Honeywell

SmartLine

SLN 700 SmartLine Non-Contact Radar Level Specification

34-SL-03-06, July 2023

Honeywell

Introduction

Part of the SmartLine® family of products, the SLN 700 is a high performance 80 GHz non-contact radar level transmitter offering high accuracy, stability over a wide range of level applications. SmartLine SLN 700 level transmitters are an ideal solution for demanding process level needs, with easy-to-use and low-maintenance character.

The SmartLine family is also fully tested and compliant with Experion ® PKS, providing the highest level of compatibility assurance and integration capabilities. SmartLine easily meets the most demanding needs for level measurement applications.

Best in Class Features:

- o 80 GHz FMCW technology
- Narrow beam, small blind zone & accurate measurement
- Immunity to temperature, pressure, most obstacles, and dust
- o False echo suppression option
- o Easy setup, no dielectric constant dependence
- Small antenna size fits most process: easy to install
- High resolution: better accuracy and process detail
- Measuring range: up to 30 m (liquids) / 120 m (solids)
- Accuracy ±2 mm
- Process Temperature range: -40 to 200 °C
- Process Pressure range: -1 to 25 bar
- Operating voltage: 12 to 30 V DC
- Output signal: 4 20 mA & HART[®]



Figure 1 —SLN700 Non-Contact Radar Level transmitter

Description

The SmartLine 80 GHz Non-Contact Radar Level transmitter utilizes Frequency Modulated Continuous Wave (FMCW) technology which has greater sensitivity and accuracy for level measuring applications.

Unique Out-of-the-Box, Full User Experience1

The specification of the correct level transmitter for the level measurement is one of the root causes for many common field failure modes. This user experience is enhanced with the unique SmartLine Application and Validation Tool (AVT) found at

https://config.honeywellsmartline.com/. This allows users to specify their tank level application and the options desired for their level transmitter. The AVT intelligently guides the user through the engineering process and electronically captures and documents the choices and inputs.

In addition to serving as engineering documentation, the AVT output also serves as input to the Honeywell order management system, thus ensuring correct input of the transmitter model. The additional advantage is a transmitter with configuration parameters already specified to match the targeted tank application. Errors are eliminated and the engineering effort is preserved from start to finish.

The SmartLine Application and Validation Tool also allows users to collaboratively use and share the active session with any web connected colleague or expert. This interactive, collaborative capability eliminates roadblocks and delays. Users can access resources to help start and finish the engineering task in a single effort. This online tool also dynamically reformats the user interface to display correctly on an IOS or Android[™] device.

¹ will be available soon.

Diagnostics

SmartLine transmitters all offer digitally accessible diagnostics which aid in providing advanced warning of possible failure events, minimizing unplanned shutdowns, providing **lower overall operational costs**

System Integration

- SmartLine communications protocols all meet the most current published standards for HART[®]
- Integration with Honeywell's Experion[®] PKS offers the following unique advantages.
 - FDM Plant Area Views with Health summaries
 - The SLN series is Experion tested to provide the highest level of compatibility assurance.
- Display modular can be added or removed in the field
- o 128 by 64 dot matrix graphics display
- Large PV font format supported. Echo stem plots with Distance to Product and Distance to Interface Configurable screen
- The Display supports English and Chinese languages.

Unique Indication/Display Options

The SmartLine SLN series level transmitter's modular design accommodates a unique advanced graphics LCD display.





Modular Design

To help contain maintenance and inventory costs, all SLN series transmitters are modular in design supporting the user's ability to change electronic modules without affecting overall performance. Electronic modules may be swapped with another electronics module without losing in-tolerance performance characteristics With no performance effects, Honeywell's unique modularity results in *lower inventory needs and lower overall operating costs.*

Configuration Tools

Integral Four Button Configuration Option is suitable for all electrical and environmental requirements, SmartLine offers the ability to configure the transmitter and display via four buttons.

HandHeld Configuration

SmartLine transmitters feature two-way communication and configuration capability between the operator and the transmitter. This is accomplished via Honeywell's field-rated Multiple Communication Configurator.

FDM and FDM Express

Honeywell's Field Device Manager (FDM) Software and FDM Express are available for managing HART[®] device configurations.

Product Family

SLN700L-82 (80 GHz)

for liquids in corrosive process applications



SLN700L-83 (80 GHz)

for liquids in process applications for small vessels



The SLN700L-83 is an 80 GHz FMCW radar transmitter for continuous level measurement of liquids under different process conditions, especially in small vessels. The excellent beam focusing can provide accurate and reliable measurement from basic process to mild corrosive liquids, especially for small vessels.

The SLN700L-82 is an 80 GHz FMCW radar transmitter for continuous level measurement of liquids under different process conditions. The excellent beam focusing can provide accurate and reliable measurement in regular or strongly corrosive

The SLN700L-82 can measure in process conditions with temperatures up to +200°C and pressures up to 25 bar. The antenna options permit to measure distances up to 30 m. It offers an extensive choice of flanged process connections from DN50 to

liquids.

DN150.

The SLN700L-83 can measure in process conditions with temperatures up to $+200^{\circ}$ C and pressures up to 25 bar. The antenna options permit to measure distances up to 30 m. It offers an extensive choice of threaded process connections from $\frac{3}{4}$ " to 3".

SLN700S-87 (80 GHz) for solids in process applications



The SLN700S-87 is an 80 GHz FMCW radar transmitter for continuous level measurement of solids under different process conditions. The excellent beam focusing can provide accurate and reliable measurement for most powder or bulk solids applications in storage vessels. Options for air purge or dust shield options optimize sensor performance in dusty conditions

The SLN700S-87 can measure in process conditions with temperatures up to +200°C and pressures up to 25 bar. The antenna options permit to measure distances up to 120 m. It offers an extensive choice of flanged process connections from DN100 to DN150.

General Specifications

	SLN700L-82	SLN700L-83	SLN700S-87
Applications:	Liquids Suitable for the strong corrosive liquids, vapours / foams	Liquids Suitable for mildly corrosive liquids; small vessels	Solids Storage vessel/process vessel or high dust environment
Measurement range:	0∼30 m	0~10 m (SLN700L-83A) 0~30 m (SLN700L- 83B/C/D/E)	0∼120 m
Measurement accuracy:	±2	mm	±5mm
Process temperature	(-40~150) °C (-40~200) °C	(-40~130) °C (-40~200) °C	(-40~130) °C (-40~200) °C
Process pressure	(-0.1~2	2.5) MPa	(-0.1~0.3) MPa
Antenna form: (See Antenna)	SLN700L-82A/B/C/D	SLN700L-83A/B/C/D/E	SLN700S-87A/B/C/D
Antenna + Lens material: (See Antenna)	316L+PTFE	316L+PTFE	316L+PEEK
Process Connection (See Antenna)	Flange	Thread	Flange
Seal Material	FKM	FFKM	FKM
Frequency:	77-81 GHz	I	
Signal output:	4-20 mA & HART® (Height [Le	evel], Distance or Volume)	
Power supply:	2-wire (12~30) V DC		
Housing Material:	Polyester-coated aluminium		
Weight	SLN700L-82: approx. 5.1 to 18 SLN700L-83: approx. 1.8 to 3. SLN700S-87: approx. 4.8 to 8.	5 kg	
Ingress Protection level	IP67		
Unmeasurable area	End of antenna		
Measurement interval	approx. 1 s		
Adjust time	approx. 3 s		
Display resolution	1 mm		
Display	128 × 64 pixels, with 4-button	keypad	

Operating Conditions – All Models

Parameter	Description				
Environmental Operating	Device Operating range: -40 to 8	30°C			
temperature ¹	Display operating range: -20 to 80°C				
Temperature for storage and transport	-40 to +80 °C				
Relative humidity	<95%				
Power Supply	Standard type	(12~30) V DC			
2-wire	Intrinsically safe	(12~30) V DC			
	Power consumption	max.22.5 mA			
	Ripples are allowed				
	—<100Hz	Uss<1 V			
	−(100 ~ 100K)Hz	Uss<10 mV			
Cable parameters	Cable entry/plug	M20x1.5/ 1/2'NPT cable entry, and M20x1.5/ 1/2'NPT blind plug			
	Spring collecting terminals	Used for conductor with cross section of 2.5 mm ²			
Output parameter	Output signal	(4-20) mA/HART®			
	Resolution	0.3 μΑ			
	2-wire load resistance	Refer to Figure 3: 2-wire load resistance			

¹ The ambient temperature limit for intrinsic safety differs. See section on Hazardous Locaiton Approvals.

2-wire load resistance

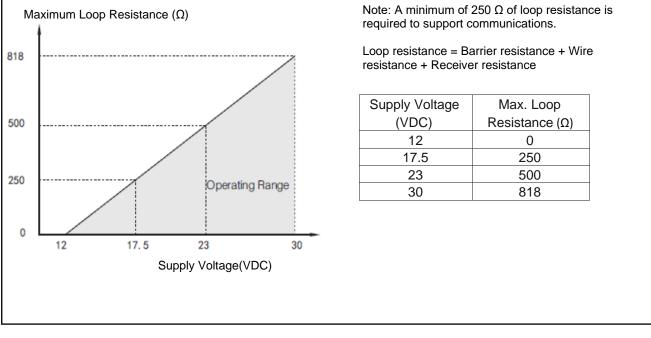


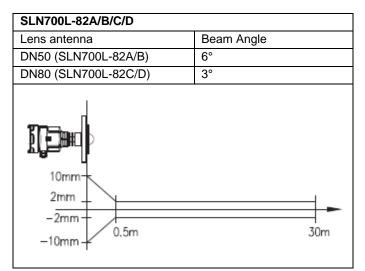
Figure 3: 2-wire load resistance

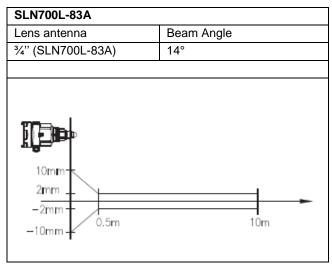
Performance Under Rated Conditions – All Models

Parameter	Description
Analog Output	Two-wire, 4 to 20 mA (Height [Level], Distance or Volume)
Digital Communications:	HART [®] 7 protocol
Output Failure Modes	Compliance: Honeywell Standard:
	Normal Limits: 3.8 – 20.8 mA
	Failure Mode: $\leq 3.6 \text{ mA and} \geq 21.0 \text{ mA}$
Measurement accuracy	Refer to figure on page 7
Temperature drift	±2 mm/10 K
Repeatability	±1 mm
Dielectric constant (minimum)	1.4
Electromagnetic Compatibility	EN 301 489-1 V2.2.0, EN 301 489-3 V2.1.1, EN 302 729 V2.1.1,
and Radio Equipment	EN 302 372 V2.1.1, EN 62311:2008
Electrical Safety	EN 61010-1:2010
Vibration-proof	Mechanical shock 10 m/s ² , 10-150 Hz

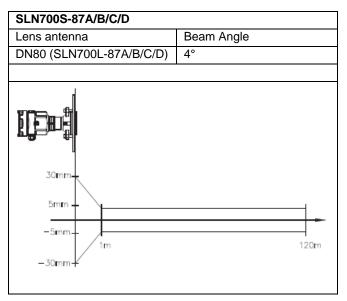
Measurement accuracy under reference conditions

Measuring distance from lower edge of flange or thread





SLN700L-83B/C/D/E	
Lens antenna	Beam Angle
11/2' (SLN700L-83B/C)	6°
3" (SLN700L-83D/E)	3°
10mm 2mm -2mm -2mm 0.5m	 30m



Antenna

No.	SLN700L-82A	SLN700L-82B	SLN700L-82C	SLN700L-82D
Material	316L+PTFE	316L+PTFE	316L+PTFE	316L+PTFE
Process Connection See MSG for all options	DN50 DN80 DN100	DN50 DN80 DN100 DN150	DN80 DN100 DN125 DN150	DN80 DN100 DN125
Features	Anti-corrosion High Pressure Single radiator 150 °C	Anti-corrosion High Pressure Multi-fin radiator 200 °C	Anti-corrosion High Pressure Single radiator 150°C	Anti-corrosion High Pressure Multi-fin radiator 200 °C

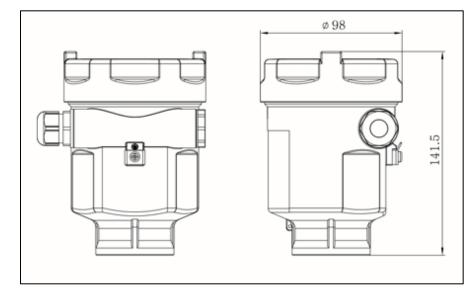
No.	SLN700L-83A	SLN700L-83B	SLN700L-83C	SLN700L-83D	SLN700L-83E
Material	316L+PTFE	316L+PTFE	316L+PTFE	316L+PTFE	316L+PTFE
Process Connection	Thread G¾ A Thread ¾ NPT	Thread G1½ A Thread 1½ NPT	Thread G1½ A Thread 1½ NPT	Thread G3 A	Thread G3 A
Features	Anti-corrosion	Anti-corrosion	Anti-corrosion	Anti-corrosion	Anti-corrosion

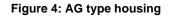
No.	SLN700S-87A	SLN700S-87B	SLN700S-87C	SLN700S-87D
Material	316L+PEEK	316L+PEEK	316L+PEEK	316L+PEEK
Process Connection See MSG for all options	DN100 DN125 DN150	DN100 DN125 DN150	DN100 DN125 DN150	DN100 DN125 DN150
Features	Thread/purging Micro Pressure 130 °C	Thread/purging Micro Pressure with Radiator 200 °C	Universal/purging Atmospheric 130 °C	Universal/purging Atmospheric with Radiator 200 °C

Housing Dimensions

AG type housing

Material: Polyester Powder Coated Aluminum





Dimensional Drawings

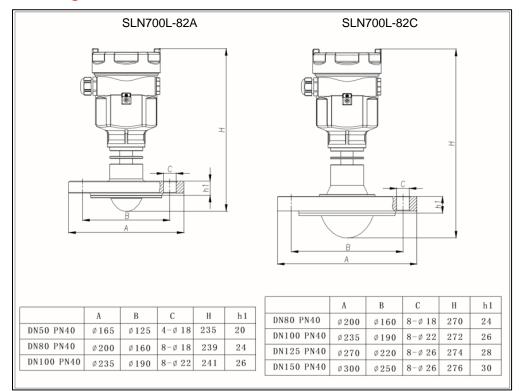


Figure 5: SLN700L-82A/C

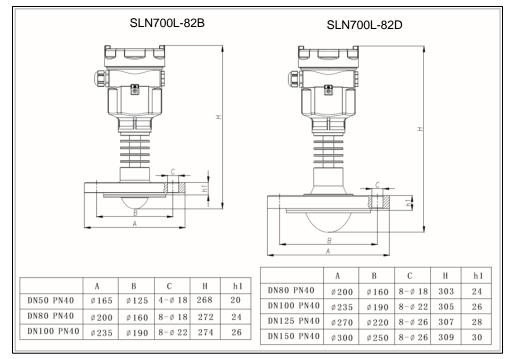


Figure 6: SLN700L-82B/D

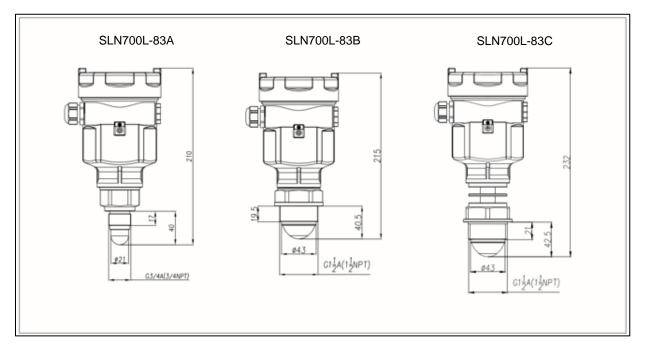


Figure 7: SLN700L-83A/B/C

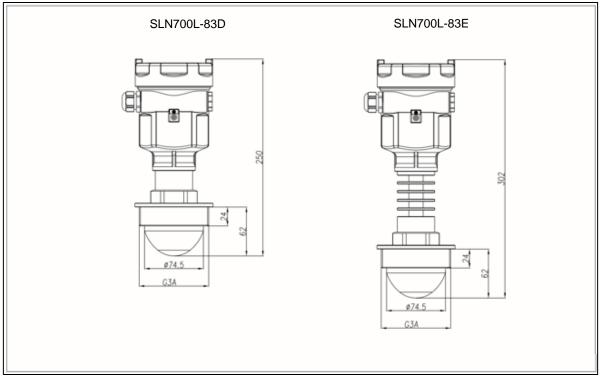


Figure 8: SLN700L-83D/E

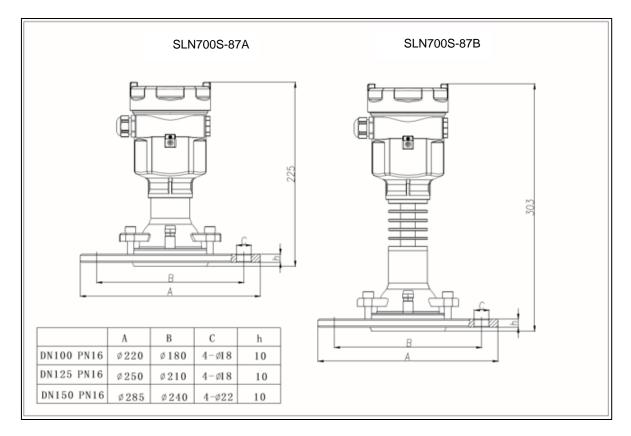


Figure 9: SLN700S-87A/B

Hazardous Location Approvals

See manual for Special Conditions of safe use

AGENCY	TYPE OF PROTECTION
IECEx	<u>Intrinsically Safe:</u> Ex ia IIC T6T2 Ga Ex ia IIIC T85°CT300°C Da
ATEX	Intrinsically Safe: II 1 G Ex ia IIC T6…T2 Ga II 1 D Ex ia IIIC T85°C…T300°C Da
CSA/ CSA-US	Intrinsically Safe: Canada: Class I, Division 1, Groups A,B,C,D T6T2 Class II, Division 1, Groups E,F,G T85°CT300°C Exia IIC T6T2 Ga Ex ia IIIC T85°CT300°C
InMETRO (Brazil)	Intrinsically Safe: Ex ia IIC T6T2 Ga Ex ia IIIC T85°CT300°C Da
CCoE (India)	<u>Intrinsically Safe:</u> Ex ia IIC T6T2 Ga Ex ia IIIC T85°CT300°C Da

Ambient Temperature (°C)	Process Temperature at the Antenna (°C)	Temperature Class of entire transmitter
-40 to +50	-40 to +50	T6/85 C
-40 to +60	-40 to +95	T5/100 C
	-40 to +130	T4/135 C
-40 to +70	-40 to +195	T3/200 C
	-40 to +200	T2/300 C

Intrinsic Safety Entity Parameter	4-20mA Version Terminals 1 & 2	RS485 Version Terminals 1 & 2	RS485 Version Terminals 4 & 5
Ui	30.6V	26.4V	6.5V
li	131mA	166mA	68mA
Pi	1.0W	1.1W	111mW
Ci	0	0	0
Li	102uH	0	102uH

Model Selection Guide

Model Selection Guides are subject to change and are inserted into the specifications as guidance only.

Honeywell

Model SLN700 Series Liquid/Solid Measurement **Smartline Non Contact Radar Level Transmitter**

Model Selection Guide: 34-SL-16-20. Issue 10

- Instructions
- Select the desired Key Number. The arrow to the right marks the selection available.
 Make one selection from each Table (I, II and IX) using the column below the proper arrow.
- A (•) denotes unrestricted availability. A letter denotes restricted availability.

•	Restrictions follow Tal	ble IX.				
	Key Number SLN700					

Page: SLN7-1 Effective Date: December 1, 2022

Section 15



Honeywell Proprietary

KEY NUMBER					Selection	Avail	labilit		
	Liquid Level Measureme	nt					SLN700L	+	
	Solid Level Measurement	t					SLN700S		↓
TABLE I			na and Material Select				Selection		
	Antenna Type	-40 to +130 °C	Process Pressure -125 barg	Lens Diameter	Options	Range		L	S
		(-40 to +266 °F)	(-14.5362 psig)	50mm		30m	82A	•	
a. Antenna type and materials		-40 to +200 deg C (-40 to +392 F)	-125 barg (-14.5362 psig)	50mm		30m	82B	_ · .	
		-40 to +130 °C (-40 to +266 °F)	-125 barg (-14.5362 psig)	80mm		30m	82C	·	
	Flange with encapsulated antenna	-40 to +200 deg C (-40 to +392 F)	-125 barg (-14.5362 psig)	80mm		30m	82D	·	
	encapsulated antenna	-40 to +130 deg C (-40 to +266 F)	01 barg (014.5 psig)	80mm	Gimbal Flange	120m	87A		•
		-40 to +200 deg C (-40 to +392 F)	01 barg (014.5 psig)	80mm	Gimbal Flange	120m	87B		•
		-40 to +130 deg C (-40 to +266 F)	-13 barg (-14.543.5 psig)	80mm		120m	87C		•
		-40 to +200 deg C (-40 to +392 F)	-13 barg (-14.543.5 psig)	80mm		120m	87D		•
т		-40 to +130 deg C (-40 to +266 F)	-125 barg (-14.5362 psig)	3/4"		10m	83A	•	
		-40 to +130 deg C (-40 to +266 F)	-125 barg (-14.5362 psig)	11⁄2"		30m	83B	•	
	Thread with integrated horn antenna	-40 to +200 deg C (-40 to +392 F)	-125 barg (-14.5362 psig)	1½"		30m	83C	•	
		-40 to +130 deg C (-40 to +266 F)	-125 barg (-14.5362 psig)	3"		30m	83D	•	
		-40 to +200 deg C (-40 to +392 F)	-125 barg (-14.5362 psig)	3"		30m	83E	•	
b. Lens materials			TFE (-40 to +200 deg C)				0_ B	k	
				(-40 to +200 deg C) (-40 to +200 deg C)			0	_	
	Seal materials FKM (-40 to +200 deg C)						0	•	
c. Seal materials			FKM (-20 to +200 deg C)			0 A	e e	
c. Seal materials TABLE II	Connection Types) Rati	ng				
	Connection Types	FF	FKM (-20 to +200 deg C	Ratin Class 150	0lb RF		Selection AS2A	e	
	Connection Types	FF	FKM (-20 to +200 deg C	Ratin Class 150 Class 30	0lb RF 0lb RF		Selection AS2A AS2B	e L c c	
	Connection Types	FF	FKM (-20 to +200 deg C	Ratin Class 15 Class 30 Class 15	OID RF OID RF OID RF		A Selection AS2A AS2B AS3A	e L C C a	
	Flanges	Ff Material	Size 2" 3" 3"	Ratii Class 15 Class 30 Class 15 Class 30	OIb RF OIb RF OIb RF OIb RF		A Selection AS2A AS2B AS3A AS3B	e L C C a a	
		FF	FKM (-20 to +200 deg C Size 2"	Ratii Class 15 Class 30 Class 15 Class 30 Class 30 Class 15	OID RF OID RF OID RF OID RF OID RF		AS2A AS2B AS3A AS3B AS4A	e L c c a a d	
	Flanges	Ff Material	Size 2" 3" 3"	Ratii Class 15 Class 30 Class 15 Class 30	01b RF 01b RF 01b RF 01b RF 01b RF 01b RF		A Selection AS2A AS2B AS3A AS3B	e L C C a a	
	Flanges	Ff Material	Size 2" 3" 4"	Ratii Class 15 Class 30 Class 15 Class 30 Class 30 Class 30 Class 30	01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 01b RF		Aselection As2A As2B As3A As3B As4A As4B	e L C C a a d d	
	Flanges	Ff Material	Size 2" 3" 4" 6" 6"	Ratii Class 15/ Class 30 Class 16/ Class 30 Class 15/ Class 30 Class 15/ Class 15/	016 RF 016 RF 016 RF 016 RF 016 RF 016 RF 016 RF		Aselection As2A As2B As3A As3B As4A As4B As6A	e L c c a a d d f	
	Flanges	Ff Material	Size 2" 3" 4" 6" 6"	Ratin Class 15 Class 30 Class 15 Class 15 Class 15 Class 15 Class 30 Class 15 Class 30	010 RF 010 RF 010 RF 010 RF 010 RF 010 RF 010 RF 010 RF		As2A As2A As2B As3A As3B As4A As4B As6A As6B	e L c c a a d d f	
	Flanges	Ff Material	Size 2" 2" 3" 4" 6" 6" 8" DN50 DN50	Ratin Class 15/ Class 30 Class 15/ Class 30 Class 15/ Class 15/ Class 30/ Class 15/ Class 30/ Class 15/ Class 10/ Class 10/ Cl	01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 20140 20140		Aselection As2A As2B As3A As3A As3A As4A As4B As6A As6B As8A Ds5B Ds5A	e L C C a a d d f f f	
TABLE II	Flanges	Ff Material	Size Size 2" 3" 4" 6" 6" 8" DN50 DN50 DN80 DN80	Ratii Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 DISC 10 DISC	01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 01b RF 9740 9740 9740		Aselection As2A As2B As3A As3B As4A As4B As6A As6A As6B As8A Ds5B Ds5A Ds58 Ds5A	e L C C C a a d d f f c C C a a a d c c c a a a c c c a a a c c c c c c c c c c c c c	
	Flanges ANSI	Ff Material	Size 2" 2" 3" 4" 6" 6" 8" DN50 DN50	Ratin Class 15 Class 30 Class 15 Class 15 Class 15 Class 30 Class 15 Class 15 Class 15 Class 16 DN50 F DN50 F DN50 F	01b RF 01b RF		A Selection AS2A AS2B AS3A AS3B AS3A AS4B AS4A AS4B AS6A AS6B AS6A AS6B DS5B DS5B DS5A DS5B DS5A DS8B	e L C C C a a d d f f C C C a a a a a a a a a a a a a	
TABLE II Process	Flanges ANSI Flanges	Ff Material	Size Size 2" 3" 4" 6" 6" 8" DN50 DN50 DN80 DN80	Ratin Class 15 Class 30 Class 15 Class 15 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 DN50 F DN50 F DN50 F	01b RF 01b RF		A Selection AS2A AS2B AS3A AS3B AS3A AS4B AS4A AS4B AS6A AS6B AS6A DS5B DS5A DS5A DS5A DS8B DS8A DS1B	e L C C C a a d d f f c C C a a a d c c c a a a c c c a a a c c c c c c c c c c c c c	
TABLE II Process	Flanges ANSI	FF Material 316L	Size Size 2" 3" 4" 6" 6" 6" 0N50 DN50 DN50 DN80 DN80 DN80	Ratin Class 15/ Class 30 Class 15/ Class 30 Class 15/ Class 30 Class 15/ Class 30 Class 15/ Class 15/ Class 15/ Class 15/ Class 16/ DN50 F DN50 F DN50 F DN50 F	010 RF 010 RF 00		AS2A AS2A AS2B AS3A AS3B AS3A AS4A AS4B AS4A AS6A AS6A AS6B AS8A DS5B DS5A DS5B DS5A DS58 DS5A DS58 DS5A DS58	e L C a a d f f c c c a d d d d d d d d	
TABLE II Process	Flanges ANSI Flanges	FF Material 316L	Size Size 2" 3" 4" 6" 6" 6" 0N50 DN50 DN50 DN80 DN80 DN80	Ratin Class 150 Class 151 DN50 F DN80 F DN80 F DN100 DN100 DN100	01b RF 01b RF		Aselection As2A As2B As3A As3B As4A As4B As6A As6B As8A Ds5B Ds5A Ds5B Ds5A Ds5B Ds5A Ds5B Ds5A Ds5B Ds5A Ds5B Ds5A Ds5B Ds5A Ds5B	e L C C C a a d d f f C C C a a a a a a a a a a a a a	
TABLE II Process	Flanges ANSI Flanges	FF Material 316L	Size Size 2" 3" 4" 6" 6" 9" DN50 DN50 DN50 DN80 DN80 DN80	Ratii Class 15 Class 30 Class 15 Class 30 Class 15 Class 15 Class 15 Class 15 Class 15 Class 15 Class 15 DN50 F DN50 F DN50 F DN80 F DN80 F DN80 F DN80 F DN100 DN100 DN125 DN125	01b RF 01b RF		Aselection As2A As2B As3A As3B As4A As4B As6A As6B As6A As6B Ds5B Ds5A Ds5B Ds5A Ds88 Ds88 Ds88 Ds88 Ds18 Ds18 Ds11 Ds11	e L c a d f f c c d d f f c a d f f f f f f f	
TABLE II Process	Flanges ANSI Flanges	FF Material 316L	Size Size 2" 3" 4" 6" 6" 9" DN50 DN50 DN50 DN80 DN80 DN80	Ratin Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 DN50 F DN50 F DN50 F DN80 F DN80 F DN80 F DN100 DN100 DN125 DN125 DN125	010 RF 010 RF		A Selection AS2A AS2B AS3A AS3B AS3A AS4B AS4A AS6B AS6A AS6B DS5B DS5A DS5B DS5A DS5B DS5A DS1B DS1A DS1N DS1Z	e L C a a d f f c c c a d d d d d d d d	
TABLE II Process	Flanges ANSI Flanges	FF Material 316L	Size Size 2" 3" 4" 6" 6" 8" DN50 DN50 DN80 DN80 DN100 - DN125 - DN150 -	Ratii Class 15 Class 30 Class 15 Class 30 Class 15 Class 15 Class 15 Class 15 Class 15 Class 15 Class 15 DN50 F DN50 F DN50 F DN80 F DN80 F DN80 F DN80 F DN100 DN100 DN125 DN125	010 RF 010 RF		Aselection As2A As2B As3A As3B As4A As4B As6A As6B As6A As6B Ds5B Ds5B Ds5A Ds5B Ds5A Ds8B Ds8A Ds1B Ds1A Ds11N Ds11 Ds12 Ds12 Ds11Y	e L c a d f f c c d d f c c d d f f f f	
TABLE II Process	Flanges ANSI Flanges	FF Material 316L	Size Size 2" 3" 4" 6" 6" 8" DN50 DN50 DN80 0 DN100 - DN125 - JN150 - JN150 -	Ratin Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 DN50 F DN50 F DN50 F DN80 F DN80 F DN80 F DN100 DN100 DN125 DN125 DN125	010 RF 010 RF		A Selection AS2A AS2B AS3A AS3B AS4A AS4B AS6B DS5B DS5A DS5A DS5B DS5A DS1B DS1A DS1N DS17 NS7A	e L c a d f f c a d f c a d f f f h	
TABLE II Process	Flanges ANSI Flanges	FF Material 316L	Size Size 2" 3" 4" 6" 6" 6" 0N50 0N50 DN50 0N80 DN50 0N100 DN125 - 0N150 - 3/4" NPT 1 - 1/2" NPT	Ratin Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 DN50 F DN50 F DN50 F DN80 F DN80 F DN80 F DN100 DN100 DN125 DN125 DN125	010 RF 010 RF		Aselection As2A As2B As3A As3B As3A As4B As4A As4B As6A As6B As8A Ds5B Ds5B Ds5A Ds5B Ds5A Ds5B Ds5B Ds5B Ds5A Ds5B Ds5B Ds5B Ds5B Ds5A Ds5B Ds5B Ds5B Ds5B Ds5B Ds5B Ds5B Ds5B	e L c a d f c c c c c d f a d f f f f h m	
TABLE II Process	Flanges ANSI Flanges DIN Threaded Fittings	FF Material 316L	Size Size 2" 3" 4" 6" 6" 6" 8" 0 DN50 0 DN80 0 DN80 0 DN100 0 DN125 0 JA" NPT 1 - 1/2" NPT 3" NPT 3" NPT	Ratin Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 DN50 F DN50 F DN50 F DN80 F DN80 F DN80 F DN100 DN100 DN125 DN125 DN125	010 RF 010 RF		Aselection As2A As2B As3A As3B As4A As4B As6A As6B As6A As6B Ds5A Ds5B Ds5A Ds5B Ds5A Ds5B Ds5A Ds5B Ds5A Ds1B Ds1B Ds1A Ds11N Ds11Z Ds11Y Ds12 Ds14 Ns7A Ns5A Ns5A Ns5A	e L c a d f f c c d f c c c c d f f f h m m	
TABLE II Process	Flanges ANSI Flanges DIN Threaded	FF Material 316L 316L	Size Size 2" 3" 4" 6" 6" 6" 0N50 0N50 DN50 0N80 DN50 0N100 DN125 - 0N150 - 3/4" NPT 1 - 1/2" NPT	Ratin Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 Class 30 Class 15 DN50 F DN50 F DN50 F DN80 F DN80 F DN80 F DN100 DN100 DN125 DN125 DN125	010 RF 010 RF		Aselection As2A As2B As3A As3B As3A As4B As4A As4B As6A As6B As8A Ds5B Ds5B Ds5A Ds5B Ds5A Ds5B Ds5B Ds5B Ds5A Ds5B Ds5B Ds5B Ds5B Ds5A Ds5B Ds5B Ds5B Ds5B Ds5B Ds5B Ds5B Ds5B	e L c a d f c c c c c d f a d f f f f h m	

TABLE III		provals (see data shee	t for Approval C	Code Details)	S	election	L	S
	No Explosion Protection Approvals Rec	uired				0	•	•
Approvals	CSA (Canada & USA) Intrinsically safe					В	•	•
	ATEX Intrinsically Safe					С	•	•
	IECEx Intrinsically Safe					D	•	•
	INMETRO Intrinsically Safe					F		•
	NEPSI Intrinsically Safe					G		
						н		-
	CCoE Intrinsically Safe						·	•
TABLE IV		ELECTRONICS S			s	election	L	s
Electronic Housing	Housing Mater		Connection	Lightning Protection				
Material &	Polyester Powder Coated	Aluminum	1/2 NPT	None		Α	•	•
Connection Type	Polyester Powder Coated	Aluminum	M20	None		В	•	•
b. Output/ Protocol	4-20mA dc			HART Protocol		_H_	•	•
0	Indicator	Zero, Span & Confi	g Buttons	Languages				
Customer Interface Selections	None	None		None		0	•	•
Selections	Advanced	Yes		EN, CH		G	•	•
TABLE V		CONFIGURATION	SELECTIONS					
		Diagnos				election	L	S
a. Diagnostics	Standard Diagnostics					1	•	•
b. Advanced	olandara Diagnosilos	Interface O	ptions			<u>·</u>		-
Measurement	None - Standard Level	interface o				0	•	•
measurement	Write Protect	Fail Mode		ligh & Low Output Limits ³				•
c. Output Limit,	Disabled	High> 21.0mAdc	Hone	eywell Std (3.8 - 20.8 mAdc)		1_	•	•
Failsafe & Write	Disabled	Low< 3.6mAdc		eywell Std (3.8 - 20.8 mAdc)		2_		•
Protect Settings	Enabled	High> 21.0mAdc		eywell Std (3.8 - 20.8 mAdc)		3_	•	•
-	Enabled	Low< 3.6mAdc		eywell Std (3.8 - 20.8 mAdc)		4	•	•
d. General			_	, , , , , , , , , , , , , , , , , , , ,				
Configuration	Factory Standard					S	•	•
TABLE VI		CALIBRATION & ACCUR		15				
Accuracy and	Accuracy	Calibrated I	Range	Calibration Qty	``	election		
Calibration	Std Accuracy (+/-2mm) F	actory Std		Single Range		A	•	•
TABLE VII		ACCESSORY SE	LECTIONS	·	9	election		
	No customer tag	ACCECCONTOL				0	<u> </u>	•
a. Customer	One Wired Stainless Steel Tag (Up to 4	4 lines 26 char/line)				1		
Tag	Two Wired Stainless Steel Tag (Up to 4		2					
		,						
b. Unassembled	No Conduit Blugs or Adaptors Boguiro	d				_A0		
Conduit	No Conduit Plugs or Adapters Required		AU	•	•			
Plugs &						-	-	
Adapters	1/2 NPT 316 SS Certified Conduit Plug						•	•
	1/2 NPT 316 SS Certified Conduit Plug M20 316 SS Certified Conduit Plug							•
Adapters	M20 316 SS Certified Conduit Plug					_ A6 _ A7	•	
	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S		nma delimited (X	CX, XX, XX,)	5	_ A6 _ A7 selection	•	•
Adapters	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None	tring in sequence con		(X, XX, XX,)	2	_ A6 _ A7 election 00	•	•
Adapters	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S	tring in sequence con		(X, XX, XX,)	<u> </u>	_ A6 _ A7 selection	•	•
Adapters	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None	tring in sequence con		(X, XX, XX,)	2	_ A6 _ A7 election 00	•	•
Adapters	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit	tring in sequence con y; pressure retaining par		(X, XX, XX,)	5	_A6 _A7 00 FX	•	•
Adapters TABLE VIII	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of	tring in sequence con y; pressure retaining par		(X, XX, XX,)	S	_A6 _A7 00 FX F3 F1	•	•
Adapters	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin	tring in sequence con y; pressure retaining par		(X, XX, XX,)	5	A6 A7 00 FX F3 F1 F5	•	•
Adapters TABLE VIII Certifications &	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year	tring in sequence con y; pressure retaining par		(X, XX, XX,)	5	_A6 _A7 00 FX F3 F1 F5 01	•	•
Adapters TABLE VIII Certifications &	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S) None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years	tring in sequence con y; pressure retaining par		(X, XX, XX,)	5	_A6 _A7 00 FX F3 F1 F5 01 02	•	•
Adapters TABLE VIII Certifications &	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years Extended Warranty Additional 3 years	tring in sequence con y; pressure retaining par		(X, XX, XX,)	S	A6 A7 00 FX F3 F1 F5 01 02 03	•	•
Adapters TABLE VIII Certifications &	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S) None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years	tring in sequence con y; pressure retaining par		(X, XX, XX)	S	A6 A7 00 FX F3 F1 F5 01 02 03 04	•	•
Adapters TABLE VIII Certifications &	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years Extended Warranty Additional 3 years	tring in sequence con y; pressure retaining par		(x, xx, xx ,)	S	A6 A7 00 FX F3 F1 F5 01 02 03	•	•
Adapters TABLE VIII Certifications &	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years Extended Warranty Additional 3 years	tring in sequence con y; pressure retaining par		(X, XX, XX,)		A6 A7 00 FX F3 F1 F5 01 02 03 04	•	•
Adapters TABLE VIII Certifications & Warranty	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years Extended Warranty Additional 3 years Extended Warranty Additional 4 years	tring in sequence con y; pressure retaining par		(X, XX, XX,)		A6 A7 00 FX F3 F1 F5 01 02 03 04 B1	•	•
Adapters TABLE VIII Certifications & Warranty TABLE IX Factory	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years Extended Warranty Additional 3 years Extended Warranty Additional 4 years Manufacturing Specials Factory Identification	tring in sequence con y; pressure retaining par		(X, XX, XX,)		_A6 _A7 00 FX F3 F1 F5 01 02 03 04 B1 election		•
Adapters TABLE VIII Certifications & Warranty TABLE IX Factory IODEL RE STRICTIO	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years Extended Warranty Additional 3 years Extended Warranty Additional 4 years Manufacturing Specials Factory Identification ONS Available	itring in sequence con y, pressure retaining par r Conformance Only with	rts	Not Avai	lable with	_A6 _A7 00 FX F3 F1 F5 01 02 03 04 B1 election		•
Adapters TABLE VIII Certifications & Warranty TABLE IX Factory IODEL RESTRICTION Restriction Letter	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years Extended Warranty Additional 3 years Extended Warranty Additional 4 years Manufacturing Specials Factory Identification ONS Available Table	itring in sequence con y, pressure retaining par r Conformance Only with Selection(s	rts		5	_A6 _A7 00 FX F3 F1 F5 01 02 03 04 B1 election		•
Adapters TABLE VIII Certifications & Warranty TABLE IX Factory MODEL RE STRICTIO	M20 316 SS Certified Conduit Plug OTHER Certifications & Options: (S None EN10204 Type 3.1 Material Traceabilit Certificate of Conformance Calibration Test Report & Certificate of Certificate of Origin Extended Warranty Additional 1 year Extended Warranty Additional 2 years Extended Warranty Additional 3 years Extended Warranty Additional 4 years Manufacturing Specials Factory Identification ONS Available	itring in sequence con y, pressure retaining par r Conformance Only with	rts	Not Avai	lable with	_A6 _A7 00 FX F3 F1 F5 01 02 03 04 B1 election		•

Restriction Letter	Availabi	e Only with	Not Available with				
Restriction Letter	Table	Selection(s)	Table	Selection(s)			
а	la	82A, 82B, 82C, 82D					
с	la	82A, 82B					
d	la	82A, 82B, 82C, 82D					
е	la	83A, 83B, 83C, 83D,83E					
f	la	82C, 82D					
h	la	83A					
k	la	82A, 82B, 82C, 82D,83A, 83B, 83C, 83D,83E					
m	la	83B, 83C					
n	la	83D, 83E					
b	Select only one option from this group						

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FIELD INSTALLABLE REPLACEMENT PARTS

Description	Kit Number
NCR Level HART Electronics module for Liquids	50155577-501
NCR Level HART Electronics module for Solids	50155577-502
NCR Level Display module	50155578-501

Note P - For part number pricing please refer to WEB Channel.

Sales and Service

For application assistance, current specifications, ordering, pricing, and name of the nearest Authorized Distributor, contact one of the offices below.

ASIA PACIFIC

Honeywell Process Solutions, Phone: + 800 12026455 or +44 (0) 1202645583 (TAC) <u>hfs-tac-</u> <u>support@honeywell.com</u>

Australia

Honeywell Limited Phone: +(61) 7-3846 1255 FAX: +(61) 7-3840 6481 Toll Free 1300-36-39-36 Toll Free Fax: 1300-36-04-70

China – PRC - Shanghai

Honeywell China Inc. Phone: (86-21) 5257-4568 Fax: (86-21) 6237-2826

Singapore

Honeywell Pte Ltd. Phone: +(65) 6580 3278 Fax: +(65) 6445-3033

South Korea

Honeywell Korea Co Ltd Phone: +(822) 799 6114 Fax: +(822) 792 9015

EMEA

Honeywell Process Solutions, Phone: + 800 12026455 or +44 (0) 1202645583

Email: (Sales) <u>FP-Sales-Apps@Honeywell.com</u> or (TAC) <u>hfs-tac-support@honeywell.com</u>

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AMERICAS

Honeywell Process Solutions, Phone: (TAC) (800) 423-9883 or (215) 641-3610 (Sales) 1-800-343-0228

Email: (Sales) <u>FP-Sales-Apps@Honeywell.com</u> or (TAC) <u>hfs-tac-support@honeywell.com</u>

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Specifications are subject to change without notice.

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Process Solutions Honeywell 1250 W Sam Houston Pkwy S Houston, USA, TX 77042

Honeywell Control Systems Ltd Honeywell House, Skimped Hill Lane Bracknell, England, RG12 1EB

Shanghai City Centre, 100 Jungi Road Shanghai, China 20061



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