

Interface Liquid-Level Sensors

A Series - Model SMS2000



Product Data Sheet
SMS2000-001-1, Rev B
March 2015

PRODUCT SPECIFICATIONS

FEATURES

- 4 to 20mA Analog Outputs with HART
- Dual Channel Analog Output(Optional)
- 2 in 1 measurement
 - Interface
 - Temperature
- No scheduled Maintenance or Recalibration
- Good Accuracy and Repeatability
- Intrinsically Safe
- Effective on applications with High Solids, Fouling and Fast Changing Levels
- No loss of level signal

MARKETS

- Petroleum and Petrochemical
- Pulp and Paper
- Mining
- Water and Waste Water
- Municipal

PRODUCT OVERVIEW

The liquid interface measurement is detected by the use of a transmitter, flexible/rigid stainless steel sensor hose and interface float. The end of the sensor hose is supported by a weighted anchor or stop plate at the opposite end. Traveling up and down the sensor hose is a specially engineered float that follows the two liquids particular interface. As the float position changes along the sensor hose it closes very small reed contacts within its magnetic field through the wall of the flexible sensor hose. The closed reed switches provide an uninterrupted measurement voltage from a resistance chain (a potential divider) to the transmitter and this voltage is proportional to the liquid interface level. This variable voltage is then converted into a standard 4-20mA analog level signal. The interface float has the ability to be accurately adjusted to provide the needed buoyancy, based on calculations and the customer's process data. Depending on the process application the float size and shape will change.

The SMS2000 interface system is modular in design, offering you a selection of electronic housing styles, float sizes/shapes and sensor hose styles. The interface system features a removable sensing element and electronics that can be removed without disturbing the operation of your process saving time and money.

Up to two 4-20mA loops are available for analog indication of interface and temperature. Set-up, calibration and diagnostics are available from any point on the loop using a standard HART hand-held terminal.



Model SMS2000 Flexible Transmitter
Single Cavity Housing

All specifications are subject to change. Contact RTS for specification and engineering drawings that are critical to your application. Drawings contained in this document are for reference only. Go to www.sms2000.ca for the latest support documentation and related media.

PRODUCT SPECIFICATIONS

Parameter Specifications

LEVEL OUTPUT

Measured Variable:	Product Level and/or Interface level
Output Signal:	4 to 20mA with HART (Non Hart models available)
Order Length:	Flexible hose: 900mm (36") to 24,000mm (960") Rigid Tube: 900mm (36") to 3000mm (120")
Accuracy/Resolution:	25mm (1") or 15mm (1/2")
Flex. Sensor Float Guide:	Flexible Corrugated Braided Hose – 25mm (1.0")
Rigid sensor Float Guide:	Stainless Steel Tubing – 18mm (3/4") or 25mm (1")
Response Time:	0.8 second

TEMPERATURE OUTPUT (Optional)

Measured Variable:	Single Point Temperature - 100 ohm platinum RTD
Output Signal:	4 to 20mA with HART (Non Hart models available)
Accuracy:	±0.16 °C (± 0.28 °F)

INTERFACE LEVEL FLOAT

Material:	304L Stainless Steel
Shape:	Round
Sizes:	150mm (6") to 375mm (15") outside diameter.
Through Hole Diameter:	50mm (2")
Specific Gravity Adjustable:	Yes, ± 0.01 S.G., smooth or mirror finish, 5 gram accuracy, thermal expansion corrected.

ELECTRONICS

Input Voltage:	10 to 42VDC (10 to 30VDC – Explosion Proof), Hart Communication
Type:	4 to 20mA
Fail Safe:	High (21.4mA), or Low (3.8mA)
Reverse polarity protection:	Yes

CALIBRATION

Zero Adjustment range:	Anywhere within the active length
Span Adjustment range:	Anywhere within the active length

ENVIRONMENTAL

Enclosure Rating:	Nema 4X
Humidity:	5-95%, relative humidity.
Operating Temperatures:	Electronics: -40 °C (-40 °F) to 84 °C (183 °F) Sensing Element: -40 °C (-40 °F) to 125 °C (257 °F) Temperature Element: -200 °C (-328 °F) to 250 °C (482 °F)
Materials:	Wetted parts: 316L and 304 Stainless Steel Non-Wetted parts: 316L stainless steel and epoxy coated aluminum.

ELECTRICAL CONNECTIONS

Nema Type 4X, I.S.	½" conduit opening. (Metric sizes available upon request)
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APPROVALS

CSA, FM, CE, UL & ATEX, Exp. Class 1 Div II

ORDERING INFORMATION

TRANSMITTER MODEL			= SMS2000 (1)
SMS2000	=	Interface Transmitter	
INPUT POWER			= H (2)
H	=	24VDC Loop, Hart	
NH	=	24VDC Loop, Non-Hart	
HOUSING TYPE			= A (3)
A	=	Nema Type 4X, 316L stainless steel, One (1) conduit outlet	
B	=	Nema Type 4X, 316L stainless steel, Two (2) conduit outlets	
C	=	Nema Type 4X, Epoxy Coated Aluminum, One (1) conduit outlet	
D	=	Nema Type 4X, Epoxy Coated Aluminum, Two (2) conduit outlets	
E	=	Plastic	
ELECTRONICS MOUNTING			= 1 (4)
1	=	Integral Electronics	
SENSOR HOSE TYPE			= F (5)
F	=	Flexible Braided Corrugated Hose, 304SS Stainless Steel - 25mm (1") diameter	
R1	=	Rigid 316L Stainless Steel, 18mm (3/4") diameter	
R2	=	Rigid 316L Stainless Steel, 25mm (1") diameter	
SENSOR HOSE LENGTH			= XXX (6)
XXX	=	Specify Sensor Hose measurement length in inches. (See Illustration 1.0 - PAGE 4) <i>(Please note maximum length for rigid sensor hose type is 300mm (120in.)</i>	
SENSOR RESOLUTION			= 10 (7)
10	=	25mm (1")	
05	=	13mm (1/2")	
VESSEL MOUNTING			= CC (8)
AA	=	2" MNPT, 316L	
BB	=	1" Flange, ANSI 150#	
CC	=	2" Flange, ANSI 150#	
TEMPERATURE SENSOR			= X (9)
X	=	No Temperature Measurement	
T1	=	100 ohm Platinum RTD sensor c/w 2-wire 24VDC Transmitter, Hart communication	
T2	=	100 ohm Platinum RTD sensor c/w 2-wire 24VDC Transmitter, No Hart Technology	
INTERFACE FLOAT			= F1 (10)
F1	=	375mm (15") diameter round float – see picture, page 4	
F2	=	250mm (10") diameter round float – see picture, page 4	
F3	=	150mm (6") diameter round float – see picture, page 4	
F4	=	Other (Contact factory for various sizes)	
FLOAT FINISH			= X (11)
X	=	Basic Finish	
MIR	=	Mirror Finish	
ANCHOR			= 02 (12)
01	=	100mm (4") diameter - round, 150mm (6") tall carbon steel	
02	=	100mm (4") diameter - round, 150mm (6") tall stainless steel	
03	=	100mm (4") diameter - round, 10mm (1/4") stop plate stainless steel - (Rigid systems only)	
HART MODEM			= X (13)
X	=	Not Required.	
MOD	=	HART to RS-232 communication adapter	
DOCUMENTATION			= SMCD (14)
SMCD	=	Set-up software, operation manual and CD all Included free of charge.	

NOTE: FOR SPARE PARTS REQUEST - PLEASE CONTACT HEAD OFFICE.

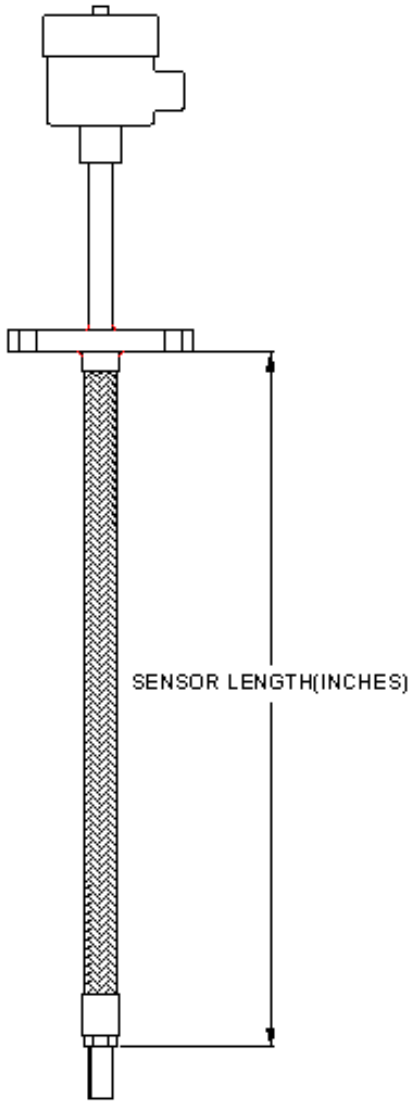
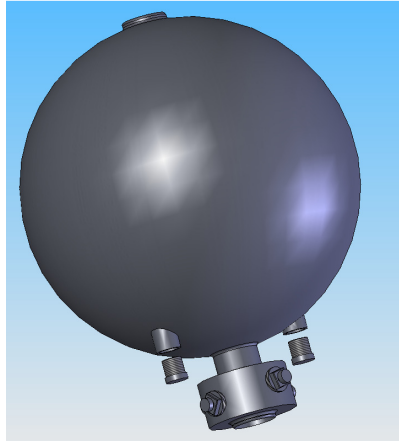


ILLUSTRATION 1.0



ROUND FLOAT DESIGN



SMS2000 SYSTEM READY TO INSTALL



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