

TECHNOLOGY

**HOLYKELL®**

# **HPT604**

# **LEVEL**

• DATASHEET •

1. Pressure Measurement   **2. Level Measurement**   3. Temperature Measurement  
4. Flow Measurement   5. Display & Control Instruments

# HPT 604 series

# Submersible Digital Pressure Level Transducers & Transmitters

## Applications

- Level Measurement in Bio-Fuels
- Monitoring of Gasoline & Diesel Fuel Tanks
- Level Measurement in Ballast Tanks
- Level Measurement in Ground Water Level
- Monitoring of Irrigation Equipment
- Control of Pumping Stations

## ■ Characters

- MEAS TE pressure cell, 0.25% F.S.,
- Survives Harsh Environments
- EMI/RFI Protection
- Custom level ranges from 50cm to 500m
- Optional PT100 temperature measurement
- IP68 full sealed plastic waterproof design
- CE, RoSH and ATEX Approved
- Custom PU, PE or PTFE cable lengths



RoHS

## Profiles

HPT604 series digital pressure level transducer with high stable and reliable, which use USA TE pressure chips and high accurate circuit board into the stainless steel housing. Integrated construction and standard signal provide the user easy and convenient application in the local working place. The special cable connects with housing, can be immersed into the media for a long time.

HPT604 designed incorporating with monolithic computer technology and sensor digital conversion technology, which core component adopts 24-bit AD MCU micro-processor to ensure high quality of the transducer relaying on its strong function and high speed operation capacity.

The overall designed framework is to meet the requirements of increasingly enhanced industrial site application with a view to reliability, stability, high accuracy and the product also features strong function and without manually operating device to ensure good interaction. Application digital signal processing technology is made for good disturbance immunity. It's also feature zero point automatic stable follow up capacity and temperature automatic compensation.

Holykell can provide a cost effective solution for level monitoring for a variety of applications. Welcome to your inquiry.

## Measuring range

Measuring range	
bar	0 to 0.05 ... 0 to 50
inWC	0 to 20 ... 0 to 20000
psi	0 to 1.0... 0 to 725
mH2O	0 to 0.5 ... 0 to 500

When choosing the PTFE cable, only measuring ranges up to 0 ... 10 bar, 0 ... 150 psi and 0 ... 100 mH<sub>2</sub>O are available.  
The given measuring ranges are also available in mbar, kPa and MPa

## Materials

Wetted Parts	Standard	Option
Case and sensor	Stainless steel 316	Ceramic Capacitor
Protection cap	Stainless steel 304	316/PTFE/PVC
Cable	PUR	PTFE

## Mounting position

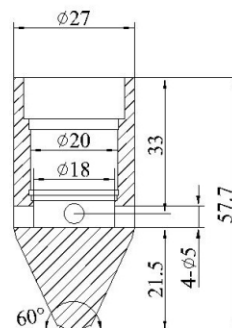
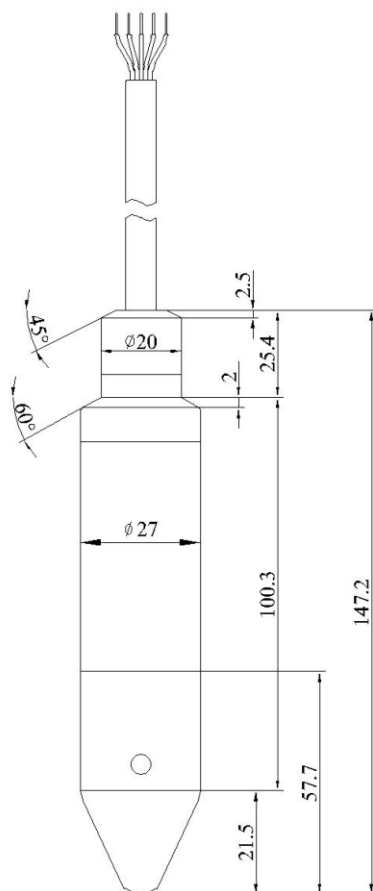
Calibrated in vertical mounting position with pressure connection facing downwards.

### Specifications

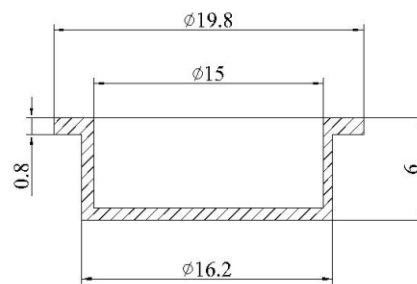
Ambient Temperature: 25°C (unless specified)

Parameter	HPT604					
Pressure Range	0-0.05 Bar.....50 Bar / 0-0.5M.....500M H2O Optional (See the P1 page description)					
Overload	200% F.S.					
Burst Pressure	300% F.S.					
Accuracy: (Linearity Hysteresis Repeatability)	≤ ±0.1%F.S    ≤ ±0.15%F.S    ≤ ±0.25%F.S Including non-lin., rep. and hys. Optional					
Long Stability	Standard: 0.1%F.S±0.05%/Year; Max: 0.15%F.S±0.05%/Year					
Working Temp	-30°C~80°C or -40°C~100°C(Customized)					
Storage Temp	-40°C~125°C					
Temperature Compensation	Standard:-10°C~60°C or by Customized					
Medium compatible	Compatible with 316L Stainless Steel					
Output	Rs485 Modbus RTU or RS232	4~20mA Hart output	4~20mA level + 4~20mA temp	4~20mA level + Relay output	4~20mA level + Temp Output (Ω)	Rs485 Modbus Level+ RS485 Modbus
Power Supply	10~30 Vdc (2.7-5.5Vdc optional)	12~30 V DC (7-30Vdc optional)	12~30 V DC (7-30Vdc optional)	12~30 V DC (7-30Vdc optional)	12~30 V DC (7-30Vdc optional)	10~30 Vdc (2.7-5.5Vdc optional)
Polarity protection	yes	yes	yes	yes	yes	yes
Baud rate	9600 (standard), 2400,4800,19200 by customized.					
Data format	1 start bit, 8 data bits, 1 stop bit					
Sampling rate	10 points/second to 1 point/50 minutes					
Resolution	20 bit 10ppm					
Insulate resistance	>100M Ω @50V dc					
Zero Temp. Drift	Typical: 0.03%FS/°C, Max: 0.1%FS/°C					
FS Temp. Drift	Typical: 0.002%FS/°C, Max: 0.1%FS/°C					
Electronic connection	Fixed cable and water proof IP68					
Response time	≤4 to 10 ms (standard); ≤1 ms (Customized)					
Pressure Type	Gage pressure; Sealed gage and absolute optional.					
Certificate approving	ATEX intrinsic safety or ExdIICT6, TUV RoHS and CE Certificate approving					
EMC Standard	EN 61326-1:2013; EN 61326-2-3:2013 EN 61000-6-2:2005; EN61000-6-4:2007+A1					
Lighting Protection (optional functions)	None (standard type); Air conducts withstand voltage 8000V Shell and Cable conduct withstand voltage 4000V. This function is customized.					
Cable optional	Cable materials are optional according request, we offer 3 type special cable as follow: PE Cable ( Water Proof ) ; PUR Cable ( Oil Proof ) ; PTFE Cable ( Anti-Corrosive )					
Temperature type	PT100, K, J type thermocouple customized.					

## Dimensions and Drawing



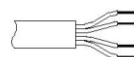
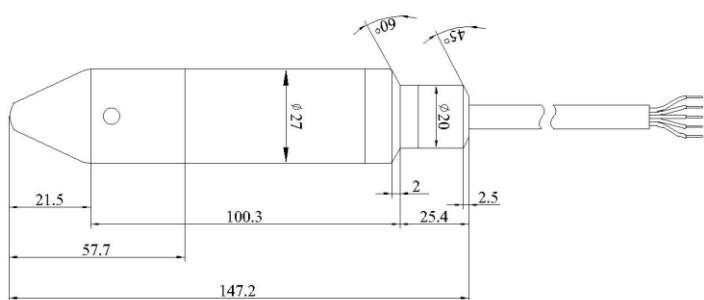
### Taper Cover



### Stainless Steel Fliter

Unit: mm

## Electronic Connections



Directly sealed cable		
Rs485 RTU Modbus	Red	Vcc+
	Green	0Vcc-(GND)
	Yellow	RS485A
	Black	RS485B

S=Signal, Vcc=Power Supply, GND=Vcc-&S-

### How to Order

#### 1. Range Selection Table:

00	0~0.5	01	0~1.0	02	0~1.1	03	0~1.2	04	0~1.3	05	0~1.4	06	0~1.5	07	0~1.6	08	0~1.7
09	0~1.8	10	0~1.9	11	0~2	12	0~2.1	13	0~2.2	14	0~2.3	15	0~2.4	16	0~2.5	17	0~3
18	0~4	19	0~5	20	0~6	21	0~7	22	0~8	23	0~10	24	0~12	25	0~15	26	0~16
27	0~20	28	0~25	29	0~30	30	0~35	31	0~40	32	0~50	33	0~60	34	0~80	35	0~100
36	0~150	37	0~200	38	0~250	39	0~300	40	0~500	X	By Customized						

Kindly according to your application select suitable range code , Example: code 19 = 5 .

Unit of measure select on the Part Number Selection Table . Example: Code F=m Fuel , that's 5m Fuel

#### 2. Part Number Selection Table:

<b>HPT604</b>	<b>19</b>	<b>F</b>	<b>G</b>	<b>E15</b>	<b>S10</b>	<b>D3</b>	<b>TF</b>	<b>1</b>	<b>002</b>
Selection Type									
Range	Range reference to range selction table code								
Pressure & Level Units	H=m H2O (Min: 0.5 mH2O; Max:500 mH2O ) F=m Fuel (Min: 0.5 m Fuel; Max:500 m Fuel ) B=Bar (Min: 0.05Bar Max: 50Bar) P=Psi (Min:1Psi; Max:725Psi) K= kPa (Min:5 kPa; Max:5000 kPa) I= inWC (Min: 20 inWC; Max: 20000 inWC ) MB= mbar (Min: 50 mbar Max: 50000 mbar)								
Pressure type	G=Gauge/Relative pressure type (universal) A=Absolute pressure (customized)								
Signal Output	E14= 4-20mA + HART 2 wires E13=I2C Bus E21=4-20mA level + 4-20mA Temp E23= 4-20mA level + Relay output X= By Customized								E11= RS485 MODBUS RTU E15= RS485 Level + RS485 Temp E12=RS232 E22= 4-20mA level + temp resistive signal
Power Supply	S3=24 V DC (standard) S10=12~30 V DC S16=3.3-5.5 V DC (for code E11)								S5=12 V DC S6=5 V DC (for code E11) S17=10~30 V DC (for code E11)
Measuring Medium	CW= Water D3= Diesel, density 0.85 HW= Max 100 degree C geothermal water X=Others Liquid and Density By Customized								D1= Diesel, density 0.84 D4= Diesel, density 0.86 D2= Diesel, density 0.83
Others Function (Optional)	TF= With Tapered Filter Covers TA =Titanium alloy materials (high cost!) AN= Anti-corrosion type (high cost!) LP=Lightning protection EM=1/2"NPT male Electronic connector mounting								PT= PTFE materials cap AW=Additional weight
Accuracy	1=0.5%F.S 2=0.25%F.S 3=0.1%F.S (high cost!) 4=0.15%F.S(by customized)								
Cable length	001= Cable 1M X= By Customized								002= Cable 2M 003= Cable 3M

### Accessories

	Description	Order number
	Liquid level display control device with all kinds of liquid level sensor, measurement according to liquid level, and according to the setting of the container structure and size and the density of liquid, calculation, display liquid volume or quality	0008
	NPT adapter The 316 SS G1/2 adapter replaces the removable protective cap and converts the threads to 1/2"NPT male external, 1/4" female internal threads.	0001
	Surge Protector (Lightning Arrestor)14052336 This DIN rail mounted surge protector is designed to protect PMC transmitters to a maximum discharge current of 20 kA.	0007
	Conduit adapter 316 SS 1/2" NPT male cable conduit adapter. Must be factory installed	0011
	Terminal box The terminal box, with IP 67 ingress protection and watertight ventilation element, provides a moisture-free electrical termination for the submersible pressure transmitter. It should be mounted in dry environment or directly in the switch cabinet.	0003
	Additional weight The additional weight increases the dead weight of the submersible pressure transmitter. It simplifies the lowering into monitoring wells, narrow shafts and deep wells. It effectively reduces negative environmental influences on the measuring result from the measured medium (e.g. turbulent flow).Stainless steel 316L, approx. 500 g, length (L) 130 mm	0009
	<b>Adapter Converter</b> It is able to convert RS-232 signal to RS-485 balanced differential signal and extend the communication distance to 1.2km.It uses a particular pump to gain power from RS-232 signal (RTS, DTR, TXD) without initializing the RS-232 series interface.This interface converter does this without requiring any AC or DC power.	0005
	<b>Desiccant drying cartridge</b> Desiccant Pack installed on Vented Transducer cable.The cartridge will have to be field replaced as site environment requires.	0010

### Ordering information

Model / Measuring range / Output signal / Temperature measurement / Cable material / Cable length / Case / Lightning protection / Accessories