	
DOC NUMBER: <b>569-DB7B-AIC-714-003</b>		CLIENT NUMBER: <b>PRD-AIC-DSH-068</b>	
CLIENT: <b>TAKEDA/BAXALTA</b>			
PROJECT: <b>BURITI EPCVM PROJECT</b>			

## DRUG SUBSTANCE - BMS – DATA SHEET LEVEL TRANSMITTER

0	04AUG2021	ISSUE FOR CONSTRUCTION	JHA	MAF	RSP
A	24MAR2021	60% DD ISSUE	JHA	MAF	RSP
REV	DATE	DESCRIPTION	EXEC	CHECK	APPROV

NUMBER: 569-DB7B-AIC-714-003

CLIENT NR: PRD-AIC-DSH-068

TITLE

LEVEL TRANSMITTER

SHEET:  
2 de 5





REV.:  
0

### DOCUMENT REVIEW CONTROL





Revision	A	0	1	2	3	4	Revision	A	0	1	2	3	4	Revision	A	0	1	2	3	4
Page							Page							Page						
1	X	X					26							51						
2	X	X					27							52						
3	X	X					28							53						
4	X	X					29							54						
5	X	X					30							55						
6	/	/					31							56						
7							32							57						
8							33							58						
9							34							59						
10							35							60						
11							36							61						
12							37							62						
13							38							63						
14							39							64						
15							40							65						
16							41							66						
17							42							67						
18							43							68						
19							44							69						
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### REVISION 0 NOTES:





- 1- UPDATE ACCORDING TO P&ID (HVAC AND PROCESS).
- 2- INSERTION OF PROCESS DATA.
- 3- INSERTION OF INSTRUMENT REFERENCE MODELS.

 		 	
NUMBER: 569-DB7B-AIC-714-003		CLIENT NR: PRD-AIC-DSH-068	
TITLE			SHEET:
LEVEL TRANSMITTER			3 de 5
			REV.: 0
<b>REFERENCE DOCUMENTS</b>			
7B-M-0-5-44		P&I DIAGRAM - DRUG SUBSTANCE - CHILLED GLYCOL GENERATION SYSTEM	
PRD-AIC-LIS-015		DRUG SUBSTANCE - BMS - INSTRUMENT INDEX	
PRD-PIP-TSP-501		PIPE CLASS AND SPECIFICATION - TECHNICAL SPECIFICATION	
PRD-AIC-LIS-046		INTEGRATED PROJECT SERVICES - INSTRUMENT SUGGESTED SUPPLIER LIST	

<b>GENERAL NOTES</b>
<p>1- The transmitters must have the following characteristics:</p> <ul style="list-style-type: none"> <li>a) They must be electronic, intelligent and programmable, with the transmission of the signal in the same physical medium as the power supply;</li> <li>b) Support the respective maximum static design pressures;</li> <li>c) They must be capable of identifying internal failures;</li> <li>d) Be capable of setting the value of the output signal, programmable in 0% or 100% of the range, in case of sensor element failure;</li> </ul> <p>2- All transmitters must have enclosures, whose parts exposed to the atmosphere are resistant to environmental conditions, including those generated by the process condition.</p> <p>3- All electronic or electrical components that are subject to fungal and moisture attacks must be tropicalized, i.e., treated with polyurethane coating or equivalent to inhibit this attack.</p> <p>4- All transmitters must be provided with protection type certificates compatible with the respective area classification. If the enclosure requires certificates regarding type and degree of protection, both proofs must be explicit in the same certificate. The certificates must be issued by INMETRO or an accredited body.</p> <p>5- All transmitters must have a calibration certificate with traceability according to ISO 9000.</p> <p>6- The identification plates must be made of AISI 304 stainless steel permanently attached to the instruments with a tag and serial number. The serial number of the instrument, when possible, can be recorded on the body itself.</p> <p>7- All electronic instruments must be provided with software asset management feature, with zero adjustment function, span adjustment and other remote settings via digital data communication. The software must be supplied with the instruments and when necessary the connecting cables must also be provided.</p> <p>8- The instrument display must be at least 2 lines with 5 characters on each line.</p>

 				 			
NUMBER: 569-DB7B-AIC-714-003				CLIENT NR: PRD-AIC-DSH-068			
TITLE						SHEET: 4 de 5	
LEVEL TRANSMITTER						REV: 0	
GENERAL	1	INSTRUMENT TAG NUMBER			LIT-980005		
	2	SERVICE			LEVEL BUFFER TANK - BT-7B-1		
	3	P&ID			7B-M-0-5-44		
	4	PIPE LINE	EQUIPMENT NUMBER		-	BT-7B-1	
	5	EQUIPMENT MATERIAL / PIPE			CARBON STEEL ASTM-A106 Gr.B		
	6	AREA CLASSIFICATION			NOT CLASSIFIED		
	7	ENCLOSURE CLASSIFICATION			IP 65 (MÍN.) CONF. NBR IEC 60529		
	8	CERTIFICATES			(SEE GENERAL NOTES 4)		
	9						
TRANSMITTER	10	TYPE			MICROPROCESSED		
	11	MOUNTING			FULL		
	12	BODY MATERIAL			316SS		
	13	BODY PRESSURE CLASS			BY MANUFACTURER		
	14	METER CASING			ALUMINIO (COPPER FREE)		
	15	POWER SUPPLY			24 Vcc - 2 FIOS		
	16	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)		
	17	COMMUNICATION PROTOCOL			HART		
	18	PRECISION			± 0.075% F.E.		
	19	REPEATABILITY			BY MANUFACTURER		
	20	ELEMENT TYPE			DIAPHRAGM (CAPACITIVE)		
	21	SENSOR ELEMENT MATERIAL			316LSS		
	22	CALIBRATION RANGE			BY MANUFACTURER		
	23	CALIBRATED RANGE			100 @ 2790 mm		
	24	CONNECTION TO PROCESS (HIGH / LOW)			1.1/2" 150# FR	BY MANUFACTURER	
	25	ELECTRICAL CONNECTION			1/2" NPT (F)		
	26						
	27	ADJUSTABLE RANGE / AJ. LOCAL ZERO AND SPAN			YES / YES		
DIAPHRAGM SEAL	28	DIAPHRAGM SEAL			NOT REQUIRED		
	29	SEAL MATERIAL			NOT REQUIRED		
	30	CONNECTION TO PROCESS			NOT REQUIRED		
	31	FLANGE FACE FINISH			NOT REQUIRED		
	32	FILLING FLUID			NOT REQUIRED		
	33	CAPILLARY MATERIAL			NOT REQUIRED		
	34	CAPILLARY LENGTH			NOT REQUIRED		
	35						
ACCESSORIES	36	MOUNTING ACCESSORIES			NOT REQUIRED		
	37	MANIFOLD			NOT		
	38	LOCAL INDICATION			SIM, TIPO LCD (VER NOTAS GERAIS 8)		
	39	TAGGING			YES (SEE GENERAL NOTES 6)		
	40	SURGE PROTECTOR			YES		
OPERATING CONDITIONS	41	FLUID	PHYSICAL STATUS		CHILLED WATER (NOTE 1)		LIQUID
	42	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	5	-	11 °C
	43	MINIMUM PRESSURE	NORMAL	MAXIMUM	0	-	0,27 bar-g
	44	DESIGN PRESSURE	DESIGN TEMPERATURE		2 bar-g		41 °C
	45	VISCOSITY @ OPERATING CONDITION			1,3 cP		
	46	DENSITY @ OPERATING CONDITION			999,64 kg/m³		
	47	SUSPENDED SOLIDS (%)			NO		
	48	M.M. / Z / Cp/Cv			... / ... / ...		
	49						
	50	MANUFACTURER			Endress + Hauser (E+H) or Similar		
51	MODEL			FMD77			

NOTES:

   						
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TITLE				SHEET: 5 de 5		
LEVEL TRANSMITTER				REV: 0		
GENERAL	1	INSTRUMENT TAG NUMBER		LIT-980006		
	2	SERVICE		LEVEL BUFFER TANK - BT-7B-1		
	3	P&ID		7B-M-0-5-44		
	4	PIPE LINE	EQUIPMENT NUMBER	-	BT-7B-1	
	5	EQUIPMENT MATERIAL / PIPE		CARBON STEEL ASTM-A106 Gr.B		
	6	AREA CLASSIFICATION		NOT CLASSIFIED		
	7	ENCLOSURE CLASSIFICATION		IP 65 (MÍN.) CONF. NBR IEC 60529		
	8	CERTIFICATES		(SEE GENERAL NOTES 4)		
	9					
TRANSMITTER	10	TYPE		MICROPROCESSED		
	11	MOUNTING		FULL		
	12	BODY MATERIAL		316SS		
	13	BODY PRESSURE CLASS		BY MANUFACTURER		
	14	METER CASING		ALUMINIO (COPPER FREE)		
	15	POWER SUPPLY		24 Vcc - 2 FIOS		
	16	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)		
	17	COMMUNICATION PROTOCOL		HART		
	18	PRECISION		± 0.075% F.E.		
	19	REPEATABILITY		BY MANUFACTURER		
	20	ELEMENT TYPE		DIAPHRAGM (CAPACITIVE)		
	21	SENSOR ELEMENT MATERIAL		316LSS		
	22	CALIBRATION RANGE		BY MANUFACTURER		
	23	CALIBRATED RANGE		1200 @ 2790 mm		
	24	CONNECTION TO PROCESS (HIGH / LOW)		1.1/2" 150# FR	BY MANUFACTURER	
	25	ELECTRICAL CONNECTION		1/2" NPT (F)		
	26					
27	ADJUSTABLE RANGE / AJ. LOCAL ZERO AND SPAN		YES / YES			
DIAPHRAGM SEAL	28	DIAPHRAGM SEAL		NOT REQUIRED		
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	30	CONNECTION TO PROCESS		NOT REQUIRED		
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ACCESSORIES	36	MOUNTING ACCESSORIES		NOT REQUIRED		
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	38	LOCAL INDICATION		SIM, TIPO LCD (VER NOTAS GERAIS 8)		
	39	TAGGING		YES (SEE GENERAL NOTES 6)		
	40	SURGE PROTECTOR		YES		
OPERATING CONDITIONS	41	FLUID	PHYSICAL STATUS		CHILLED WATER (NOTE 1)	LIQUID
	42	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	-	5 °C
	43	MINIMUM PRESSURE	NORMAL	MAXIMUM	0	0,27 bar-g
	44	DESIGN PRESSURE	DESIGN TEMPERATURE		2 bar-g	41 °C
	45	VISCOSITY @ OPERATING CONDITION		1,52 cP		
	46	DENSITY @ OPERATING CONDITION		1000 kg/m³		
	47	SUSPENDED SOLIDS (%)		-		
	48	M.M. / Z / Cp/Cv		-		
	49					
	50	MANUFACTURER		Endress + Hauser (E+H) or Similar		
51	MODEL		FMD77			

NOTES: