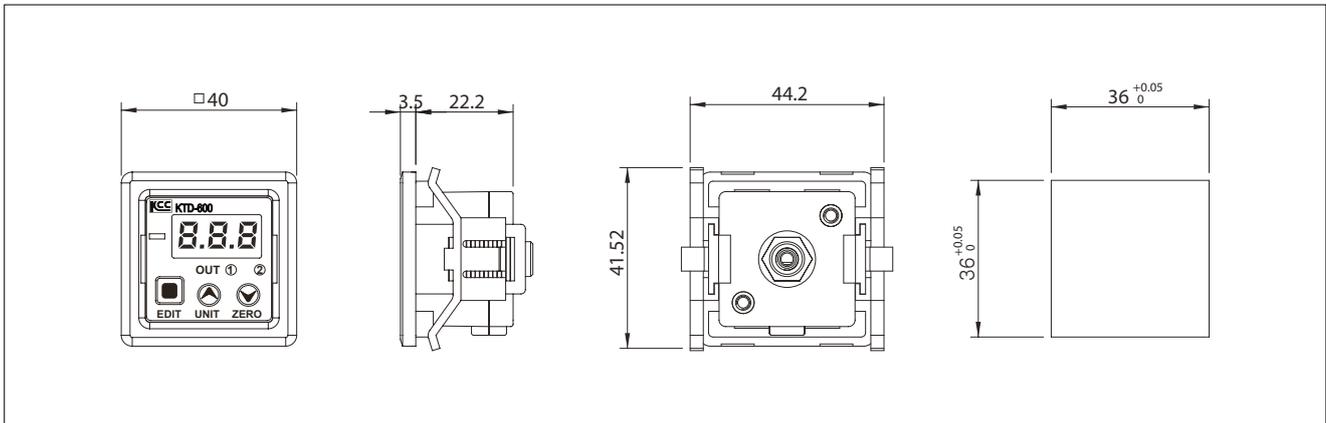
- Change display unit
There are different type of pressure unit. Please select the proper unit depending on application. When changing the display unit, preset value will be calculated according to the display unit.
- Zero point adjustment
This function is to set the display value of pressure at zero when port is opened to atmospheric pressure. Press ZERO key for more than 2sec in RUN mode set value forcibly. When the zero point adjustment is completed, it will return to RUN mode automatically.
- Change response time
It is able to set 100 kinds of response time (5~495ms) and if the response time is getting longer, the sensing value will be more stable.
- Change output mode
There are 4 kinds of control output modes. (Please refer output operation mode).
Output response to cable OUT 1 and OUT 2 according to output mode.
-Control output 1 : Black cable (OUT1)
-Control output 2 : White cable (OUT2)
- Analog output status display
The output of the pressure sensor is indicated by flashing of 2 LEDs.
- OUT 1 is ON, LED 1 will be ON
- OUT 2 is ON, LED 2 will be ON
- Real time display
When advance to Parameter setting mode, if the setting value is changed, the output will change according to the changed value.
- Automatic RUN mode reset
When changing unit, set unit by using UNIT key and it will return to RUN mode automatically after 1sec.
When advance to Parameter setting mode, if any key is untouched for over 10 sec, it will return to RUN mode automatically.
- Analog output
- Analog output cable : Grey cable
- Analog output status : Please refer to analog output mode of each model.

Others
Auto Switch Reference data
Auto Switch
FS
HS
KTD-600
KTD-1000
KDPC
Rotary Joint Reference Data
DR1000
DR2000
DR3000
DR3700
DR5000
DR6000
SRJ
KPF
KSM
KABL
SB
KPV
KVT
KPP

Dimensions

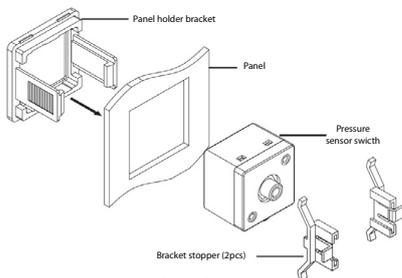


Dimension-Panel Attachment

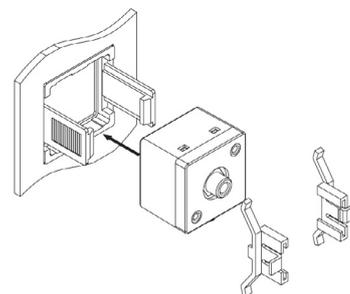


Installation

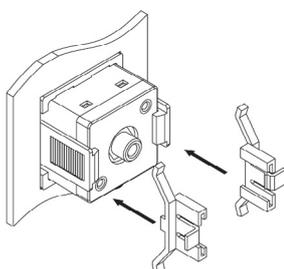
① Mount panel holder on panel.



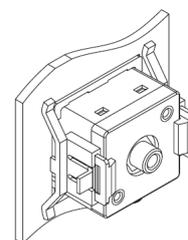
② Insert pressure sensor switch into the panel holder.



③ Mount stopers on panel holder and push them to the end.

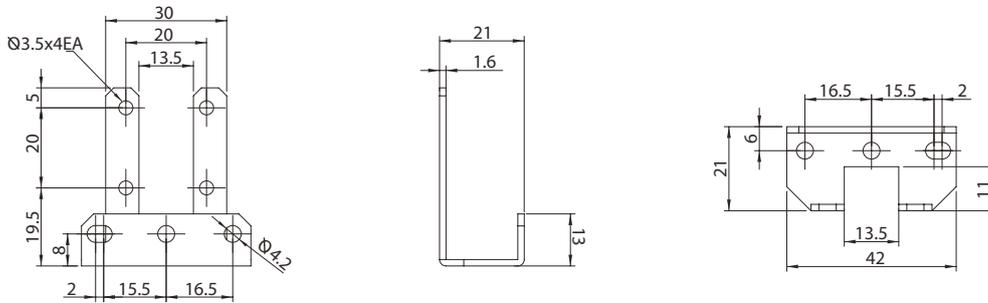


④ Panel mounting is done.

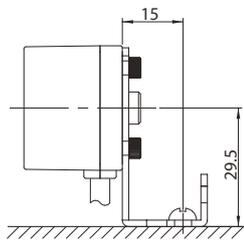


Dimension-Mounting

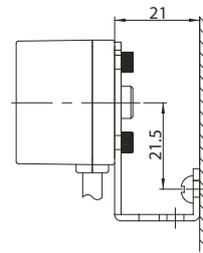
Angle Bracket (Wall and Floor Attachment)



Floor Attachment



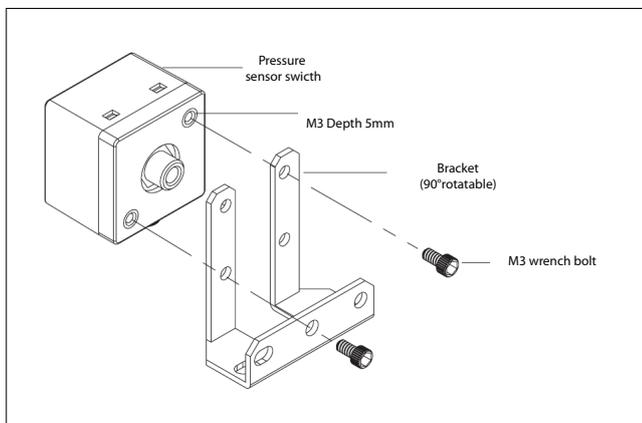
Wall Attachment



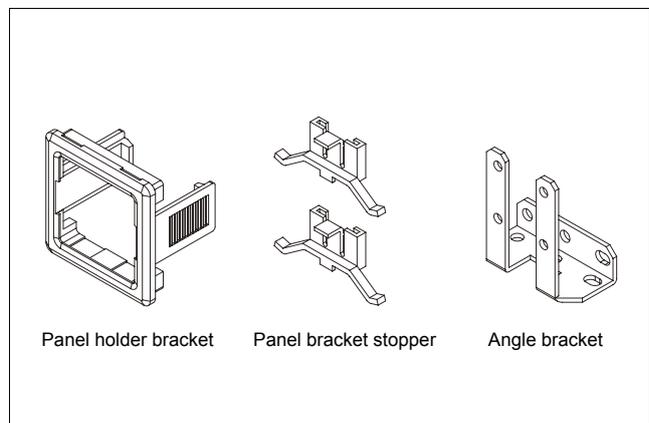
Side Wall Attachment



Bracket Assembly



Mounting Accessory



Others

Auto Switch
Reference
data

Auto Switch

FS

HS

KTD-600

KTD-1000

KDPC

Rotary Joint
Reference
Data

DR1000

DR2000

DR3000

DR3700

DR5000

DR6000

SRJ

KPF

KSM

KABL

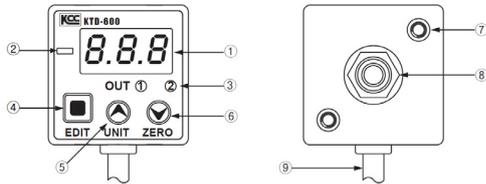
SB

KPV

KVT

KPP

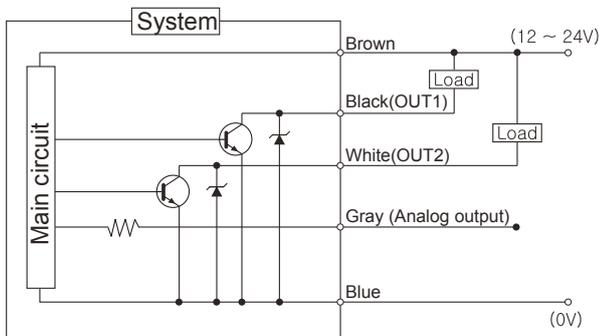
Front & Back Panel Identification



- ① Display (3 digit 7 segment, Red)
: Display detected pressure, every setting value and display Error.
- ② +/- Display (1 LED, Red) : LED ON when negative pressure applied
- ③ Output display (OUTPUT)
: Output display OUT 1 & OUT 2 according to user setting value (P - H, P - L). (LED ON depends on output value)
- ④ EDIT key : Parameter setting mode or preset to RUN mode.
- ⑤ UP/UNIT key
: Operating mode: Select unit
: Setting mode: Set the setting value to upper step
- ⑥ DOWN/ZERO key
: Display pressure zero setting when port is opened to atmospheric pressure at RUN mode by pressing the key for more than 2 sec
: Set the setting value to lower step
- ⑦ INSERT : M3 effective depth 5mm 2EA
- ⑧ Pressure port
: Fitting specifications M5, effective depth 5mm (pressure connection port)
- ⑨ Power & output wire: 5 core power and output wire

Internal Electrical Schematics

- ① NPN open collector (Independent 2 output)



- ① Classify power and output wire
 - * Maximum load current : Below 100mA (Signal)
 - * Equiped back voltage protection circuit
 - * Classify power and output wire

Color	Power and output	Remarks
Brown	DC12 ~ 24V	Power connection
Black	OUT1	Control output 1
White	OUT2	Control output 2
Grey	Analog (Voltage) output	Analog output
Blue	0V	Power connection

Pressure Unit & Display

KTD-600

Pressure Unit	Measurement range	Display		
kPa	-95~900	-95~900		
bar	-0.95~9	-0.95~9.00		
psi	-13.8~130.5	-13.8~130.5		
	Display of value over 100psi	Display	Pressure value	
	A0.0 ~ A9.5 B0.0 ~ B9.5 C0.0 ~ C9.5 D0.0 ~ D0.5	A=10 B=11 C=12 D=13	} Number Substitution A0.0 ~ A9.5 B0.0 ~ B9.5 C0.0 ~ C9.5 D0.0 ~ D0.5	100.0 ~ 109.5 110.0 ~ 119.5 120.0 ~ 129.5 130.0 ~ 130.5

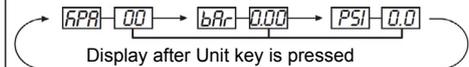
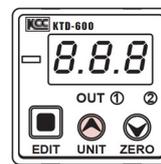
KTD-600V

Pressure Unit	Measurement range	Display		
kPa	0~99.9	0.0~99.9		
bar	0~999	0~999		
psi	0~14.5	0.00 ~ E.50		
	Display of value over 9.99psi	Display	Pressure value	
	A0.0 ~ A9.5 B0.0 ~ B9.5 C0.0 ~ C9.5 D0.0 ~ D0.5 E.00 ~ E.50	A=10 B=11 C=12 D=13 E=14	} Number Substitution A0.0 ~ A9.5 B0.0 ~ B9.5 C0.0 ~ C9.5 D0.0 ~ D0.5 E.00 ~ E.50	-10.00 ~ 10.99 -11.00 ~ 11.99 -12.00 ~ 12.99 -13.00 ~ 13.99 -14.00 ~ 14.50

Unit/Zero Point/Detail Setting

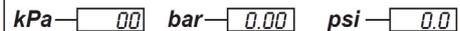
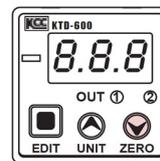
- ① Unit Setting

1. Pressure unit will be shown as in the following figure when UNIT key is pressed during RUN Mode .
2. Please select the proper unit for application. When changing the display unit, preset value will be calculated according to the display unit.



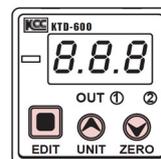
- ① Zero point

1. Press ZERO key for more than 2 sec at atmospheric pressure after removing applied load at RUN Mode.
2. When the zero point adjustment is completed, display will show as in the following figure where pressure unit will be changed according to the setting unit.
3. Display will shows **Er3** when user press ZERO key for more than 2 sec at a load applied state.
4. Doing zero point adjustment regularly can get a more accurate detection value.
5. It will return to RUN mode automatically after zero point setting is done.

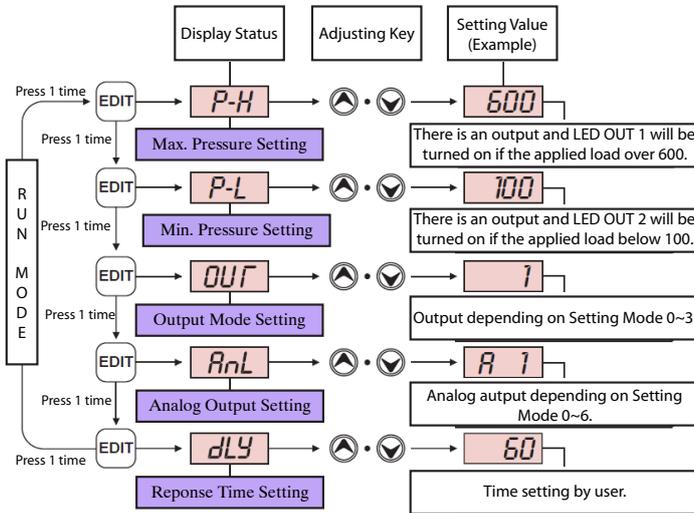


- ① Detail Setting

1. User can do P-H setting, P-L setting, output mode setting, analog mode setting and response time setting through detail setting state.
2. All setting value can be adjusted freely by using UNIT key and ZERO key.
3. The setting value of the figure in the next page shows the output and the status of LED light according to the setting value at Output Mode 1.
4. For output mode and analog output, please refer to the description and output diagram of each setting value.



Setting



- ※ Unable to set value P-H lower than value P-L or value P-L higher than value P-H.
- Min. value of setting pressure ≤ P-L < P-H
- P-L < P-H ≤ Max. value of setting pressure

Reference

1. Set setting value within the rated pressure / output mode / response time range.
2. HI, Lo will be displayed once applied pressure is beyond the maximum measurement range.
3. When error is displayed refer to error section about how to cope with error.
4. Key of setting value is used to change unit and Zero point setting at RUN mode.
5. At RUN mode, when pressure unit is changed, detail setting pressure value will convert automatically to fit in the unit.
6. There are 4 output operation modes (Mode 0~3). If the output mode is set to 0, there will have no output except the display of the applied pressure (Used as a pressure gauge)
7. For analog output, there are mode 0~6 for 600 model and mode 0~4 for 600V model. (Mode 0 has no output)
8. Response time setting (Delay) are as follows:
User can adjust it freely by using number 1~99 displayed in the display part. 1 unit indicates 5msec. Thus, setting value 5 equal to 495msec.
ex) When display value is 60, it represent 60 x 5 =300msec.
9. When a value does not need to be set, by pressing EDIT key it will jump to next setting step.
10. Even at Setting Mode, if the setting value is changed, the output will change according to the changed value.
11. During detail setting, it will return to RUN mode automatically if no button is pressed within 10sec.
12. All setting value will be saved even when power is OFF.

Error

Display	Problem	Remedy
	When the applied pressure exceeds the upper display pressure range up	Apply pressure within display pressure range
	When the applied pressure exceeds the lower display pressure range down	Apply pressure within display pressure range
	If external pressure applied, when adjusting Zero point	Try again after external pressure removing

⚠ Precautions

- Do not use fluid other than air and non-corrosive gases. Flammable and corrosive gases might cause explosion and corrosion.
- Apply pressure should not exceed the proof pressure.
- Do not supply power out of the rating power supply range.
- Wind it up with a insulation tape when an output wire is not used to prevent it connecting with other terminal.
- Beware of misconnection of wire.
- Do not connect wire together with high voltage wire or power wire. Malfunction due to noise might happen.
- Keep it dry from water, oil and organic solvents and etc.
- Do not apply excessive force on the cord and connector and pull them.
- Read the product assembly and installation instruction before assembly and installation.
- Check each accessory and the list before using.
- User is advised to follow above handling precautions as it might cause personal injury and product failure.

Others
Auto Switch Reference data
Auto Switch
FS
HS
KTD-600
KTD-1000
KDPC
Rotary Joint Reference Data
DR1000
DR2000
DR3000
DR3700
DR5000
DR6000
SRJ
KPF
KSM
KABL
SB
KPV
KVT
KPP

Output Operation Mode

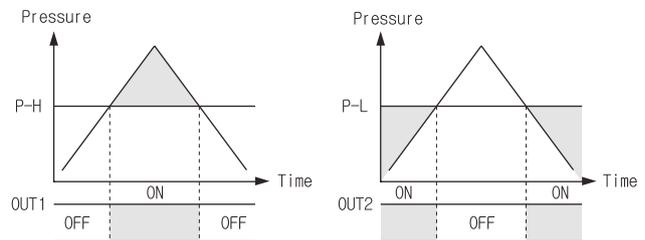
※ This product has 4 output operation modes (Mode 0~3) and an analog output mode. Use suitable mode in accordance to work. For more details about output operation mode, refer to the graph below.

- ※ If the output mode is set to 0, there will have no output except the display of the applied pressure (Used as a pressure gauge)
- ※ Output wire classification
 - Black wire : Control output 1 according to P-H/P-L setting value and output mode.
OUT1/ OUT2 LED will be ON
 - White wire : Control output 2 according to P-H/P-L setting value and output mode.
OUT1/OUT2 LED will be ON
 - Gray wire : Analog output

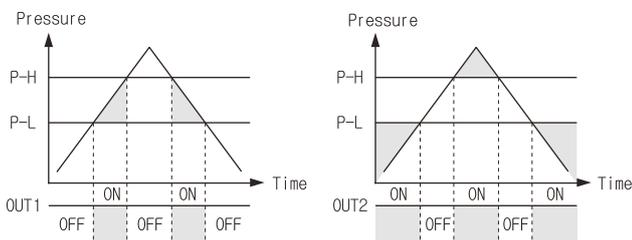
Pressure Output Mode 0

- ※ No Output
- ※ Using as pressure gauge

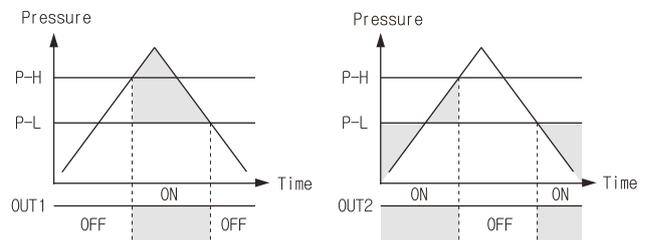
Pressure Output Mode 1



Pressure Output Mode 2



Pressure Output Mode 3



Analog Output

KTD-600 Mode (Compound Pressure)

Pressure Mode	Pressure (Min.) ← Pressure (0) → Pressure (Max.)
Analog Mode 0	None
Analog Mode 1	$1 \pm 0.1V \leftarrow 1.4 \pm 0.1V \rightarrow 5 \pm 0.1V$
Analog Mode 2	$5 \pm 0.1V \leftarrow 4.6 \pm 0.1V \rightarrow 1 \pm 0.1V$
Analog Mode 3	$1 \pm 0.1V \rightarrow 5 \pm 0.1V$
Analog Mode 4	$5 \pm 0.1V \rightarrow 1 \pm 0.1V$
Analog Mode 5	$0 \pm 0.1V \leftarrow 0.6 \pm 0.1V \rightarrow 5 \pm 0.1V$
Analog Mode 6	$5 \pm 0.1V \leftarrow 4.4 \pm 0.1V \rightarrow 0 \pm 0.1V$

KTD-600V Mode (Negative Pressure)

Pressure Mode	Pressure (0kPa) → Pressure (-100kPa)
Analog Mode 0	None
Analog Mode 1	$1 \pm 0.1V \rightarrow 5 \pm 0.1V$
Analog Mode 2	$5 \pm 0.1V \rightarrow 1 \pm 0.1V$
Analog Mode 3	$0 \pm 0.1V \rightarrow 5 \pm 0.1V$
Analog Mode 4	$5 \pm 0.1V \rightarrow 0 \pm 0.1V$