

DPX200

User Manual

DOTECH
SENSING & CONTROL

DOTECH INC.
6F, JOONGANG-ILBO B/D, 30, Dongsan-ro, Darwon-gu, Ansan-si, Gyeonggi-do, KOREA
TEL: +82-31-495-3767 FAX: +82-31-495-3917
www.dotech21.com



1. This product may cause an electric shock in handling. Please do not attempt to open it with power turned on.
 2. This product should be installed in a place fixed secured by a rack or panel.
 3. This product can be used under the following environmental condition.
① Indoor ② Pollution Degree 2 ③ At an altitude of 2000m or below
 4. Power input must be within the designated ranges.
 5. To turn on or turn off power supply for this product, please the circuit breaker or switch of a standard product of IEC 60947-1 or IEC 60947-3 product and install it within a close distance allowing convenient operation by user.
 6. Please be understood that if this product is dismantled or modified discretionary, after sales service will not be able to be provided.
 7. An output wire to be used for this product should be inflammable grade FV1 (V-1 grade or above), the thickness of the wire should be AWG No. 20 or above(0.50mm²).
 8. In order to prevent it from an inductive noise, please maintain the high-voltage wire and power wire separated.
 9. Please avoid installing the product in a place where a strong magnetism, noise, severe vibration and impact exist.
 10. When extending the sensor wire, use a shield wire and do not extend it unnecessary long.
 11. The sensor wire and signal wire should be away from the power and load wires using conduits separately installed.
 12. Please avoid using the product near a device generating strong high frequency noise (high-frequency welding machine, high frequency sewing machine, high-frequency radiotelegraph, high capacity SCR controller)
 13. Product's damages other than those described in the guarantee conditions provided by the manufacturer shall not be responsible by us.
 14. If this unit is used to control machineries (Medical equipment, vehicle, train, airplane, combustion apparatus, entertainment, processing and transportation equipment, elevator and various safety device etc.) enabling to effect on human or property, it is required to install fail-safe device.
- ※ The above mentioned precautions must be observed, and if you fail to do so, it may cause a product breakdown.
※ The specifications, dimensions and etc. are subject to change for enhancement without a prior notice.

1. OVERVIEW



※ FEATURES

DPX200 integrates the functions of high and low pressure switches and gauges. It measures the low pressure of suction and the high pressure of discharge of compressor and outputs the warning signals when the high or low pressure is out of range.

: SPECIFICATIONS(STANDARD MODEL)

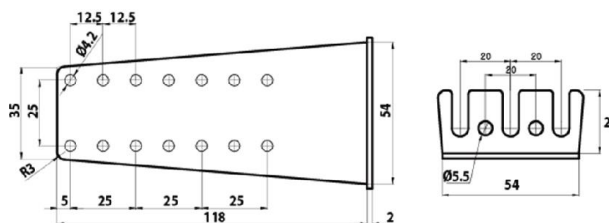
		Description
Power		100 – 240 Vac, 50/60 Hz
Power Consumption		MAX 10 VA
Output		3P Relay Outputs / 250Vac, 30Vdc, 5 A / HPS, LPS, HPC
Pressure Sensors	Measurement Range	-0.10 ~ 1.50 MPa, -0.10 ~ 5.00 MPa
	Accuracy	±1.0 %FS
	Overpressure	150 %FS
	Stability	±0.5 %FS/year
	Shock	20 g sinusoidal, 11 msec
	Vibration	x-y-z directions of 5 -2000Hz / 10g
	Fluid Temperature	-40 ~ 100 °C
	Connection	7/16UNF" / MALE
	Pressure Type	Gauge
Dimensions		159(W)mm X 128(H)mm X 58(D)mm
Operation		Temperature -10~50 °C / Humidity 90%RH or less
Storage		Temperature -20~60 °C / Humidity 90%RH or less

: SELECTION GUIDE

Model	Description
DPX200-HL-00-MPA	Digital Pressure Switch Standard(Pressure Unit: MPa)
DPX200-HL-R4-MPA	Digital Pressure Switch for Communication(RS485 Modbus)
DPX200-HL-00-KGF	Digital Pressure Switch Standard(Pressure Unit: kgf/cm2)
DPX200-HL-R4-KGF	Digital Pressure Switch for Communication(RS485 Modbus)
DPX200-HL-00-BAR	Digital Pressure Switch Standard(Pressure Unit: bar)
DPX200-HL-R4-BAR	Digital Pressure Switch for Communication(RS485 Modbus)
DPX200-HL-00-PSI	Digital Pressure Switch Standard(Pressure Unit: psi)
DPX200-HL-R4-PSI	Digital Pressure Switch for Communication(RS485 Modbus)

- ※ Communication is not supported in standard models.
- ※ Specify the pressure unit when ordering.

: Supplied Contents



Bracket 1ea

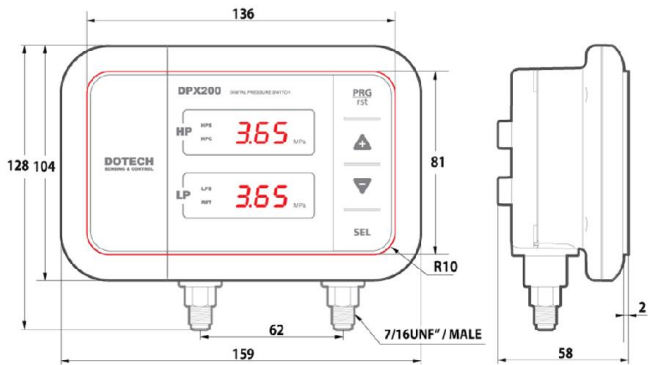


User Manual

※ This item is provided for securing the bracket tightening all bolts please.

2. INSTALLATION

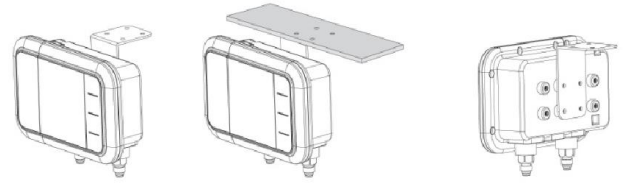
: DIMENSIONS AND MOUNTING(unit: mm)



LP : Low Pressure

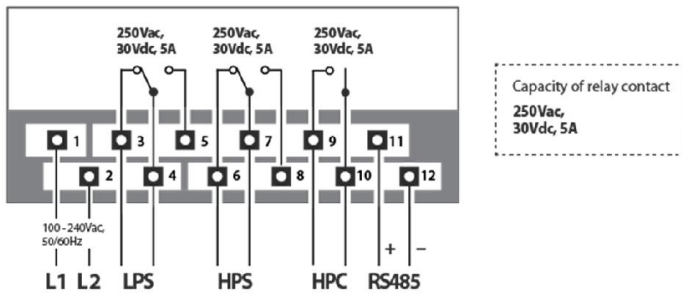
HP : High Pressure

(unit: mm)



※ Please install a siphon tube to protect from pulsating pressure and high temperature contact.

: WIRING DIAGRAM



No	Connection	Description
1	L1	100-240Vac, 50/60Hz Power Input
2	L2	
3	LPS	Open when the low pressure is below lower limit
4		Common signal
5	HPS	Closed when the low pressure is below the lower limit
6		Open when the high pressure is above the upper limit
7	HPC	Common signal
8		Closed when the high pressure is above the upper limit
9	RS485	Open when the high pressure is above the upper limit
10		Common signal
11	RS485	TRX + signal
12		TRX - signal

3. USER INTERFACES

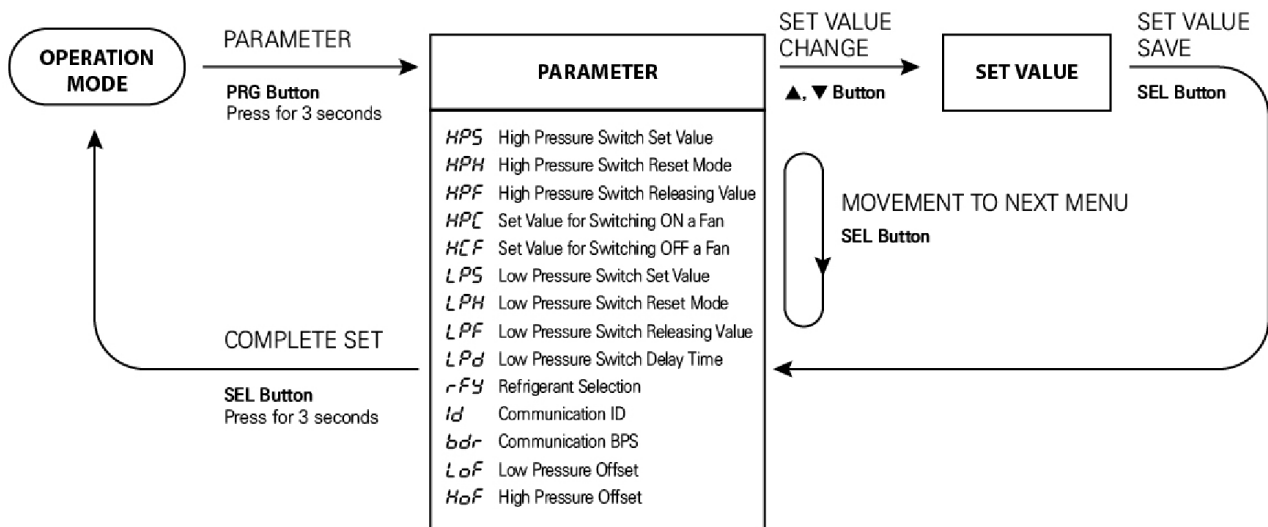
: DISPLAY AND CONTROLS



		Description
LED	HPS	ON/OFF of Output / ON when Overpressure
	HPC	ON/OFF of Output / ON when Fan is Running
	LPS	ON/OFF of Output / ON when Underpressure
	RST	ON when Manual Reset
Button	PRG/rst	Parameter Settings / Manual Reset(if pressed twice quickly)
	▲	Increase or Move Up
	▼	Decrease or Move Down
	SEL	Select & Save / Display of Saturated Temperature
	PRG/rst and ▼	Setup values will be initialized if pushing PRG button and ▼ button for 10 seconds.

4. PARAMETER

: PARAMETER CHANGE



- If there was no input for 3 minutes during setup, it will be returned to operation mode

: PARAMETER TABLE (※ This manual is based on the standard model for MPa and the displays and settings of pressure unit are subject to change depending on the models for other pressure units.)

No	Menu	Code	Unit	Step	Min	Max	Default	CustomSetup
4 0031	High Pressure Switch Set Value	HPS	MPa	0.01	-0.1 0	5.00	2.60	
4 0032	High Pressure Switch Reset Mode (※1) (Manual / Automatic Reset)	HPH	A (0)= Automatic Reset		H (1)= Manual Reset		H (1)	
4 0033	High Pressure Switch Releasing Value	HPF	MPa	0.01	-0.1 0	HPS- 0.01	2.50	
4 0041	Set Value for Switching ON a Fan	HPC	MPa	0.01	-0.1 0	5.00	1.50	
4 0043	Set Value for Switching OFF a Fan	HCF	MPa	0.01	-0.1 0	HPC- 0.01	1.40	
4 0051	Low Pressure Switch Set Value	LPS	MPa	0.01	-0.10	5.00	0.25	
4 0052	Low Pressure Switch Reset Mode (※1) (Manual / Automatic Reset)	LPH	A (0)= Automatic Reset		H (1)= Manual Reset		A (0)	
4 0053	Low Pressure Switch Releasing Value	LPF	MPa	0.01	LPS+ 0.01	5.00	0.35	
4 0055	Low Pressure Switch Delay Time (※2)	LPD	sec	1	0	999	0	
4 0061	Refrigerant Selection (※3)	RFY	R22 (0)=R22 R23 (1)=R23 123 (2)=R-123	124 (3)=R-124 134 (4)=R-134a 404 (5)=R-404a	407 (6)=R-407c 410 (7)=R-410a 507 (8)=R-507		R22 (0)	
4 0063	Communication ID	ID	-	1	1	255	1	
4 0064	Communication BPS	BDR	48 (0)=4800	96 (1)=9600	192 (2)=19200	384 (3)=38400	96 (1)	
4 0071	Low Pressure Offset (※4)	LOF	MPa	0.01	-1.99	1.99	0.00	
4 0072	High Pressure Offset (※4)	HOF	MPa	0.01	-1.99	1.99	0.00	

(※1) Reset mode:

Automatic Reset (A): It will be reset automatically when reaching releasing pressure value.

Manual reset (H): It will not be reset when reaching release pressure value unless users press RST button twice consecutively.

(※2) Low pressure switch delay time :

If output is activated, it maintains ON status during minimum ON time even under the OFF condition.

(※3) Refrigerant selection :

Display saturation temperature in accordance with selected refrigerant.

(※4) Offset :

Offset the differential for pressure sensor.

e.g) If displayed pressure value: 0.20MPa and actual pressure value: 0.22MPa

It is offset by inputting +0.02MPa.

: TRIP / ALARM MESSAGES

No	Menu	Code	Description / Instructions	Response at Detection	Reset Type
1	Internal Parameter Error	5 Y 5	Change any parameters and turn off. Then restart.	Immediate Stop	Automatic Reset
2	High Pressure Sensor Open	HO P	Please check a high pressure sensor because it is open.	Immediate Stop	Automatic Reset
3	High Pressure Sensor Short	H5 H	Please check a high pressure sensor because it is short.	Immediate Stop	Automatic Reset
4	Low Pressure Sensor Open	LO P	Please check a low pressure sensor because it is open.	Immediate Stop	Automatic Reset
5	Low Pressure Sensor Short	L5 H	Please check a low pressure sensor because it is short.	Immediate Stop	Automatic Reset

※ When it alarms, it beeps and all the outputs are cut off. To stop the beep, press the reset.

5. COMMUNICATIONS SPECIFICATIONS

: Communication Model (-R4)

	Description
Transmission line connection	Multiple line
Communications method	RS485 (2-wire, half-duplex)
BPS	BPS default 9600 BPS
Parity, Data, Stop bit	None, 8 Data, 1 Stop
Protocol Type	Modbus RTU MODE
Function Code	Read HOLD REGISTERS (0x03), Preset Single Register (0x06)
Maximum Read Word	16 Word
Media Type	BELDEN 9841 / 9842, LG LIREV-AMESB
Poll interval	100msec

: HOLD REGISTERS

Address	Menu	Unit	Type	Size (Word)	DPX200	MMI	Scale
4 0011	Output status code	-	Digital	INT 16	Refer to bit status below		-
Bit0	High Pressure Switch Set Value	-	Digital	Bit	0 : OFF	1 : ON	-
Bit1	Set Value for Switching ON a Fan	-	Digital	Bit	0 : OFF	1 : ON	-
Bit2	Low Pressure Switch Set Value	-	Digital	Bit	0 : OFF	1 : ON	-
4 0013	Alarm status code	-	Digital	INT 16	Refer to bit status below		-
Bit0	Low pressure sensor faulty	-	Digital	Bit	0 : Normal	1 : Alarm	-
Bit1	High pressure sensor faulty	-	Digital	Bit	0 : Normal	1 : Alarm	-
4 0023	Display of low pressure value	MPa	Analog	INT 16	-0.10 ~ 5.00	-10 ~ 500	1/100
4 0024	Display of high pressure value	MPa	Analog	INT 16	-0.10 ~ 5.00	-10 ~ 500	1/100
4 0026	Display of saturation temperature for low pressure	°C	Analog	INT 16	-150.0 ~ 200.0	-1500 ~ 2000	1/10
4 0027	Display of saturation temperature for high pressure	°C	Analog	INT 16	-150.0 ~ 200.0	-1500 ~ 2000	1/10

※ Pressure Unit Conversion Table

	MPa	bar	kgf/cm ²	psi
1MPa	1	1 x 10	1.0197162 x 10	1.450382 x 10 ²
1bar	1 x 10 ⁻¹	1	1.019716	1.4503824 x 10
1kgf/cm ²	9.80665 x 10 ⁻²	9.80665 x 10 ⁻¹	1	1.4223393 x 10
1psi	6.895 x 10 ⁻³	6.8947 x 10 ⁻²	7.0307 x 10 ⁻²	1