

TECHNICAL REPORT

ISA-TR20.00.01-2007

Updated with 27 new specification forms in 2004-2006

Updated with 11 new specification forms in 2007

**Specification Forms for Process
Measurement and Control Instruments
Part 1: General Considerations**

ISA-TR20.00.01-2007
Specification Forms for Process Measurement and Control Instruments
Part 1: General Considerations

ISBN: 978-1-93756-000-3

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Foreword

This technical report has been prepared by ISA's SP20 standards committee, Instrument Specification Forms. The ISA-SP20 committee welcomes comments and suggestions, and requests that they be addressed to the Chairperson, ISA-SP20, ISA, 67 Alexander Drive, Research Triangle Park, NC 27709 USA.

This technical report provides separate form parts for operating parameters, device specifications, and general requirements. Forms from ISA-20-1981 have been modified extensively, and many of the forms represent new devices not previously covered.

This technical report applies to all processes of development and use of ISA specification forms for process measurement and control instruments. It provides the listing of the forms, the classification of the devices, and the approved forms.

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Introduction

The completion of instrument specification forms is an extremely important segment of the complete design, purchase, and manufacture of process measurement and control instrumentation.

Approved ISA specification forms for many devices are developed that follow the guidelines of ISA–20.00.03–2001 and have been reviewed by users and manufacturers. These forms are adequate for most applications and can be provided by ISA. The defining of specification forms and a data dictionary will allow electronic data exchange between users and manufacturers.

The purposes of ISA specification forms are

- a) to assist in preparation of a complete specification by listing and providing space for all principal descriptive attributes;
- b) to facilitate quoting, bid reviews, purchasing, receiving, calibration, inspection, piping design, design audit, accounting, and ordering procedures by uniform display of information;
- c) to improve efficiency of instrumentation activities from initial concept to final commissioning and any subsequent reviews and revisions; and
- d) to provide standard data definitions and field lengths adequate for electronic exchange of information.

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1 Scope

Instrument devices with dedicated functionality may be specified using data-sheet-type, approved ISA specification forms. This technical report does not address system specifications such as shared control and shared display devices, where extensive use of functionality or performance specifications is required.

This technical report lists the ISA specification forms by form part category, measured or initiating variable, readout, or final control device categories, and form number. A form numbering system has been implemented that identifies the form categories, device function grouping, and page number. The form number, title, and development status is listed for each proposed or approved form.

2 Normative references

ISA–20.00.03–2001, Specification Forms for Process Measurement and Control Instruments, Part 3: Form Requirements and Development Guidelines.

3 Definitions

For the purpose of this technical report, the following definition applies:

3.1 specification form:
the document, or its electronic data equivalent, that details the statement of parameters or properties prescribing the design basis, construction, materials, and performance for an instrument to be supplied.

4 Application

ISA specification forms may be used for the following different levels of device specification.

4.1 Operating parameters documentation

Documentation of the operating parameters may be completed and endorsed independently of the hardware device selection and preliminary specification through the use of the separate form page.

4.2 Preliminary inquiry/quotation

For a preliminary inquiry or quotation, the specifier and vendor may agree on a minimum level of information. In this case, the specifier may mark with an asterisk (*) in the revision column of the *Operating Parameters* or *Device Specification* forms, any lines that the recipient of the specification form is requested to complete.

4.3 Traditional specification

Documentation of operating parameters required for sizing or selection analysis, and identification of the instrument properties that are pertinent to the development of a manufacturer's model number, should be the minimum data provided on specification forms used to purchase instruments.

4.4 Conforming specification

A complete specification ideally should include all relevant information about the main device and associated secondary devices that has been agreed to by the purchaser and supplier. In this case, the fully completed specification form can be used for the final documentation of the instrument specifications.

5 Requirements

5.1 Three form parts

ISA specification forms are generally comprised of three form parts for the following information organization:

- a) *Operating Parameters* forms are developed to document the process application and design conditions for communication to instrument specifiers and manufacturers.
- b) *Device Specification* forms are developed to provide the information to initially size and select a main device and the information to identify requirements for attached and directly associated devices.
- c) *General or Special Requirements* forms are developed to provide means for the specifier to identify general or special requirements that are applicable to the device, but need additional space beyond that available in the other two types of forms.

5.2 Form numbers and titles for *Operating Parameters* forms

A common form is developed for all devices sharing the same measured variable or final control element. Table A.1, annex A, identifies assigned categories, ISA form numbers, and titles.

5.3 Form numbers and titles for *Device Specification* forms

Device Specification forms are grouped and numbered based upon a device category code, the form part number, and an instrument function subcategory sequential number. Table A.2, annex A, identifies assigned device categories, ISA form numbers, and titles.

5.4 Form numbers and titles for *General or Special Requirements* forms

A single form is provided for the initial page of the *General or Special Requirements* forms. Table A.3, annex A, identifies the assigned ISA form number and title.

6 General sections of ISA specification forms

6.1 Specification identification section

Operating Parameters, *Device Specification*, and *General or Special Requirements* forms utilize the same specification identification field prompts.

6.2 Endorsements

Endorsement identifications and status inference, such as originator, checker, approver, and origin date, should be independent throughout each form type.

6.3 Revision chronicle

Identification of the three most recent entries recorded in the revision chronicle should be independent throughout each form type.

6.4 Component identification

Identification of the instrument, such as primary tag number, description, line/equipment number, and reference drawing number, should be identical throughout each form type.

7 Classification and designation

Hardware specification forms are based on specific hardware types as classified in annex A.

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Annex A (informative) – Specification forms tables of contents

Table A.1 – Operating parameter device categories and form titles

Form Number	Form Title	Development Status, ISA-SP20
20A1001	Analysis Device	Approved (Annex B)
20A1002	Analysis Device Composition or Property	Approved (Annex B)
20B1001	Burner or Combustion Device	
20C1001	Valve or Regulator Device	Approved (Annex B)
20F1001	Flow Device	Approved (Annex B)
20H1001	Hand Control Device	
20L1001	Level Device	Approved (Annex B)
20P1001	Differential Pressure Device	Approved (Annex B)
20P1002	Pressure Safety Device	Approved (Annex B)
20P1003	Pressure Device Rev. 0	Approved (Annex B)
20R1001	Receiver Device	
20T1001	Temperature Device	Approved (Annex B)
20U1001	Basic Engineering Design Data	
20V1001	Vibration or Mechanical Analysis Device	
20W1001	Weight or Force Device	Approved (Annex B)
20X1001	Unclassified Device	
20Y1001	Relay or Compute or Converter Device	
20Z1001	Position Device	

Table A.2 – Device specification categories and form titles

Form Number	Form Title	Development Status, ISA-SP20
Analysis Devices		
20A2101	Carbon Dioxide Monitor	
20A2111	Combustible Gas Analyzer	
20A2121	Flue & Stack Gas Analyzer	
20A2141	Chromatograph Analyzer	
20A2142	Chromatograph Analyzer Components	
20A2151	In Situ Oxygen Analyzer	
20A2161	Extractive Oxygen Analyzer	
20A2162	Extractive Oxygen Analyzer Components	

Table A.2 – Device specification categories and form titles (cont'd)

Analysis Devices (cont'd)		
20A2171	Opacity Analyzer	
20A2181	Toxic Gas Analyzer	
20A2391	Entrained Holdup Gas Monitor	Approved (Annex B)
20A2191	Dissolved Oxygen Analyzer	
20A2192	Dissolved Oxygen/Ozone/CL2 Transmitter/Analyzer/Monitor	Approved (Annex B)
20A2201	Infrared or Ultraviolet Analyzer	
20A2202	Infrared or Ultraviolet Analyzer Components	
20A2301	Ion-Selective Analyzer	
20A2311	Liquid Density or Specific Gravity Transmitter	
20A2321	Nuclear-Type Density Transmitter	
20A2331	Oil-In-Water Detector	
20A2341	pH/ORP Sensor w/wo Insertion Assembly	Approved (Annex B)
20A2342	pH/ORP/Conductivity/Resistivity Transmitter/Analyzer/Monitor	Approved (Annex B)
20A2351	Turbidity or Suspended Solids Sensor w/wo Integral Transmitter	Approved (Annex B)
20A2352	Turbidity or Suspended Solids Transmitter or Controller	Approved (Annex B)
20A2361	Viscometer	
20A2371	Moisture Analyzer	
20A2372	Moisture Analyzer Components	
20A2373	Humidity/Dewpoint Transmitter w/wo Switches	Approved (Annex B)
20A2381	Conductivity Sensor w/wo Insertion Assembly	Approved (Annex B)
20A2901	Sample Conditioning System w/wo Switches and Valves	
Burner or Combustion Devices		
20B2001	Flame Detector	
20B2101	Flame Monitor	
Valve or Regulator Devices		
20C2001	Linear Motion Type Control Valve Assembly	Approved (Annex B)
20C2002	Linear Motion Type Control Valve Auxiliaries	Approved (Annex B)
20C2011	Rotary Motion Type Control Valve Assembly	Approved (Annex B)
20C2012	Rotary Motion Type Control Valve Auxiliaries	Approved (Annex B)
20C2021	Severe Service Control Valve Assembly	
20C2022	Severe Service Control Valve Auxiliaries	
20C2031	Desuperheater Control Valve	
20C2041	Linear Motion Type Motor-Operated Valve Assembly	Approved (Annex B)
20C2042	Rotary Motion Type Motor Operated Valve Assembly	Approved (Annex B)

Table A.2 – Device specification categories and form titles (cont'd)

Valve or Regulator Devices (cont'd)		
20C2043	Electric Actuator and Auxiliaries	Approved (Annex B)
20C2101	Recirculation Control Valve	
20C2111	Pressure Regulator with/without Pilot Valve	Approved (Annex B)
20C2131	Temperature Regulator Valve	
20C2141	Air-Release or Air/Vacuum and Combination Air Valves	Approved (Annex B)
20C2201	Power-Actuated Block Valve Assembly	
20C2202	Power-Actuated Block Valve Auxiliaries	
20C2211	Solenoid Valve	
20C2221	Manual-Actuated Block Valve Assembly	
Flow Devices		
20F2001	Anemometer Element	
20F2011	Elbow Meter	Approved (Annex B)
20F2021	Flow Nozzle w/wo Meter Tube	Approved (Annex B)
20F2031	Orifice Plate	Approved (Annex B)
20F2041	Orifice Plate Assembly w/wo Meter Tube	Approved (Annex B)
20F2051	Multivariable Flow Transmitter	Approved (Annex B)
20F2061	Paddle Flow Switch or Flowmeter	Approved (Annex B)
20F2071	Pitot Tube w/wo Insertion Assembly	Approved (Annex B)
20F2081	Segmental Wedge Flow Element	Approved (Annex B)
20F2091	Target Flowmeter	
20F2101	V-Shaped Cone Flow Element	Approved (Annex B)
20F2111	Venturi or Flow Tube w/wo Meter Tube	Approved (Annex B)
20F2211	Flume Flowmeter	
20F2221	Open Channel Flowmeter	
20F2231	Rotameter Flowmeter	
20F2241	Rotameter Transmitter	
20F2251	Variable Area Flowmeter	
20F2261	Weir Flowmeter	
20F2321	Magnetic Flowmeter w/wo Integral Totalizer Indicator	Approved (Annex B)
20F2331	Nuclear Type Flowmeter	
20F2341	Ultrasonic Flowmeter w/wo Switches	Approved (Annex B)
20F2351	Thermal Mass Flowmeter w/wo Switches	Approved (Annex B)
20F2361	Thermal Mass Flow Switch	Approved (Annex B)

Table A.2 – Device specification categories and form titles (cont'd)

Flow Devices (cont'd)		
20F2371	Turbine Flowmeter w/wo Totalizer Indicator	
20F2381	Vortex or Swirl Flowmeter w/wo Totalizer Indicator	Approved (Annex B)
20F2391	Sonic Flowmeter	Approved (Annex B)
20F2411	Positive Displacement Flowmeter Direct-Reading Type	Approved (Annex B)
20F2421	Positive Displacement Flowmeter w/ Transmitter or Accessories	Approved (Annex B)
20F2431	Variable Area Flow Switch	
20F2511	Mass Type Flowmeter	
20F2521	Coriolis Mass Flowmeter w/wo Totalizer Indicator	Approved (Annex B)
20F2611	Sight Flow Indicator w/wo Illuminator	Approved (Annex B)
Hand Control Devices		
20H2001	Instrument Valve	
20H2011	Instrument Manifold Valve	
Level Devices		
20L2101	Capacitance or RF Admittance Level Transmitter w/wo Switches	Approved (Annex B)
20L2111	Differential Pressure Level Transmitter - Flange Mounted	Approved (Annex B)
20L2121	Displacer-Type Level Transmitter or Local Controller	Approved (Annex B)
20L2131	Tape Level Gauge or Transmitter w/wo Switches	
20L2141	Nuclear Radiation Level Transmitter w/wo Switches	Approved (Annex B)
20L2151	Resistance-Tape Level Transmitter w/wo Switches	Approved (Annex B)
20L2161	Radar Level Transmitter w/wo Switches	
20L2171	Non-contact Ultrasonic Level Transmitter w/wo Switches	Approved (Annex B)
20L2181	Magnetostrictive Level Transmitter w/wo Switches	
20L2301	Capacitance or RF Admittance Level Switch	Approved (Annex B)
20L2311	Float or Displacer Level Switch	Approved (Annex B)
20L2312	Tank Level Gauge or Indicator w/wo Switches	Approved (Annex B)
20L2321	Nuclear Radiation Level Switch	Approved (Annex B)
20L2331	Resistance Tape Level Switch	
20L2341	RF or Radar or Micro Level Switch	
20L2351	Ultrasonic Contact-Type Level Switch	Approved (Annex B)
20L2361	Vibrating Element Level Switch	
20L2371	Rotary Level Switch	Approved (Annex B)
20L2501	Liquid Level Gage Glass w/wo Illuminator	Approved (Annex B)
20L2511	Magnetic Liquid Level Gage or Indicator w/wo Switches	Approved (Annex B)
20L2521	Tape Float Tank Gauge	

Table A.2 – Device specification categories and form titles (cont'd)

Pressure or Differential Pressure Devices		
20P2001	Pressure Gauge	Approved (Annex B)
20P2011	Pressure Gauge With Diaphragm Seal	Approved (Annex B)
20P2101	Differential Pressure Gauge	Approved (Annex B)
20P2201	Pressure Transmitter	Approved (Annex B)
20P2211	Pressure Transmitter With Diaphragm Seal	Approved (Annex B)
20P2301	Differential Pressure Transmitter	Approved (Annex B)
20P2311	Differential Pressure Transmitter With Diaphragm Seals	Approved (Annex B)
20P2401	Pressure Switch w/wo Transmitter	Approved (Annex B)
20P2501	Differential Pressure Switch w/wo Transmitter	Approved (Annex B)
Pressure Safety Devices		
20P2901	Rupture Disk Assembly w/wo Burst Sensor	Approved (Annex B)
20P2911	Pressure Relief Tank Vent	
20P2921	Pressure Relief Valve	Approved (Annex B)
Receiver Devices		
20R2011	Annunciator	
20R2111	Controller	
20R2121	Local Controller w/wo Recorder	
20R2201	Receiver Gauge	Approved (Annex B)
20R2211	Indicator	
20R2221	Local Indicator w/wo Recorder	
20R2231	Totalizer Indicator	
20R2241	Digital Meter	
20R2311	Analog Recorder	
20R2411	Digital Recorder	
Temperature Devices		
20T2001	Bimetallic Thermometer w/wo Thermowell	Approved (Annex B)
20T2101	Filled-System Thermometer Assembly w/wo Thermowell	Approved (Annex B)
20T2111	Filled-System Temperature Switch w/wo Thermowell	Approved (Annex B)
20T2121	Filled-System Temperature Transmitter w/wo Thermowell	Approved (Annex B)
20T2201	RTD Assembly w/wo Thermowell	Approved (Annex B)
20T2221	RTD/Thermocouple Temperature Transmitter or Switch	Approved (Annex B)
20T2301	Thermocouple Assembly w/wo Thermowell	Approved (Annex B)
20T2401	Thermal Radiation Temperature Sensor w/wo Monitor	Approved (Annex B)
20T2501	Thermowell or Protecting Tube Assembly	Approved (Annex B)

Table A.2 – Device specification categories and form titles (cont'd)

Vibration or Mechanical Analysis Devices		
20V2111	Vibration Switch	
20V2211	Vibration Monitor	
20V2311	Mechanical Analysis Monitor	
Weight Devices		
20W2011	Electronic Weight Scale	
20W2111	Strain Gage Weight Indicator	
20W2211	Load Cell or Transducer	Approved (Annex B)
20W2221	Electronic Weight Transmitter, Indicator, or Controller	Approved (Annex B)
Relay or Compute or Converter Devices		
20Y2011	Transducer	
20Y2111	Barrier or Isolator	
20Y2211	Signal Converter	
20Y2311	Analog Signal Switch	
20Y2411	Solenoid or Pilot Valve	
20Y2511 & 20Y2512	Fieldbus Junction & Continuation of Tag Number List	Approved (Annex B)
Position Devices		
20Z2011	Electromechanical Limit Switch	Approved (Annex B)
20Z2012	Proximity Sensor	Approved (Annex B)
20Z2021	Proximity Switch	
20Z2111	Position Transmitter	

Table A.3- General or special requirements form title

Form Number	Form Title	Development Status, ISA-SP20
20G3001	General or Special Requirements	Approved (Annex B)

Annex B (informative) – Approved specification forms

Following are the approved specification forms, as of the date of this publication.

1	RESPONSIBLE ORGANIZATION	ANALYSIS DEVICE	6	SPECIFICATION IDENTIFICATIONS			
2		Operating Parameters	7	Document no			
3			8	Latest revision		Date	
4			9	Issue status			
5			10				

11	ADMINISTRATIVE IDENTIFICATIONS				40	SERVICE IDENTIFICATIONS Continued			
12	Project number		Sub project no		41	Return conn matl type			
13	Project				42	Inline hazardous area cl		Div/Zon	Group
14	Enterprise				43	Inline area min ign temp		Temp ident number	
15	Site				44	Remote hazardous area cl		Div/Zon	Group
16	Area		Cell	Unit	45	Remote area min ign temp		Temp ident number	
17					46				
18	SERVICE IDENTIFICATIONS				47				
19	Tag no/Functional ident				48	COMPONENT DESIGN CRITERIA			
20	Related equipment				49	Component type			
21	Service				50	Component style			
22					51	Output signal type			
23	P&ID/Reference dwg				52	Characteristic curve			
24	Process line/nozzle no				53	Compensation style			
25	Process conn pipe spec				54	Type of protection			
26	Process conn nominal size		Rating		55	Criticality code			
27	Process conn termn type		Style		56	Max EMI susceptibility		Ref	
28	Process conn schedule no		Wall thickness		57	Max temperature effect		Ref	
29	Process connection length				58	Max sample time lag			
30	Process line matl type				59	Max response time			
31	Fast loop line number				60	Min required accuracy		Ref	
32	Fast loop pipe spec				61	Avail nom power supply		Number wires	
33	Fast loop conn nom size		Rating		62	Calibration method			
34	Fast loop conn termn type		Style		63	Testing/Listing agency			
35	Fast loop schedule no		Wall thickness		64	Test requirements			
36	Fast loop estimated lg				65	Supply loss failure mode			
37	Fast loop material type				66	Signal loss failure mode			
38	Return conn nominal size		Rating		67				
39	Return conn termn type		Style		68				

69	PROCESS VARIABLES		MATERIAL FLOW CONDITIONS		101	PROCESS DESIGN CONDITIONS		
70	Flow Case Identification			Units	102	Minimum	Maximum	Units
71	Process pressure				103			
72	Process temperature				104			
73	Process phase type				105			
74	Process liquid actl flow				106			
75	Process vapor actl flow				107			
76	Process vapor std flow				108			
77	Process liquid density				109			
78	Process vapor density				110			
79	Process liquid viscosity				111			
80	Sample return pressure				112			
81	Sample vent/drain press				113			
82	Sample temperature				114			
83	Sample phase type				115			
84	Fast loop liq actl flow				116			
85	Fast loop vapor actl flow				117			
86	Fast loop vapor std flow				118			
87	Fast loop vapor density				119			
88	Conductivity/Resistivity				120			
89	pH/ORP				121			
90	RH/Dewpoint				122			
91	Turbidity/Opacity				123			
92	Dissolved oxygen				124			
93	Corrosivity				125			
94	Particle size				126			
95					127			
96	CALCULATED VARIABLES				128			
97	Sample lag time				129			
98	Process fluid velocity				130			
99	Wake/natural freq ratio				131			
100					132			

133	MATERIAL PROPERTIES				137	MATERIAL PROPERTIES Continued			
134	Name				138	NFPA health hazard		Flammability	Reactivity
135	Density at ref temp		At		139				
136					140				

Rev	Date	Revision Description	By	Appv1	Appv2	Appv3	REMARKS

1	RESPONSIBLE ORGANIZATION		ANALYSIS DEVICE			6	SPECIFICATION IDENTIFICATIONS		
2			COMPOSITION OR PROPERTY			7	Document no		
3			Operating Parameters (Continued)			8	Latest revision	Date	
4						9	Issue status		
5						10			

11	PROCESS COMPOSITION OR PROPERTY			MEASUREMENT DESIGN CONDITIONS				
12	Component/Property Name	Normal	Units	Minimum	Units	Maximum	Units	Repeatability
13								
14								
15								
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23								
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Rev	Date	Revision Description	By	Appv1	Appv2	Appv3	REMARKS

1	RESPONSIBLE ORGANIZATION		VALVE OR REGULATOR DEVICE		6	SPECIFICATION IDENTIFICATIONS			
2			Operating Parameters		7	Document no			
8					Latest revision				
9					Issue status				
10									
11	ADMINISTRATIVE IDENTIFICATIONS				40	SERVICE IDENTIFICATIONS Continued			
12	Project number		Sub project no		41	Inline hazardous area cl		Div/Zone	Group
13	Project				42	Inline area min ign temp		Temp ident number	
14	Enterprise				43	Remote hazardous area cl		Div/Zone	Group
15	Site				44	Remote area min ign temp		Temp ident number	
16	Area		Cell	Unit	45				
17					46				
18	SERVICE IDENTIFICATIONS				47	COMPONENT DESIGN CRITERIA			
19	Tag no/Functional ident				48	Component type			
20	Related equipment				49	Component style			
21	Service				50	Input signal type			
22					51	Flow characteristic			
23	P&ID/Reference dwg number				52	Min seat leakage class			
24	Upstr line/nozzle number				53	Max stem leakage rate			
25	Upstream line pipe spec				54	Type of protection			
26	Upstr line nominal size		Rating		55	Criticality code			
27	Upstr line conn type		Style		56	Max EMI susceptibility		Ref	
28	Upstr line schedule no		Wall thickness		57	Min xdcr reqd accuracy		Ref	
29	Upstr conn orientation				58	Max offset/proprn band			
30	Upstr line material type				59	Actuator sizing factor			
31	Connection design code				60	Avail nom power supply		Number wires	
32	Dnstr line/nozzle number				61	Available nom air supply			
33	Downstream line pipe spec				62	Testing/Listing agency			
34	Dnstr line nominal size		Rating		63	Test requirements			
35	Dnstr line conn type		Style		64	Supply loss failure mode			
36	Dnstr line schedule no		Wall thickness		65	Signal loss failure mode			
37	Dnstr conn orientation				66				
38	Dnstr line material type				67				
39	Dnstr insulation atten				68				
69	PROCESS VARIABLES		MATERIAL FLOW CONDITIONS			101	PROCESS DESIGN CONDITIONS		
70	Flow Case Identification		Units			102	Minimum	Maximum	Units
71	Inlet pressure					103			
72	Outlet pressure					104			
73	Inlet temperature					105			
74	Inlet phase type					106			
75	Mass fraction vapor					107			
76	Total mass flow rate					108			
77	Liquid mass flow rate					109			
78	Liquid actual flow rate					110			
79	Liquid standard flow rate					111			
80	Liquid density					112			
81	Liquid specific gravity					113			
82	Liquid viscosity					114			
83	Absolute vapor pressure					115			
84	Vapor mass flow rate					116			
85	Vapor actual flow rate					117			
86	Vapor standard flow rate					118			
87	Vapor density					119			
88	Vapor specific gravity					120			
89	Vapor molecular weight					121			
90	Vapor viscosity					122			
91	Inlet compressibility					123			
92						124			
93	CALCULATED VARIABLES					125			
94	Pressure differential					126			
95	Total system press drop					127			
96	Calculated flow coef					128			
97	Calculated travel					129			
98	Calculated travel time					130			
99	Calculated SPL					131			
100						132			
133	MATERIAL PROPERTIES				138	MATERIAL PROPERTIES Continued			
134	Name				139	Abs critical pressure			
135	Composition				140	Critical temperature			
136	Density at ref temp		At		141	NFPA health hazard		Flammability	Reactivity
137	Ratio sp heat capacity				142				
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1	RESPONSIBLE ORGANIZATION		FLOW DEVICE				6	SPECIFICATION IDENTIFICATIONS			
2			Operating Parameters				7	Document no			
3							Latest revision		Date		
4							Issue status				
5											
ADMINISTRATIVE IDENTIFICATIONS							SERVICE IDENTIFICATIONS Continued				
12	Project number		Sub project no				41	Inline hazardous area cl		Div/Zone	Group
13	Project						42	Inline area min ign temp		Temp ident number	
14	Enterprise						43	Remote hazardous area cl		Div/Zone	Group
15	Site						44	Remote area min ign temp		Temp ident number	
16	Area		Cell		Unit		45				
17							46				
SERVICE IDENTIFICATIONS							COMPONENT DESIGN CRITERIA				
19	Tag no/Functional ident						48	Component type			
20	Related equipment						49	Component style			
21	Service						50	Output signal type			
22							51	Characteristic curve			
23	P&ID/Reference dwg number						52	Compensation style			
24	Upstr line/nozzle number						53	Type of protection			
25	Upstream line pipe spec						54	Criticality code			
26	Upstr line nominal size		Rating				55	Max EMI susceptibility		Ref	
27	Upstr line conn type		Style				56	Max temperature effect		Ref	
28	Upstr line schedule no		Wall thickness				57	Min diameter ratio (d/D)		Max	
29	Upstr conn orientation						58	Max response time			
30	Upstr line material type						59	Min required accuracy		Ref	
31	Connection design code						60	Avail nom power supply		Number wires	
32	Dnstr line/nozzle number						61	Min load capability			
33	Downstream line pipe spec						62	Testing/Listing agency			
34	Dnstr line nominal size		Rating				63	Test requirements			
35	Dnstr line conn type		Style				64	Supply loss failure mode			
36	Dnstr line schedule no		Wall thickness				65	Signal loss failure mode			
37	Dnstr conn orientation						66				
38	Dnstr line material type						67				
39	Avail upstr straight lg		Dnstr lg				68				
PROCESS VARIABLES							PROCESS DESIGN CONDITIONS				
70	Flow Case Identification				Units		101	Minimum		Maximum	Units
71	Inlet pressure						102				
72	Outlet pressure						103				
73	Inlet temperature						104				
74	Inlet phase type						105				
75	Mass fraction vapor						106				
76	Total mass flow rate						107				
77	Liquid mass flow rate						108				
78	Liquid actual flow rate						109				
79	Liquid standard flow rate						110				
80	Liquid density						111				
81	Liquid specific gravity						112				
82	Liquid viscosity						113				
83	Absolute vapor pressure						114				
84	Vapor mass flow rate						115				
85	Vapor actual flow rate						116				
86	Vapor standard flow rate						117				
87	Vapor density						118				
88	Vapor specific gravity						119				
89	Vapor molecular weight						120				
90	Vapor viscosity						121				
91	Inlet compressibility						122				
92							123				
93	CALCULATED VARIABLES						124				
94	Pressure differential						125				
95	Perm pressure drop						126				
96	Line fluid velocity						127				
97	Line Reynolds number						128				
98	Calculated uncertainty						129				
99							130				
100							131				
MATERIAL PROPERTIES							MATERIAL PROPERTIES Continued				
132	Name						138	Abs critical pressure			
133	Composition						139	Critical temperature			
134	Density at ref temp		At				140	NFPA health hazard		Flammability	Reactivity
135	Ratio sp heat capacity						141				
136	Conductivity						142				
137							143				
Rev	Date	Revision Description	By	Appv1	Appv2	Appv3	REMARKS				

1	RESPONSIBLE ORGANIZATION		LEVEL DEVICE			6	SPECIFICATION IDENTIFICATIONS				
2			Operating Parameters			7	Document no				
8						Latest revision		Date			
9						Issue status					
10											
11	ADMINISTRATIVE IDENTIFICATIONS					43	SERVICE IDENTIFICATIONS Continued				
12	Project number		Sub project no			44	Process conn diff height				
13	Project					45	Zero datum height				
14	Enterprise					46	Turbulence intensity				
15	Site					47	Inline hazardous area cl		Div/Zone Group		
16	Area		Cell	Unit		48	Inline area min ign temp		Temp ident number		
17						49	Remote hazardous area cl		Div/Zone Group		
18	SERVICE IDENTIFICATIONS					50	Remote area min ign temp		Temp ident number		
19	Tag no/Functional ident					51					
20	Related equipment					52					
21	Service					53					
22						54	COMPONENT DESIGN CRITERIA				
23	P&ID/Reference dwg number					55	Component type				
24	Upper conn nozzle number					56	Component style				
25	Upper conn pipe spec					57	Output signal type				
26	Upper conn nominal size		Rating			58	Characteristic curve				
27	Upper conn termn type		Style			59	Compensation required				
28	Upper conn schedule no		Wall thickness			60	Type of protection				
29	Upper conn length					61	Criticality code				
30	Upper conn orientation					62	Max EMI susceptibility		Ref		
31	Upper conn material type					63	Max temperature effect		Ref		
32	Connection design code					64	Max response time				
33	Lower conn nozzle number					65	Min required accuracy		Ref		
34	Lower conn pipe spec					66	Max dead band				
35	Lower conn nominal size		Rating			67	Avail nom power supply		Number wires		
36	Lower conn termn type		Style			68	Min load capability				
37	Lower conn schedule no		Wall thickness			69	Testing/Listing agency				
38	Lower conn length					70	Test requirements				
39	Lower conn orientation					71	Supply loss failure mode				
40	Lower conn material type					72	Signal loss failure mode				
41	Device insertion length					73					
42	Vessel nominal diameter		Height			74					
75	PROCESS VARIABLES		PROCESS DESIGN CONDITIONS								
76	Condition Identification		Minimum	Normal	Maximum	Units					
77	Pressure										
78	Temperature										
79	Lower material phase type										
80	Lower material density										
81	Lower material sp gr										
82	Lower material viscosity										
83	Lower material level										
84	Upper material phase type										
85	Upper material density										
86	Upper material sp gr										
87	Upper material viscosity										
88	Upper material level										
89	Max material buildup thkns										
90	Solids concentration										
91	Moisture content										
92	Max angle of repose										
93	Particle size										
94											
95											
96	CALCULATED VARIABLES										
97	Calc zero el/suppr										
98	Calc measurement span										
99											
100											
101	MATERIAL PROPERTIES					109	MATERIAL PROPERTIES Continued				
102	Lower material name					110	Upper material name				
103	Lower matl composition					111	Upper matl composition				
104	Lower matl density at ref		At			112	Upper matl density at ref		At		
105	Lower dielectric constant		At temp			113	Upper dielectric constant		At temp		
106	Lower material Color					114	Upper material Color				
107	Lower NFPA health hazard		Flammability	Reactivity		115	Upper NFPA health hazard		Flammability Reactivity		
108						116					
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 **Documents**
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1	RESPONSIBLE ORGANIZATION		PRESSURE SAFETY DEVICE				6	SPECIFICATION IDENTIFICATIONS			
2			Operating Parameters				7	Document no			
3							Latest revision		Date		
4							Issue status				
5											
ADMINISTRATIVE IDENTIFICATIONS							SERVICE IDENTIFICATIONS Continued				
12	Project number		Sub project no				40	Fire-fighting/Drainage			
13	Project						41	Inline hazardous area cl		Div/Zone	Group
14	Enterprise						42	Inline area min ign temp		Temp ident number	
15	Site						43	Remote hazardous area cl		Div/Zone	Group
16	Area		Cell		Unit		44	Remote area min ign temp		Temp ident number	
SERVICE IDENTIFICATIONS							COMPONENT DESIGN CRITERIA				
19	Tag number						48	Component type			
20	Related equipment						49	Component style			
21	Service						50	Output signal type			
23	P&ID/Reference dwg						51	Seat leakage class			
24	Fluid service						52	Type of protection			
25	Source of overpressure						53	Criticality code			
26	Inlet line/nozzle number						54	Set/Burst Pressure			
27	Inlet line pipe spec						55	Allowable SPL @ capacity			
28	Inlet line nominal size		Rating				56	Preliminary selected area			
29	Inlet line conn type		Style				57	Eff coef of discharge			
30	Inlet line material type						58	Disc combination factor			
31	Outlet line/nozzle number						59	Avail nom power supply		Number wires	
32	Outlet line pipe spec						60	Required design code			
33	Outlet line nominal size		Rating				61	Test requirements			
34	Outlet line conn type		Style				62	Supply loss failure mode			
35	Outlet line material type						63	Signal loss failure mode			
36	Vessel wetted area						64	Calculations basis			
37	Vessel exposed area						65				
38	Environmental factor						66				
PROCESS VARIABLES							PROCESS DESIGN CONDITIONS				
68	Flow Case Identification		Non-fire	Fire	Capacity	Units	99	Minimum	Normal	Maximum	Units
69	Allowable overpressure						100				
70	Inlet pressure						101				
71	Build-up back pressure						102				
72	Superimposed back press						103				
73	Inlet temperature						104				
74	Inlet density						105				
75	Inlet phase type			vapor			106				
76	Mass fraction vapor			1.0			107				
77	Total mass flow rate						108				
78	Liquid mass flow rate			0			109				
79	Liquid actual flow rate			0			110				
80	Liquid density						111				
81	Liquid specific gravity						112				
82	Liquid viscosity						113				
83	Latent heat vaporization						114				
84	Vapor mass flow rate						115				
85	Vapor actual flow rate						116				
86	Vapor standard flow rate						117				
87	Vapor density						118				
88	Vapor specific gravity						119				
89	Vapor molecular weight						120				
90	Compressibility factor						121				
91							122				
92	CALCULATED VARIABLES						123				
93	Vaporized liquid rate						124				
94	Reqd eff discharge area						125				
95	Calculated SPL@ 3 ft						126				
96	Reaction force						127				
97							128				
MATERIAL PROPERTIES							MATERIAL PROPERTIES Continued				
130	Name						136	Abs critical pressure			
131	Composition						137	Critical temperature			
132	Liquid specific heat						138	NFWA health hazard		Flammability	Reactivity
133	Ratio sp heat capacity						139				
134							140				
Rev	Date	Revision Description		By	Appv1	Appv2	Appv3	REMARKS			

1	RESPONSIBLE ORGANIZATION		PRESSURE DEVICE			6	SPECIFICATION IDENTIFICATIONS		
2			Operating Parameters			7	Document no		
3						Latest revision		Date	
4						Issue status			
5									
ADMINISTRATIVE IDENTIFICATIONS						COMPONENT DESIGN CRITERIA			
11	Project number		Sub project no			42	Component type		
12	Project					43	Component style		
13	Enterprise					44	Output signal type		
14	Site					45	Characteristic curve		
15	Area		Cell	Unit		46	Type of protection		
16						47	Criticality code		
17	SERVICE IDENTIFICATIONS					48	Max EMI susceptibility		
18	Tag no/Functional ident					49	Max temperature effect		Ref
19	Related equipment					50	Max response time		
20	Service					51	Min required accuracy		Ref
21						52	Max dead band		
22	P&ID/Reference dwg number					53	Avail nom power supply		Number wires
23	Line/nozzle number					54	Min load capacity		
24	Process conn pipe spec					55	Testing/Listing agency		
25	Line/Nozzle nominal size		Rating			56	Test requirements		
26	Process conn termn type		Style			57	Supply loss failure mode		
27	Line/Nozzle schedule no		Wall thickness			58	Signal loss failure mode		
28	Connection length					59			
29	Connection orientation					60			
30	Line/Nozzle matl type					61			
31	Connection design code					62			
32	Device insertion length					63			
33	Inline hazardous area cl		Div/Zone	Group		64			
34	Inline area min ign temp		Temp ident number			65			
35	Remote hazardous area cl		Div/Zone	Group		66			
36	Remote area min ign temp		Temp ident number			67			
37						68			
38						69			
39						70			
40						71			
41						72			
PROCESS VARIABLES						PROCESS DESIGN CONDITIONS			
73	Condition Identification				Units	102	Minimum		Maximum
74	Pressure					103			
75	Temperature					104			
76	Material phase type					105			
77	Liquid density					106			
78	Liquid specific gravity					107			
79	Liquid viscosity					108			
80	Vapor density					109			
81	Vapor specific gravity					110			
82	Vapor viscosity					111			
83						112			
84						113			
85						114			
86						115			
87						116			
88						117			
89						118			
90						119			
91						120			
92						121			
93						122			
94						123			
95						124			
96	CALCULATED VARIABLES					125			
97	Calc zero el / suppr					126			
98	Calc measurement span					127			
99						128			
100						129			
101						130			
MATERIAL PROPERTIES						MATERIAL PROPERTIES Continued			
131	Material name					137			
132	Composition					138			
133	Density at ref		At			139			
134	NFPA health hazard		Flammability	Reactivity		140			
135						141			
136						142			
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1	RESPONSIBLE ORGANIZATION			TEMPERATURE DEVICE			6	SPECIFICATION IDENTIFICATIONS					
2				Operating Parameters			7	Document no					
3							Latest revision			Date			
4							Issue status						
5													
11	ADMINISTRATIVE IDENTIFICATIONS						39	SERVICE IDENTIFICATIONS Continued					
12	Project number			Sub project no			40	Inline hazardous area cl			Div/Zone Group		
13	Project						41	Inline area min ign temp			Temp ident number		
14	Enterprise						42	Remote hazardous area cl			Div/Zone Group		
15	Site						43	Remote area min ign temp			Temp ident number		
16	Area			Cell Unit			44						
17							45						
18	SERVICE IDENTIFICATIONS						46	COMPONENT DESIGN CRITERIA					
19	Tag no/Functional ident						47	Component type					
20	Related equipment						48	Component style					
21	Service						49	Output signal type					
22							50	Characteristic curve					
23	P&ID/Reference dwg number						51	Type of protection					
24	Line/Nozzle number						52	Criticality code					
25	Process conn pipe spec						53	Max EMI susceptibility			Ref		
26	Line/Nozzle nominal size			Rating			54	Max temperature effect			Ref		
27	Process conn termn type			Style			55	Max response time					
28	Line/Nozzle schedule no			Wall thickness			56	Min required accuracy			Ref		
29	Connection length						57	Max dead band					
30	Connection orientation						58	Avail nom power supply			Number wires		
31	Connection material type						59	Minimum load capability					
32	Connection design code						60	Testing/Listing agency					
33	Insulation thickness						61	Test requirements					
34	Device insertion length						62	Supply loss failure mode					
35							63	Signal loss failure mode					
36							64						
37							65						
38							66						
67	PROCESS VARIABLES			MATERIAL FLOW CONDITIONS			100	PROCESS DESIGN CONDITIONS					
68	Flow Case Identification			Units			101	Minimum Maximum Units					
69	Pressure						102						
70	Temperature						103						
71	Phase type						104						
72	Total mass flow rate						105						
73	Liquid mass flow rate						106						
74	Liquid actual flow rate						107						
75	Liquid standard flow rate						108						
76	Liquid density						109						
77	Liquid specific gravity						110						
78	Liquid viscosity						111						
79	Vapor mass flow rate						112						
80	Vapor actual flow rate						113						
81	Vapor standard flow rate						114						
82	Vapor density						115						
83	Vapor specific gravity						116						
84	Vapor molecular weight						117						
85							118						
86							119						
87							120						
88							121						
89							122						
90							123						
91							124						
92							125						
93	CALCULATED VARIABLES						126						
94	Line fluid velocity						127						
95	Line Reynolds number						128						
96	Wake/natural freq ratio						129						
97							130						
98							131						
99							132						
133	MATERIAL PROPERTIES						138	MATERIAL PROPERTIES Continued					
134	Name						139	Ratio sp heat factor					
135	Composition						140	Emissivity					
136	Density at ref temp			At			141	NFPA health hazard			Flammability Reactivity		
137	Ratio sp heat capacity						142						
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1	RESPONSIBLE ORGANIZATION		ENTRAINED/HOLDUP GAS MONITOR			6	SPECIFICATION IDENTIFICATIONS		
2			Device Specification			7	Document no		
3						8	Latest revision	Date	
4						9	Issue status		
5						10			
11	SENSOR HEAD COVER					56	TRANSMITTER OR TOTALIZER w/wo SWITCHES Continued		
12	Head/Tube cover type					57	Data logger points		
13	Cover style					58	Measurement compensation		
14	Pipe/Tube nominal size					59	Enclosure material		
15	Head cover material					60			
16	Gasket/Seal material					61			
17						62			
18						63	PERFORMANCE CHARACTERISTICS		
19	SENSING ELEMENT					64	Min working temperature	Max	
20	Measurement type					65	Gas fraction accuracy	Ref	
21	Sensor style					66	Gas fraction repeatability	Ref	
22	Band type					67	Gas fraction LRL	URL	
23	Band material					68	Update rate		
24						69	Min ambient working temp	Max	
25						70	Contacts dc rating	At max	
26	CONNECTION HEAD OR PREAMPLIFIER					71	Max sensor to receiver lg		
27	Configuration type					72			
28	Output signal type					73			
29	Enclosure type no/class					74			
30	Signal conn termn style					75			
31	Cert/Approval type					76			
32						77	ACCESSORIES		
33	LEAD WIRE AND EXTENSION					78	Mounting hardware		
34	Extension type					79	Thermal blanket		
35	Cable length					80			
36	Min cable operating temp		Max			81			
37	Signal termination type					82			
38	Cert/Approval type					83	SPECIAL REQUIREMENTS		
39	Cable jacket material					84	Custom tag		
40						85	Reference specification		
41	TRANSMITTER w/wo SWITCHES					86	Calibration report		
42	Configuration type					87	Software configuration		
43	Aux input signal type					88			
44	Output signal type					89			
45	Enclosure type no/class					90			
46	Local operator interface					91	PHYSICAL DATA		
47	Digital communication std					92	Estimated weight		
48	Signal power source					93	Overall length		
49	Contacts arrangement		Quantity			94	Removal clearance		
50	Integral indicator style					95	Outside diameter		
51	Signal termination type					96	Signal conn nominal size	Style	
52	Cert/Approval type					97	Mfr reference dwg		
53	Mounting location/type					98			
54	Failure/Diagnostic action					99			
55	Memory interface					100			
110	CALIBRATIONS AND TEST			INPUT OR TEST		OUTPUT OR SCALE			
111	TAG NO/FUNCTIONAL	MEAS/SIGNAL/SCALE	LRV	URV	ACTION	LRV	URV		
112		Gas fraction-Output 1							
113		Speed of sound-Output 2							
114		-Freq output							
115		-Digital output							
116		Gas fraction-Scale 1							
117		Speed of sound-Scale 2							
118		setpoint-Output							
119		Failure signal-Output							
120									
121									
122									
123									
124	COMPONENT IDENTIFICATIONS								
125	COMPONENT TYPE	MANUFACTURER	MODEL NUMBER						
126									
127									
128									
129									
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1	RESPONSIBLE ORGANIZATION		DISSOLVED OXYGEN/OZONE/CL2 TRANSMITTER/ANALYZER/MONITOR Device Specification		6	SPECIFICATION IDENTIFICATIONS	
2					7	Document no	
3					8	Latest revision	Date
4					9	Issue status	
5					10		

11	TRANSMITTER OR ANALYZER			56	PERFORMANCE CHARACTERISTICS		
12	Housing type			57	pH compensation LRL	URL	
13	Input sensor type			58	Meas 1 accuracy rating		
14	Input sensor style			59	Meas 2 accuracy rating		
15	Output signal type			60	Temp accuracy rating		
16	Enclosure type no/class			61	Measurement LRL	URL	
17	Control mode			62	Temp compensation LRL	URL	
18	Local operator interface			63	Barometric pressure LRL	URL	
19	Characteristic curve			64	Minimum span	Max	
20	Digital communication std			65	Min ambient working temp	Max	
21	Signal power source			66	Contacts ac rating	At max	
22	Temperature sensor type			67	Contacts dc rating	At max	
23	Quantity of input sensors			68	Max distance to sensor lg		
24	Preamplifier location			69			
25	Contacts arrangement	Quantity		70			
26	Integral indicator style			71			
27	Signal termination type			72			
28	Cert/Approval type			73			
29	Mounting location/type			74			
30	Failure/Diagnostic action			75			
31	Sensor diagnostics			76	ACCESSORIES		
32	Data history log			77	Remote indicator style		
33	Measurement compensation			78	Indicator enclosure		
34	Calibration function			79	Communicator style		
35	Enclosure material			80			
36				81			
37				82			
38				83	SPECIAL REQUIREMENTS		
39				84	Custom tag		
40				85	Reference specification		
41				86	Compliance standard		
42				87	Software configuration		
43				88	Software program		
44				89			
45				90			
46				91			
47				92	PHYSICAL DATA		
48				93	Estimated weight		
49				94	Overall height		
50				95	Removal clearance		
51				96	Signal conn nominal size	Style	
52				97	Mfr reference dwg		
53				98			
54				99			
55				100			

110	CALIBRATIONS AND TEST		INPUT OR TEST		OUTPUT OR SCALE	
111	TAG NO/FUNCTIONAL IDENT	MEAS/SIGNAL/SCALE	LRV	URV	ACTION	LRV
112		Meas-Analog output 1				URV
113		Meas-Analog output 2				
114		Meas-Digital output				
115		Meas-Scale				
116		Temp-Scale				
117		Temp-Digital output				
118		Meas setpoint 1-Output				
119		Meas setpoint 2-Output				
120		Meas setpoint 3-Output				
121		Meas setpoint 4-Output				
122		Failure signal-Output				
123						

124	COMPONENT IDENTIFICATIONS		
125	COMPONENT TYPE	MANUFACTURER	MODEL NUMBER
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1	RESPONSIBLE ORGANIZATION		pH/ORP SENSOR w/w/o INSERTION ASSEMBLY Device Specification			6	SPECIFICATION IDENTIFICATIONS	
2						7	Document no	
3						8	Latest revision	Date
4						9	Issue status	
5						10		
BODY HOLDER OR FITTING						INSERTION ASSEMBLY continued		
12	Body/Fitting type				61	Insertion/Immersion lg		
13	Process conn nominal size		Rating		62	Valve body material		
14	Process conn termn type		Style		63	Valve seat material		
15	Maximum probe diameter				64	Chamber wetted material		
16	Body/Fitting material				65	Compression ferrule matl		
17	Flange material				66			
18	Seal/O ring material				67			
SENSING ELEMENT						PERFORMANCE CHARACTERISTICS		
23	Sensor type				69	Max press at design temp	At	
24	Construction style				70	Min working temperature	Max	
25	Measuring electrode shape				71	Min conductivity		
26	Reference junction style				72	Max fluid velocity limit		
27	Insertion/Immersion lg				73	Accuracy rating		
28	Signal conn termn style				74	Measurement LRL	URL	
29	Temperature sensor type				75	Temp compensation LRL	URL	
30	Sensing surface matl				76	Linearity		
31	Ref electrolyte material				77	Max response time		
32	Ground pin material				78	Min ambient working temp	Max	
33	Reference element matl				79	Max sensor to receiver lg		
34	Primary junction matl				80			
LEAD WIRE AND EXTENSION						ACCESSORIES		
39	Extension type				84	Electrolyte solution		
40	Cable length				85	Buffer solution		
41	Max cable operating temp				86	Cleaner type		
42	Signal termination type				87	Cleaner supply source		
43	Cable jacket material				88	ORP std solution		
CONNECTION HEAD OR PREAMPLIFIER						89	Rotameter & valve	
46	Configuration type				90			
47	Temperature compensation				91			
48	Enclosure type no/class				92	SPECIAL REQUIREMENTS		
49	Signal termination type				93	Custom tag		
50	Cert/Approval type				94	Reference specification		
51	Mounting location/type				95	Compliance standard		
52	Enclosure material				96	Calibration report		
INSERTION ASSEMBLY						97		
56	Assembly type				98			
57	Isolation valve style				99			
58	Process conn nominal size		Rating		PHYSICAL DATA			
59	Process conn termn type		Style		101	Estimated weight		
CALIBRATIONS AND TEST						102	Overall height	
111	TAG NO/FUNCTIONAL IDENT		MEAS/SIGNAL/SCALE		103	Removal clearance		
112			Measurement-Output signal		104	Signal conn nominal size	Style	
113			Temp-Output signal		105	Mfr reference dwg		
114					106			
115					107			
116					108			
117								
COMPONENT IDENTIFICATIONS								
119	COMPONENT TYPE		MANUFACTURER		MODEL NUMBER			
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1	RESPONSIBLE ORGANIZATION		pH/ORP/CONDUCTIVITY/RESISTIVITY			6		SPECIFICATION IDENTIFICATIONS			
2			TRANSMITTER/ANALYZER/MONITOR			7		Document no			
3			Device Specification			8		Latest revision			
4						9		Issue status			
5						10					
11	TRANSMITTER OR ANALYZER					56	PERFORMANCE CHARACTERISTICS				
12	Housing type					57	Measurement accuracy				
13	Input sensor type					58	Temperature accuracy				
14	Input sensor style					59	Measurement LRL		URL		
15	Output signal type					60	Temp compensation LRL		URL		
16	Enclosure type no/class					61	Minimum span		Max		
17	Control mode					62	Min ambient working temp		Max		
18	Local operator interface					63	Contacts ac rating		At max		
19	Characteristic curve					64	Contacts dc rating		At max		
20	Digital communication std					65	Max sensor to receiver lg				
21	Signal power source					66					
22	Temperature sensor type					67					
23	Quantity of input sensors					68					
24	Preamplifier location					69					
25	Contacts arrangement		Quantity			70					
26	Integral indicator style					71					
27	Signal termination type					72					
28	Cert/Approval type					73					
29	Mounting location/type					74					
30	Failure/Diagnostic action					75					
31	Sensor diagnostics					76					
32	Data history log					77	Remote indicator style				
33	Temperature compensation					78	Indicator enclosure				
34	Calibration function					79	Communicator style				
35	Enclosure material					80					
36						81					
37						82					
38						83					
39						84					
40						85					
41						86					
42						87					
43						88					
44						89					
45						90					
46						91					
47						92					
48						93					
49						94					
50						95					
51						96					
52						97					
53						98					
54						99					
55						100					
110	CALIBRATIONS AND TEST					INPUT OR TEST			OUTPUT OR SCALE		
111	TAG NO/FUNCTIONAL IDENT		MEAS/SIGNAL/SCALE			LRV		URV		ACTION	
112			Meas-Analog output 1								
113			Meas-Analog output 2								
114			Meas-Digital output								
115			Meas-Scale								
116			Temp-Scale								
117			Temp-Digital output								
118			Meas setpoint 1-Output								
119			Meas setpoint 2-Output								
120			Meas setpoint 3-Output								
121			Meas setpoint 4-Output								
122			Failure signal-Output								
123											
124	COMPONENT IDENTIFICATIONS										
125	COMPONENT TYPE		MANUFACTURER			MODEL NUMBER					
126											
127											
128											
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1	RESPONSIBLE ORGANIZATION		TURBIDITY OR SUSPENDED SOLIDS		6	SPECIFICATION IDENTIFICATIONS	
2			SENSOR w/wo INTEGRAL TRANSMITTER		7	Document no	
3			Device Specification		8	Latest revision	Date
4					9	Issue status	
5					10		
11	BODY HOLDER OR FITTING				60	INSERTION ASSEMBLY continued	
12	Body/Fitting type				61	Valve body material	
13	Process conn nominal size		Rating		62	Seal/O ring material	
14	Process conn termn type		Style		63	Chamber wetted material	
15	Maximum probe diameter				64		
16	Body/Fitting material				65		
17	Seal/O ring material				66	PERFORMANCE CHARACTERISTICS	
18					67	Max press at design temp	At
19					68	Min working temperature	Max
20					69	Min flow rate limit	Max
21	SENSING ELEMENT				70	Max submersion depth	
22	Sensor type				71	Meas accuracy rating	Ref
23	Construction style				72	Measurement repeatability	Ref
24	Measurement wavelength				73	Measurement LRL	URL
25	Cleaning type				74	Temp compensation LRL	URL
26	Light source style				75	Max sensor to receiver lg	
27	Insertion/Immersion lg				76		
28	Temperature sensor type				77		
29	Measuring window matl				78		
30					79		
31					80		
32					81		
33	SIGNAL OR INTEGRAL TRANSMITTER				82		
34	Configuration type				83		
35	Output signal type				84		
36	Enclosure type no/class				85	ACCESSORIES	
37	Digital communication std				86	Calibration kit	
38	Signal power source				87		
39	Integral indicator style				88		
40	Signal termination type				89		
41	Cert/Approval type				90		
42	Mounting location/type				91	SPECIAL REQUIREMENTS	
43	Calibration function				92	Custom tag	
44	Enclosure material				93	Reference specification	
45					94	Compliance standard	
46					95	Calibration report	
47	LEAD WIRE AND EXTENSION				96		
48	Extension type				97		
49	Cable length				98		
50	Signal termination type				99	PHYSICAL DATA	
51	Cable jacket material				100	Estimated weight	
52					101	Face-to-face dimension	
53					102	Overall length/height	
54	INSERTION ASSEMBLY				103	Removal clearance	
55	Assembly type				104	Signal conn nominal size	Style
56	Isolation valve style				105	Mfr reference dwg	
57	Process conn nominal size		Rating		106		
58	Process conn termn type		Style		107		
59	Insertion/Immersion lg				108		
110	CALIBRATIONS AND TEST				INPUT OR TEST		OUTPUT
111	TAG NO/FUNCTIONAL IDENT		MEAS/SIGNAL/SCALE		LVR	URV	ACTION
112			Meas-Analog Output 1				LVR
113			Meas-Analog Output 2				URV
114			Temp-Output signal				
115							
116							
117							
118	COMPONENT IDENTIFICATIONS						
119	COMPONENT TYPE		MANUFACTURER		MODEL NUMBER		
120							
121							
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1	RESPONSIBLE ORGANIZATION		TURBIDITY OR SUSPENDED SOLIDS			6	SPECIFICATION IDENTIFICATIONS		
2			TRANSMITTER OR CONTROLLER			7	Document no		
3			Device Specification			8	Latest revision		Date
4						9	Issue status		
5						10			
11	OPERATING PARAMETERS					53	PERFORMANCE CHARACTERISTICS		
12	Project number		Sub project no		54	Measurement accuracy		Ref	
13	Project				55	Temperature accuracy			
14	Enterprise				56	Measurement repeatability		Ref	
15	Site				57	Measurement LRL		URL	
16	Area		Cell	Unit	58	Min ambient working temp		Max	
17	Related equipment				59	Contacts ac rating		At max	
18	Service				60	Contacts dc rating		At max	
19					61				
20	P&ID/Reference dwg Number				62				
21	Remote hazardous area cl		Div/Zone	Group	63				
22	Remote area min ign temp		Temp ident number		64				
23					65				
24					66				
25	TRANSMITTER OR INDICATOR OR CONTROLLER					67			
26	Housing type				68				
27	Input sensor/signal type				69	ACCESSORIES			
28	Range selection style				70	Mounting hardware			
29	Output signal type				71	Mating connector			
30	Enclosure type no/class				72				
31	Control mode				73				
32	Local operator interface				74				
33	Characteristic curve				75				
34	Digital communication std				76	SPECIAL REQUIREMENTS			
35	Signal power source				77	Custom tag			
36	Temperature sensor type				78	Reference specification			
37	Quantity of meas signals				79	Compliance standard			
38	Aux input signal type				80	Software configuration			
39	Contacts arrangement		Quantity		81	Software program			
40	Integral indicator style				82				
41	Signal termination type				83				
42	Cert/Approval type				84				
43	Mounting location/type				85	PHYSICAL DATA			
44	Failure/Diagnostic action				86	Estimated weight			
45	Sensor diagnostics				87	Overall width			
46	Cleaning control type				88	Overall height			
47	Measurement compensation				89	Overall depth			
48	Calibration function				90	Signal conn nominal size		Style	
49	Enclosure material				91	Mfr reference dwg			
50					92				
51					93				
52					94				
110	CALIBRATIONS AND TEST			INPUT OR TEST		OUTPUT OR SCALE			
111	TAG NO/FUNCTIONAL IDENT	MEAS/SIGNAL/SCALE	LRV	URV	ACTION	LRV	URV		
112		Meas-Analog output 1							
113		Meas-Analog output 2							
114		Meas-Analog output 3							
115		Temp-Output signal							
116		Measurement-Scale							
117		Temperature-Scale							
118		Meas setpoint 1-Output							
119		Meas setpoint 2-Output							
120		Meas setpoint 3-Output							
121		Meas setpoint 4-Output							
122		Meas setpoint 5-Output							
123		Meas setpoint 6-Output							
124		Failure signal-Output							
125									
126	COMPONENT IDENTIFICATIONS								
127	COMPONENT TYPE	MANUFACTURER	MODEL NUMBER						
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129									
130									
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1	RESPONSIBLE ORGANIZATION		HUMIDITY/DEWPOINT TRANSMITTER w/wo SWITCHES Device Specification			6	SPECIFICATION IDENTIFICATIONS		
2						7	Document no		
3						8	Latest revision	Date	
4						9	Issue status		
5						10			

11	MOUNTING FITTING				60	PERFORMANCE CHARACTERISTICS			
12	Mounting/Fitting type				61	Max press at design temp		At	
13	Process conn nominal size		Rating		62	Min working temperature		Max	
14	Process conn termn type		Style		63	RH/Dewpoint accuracy			
15	Mounting/Fitting material				64	Temperature accuracy			
16					65	RH/Dewpoint repeatability			
17					66	Max response time			
18					67	Min ambient working temp		Max	
19	SENSING ELEMENT				68	Contacts ac rating		At max	
20	Sensor type				69	Contacts dc rating		At max	
21	Probe style				70	Max sensor to receiver lg			
22	Temperature LRL		URL		71				
23	Humidity/Dewpoint LRL		URL		72				
24	Temperature sensor type				73				
25	Sensor protection style				74				
26	Probe length				75				
27	Sensor head material				76				
28					77				
29					78				
30					79				
31	LEAD WIRE AND EXTENSION				80				
32	Extension type				81				
33	RH/Dewpoint cable length				82				
34	Temperature cable length				83	ACCESSORIES			
35	Max cable operating temp				84	Calibrator			
36	Signal termination type				85	Humidity standards			
37					86	Replacement probe			
38					87				
39					88				
40	TRANSMITTER w/wo SWITCHES				89				
41	Housing type				90	SPECIAL REQUIREMENTS			
42	Output signal type				91	Custom tag			
43	Enclosure type no/class				92	Reference specification			
44	Local operator interface				93	Compliance standard			
45	Digital communication std				94	Calibration report			
46	Signal power source				95	Software configuration			
47	Qty of input sensors				96				
48	Contacts arrangement		Quantity		97				
49	Integral indicator style				98				
50	Signal termination type				99	PHYSICAL DATA			
51	Cert/Approval type				100	Estimated weight			
52	Mounting location/type				101	Overall width			
53	Calibration mode				102	Overall height			
54	Measurement compensation				103	Removal clearance			
55	Enclosure material				104	Signal conn nominal size		Style	
56					105	Mfr reference dwg			
57					106				
58					107				
59					108				

110	CALIBRATIONS AND TEST		INPUT OR TEST		OUTPUT OR SCALE	
111	TAG NO/FUNCTIONAL IDENT	MEAS/SIGNAL/SCALE	LRV	URV	ACTION	LRV
112		Humidity-Analog output				URV
113						
114		Humidity-Scale 1				
115		Other variable-Scale 2				
116		Temp-Analog output				
117		Setpoint 1-Output				
118		Setpoint 2-Output				
119						

120	COMPONENT IDENTIFICATIONS					
121	COMPONENT TYPE	MANUFACTURER	MODEL NUMBER			
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1	RESPONSIBLE ORGANIZATION		 CONDUCTIVITY SENSOR w/wo INSERTION ASSEMBLY Device Specification			6	SPECIFICATION IDENTIFICATIONS													
2						7	Document no													
3						8	Latest revision	Date												
4						9	Issue status													
5						10														
11	BODY HOLDER OR FITTING					60	INSERTION ASSEMBLY continued													
12	Body/Fitting type					61	Chamber wetted material													
13	Process conn nominal size					62	Compression ferrule matl													
14	Process conn termn type					63														
15	Body/Fitting material					64														
16	Flange material					65	PERFORMANCE CHARACTERISTICS													
17	Seal/O ring material					66	Max press at design temp													
18						67	Min working temperature													
19						68	Cell constant accuracy													
20						69	Measurement LRL													
21	SENSING ELEMENT					70	Temp compensation LRL													
22	Sensor type					71	Max temp response time													
23	Construction style					72	Max sensor to receiver lg													
24	Nominal cell constant					73														
25	Temperature sensor type					74														
26	Bore diameter					75														
27	Insertion/Immersion lg					76														
28	Temp sensor location					77														
29	Insulator material					78														
30	Electrode material					79														
31	Ext shaft/support matl					80														
32	Sheath material					81														
33						82														
34						83														
35						84														
36	LEAD WIRE AND EXTENSION					85	ACCESSORIES													
37	Extension type					86	Conductivity standard													
38	Cable length					87														
39	Max cable operating temp					88														
40	Signal termination type					89														
41	Cable jacket material					90														
42						91														
43	CONNECTION HEAD					92	SPECIAL REQUIREMENTS													
44	Housing type					93	Custom tag													
45	Enclosure type no/class					94	Reference specification													
46	Signal termination type					95	Compliance standard													
47	Cert/Approval type					96	Calibration report													
48	Mounting location/type					97														
49	Enclosure material					98														
50						99														
51	INSERTION ASSEMBLY					100	PHYSICAL DATA													
52	Assembly type					101	Estimated weight													
53	Isolation valve style					102	Overall height													
54	Process conn nominal size					103	Removal clearance													
55	Process conn termn type					104	Signal conn nominal size													
56	Purge conn nominal size					105	Mfr reference dwg													
57	Insertion/Immersion length					106														
58	Valve body material					107														
59	Valve seat material					108														
110	CALIBRATIONS AND TEST					INPUT OR TEST					OUTPUT									
111	TAG NO/FUNCTIONAL IDENT					MEAS/SIGNAL/SCALE					LRV					URV				
112						Measurement-Output signal														
113						Temp-Output signal														
114																				
115																				
116																				
117																				
118	COMPONENT IDENTIFICATIONS																			
119	COMPONENT TYPE					MANUFACTURER					MODEL NUMBER									
120																				
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123																				
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1	RESPONSIBLE ORGANIZATION		LINEAR MOTION TYPE CONTROL VALVE AUXILIARIES Device Specification			6	SPECIFICATION IDENTIFICATIONS			
2						7	Document no			
3						8	Latest revision		Date:	
4						9	Issue status			
5						10				
11	POSITION SWITCHES					60	POSITION TRANSMITTER continued			
12	Housing type					61	Integral indicator style			
13	Sensor style					62	Signal termination type			
14	Output signal type					63	Cert/Approval type			
15	Enclosure type no/class					64	Mounting location/type			
16	Contacts ac rating		At Max			65	Enclosure material			
17	Contacts dc rating		At Max			66				
18	Contacts arrangement				Quantity	67				
19	Integral indicator style					68	SUPPLY PRESSURE TRIP VALVE			
20	Signal termination type					69	Configuration type			
21	Cert/Approval type					70	Volume tank size			
22	Mounting location/type					71	Trip set pressure reset			
23	Enclosure material					72	Tank max working pressure			
24	Shaft material					73	Min supply capability		Max	
25	Bushing material					74	Trip set pressure LRL		URL	
26	Fastener material					75	Construction code			
27	Gasket/O ring material					76	Mounting location/type			
28						77	Body material			
29						78	Diaphragm/O ring material			
30	SOLENOID OR PILOT VALVE					79				
31	Body type					80	EMISSIONS MONITOR SWITCH			
32	Enclosure style					81	Sensor type			
33	Inlet conn nominal size		Style			82	Housing type			
34	Coil watt rating					83	Inlet conn nominal size		Style	
35	Coil insulation class					84	Output signal type			
36	Enclosure type no/class					85	Enclosure type no/class			
37	Min operating press diff		Max			86	Contacts ac rating		At Max	
38	Signal power source					87	Contacts dc rating		At Max	
39	Manual operator type					88	Contacts arrangement			
40	Type of actuation					89	Integral indicator style			
41	Coil type					90	Signal termination type			
42	Operation style					91	Cert/Approval type			
43	Press port orifice size		Exhaust port			92	Mounting location/type			
44	Signal termination type					93	Enclosure material			
45	Cert/Approval type					94	Diaphragm material			
46	Mounting location/type					95				
47	Enclosure material					96				
48	Body material					97	BOOSTER RELAY			
49	Seat/Disc/Diaphragm matl					98	Configuration type			
50						99	End conn nominal size		Style	
51						100	Dead band rating			
52	POSITION TRANSMITTER					101	Max supply capability			
53	Housing type					102	Supply port size		Exh port	
54	Sensor style					103	Body material			
55	Output signal type					104	Closure member matl			
56	Accuracy/Linearity rating					105	Diaphragm material			
57	Enclosure type no/class					106	Test conn material			
58	Digital communication std					107	Gasket/O ring material			
59	Signal power source					108				
110	CALIBRATIONS AND TEST					INPUT OR SETPOINT		OUTPUT		
111	TAG NO/FUNCTIONAL IDENT		MEAS/SIGNAL/TEST		LRV	URV	ACTION	LRV	URV	
112			Position-Analog output							
113			Solenoid energized-Output							
114			Position setpoint-Output							
115			Supply setpoint-Output							
116			Emissions setpoint-Output							
117										
118	COMPONENT IDENTIFICATIONS									
119	COMPONENT TYPE		MANUFACTURER			MODEL NUMBER				
120	Position transmitter									
121	Solenoid/Pilot valve									
122	Position switch									
123	Supply press trip valve									
124	Emissions monitor									
125	Booster relay									
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3							8	Latest revision		Date	
4							9	Issue status			
5							10				
11	VALVE BODY AND BONNET						60	SIGNAL TRANSDUCER Continued			
12	Body type						61	Enclosure type no/class			
13	Bonnet style						62	Digital communication std			
14	Inlet conn nominal size		Rating			63	Signal power source				
15	Outlet conn nominal size		Rating			64	Pressure gauges				
16	End conn termn type		Style			65	Cert/Approval type				
17	Flange facing finish						66	Mounting location/type			
18	Shaft seal type						67	Enclosure material			
19	Face-to-face standard						68				
20	Yoke boss diameter						69	POSITIONER OR CONTROLLER			
21	Body and bonnet material						70	Configuration type			
22	Lining material						71	Input signal type			
23	Body/Bonnet bolting matl						72	Enclosure type no/class			
24	Packing flg bolting matl						73	Signal power source			
25	Gasket material						74	Digital communication std			
26	Packing material						75	Cert/Approval type			
27							76	Pressure gauges			
28							77	By-pass manifold			
29	VALVE TRIM						78	Enclosure material			
30	Closure member type						79				
31	Trim style						80	PERFORMANCE CHARACTERISTICS			
32	Inherent characteristic						81	Max press at design temp		At	
33	Seal ring type						82	Min working temperature		Max	
34	Flow direction force						83	Max pressure drop			
35	Shaft diameter		Rated travel			84	Rated flow coef type		Coef	Xt	
36	Closure member material						85	Rated factor FI		Sigma mr	
37	Seal ring material						86	Rated seat leakage class			
38	Shaft material						87				
39	Flow ring material						88	ACCESSORIES			
40	Guide/Retainer material						89	Air set filter style			
41	Guide bushing material						90	Air set gauges			
42	Hard facing/coating						91	Tubing nominal size			
43							92	Tubing and fitting matl			
44							93				
45	ACTUATOR						94	SPECIAL REQUIREMENTS			
46	Actuator type						95	Custom tag			
47	Effective area						96	Reference specification			
48	Bench set LRL		URL			97	Special preparation				
49	Max supply capability						98	Compliance standard			
50	Handwheel type/position						99	Construction code			
51	Mounting orientation						100	Software configuration			
52	Casing/cylinder material						101				
53	Diaphragm/O ring matl						102	PHYSICAL DATA			
54	Yoke material						103	Estimated weight			
55							104	Face-to-Face dimension			
56	SIGNAL TRANSDUCER						105	Overall height			
57	Input signal type						106	Removal clearance			
58	Output signal type						107	Mfr reference dwg			
59	Accuracy rating						108				
110	CALIBRATIONS AND TEST				INPUT OR TEST		OUTPUT				
111	TAG NO/FUNCTIONAL IDENT		MEAS/SIGNAL/TEST		LRV	URV	ACTION	LRV	URV		
112			Bench set-Travel								
113			Positioner input-Travel								
114			Transducer input-Output								
115			Test pressure								
116											
117											
118	COMPONENT IDENTIFICATIONS										
119	COMPONENT TYPE		MANUFACTURER		MODEL NUMBER						
120											
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11	POSITION SWITCHES						60	POSITION TRANSMITTER continued			
12	Housing type						61	Integral indicator style			
13	Sensor style						62	Signal termination type			
14	Output signal type						63	Cert/Approval type			
15	Enclosure type no/class						64	Mounting location/type			
16	Contacts ac rating		At Max				65	Enclosure material			
17	Contacts dc rating		At Max				66				
18	Contacts arrangement				Quantity		67				
19	Integral indicator style						68	SUPPLY PRESSURE TRIP VALVE			
20	Signal termination type						69	Configuration type			
21	Cert/Approval type						70	Volume tank size			
22	Mounting location/type						71	Trip set pressure reset			
23	Enclosure material						72	Tank max working pressure			
24	Shaft material						73	Min supply capability		Max	
25	Bushing material						74	Trip set pressure LRL		URL	
26	Fastener material						75	Construction code			
27	Gasket/O ring material						76	Mounting location/type			
28							77	Body material			
29							78	Diaphragm/O ring material			
30	SOLENOID OR PILOT VALVE						79				
31	Body type						80	EMISSIONS MONITOR SWITCH			
32	Enclosure style						81	Sensor type			
33	Inlet conn nominal size		Style				82	Housing type			
34	Coil watt rating						83	Inlet conn nominal size		Style	
35	Coil insulation class						84	Output signal type			
36	Enclosure type no/class						85	Enclosure type no/class			
37	Min operating press diff		Max				86	Contacts ac rating		At Max	
38	Signal power source						87	Contacts dc rating		At Max	
39	Manual operator type						88	Contacts arrangement			
40	Type of actuation						89	Integral indicator style			
41	Coil type						90	Signal termination type			
42	Operation style						91	Cert/Approval type			
43	Press port orifice size		Exhaust port				92	Mounting location/type			
44	Signal termination type						93	Enclosure material			
45	Cert/Approval type						94	Diaphragm material			
46	Mounting location/type						95				
47	Enclosure material						96				
48	Body material						97	BOOSTER RELAY			
49	Seat/Disc/Diaphragm matl						98	Configuration type			
50							99	End conn nominal size		Style	
51							100	Dead band rating			
52	POSITION TRANSMITTER						101	Max supply capability			
53	Housing type						102	Supply port size		Exh port	
54	Sensor style						103	Body material			
55	Output signal type						104	Closure member matl			
56	Accuracy/Linearity rating						105	Diaphragm material			
57	Enclosure type no/class						106	Test conn material			
58	Digital communication std						107	Gasket/O ring material			
59	Signal power source						108				
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