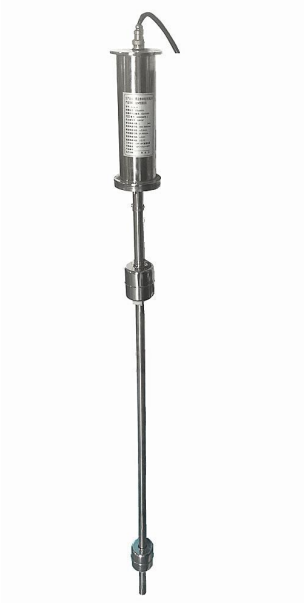
Magnetostrictive Probe (SYW-A)



●The probe consist of:

Fully enclosed magnetostrictive probe.

Electronic Pod using for data measuring and transforming.

Floater made according to the product.

●Features:

Safety: ExiaIIBT4 (Intrinsically safe) issued by PCEC

Accuracy: level accuracy is ±0.3mm

Stability: strong anti-jamming ability

Efficiency: less than 1 second to test one tank.

●Probe Performance

Item	SYW-A
Purpose	To measure product level, water level and temperature
Titles of medium	Gasoline, diesel, kerosene, ethanol , water etc.
State of medium	Liquid
Explosion-proof grade	ExiaIIBT4 (Intrinsically safe)
Pressure range	-0.02Mpa~0.6Mpa
Certificate	PCEC Conformity Certificate of Explosion-proof
Temperature	-40℃ ~ 70℃
Product Level Accuracy	±0.3mm

Water Level Accuracy	±0.3mm
Temperature Accuracy	±0.2℃
Height Resolution	0.023mm
Repeatability	±0.1mm
Temperature Effect	Error<0.2mm
Vibration Effect	Error<0.5mm
Lowest Product Inactive Zone	2.5'' floater-180mm
Lowest Water Inactive Zone	2.5'' floater-25mm
Measured Variable	Product level, interface level and temperature of 5 sensors and average temperature
Measure Range	600~4000mm
Method of Communication	RS-485
Probe Material	1Cr18Ni9Ti
Power Supply	+24 ~ 26VDC
Protection Class of Probe Canister	IP67
Max Communication Distance	1200m

Probe MODBUS RTU（2.0M）

1. Introduction：

Guihe Probe adopt Modbus RTU RS485 communication method.
Baud Rate 9600
Frame format：Start bit 1，Data bits 8，Stop bits 1，Total 10. No parity (N)

Probe received data format：

address	Function Code	The first register address high	The first address register low	High number of registers to read	The low number of registers to read	CRC low byte	CRC high byte

Probe upload the data format

address	Function Code	Register Bytes	Data High Byte	…… …… …	Low-byte data	CRC low byte	CRC high byte

Function code: 04

1. Read the level, interface and temperature values
2. When the inquiry address is 0(broadcast mode) , connect only one probe, read the probe address.

Function Code:06

When the inquiry address is 0(broadcast mode) , connect only one probe, modify the probe address,no matter whatever the original address is.

Address： probe address 0x01-0xFF
Read The number of registers：Unit is Word（2 bytes）

2：Response time：

data acquisition response time need 1000ms

3：04 Function Code Example：

1.Read level, interface and temperature, the content and format of the data returned

register address	Register contents
0000-0001	Fuel level (4byte) unit：㎜ float type of data Type Number：10007
0002-0003	Water level (4byte) unit：㎜ float type of data Type Number：10007
0004-0005	Fuel average temperature (4byte) unit：℃ float type of data Type Number：10007
0006-0007	A point temperature (4byte) unit：℃ float type of data Type Number 10007
0008-0009	B point temperature (4byte) unit：℃ float type of data Type Number 10007

000A-000B	C point temperature (4byte)unit：℃	float type of data	Type Number 10007
000C-000D	D point temperature (4byte)unit：℃	float type of data	Type Number 10007
000E-000F	E point temperature (4byte)unit：℃	float type of data	Type Number 10007

For example, the probe address is 2
Host query:
02 04 00 00 00 10 F1 F5
Command returns the probe response:
02 04 20 0E 45 B2 49 A5 44 95 1C 91 41 00 80 91 41 00 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 AD CA
02（Probe Address）04（Function Code）20（number of bytes of data received）
0E 45 B2 49 (fuel level 10007 Data Format The actual value is float 45 0E 49 B2 Converted to decimal is 2276.5mm)
A5 44 95 1C(water level 10007 Data Format The actual value is float 44 A5 1C 95 Converted to decimal 1320.7mm)
91 41 00 80 (Fuel average temperature10007 Data Format The actual value is float 41 91 80 00 Converted to decimal 18.1℃)
91 41 00 80 (a point temperature 10007 Data Format The actual value is float 41 91 80 00 Converted to decimal 18.1℃)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 （b c d e point temperature is 0℃）
AD CA （CRC check）
2. When the query address is 0（broadcast mode）,connect only one probe, read the probe address.

Host The query：
00 04 00 20 00 01 31 D1
the content and format of the probe data returned
00 04 02 00 07 C5 32
00（broadcast mode）04（Function Code）
02 (The number of bytes of data received) 00 07（Probe Address）C5 32（CRC check）

4：06 Function Code Example： Modify address probe, Restore Factory Address。

parameter	MODBUS Register Address（16 byte）	data
Change address	00 20	Data

For example, the address of the probe is 2：
Host query：
00 06 00 20 00 07 C8 13
Command returns the probe response
00 06 00 20 00 07 C8 13
00（broadcast mode）06（Function Code）
00 20 (Register Address) 00 07（new probe address）C8 13（CRC check）

5、Measurement data types：

Type numbers refer to the following :

NO	type of data	Identifiers	Byte Number	The number of registers	value	Memory byte
10001	16-bit unsigned integer	UINT16	2	1	AB	AB
10002	16-bit signed integer	INT16	2	1	AB	AB
10003	32-bit unsigned integer_HL	UINT32_HL	4	2	AB CD	CD AB
10004	32-bit unsigned integer_LH	UINT32_LH	4	2	AB CD	AB CD
10005	32-bit signed integer_HL	INT32_HL	4	2	AB CD	CD AB
10006	32-bit signed integer_LH	INT32_LH	4	2	AB CD	AB CD
10007	IEEE Single-precision floating-point_L	IEEE_FLOAT_L	4	2	AB CD	BA DC
10008	IEEESingle-precision floating-point_B	IEEE_FLOAT_B	4	2	AB CD	CD AB
10009	IEEE Double-precision floating-point_L	IEEE_DOUBLE_L	8	4	AB CD EF 12	DC BA 21 FE
10010	IEEEDouble-precision floating-point_B	IEEE_DOUBLE_B	8	4	AB CD EF 12	EF 12 AB CD

Installation Requirements