

<b>Yaw Pitot-V4</b>	
YAW PITOT PRESSURE AND TEMPERATURE SENSOR FOR CAN BUS	
Ref.: YAW PITOT V4-##-###/##-###	
SN: P#####	Software version: v#.##

Texys sensors are designed for data recording. If the user wants to include this sensor in a closed loop system or active control, he must assume all responsibility.

Air Temperature		
Range	+5 to +105	°C
Accuracy	± 1	°C
Resolution	0.1	°C
Sampling frequency	10	Hz
Output frequency	10	Hz
Proof pressure	1.7	Bar
Calibrator	FLUKE 753	
Static (atmospheric) pressure		
Range	600 to 1200	mbarA
Accuracy	± 3	mbar
Resolution	0.01	mbar
Sampling frequency	200	Hz
Output frequency	1, 5, 10, 50, 100 or 200	Hz
Proof pressure	20	BarA
Calibrator	Mensor CPC4000	
Differential Pressures		
Range	-50...+50 or -76...+76	mbar
Sensitive Element	Piezo-resistive cells	
Resolution	0.01	mbar
Max offset error (from 5°C to 105°C)	±0.15	mbar
Max hysteresis and non-repeatability error	±0.15	mbar
Max non-linearity error	±0.1	% FS
Noise	At 10Hz	3
	At 200Hz	10
Sampling frequency	200	Hz
Output frequency	1, 5, 10, 50, 100 or 200	Hz
Calibrator	Mensor CPC4000	
Yaw angle		
Range	-40 to +40	°
Typical accuracy at 1Hz	±2 (from -25° to +25°)	°
	±4 (from ±25° to ±40°)	
Board Temperature		
Range	+5 to +105	°C
Accuracy	± 0.3	°C
Resolution	0.1	°C
Sampling frequency	10	Hz
Output frequency	10	Hz
Common		
CAN type	2.0A or 2.0B	
Parameters	Identifiers, Baud rate, Frequency, Termination resistor 120Ω	
Baud rate	125k to 1Mbps	
Supply Voltage (reverse polarity protection)	6 to 30V	V
Max supply Current (at 12V)	29	mA
Dimension	See drawing	
Material	Aluminum and inox	
Weight	110 (for 150mm tube)	g
	120 (for 300mm tube)	
Box protection	IP64	
Vibration test	20Gpp5'	
Shock	500	G
Operating Temp	+5 to +105	°C
Storage Temp	-40 to +125	°C

Sensor Readings		
Air Temperature	at	°C temperature prob
	at	°C temperature prob
Front Differential Pressure	at	0 mbar
	at	35.00 mbar
	at	70.00 mbar
Yaw Differential Pressure	at	-70.00 mbar
	at	-35.00 mbar
	at	0 mbar
	at	35.00 mbar
	at	70.00 mbar
Static Pressure	at	700.00 mbar
	at	1100.00 mbar

Connector: AS4H06-05PN-HE

Mating connector: ASL606-05SN-HE

Pin	Function
1	Supply
2	0V
3	CAN Low
4	CAN High
5	Reserved (do not connect)

CAN Data parameters			
CAN type	2.0A	-	
Baudrate	1M	bps	
Frequency	50	Hz	
Rx trig ID	7F0	Hex	
Tx01 frame ID	3F0	Hex	
Tx02 frame ID	3F4	Hex	
Tx03 frame ID	0x0000 (disabled)	Hex	
CAN 120 Ω termination	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no	-
Temperature Unit	<input checked="" type="checkbox"/> °C	<input type="checkbox"/> °F	-
Enable Auto-Zero command	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	-

Ordering ref.:

YAW PITOT V4 - Range(mbar) - L(mm)/α(°) - SPP

50      150/90  
76      300/90

Optional output static pressure port

Ex: YAW PITOT V4 - 76 - 150/90

# CAN overview

## Data output

Tx Frame #1 (1Hz to 200Hz output rate)

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x03F0 (default)	Front Pressure MSB	Front Pressure LSB	Yaw Pressure MSB	Yaw Pressure LSB	Yaw Angle MSB	Yaw Angle LSB	Absolute static pressure MSB	Absolute static pressure LSB
	Front Differential Pressure 0.01 mbar/bit (signed integer 16bits)		Yaw Differential Pressure 0.01 mbar/bit (signed integer 16bits)		Estimated Yaw Angle (0.1deg/bit) (signed integer 16bits)		Absolute static pressure 600mbar + 0.01 mbar/bit (unsigned integer 16bits)	

Tx Frame #2 (10Hz output rate)

ID	Byte 0	Byte 1	Byte 2	Byte 3
0x03F4 (default)	Air Temperature MSB	Air Temperature LSB	Board Temperature MSB	Board Temperature LSB
	Air Temperature 0.1°C/bit or 0.1°F/bit (signed integer 16bits)		Board Temperature 0.1°C/bit or 0.1°F/bit (signed integer 16bits)	

Tx Frame #3 (1Hz output rate, disabled by default)

ID	Byte 0	Byte 1	Byte 2	Byte 3
Tx03 Frame ID	Unsigned int 32bits MSB first			
	Serial number			

## Auto-Zero command

Command input frame

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x07F1	0xFF	-	-	-	-	-	0x00 or 0x01	0x01

0x00: volatile autozero  
0x01: non-volatile autozero

Acknowledge output frame

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x07F3	0xFF	Serial Number				0x00	0x00	0x01

This command can be used to reset the 2 pressure sensors channels. This mechanism can be enabled or disabled (please refer to “Enable Auto-Zero command” of the CAN parameters tab). Each time the sensor will receive the above CAN frame, the autozero function will be launched (except during first second after power-on). When autozero function is launched, a “customer offset” is set up and added for each channel on top of factory calibration.

If Byte 6 value is 0x00:

Those “Customer offsets” will be stored in volatile memory. Therefore, they will be lost when switching OFF the sensor and they will be initialized to 0 when switching ON the sensor.

If Byte 6 value is 0x01:

Those “Customer offsets” will be stored in non-volatile memory. Therefore, they will be saved in memory when switching OFF the sensor.

## Absolute pressure offset adjustment

Command input frame

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x07F1	0xFF	-	MSB	LSB	-	-	-	0x02
	Desired absolute static pressure 600mbar + 0.01mbar/bit (unsigned integer 16bits)							

Acknowledge output frame

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x07F3	0xFF	Serial Number				0x00	0x00	0x02

This command can be used to adjust the offset on absolute pressure static channel. This mechanism can be enabled or disabled (please refer to “Enable Auto-Zero command” of the CAN parameters tab). Each time the sensor will receive the above CAN frame, the offset adjustment function will be launched (except during first second after power-on). When offset adjustment function is launched, a “customer offset” is set up and added for each channel on top of factory calibration. This “Customer offset” will be stored in non-volatile memory. Therefore, they will be kept in memory when switching OFF the sensor.

## Changing parameters

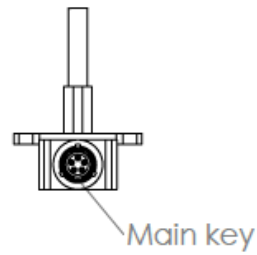
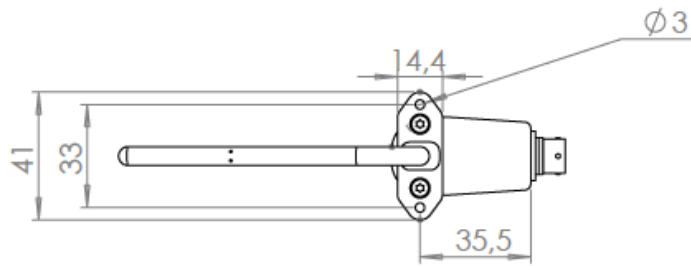
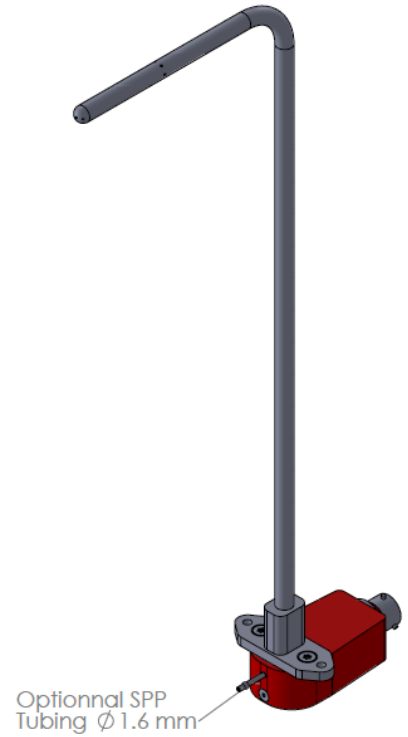
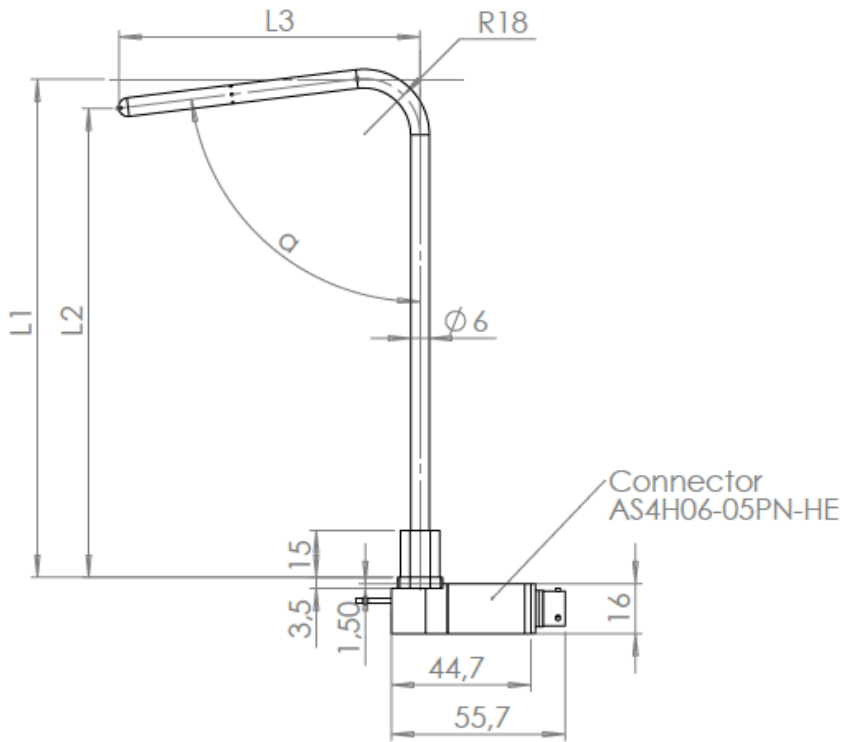
Must be setup according to Texense's CAN protocol, or by using the Texense Android Smart Tool (tAST®) with your android device. Contact us at [info@texense.com](mailto:info@texense.com)

CAN parameters:

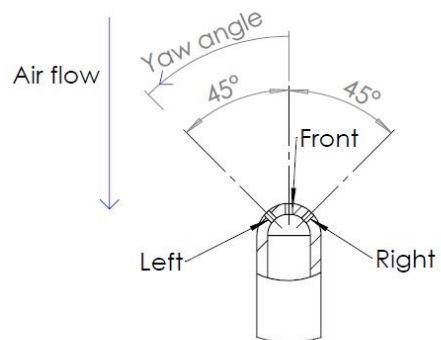
Address	Parameter	Raw values	values	Comments	
0x00	CAN type A or B (11 or 29bits ID)	0x00	CAN2.0A (standard)	default	
		0x10	CAN2.0B (extended)		
0x01	CAN baudrate	0x00	1Mbps	default	
		0x01	500 Kbps		
		0x02	250 Kbps		
		0x03	125 Kbps		
0x02	CAN output frequency	0x00	Rx frame trig	Request mode - 20Hz max.	
		0x01	1 Hz		
		0x02	5 Hz		
		0x03	10 Hz	default	
		0x04	50 Hz		
		0x05	100 Hz		
		0x06	200 Hz		
0x03	Rx trig frame ID	if CAN2.0A: 0 to 0x7F0		MSB	Default 0x07F0
0x04		if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		LSB	
0x05	Tx01 frame ID	if CAN2.0A: 0 to 0x7F0		MSB	Default 0x03F0
0x06		if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		LSB	
0x07	Tx02 frame ID	if CAN2.0A: 0 to 0x7F0		MSB	Default 0x03F4
0x08		if CAN2.0B: 0 to 0xFFFF (except 0x7F1 and 0x7F3)		LSB	
0x09	CAN termination 120Ω resistor	0	Not connected	default	
		1	Connected		
0x0A	Enable Auto-Zero command	0	Disable		
		1	Enable	default	
0x0B	Temperature Unit	0	Fahrenheit (0.1°F / bit)		
		1	Celsius (0.1°C / bit)	default	
0x0C	Tx03 frame ID	if CAN2.0A: 1 to 0x7F0		Default: 0x0000 (disabled)	
0x0D		if CAN2.0B: 1 to 0xFFFF (except 0x7F1 and 0x7F3) Frame disabled if 0x0000.			

For complete information, contact us at [info@texense.com](mailto:info@texense.com)

**Mechanical design:**



L (mm) ordering	α (°) ordering	L1 (mm)	L2 (mm)	L3 (mm)
150,0	90,0	150,0	150	93
150,0	80,0	150,0	134	92
150,0	70,0	150,0	117	87
200,0	90,0	200,0	200	93
200,0	80,0	200,0	184	92
200,0	70,0	200,0	167	87
300,0	90,0	300,0	300	93
300,0	80,0	300,0	284	92
300,0	70,0	300,0	267	87



$$\text{Yaw angle} = f((P_{\text{left}} - P_{\text{right}}) / (P_{\text{front}} - P_{\text{static}}))$$

Accuracy:

- Length: ±2mm
- Angle: ±1°