

Digital Pressure Switch



CAUTIONS

# DPX300-F2

## User Manual

**DOTECH**  
SENSING & CONTROL

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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 (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 with 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 PV1 (V-1 grade or above), the thickness of the wire should be AWG No. 20 or above (0.50mm<sup>2</sup>).
  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 unnecessarily 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. Products 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's breakdown.  
※ The specifications, dimensions, and etc. are subject to change for enhancement without a prior notice.

### 1. OVERVIEW



#### ※ FEATURES

- High pressure protection, Low pressure protection, Oil pressure protection, an integrated high pressure fan control
- Automatic / Manual reset, Selection of various refrigerants
- Precise pressure control, Sensor offset, Sensor error detection
- Two high-pressure Fan control outputs

#### : SPECIFICATIONS(STANDARD MODEL)

	Description	
Power	100 – 240 Vac, 50/60 Hz	
Power Consumption	MAX 10 VA	
Output	5P Relay Outputs / 250Vac, 30Vdc, 5 A	
Pressure Sensors	Measurement Range	- 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
	Working Temp.	-40 ~ 100 °C
	Connection	7/16UNF" / MALE
Pressure Type	Gauge	
Dimensions	159(W)mm X 128(H)mm X 58(D)mm	
Weight	490g	
Operation	Temperature -10~50 °C / Humidity 90%RH or less	
Storage	Temperature -20~60 °C / Humidity 90%RH or less	

#### : SELECTION GUIDE

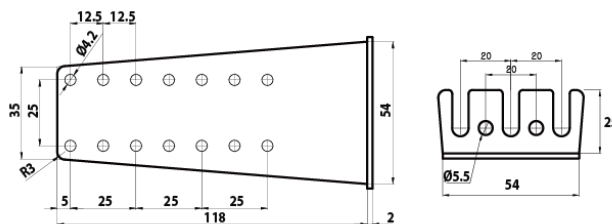
Model	Description
DPX300-HLO-F2-MPA	Two High Pressure Fan outputs (Pressure Unit = MPa)
DPX300-HLO-F2-KGF	Two High Pressure Fan outputs (Pressure Unit = kgf/cm <sup>2</sup> )
DPX300-HLO-F2-BAR	Two High Pressure Fan outputs (Pressure Unit = bar)
DPX300-HLO-F2-PSI	Two High Pressure Fan outputs (Pressure Unit = psi)

※ Specify the pressure unit when ordering.

#### : Supplied Contents



Product



Bracket 1ea

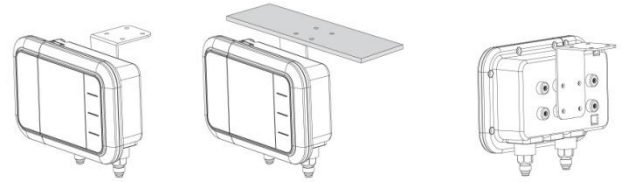
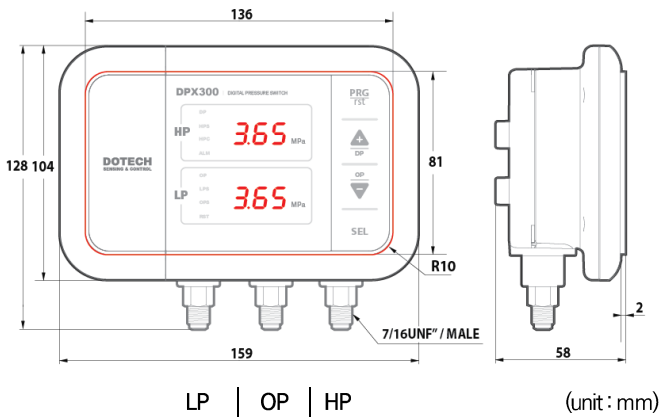


User manual

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

## 2. INSTALLATION

: DIMENSIONS AND MOUNTING(unit: mm)

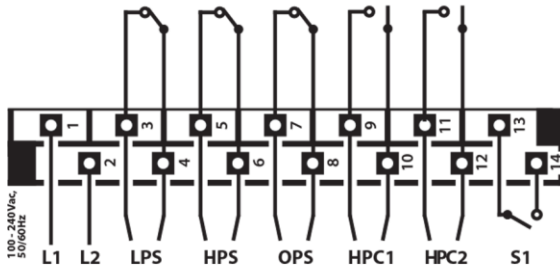


※ Please install a siphon tube to protect from pulsating pressure and high temperature contact.

※ LP : Low Pressure | OP : Oil Pressure | HP : High Pressure

: WIRING DIAGRAM

250Vac, 30Vdc, 5A \* 5ea



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	Open when the high pressure is above the upper limit
6		Common signal
7	OPS	Open when the oil pressure is below lower limit
8		Common signal
9	HPC1	Closed when the high pressure is above the upper limit
10		Common signal
11	HPC2	Closed when the high pressure is above the upper limit
12		Common signal
13	S1	Compressor operation status input switch
14		Operation: Close contact, Stops: Open contacts

## 3. USER INTERFACES

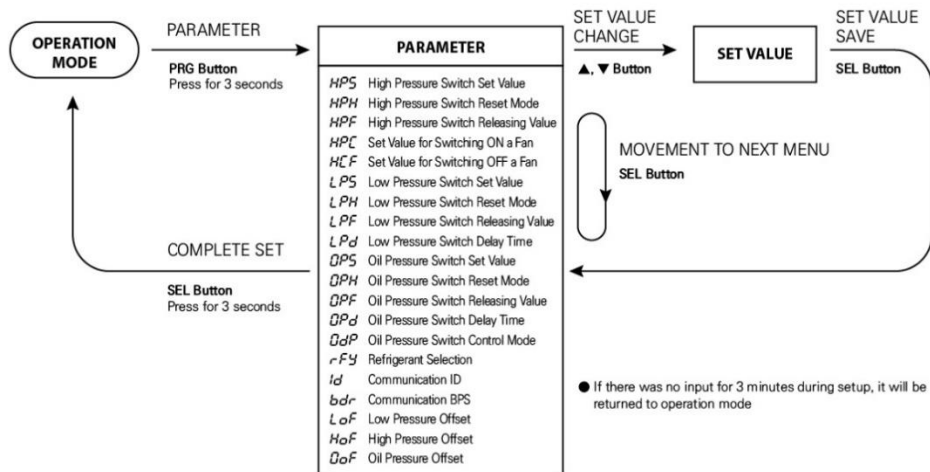
: DISPLAY AND CONTROLS



		Description
LED	DP	On when displaying differential pressure
	HPS	ON/OFF of Output / ON when Overpressure
	HPC	ON/OFF of Output / ON when Fan is Running (HPC1: Green / HPC2: RED)
	ALM	On when alarm occurs
	OP	On when displaying oil pressure
	LPS	ON/OFF of Output / ON when Underpressure
	OPS	On/Off of output / On when oil pressure
	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
	▲ ▼	Display differential pressure value, oil pressure value
	PRG RST ▼	Setup values will be initialized if pushing PRG button and ▼ button for 10 seconds.

## 4. PARAMETER

### : PARAMETER CHANGE



### : PARAMETER TABLE

Address	Menu	Code	Unit	Step	Min	Max	Default	Custom Setup
4 0031	High Pressure Switch Set Value	<i>HPS</i>	MPa	0.01	-0.10	5.00	2.60	
4 0032	High Pressure Switch Reset Mode(※1) (Manual / Automatic Reset)	<i>HPH</i>	<i>R</i> (0)= Automatic Reset		<i>H</i> (1)= Manual Reset		<i>H</i> (1)	
4 0033	High Pressure Switch Releasing Value	<i>HPF</i>	MPa	0.01	-0.10	<i>HPS</i> - 0.01	2.50	
4 0040	Setting differential pressure(HP-LP) alarm(※4)	<i>LHP</i>	MPa	0.01	0.00	1.00	0.50	
4 0060	Differential pressure alarm delay time	<i>dLH</i>	sec	1	0	30	10	
4 0041	Set Value for Switching ON a Fan 1	<i>FC1</i>	MPa	0.01	-0.10	5.00	1.30	
4 0043	Set Value for Switching OFF a Fan 1	<i>FS1</i>	MPa	0.01	-0.10	<i>FC1</i> - 0.01	1.00	
4 0044	Switch output type of High pressure Fan1	<i>Fri</i>	<i>nO</i> (0)= Normal Open		<i>nC</i> (1)= Normal Close		<i>nO</i> (0)	
4 0045	Set Value for Switching ON a Fan 2	<i>FC2</i>	MPa	0.01	-0.10	5.00	1.50	
4 0047	Set Value for Switching OFF a Fan 2	<i>FS2</i>	MPa	0.01	-0.10	<i>FC2</i> - 0.01	1.20	
4 0048	Switch output type of High pressure Fan2	<i>Fri2</i>	<i>nO</i> (0)= Normal Open		<i>nC</i> (1)= Normal Close		<i>nO</i> (0)	
4 0051	Low Pressure Switch Set Value	<i>LPS</i>	MPa	0.01	-0.10	5.00	0.25	
4 0052	Low Pressure Switch Reset Mode(※1) (Manual / Automatic Reset)	<i>LPH</i>	<i>R</i> (0)= Automatic Reset		<i>H</i> (1)= Manual Reset		<i>R</i> (0)	
4 0053	Low Pressure Switch Releasing Value	<i>LPF</i>	-	0.01	<i>LPS</i> + 0.01	5.00	0.35	
4 0055	Low Pressure Switch Delay Time(※2)	<i>LPd</i>	sec	1	0	999	0	
4 0061	Oil Pressure Switch Set Value(※3)	<i>OPS</i>	MPa	0.01	-0.10	5.00	0.10	
4 0062	Oil Pressure Switch Reset Mode(※1) (Manual / Automatic Reset)	<i>OPH</i>	<i>R</i> (0)= Automatic Reset		<i>H</i> (1)= Manual Reset		<i>R</i> (0)	
4 0063	Oil Pressure Switch Releasing Value(※3)	<i>OPF</i>	MPa	0.01	<i>OPS</i> + 0.01	5.00	0.20	
4 0064	Oil Pressure Switch Delay Time	<i>OPd</i>	sec	1	0	999	90	
4 0065	Oil Pressure Switch Control Mode	<i>OdP</i>	<i>O-L</i> (0)=OP-LP		<i>H-O</i> (1)=HP-OP		<i>O-L</i> (0)	
4 0067	Refrigerant Selection	<i>rFY</i>	<i>r22</i> (0)= R22 <i>r23</i> (1)= R23 <i>i23</i> (2)= R-123	<i>i24</i> (3)= R-124 <i>i34</i> (4)= R-134a <i>404</i> (5)= R-404a	<i>407</i> (6)= R-407c <i>410</i> (7)= R-410a <i>507</i> (8)= R-507		<i>r22</i> (0)	
4 0068	Password	<i>Pyd</i>	-	1	1	999	1	
4 0071	Low Pressure Offset	<i>LoF</i>	-	0.01	-1.99	1.99	0.00	
4 0072	High Pressure Offset	<i>HoF</i>	-	0.01	-1.99	1.99	0.00	
4 0073	Oil Pressure Offset	<i>OoF</i>	-	0.01	-1.99	1.99	0.00	

(※1) Reset mode:

Automatic Reset (*R*): 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) Oil Pressure Switch Set Value:

Differential pressure = Oil pressure – Low pressure

When input switch for compressor operation status (S1) is closed (Normally closed contact (N.C)), it becomes an ON condition for  $\alpha PS$  (Oil Pressure Switch Set Value) output if  $dP$  (Differential pressure valve) is less than  $\alpha PS$  (Oil Pressure Switch Set Value). Output is de-activated if  $dP$  (Differential pressure valve) is higher than  $\alpha PF$  (Oil Pressure Switch Releasing Value) after output is activated.

(※4) Setting differential pressure(HP-LP) alarm

If the  $LHP$ (HP-LP) state is maintained for " $dLH$ " time, an alarm is generated.(It works when  $LHP$  and  $dLH$  are not 0)

## : TRIP / ALARM MESSAGE

No	Menu	Code	Description / Instructions	Response at Detection	Reset Type
1	Internal Parameter Error	<i>SYS</i>	Change any parameters and turn off. Then restart.	Immediate Stop	Automatic Reset
2	High Pressure Sensor Open	<i>HoP</i>	Please check a high pressure sensor because it is open.	Immediate Stop	Automatic Reset
3	High Pressure Sensor Short	<i>HSH</i>	Please check a high pressure sensor because it is short.	Immediate Stop	Automatic Reset
4	Low Pressure Sensor Open	<i>LoP</i>	Please check a low pressure sensor because it is open.	Immediate Stop	Automatic Reset
5	Low Pressure Sensor Short	<i>LSH</i>	Please check a low pressure sensor because it is short.	Immediate Stop	Automatic Reset
6	Oil Pressure Sensor Open	<i>OoP</i>	Please check an oil pressure sensor because it is open.	Immediate Stop	Automatic Reset
7	Oil Pressure Sensor Short	<i>OSH</i>	Please check an oil pressure sensor because it is short.	Immediate Stop	Automatic Reset
8	High pressure lower limit	<i>LHP</i>	Please check the high pressure condition because it is low.	-	-

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

### ※ Pressure Unit Conversion Table

	MPa	bar	kgf/cm <sup>2</sup>	psi
1MPa	1	1 × 10	1.0197162 × 10	1.450382 × 10 <sup>2</sup>
1bar	1 × 10 <sup>-1</sup>	1	1.019716	1.4503824 × 10
1kgf/cm <sup>2</sup>	9.80665 × 10 <sup>-2</sup>	9.80665 × 10 <sup>-1</sup>	1	1.4223393 × 10
1psi	6.895 × 10 <sup>-3</sup>	6.8947 × 10 <sup>-2</sup>	7.0307 × 10 <sup>-2</sup>	1