







DOC NUMBER:

569-DB7B-AIC-713-005

CLIENT NUMBER:

PRD-AIC-DSH-005

CLIENT:

TAKEDA/BAXALTA

PROJECT:

BURITI EPCVM PROJECT

DRUG SUBSTANCE - BMS – DATA SHEET MAGNETIC FLOW TRANSMITTER

2	20APR2022	ISSUE FOR CONSTRUCTION AS PER NOTE	ACC	MAF	RSP
1	27JAN2022	ISSUE FOR CONSTRUCTION CONSIDERING COMMENTS	MAV	MAF	RSP
0	27AUG2021	ISSUE FOR CONSTRUCTION	JHA	MAF	RSP
Α	24MAR2021	60% DD ISSUE	JHA	MAF	RSP
REV	DATE	DESCRIPTION	EXEC	CHECK	APPROV









TITLE

2 de 16 REV.:

MAGNETIC FLOW TRANSMITTER

DOCUMENT REVIEW CONTROL

Revision	Α	0	1	2	3	4	Revision	Α	0	1	2	3	4	Revision	Α	0	1	2	3	4
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10	Х	Χ	Χ	Χ			35							60						
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25							50							75						Г

REVISION 0 NOTES:

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

REVISION 1 NOTES:

1- CANCELLED FIT-980005.

REVISION 2 NOTES AS PER N+1 UPDATE:

1- INDICATED FUTURE INSTRUMENTS: FIT-980016, FIT-980030

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PRD-AIC-DSH-005 NUMBER: 569-DB7B-AIC-713-005 CLIENT NR:

TITI F SHFFT:

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MAGNETIC FLOW TRANSMITTER REV.:

REFERENCE DOCUMENTS

P&I DIAGRAM - DRUG SUBSTANCE - INDUSTRIAL WATER DISTRIBUTION SYSTEM 7B-M-0-5-41 P&I DIAGRAM - DRUG SUBSTANCE - COOLING WATER SYSTEM 7B-M-0-5-42 7B-M-0-5-44 P&I DIAGRAM - DRUG SUBSTANCE - CHILLED GLYCOL GENERATION SYSTEM 7B-M-0-5-45 P&I DIAGRAM - DRUG SUBSTANCE - CHILLED GLYCOL DISTRIBUTION SYSTEM 7B-M-0-5-53 P&I DIAGRAM - DRUG SUBSTANCE - CHILLED WATER DISTRIBUTION SYSTEM LOOP 2 PROCESS PRD-AIC-LIS-015 DRUG SUBSTANCE - BMS - INSTRUMENT INDEX PIPE CLASS AND SPECIFICATION - TECHNICAL SPECIFICATION

PRD-PIP-TSP-501

PRD-AIC-LIS-046 INTEGRATED PROJECT SERVICES - INSTRUMENT SUGGESTED SUPPLIER LIST

GENERAL NOTES

- The transmitters must have the following characteristics:
 - a) They must be electronic, intelligent and programmable, with the transmission of the signal in the same physical medium as the power supply;
 - b) Support the respective maximum static design pressures:
 - c) They must be capable of identifying internal failures;
 - 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;
- 2- All transmitters must have enclosures, whose parts exposed to the atmosphere are resistant to environmental conditions, including those generated by the process condition.
- 3- The identification plates must be manufactured in stainless steel AISI 304, permanently attached to the instruments with tag and serial number. The serial number of the instrument, when possible, can be engraved on the body itself.
- The manufacturer must confirm the nominal diameter of the meter.
- The instrument display must have at least 2 lines with 16 characters on each line.
- 6- 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.
- 7- Grounding rings in material compatible with the process fluid must be provided, being at least AISI 316.









TITLE

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MAGNETIC FLOW TRANSMITTER

	1	INSTRUMENT TAG NUMBE	R			FI	Г-070001			
	2	SERVIÇE			CHILL	ED WATER - LC	OOP 1 - EXIT FROM H	X-7B-2		
	3	P&ID				7B-	-M-0-5-53			
3AL	4	PIPE LINE	EQUIPMENT NU	IMBER	6"-CW1S-07	00001-CS1-CC		-		
GENERAL	5	EQUIPMENT MATERIAL / P.	IPE .			CARBON STE	EL ASTM-A106 Gr.B			
GEI	6	AREA CLASSIFICATION				NOT	CLASSIFIED			
	7	ENCLOSURE CLASSIFICAT	TION			IP 65 (MÍN.) C	ONF. NBR IEC 60529			
	8	CERTIFICATES				(SEE GEN	ERAL NOTES 6)			
	9									
	9	DIAMETER OF SENSOR TU	<i>JBE</i>			6"	(NOTE 1)			
	10	TUBE MATERIAL				STAIN	LESS STEEL			
	11	COATING MATERIAL					PFA			
۵	12	ELECTRODE MATERIAL			316SS					
METER	13	GROUNDING RING MATER	MAL		YES (SEE GENERAL NOTES 7)					
ME	14	CONNECTIONS				FL	ANGED			
	15	CLASS AND FACE				150# FR, ASM	IE B16.5 / NBR 7669			
	16	FLANGE FACE FINISH				M	SS SP-6			
	17	ELECTRICAL CONNECTION	V			NOTA	IPPLICABLE			
	18	MOUNTING				INTEGRA	AL TO SENSOR			
	19	POWER SUPPLY				24 Vc	c - 2 WIRES			
æ	20	OUTPUT SIGNAL				4 - 20 mA (50	00 ohms @ 24 Vcc)			
TTE	21	COMMUNICATION PROTO	COL				HART			
CONVERTER / TRANSMITTER	22	PRECISION				± 0.	.15% F.E.			
SAN	23	REPEATABILITY				BY MAN	IUFACTURER			
77	24	ELECTRICAL CONNECTION			1/2	" NPT (F)				
'ER	25	LOCAL INDICATION		YES	S, LCD TYPE (Si	EE GENERAL NOTES	S 11)			
ERI	26	CALIBRATION RANGE			BY MAN	IUFACTURER				
NVC	27	CALIBRATED RANGE				0 @	2 150 m³/h			
\ddot{o}	28	KEYBOARD FOR LOCAL CO	ONFIGURATION		YES					
	29	METER CASING			ALUMINIO (COPPER FREE)					
	30	PULSE OUTPUT			YES					
S	31	TAGGING				YES (SEE GI	ENERAL NOTES 3)			
ORIE	32	SURGE PROTECTOR					YES			
SSC	33									
ACCESSORIES	34									
Ă	35									
	36	FLUID	PHYSICAL STATUS		CHILLED	WATER	LIQU	ID		
	37	MINIMUM FLOW	NORMAL	MAXIMUM	32	121	121	m³/h		
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.6	1.7	1.7	bar-g		
SNC	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	6.0	6.0	6.0	°C		
JIIC	40	PROJECT FLOW				121	m³/h			
OPERATING CONDITIONS	41	11 DESIGN PRESSURE DESIGN TEMPERATURE		RATURE	4.0	6 bar-g	36	C		
G C	42					1000.1	kg/m³			
Ŋ	43					1.57	Ср			
ERA	44	FLUID CONDUCTIVITY		ı	µS/cm²					
0P	45	INCRUSTATION				NO				
	46	SUSPENDED SOLIDS (%)			1		NO			
	47	MAXIMUM LOSS OF LOAD	ALLOWED		-	bar				
	48									
	49	MANUFACTURER			1		user (E+H) or Similar			
	50	MODEL				Proline	Promag (E+H)			









TITLE

SHEET:

MAGNETIC FLOW TRANSMITTER

5 de 16

	SNETIC FLOW TRA	ANOMIT I LIX					2		
1	INSTRUMENT TAG NUM	BER			FIT-	070002			
2	SERVIÇE			CHI	LLED WATER FO	R P-PCH-7B-5 ANI	O 7B-6		
3	B P&ID				7B-N	1-0-5-53			
į 4	4 PIPE LINE	EQUIPMENT	NUMBER	8"-CW1R-0	70002-CS1-CC		-		
5 6	EQUIPMENT MATERIAL	/ PIPE			CARBON STEE	L ASTM-A106 Gr.E	1		
6	AREA CLASSIFICATION			NOT CLASSIFIED					
7	7 ENCLOSURE CLASSIFIC	CATION			IP 65 (MÍN.) CO	NF. NBR IEC 60529	9		
8	B CERTIFICATES				(SEE GENE	RAL NOTES 6)			
9	9								
9	DIAMETER OF SENSOR	TUBE			8" (N	IOTE 1)			
10	0 TUBE MATERIAL				STAINL	ESS STEEL			
1	1 COATING MATERIAL			PFA					
12	2 ELECTRODE MATERIAL			316SS					
13	3 GROUNDING RING MAT	ERIAL		YES (SEE GENERAL NOTES 7)					
14	4 CONNECTIONS				FLA	NGED			
13	5 CLASS AND FACE				150# FR, ASME	B16.5 / NBR 7669			
16	6 FLANGE FACE FINISH				MS	S SP-6			
17	7 ELECTRICAL CONNECT	TON			NOT AF	PPLICABLE			
18	8 MOUNTING				INTEGRAL	TO SENSOR			
19	9 POWER SUPPLY		24 Vcc	- 2 WIRES					
20	0 OUTPUT SIGNAL				4 - 20 mA (500	ohms @ 24 Vcc)			
2	1 COMMUNICATION PRO	TOCOL		HART					
22	2 PRECISION				± 0.1	5% F.E.			
23	3 REPEATABILITY		BY MANU	IFACTURER					
24	4 ELECTRICAL CONNECT		1/2"	NPT (F)					
2	5 LOCAL INDICATION			YES	S, LCD TYPE (SE	E GENERAL NOTE	S 11)		
22 22 22 22 22 22 22 22 22 22 22 22 22	6 CALIBRATION RANGE				BY MANU	IFACTURER			
27	7 CALIBRATED RANGE				0 @ 2	200 m³/h			
28	8 KEYBOARD FOR LOCAL	. CONFIGURATION			,	/ES			
29	9 METER CASING				ALUMINIO (0	COPPER FREE)			
30	0 PULSE OUTPUT				,	YES			
3	1 TAGGING				YES (SEE GEI	NERAL NOTES 3)			
32	2 SURGE PROTECTOR				,	YES			
33	3								
32 32 32 32 32	4								
3.	5								
36	6 FLUID	PHYSICAL STATE		CHILLED WAT	ER RETURN	LIQ			
37		NORMAL	MAXIMUM	32.0	121.0	168.0	m³∕h		
38		NORMAL	MAXIMUM	0.25	0.26	0.26	bar-g		
39		RE NORMAL	MAXIMUM	6.0	11.0	11.0	℃		
40		Y			168.0 r				
4			MPERATURE	4.	6 bar-g	40.7	°C		
42					999.9 F	<u> </u>			
43		NG CONDITION			1.47 (<u>'</u>			
44		FLUID CONDUCTIVITY				S/cm²			
	5 INCRUSTATION	(1)				NO			
-	6 SUSPENDED SOLIDS (%			NO					
47		AD ALLOWED		-	bar				
48				+		/F 10 5: ::			
-	9 MANUFACTURER					ser (E+H) or Similar			
50	0 MODEL			Proline Promag (E+H)					

¹⁻ THE MANUFACTURER MUST CONFIRM THE NOMINAL DIAMETER OF THE METER.









TITLE

SHEET:

6 de 16 REV.:

2

MAGNETIC FLOW TRANSMITTER

								2		
L	1	INSTRUMENT TAG NUMBE	R			FIT-0	70065			
	2	SERVIÇE			CHILLED V	VATER - LOOP 1 -	DISTRIBUTION F	OR HX-7B-2		
	3	P&ID				7B-M	-0-5-53			
ŧ F	4	PIPE LINE	EQUIPMENT NU	IMBER	6"-GW0S-070065-CS1-CC -					
SEIVEN AL	5	EQUIPMENT MATERIAL / P.	IPE		CARBON STEEL ASTM-A106 Gr.B					
į F	6	AREA CLASSIFICATION			NOT CLASSIFIED					
`⊢	7	ENCLOSURE CLASSIFICAT	TION		IP 65 (MÍN.) CONF. NBR IEC 60529					
⊢	_	CERTIFICATES					RAL NOTES 6)			
- 1-	9						/			
+	_	DIAMETER OF SENSOR TU	IRF			6" (N	OTE 1)			
⊢	-	TUBE MATERIAL					SS STEEL			
-		COATING MATERIAL			PFA					
H		ELECTRODE MATERIAL			316SS					
: L		GROUNDING RING MATER	NAI		YES (SEE GENERAL NOTES 7)					
F		CONNECTIONS	IAL							
⊢	_	CLASS AND FACE			FLANGED 150# FR, ASME B16.5 / NBR 7669					
-										
⊢		FLANGE FACE FINISH ELECTRICAL CONNECTION	M		MSS SP-6					
+	_		V		NOT APPLICABLE					
⊢		MOUNTING			INTEGRAL TO SENSOR 24 Vcc - 2 WIRES					
	-	POWER SUPPLY								
i -		OUTPUT SIGNAL	201		4 - 20 mA (500 ohms @ 24 Vcc) HART					
ŀ		COMMUNICATION PROTOC	COL							
Ľ		PRECISION				5% F.E.				
Ŀ		REPEATABILITY				FACTURER				
<u> </u>		ELECTRICAL CONNECTION	V				IPT (F)			
		LOCAL INDICATION			YES	S, LCD TYPE (SEE		S 11)		
: 1	_	CALIBRATION RANGE					FACTURER			
; [<i>i</i>		CALIBRATED RANGE				0 @ 1	00 m³/h			
Ľ		KEYBOARD FOR LOCAL CO	ONFIGURATION		YES					
L	29	METER CASING			ALUMINIO (COPPER FREE)					
	30	PULSE OUTPUT			YES					
		TAGGING			YES (SEE GENERAL NOTES 3)					
	32	SURGE PROTECTOR				Y	ES			
	33									
ACCESSONES	34									
ξ,	35									
	36	FLUID	PHYSICAL STATUS		PROPYLEN	E GLYCOL	LIQ	UID		
	37	MINIMUM FLOW	NORMAL	MAXIMUM	0.0	81.0	81.0	m³∕h		
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.9	1.9	2.0	bar-g		
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	4.0	4.0	4.0	℃		
	40	PROJECT FLOW	-			81.0 m	³/h	-		
	41	DESIGN PRESSURE	DESIGN TEMPE	RATURE	3.4	4 bar-g	34	℃		
	42	DENSITY @ OPERATING C	ONDITION			1000.1 kg	g/m³			
	43	VISCOSITY @ OPERATING	CONDITION		1	1.57 C	p			
		FLUID CONDUCTIVITY				μS	/cm²			
<u> </u>	44					^	10			
		INCRUSTATION				NO NO				
	45	INCRUSTATION SUSPENDED SOLIDS (%)								
	45 46		ALLOWED		-	bar	10			
	45 46	SUSPENDED SOLIDS (%)	ALLOWED		-		10			
	45 46 47 48	SUSPENDED SOLIDS (%)	ALLOWED		-	bar	IO er (E+H) or Similar			

¹⁻ THE MANUFACTURER MUST CONFIRM THE NOMINAL DIAMETER OF THE METER.



MAGNETIC FLOW TRANSMITTER







Proline Promag (E+H)

PRD-AIC-DSH-005 NUMBER: 569-DB7B-AIC-713-005 CLIENT NR:

TITLE

7 de 16 RFV:

2

INSTRUMENT TAG NUMBER FIT-610050 SERVIÇE INDUSTRIAL WATER - DISTRIBUTION SYSTEM 2 P&ID 7B-M-0-5-41 3 PIPE LINE **EQUIPMENT NUMBER** 4"-DW-610049-PP1-N 4 GENERAL EQUIPMENT MATERIAL / PIPE POLIPROPILENO HOMOPOLÍMERO CONF. NBR EN 15494 5 AREA CLASSIFICATION NOT CLASSIFIED 6 ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 DIAMETER OF SENSOR TUBE 110mm (NOTE 1) 9 TUBE MATERIAL STAINLESS STEEL 10 COATING MATERIAL PFA 316SS 12 ELECTRODE MATERIAL YES (SEE GENERAL NOTES 7) GROUNDING RING MATERIAL 13 14 CONNECTIONS **FLANGED** 15 CLASS AND FACE ASME B16.5 / FLANGE 750 kPa FLANGE FACE FINISH **ELECTRICAL CONNECTION** NOT APPLICABLE MOUNTING INTEGRAL TO SENSOR 18 POWER SUPPLY 24 Vcc - 2 FIOS 19 **OUTPUT SIGNAL** 4 - 20 mA (500 ohms @ 24 Vcc) 20 CONVERTER / TRANSMITTER COMMUNICATION PROTOCOL HART 21 22 **PRECISION** ± 0.15% F.E. REPEATABILITY BY MANUFACTURER 23 ELECTRICAL CONNECTION 24 1/2" NPT (F) 25 LOCAL INDICATION SIM, TIPO LCD (VER NOTAS GERAIS 11) CALIBRATION RANGE 26 BY MANUFACTURER CALIBRATED RANGE 0 @ 40 m³/h 27 KEYBOARD FOR LOCAL CONFIGURATION YES METER CASING ALUMINIO (COPPER FREE) 29 PULSE OUTPUT 30 YES TAGGING YES (SEE GENERAL NOTES 3) 31 **ACCESSORIES** SURGE PROTECTOR YES 32 33 34 35 PHYSICAL STATUS 36 FI UID INDUSTRIAL WATER LIQUID MINIMUM FLOW NORMAL MAXIMUM 4.7 40.4 .37 34.3 m³/h MINIMUM PRESSURE NORMAL ΜΑΧΙΜΙΙΜ 38 2.0 2.0 2.0 bar-q OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 25.0 °C 39 25.0 25.0 40 PROJECT FLOW 40.4 m³/h DESIGN TEMPERATURE DESIGN PRESSURE 55.0 ℃ 41 5.3 bar-g DENSITY @ OPERATING CONDITION 997.2 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 0.89 Cp 44 FLUID CONDUCTIVITY µS/cm² 45 INCRUSTATION NO SUSPENDED SOLIDS (%) NO 46 47 MAXIMUM LOSS OF LOAD ALLOWED 48 MANUFACTURER Endress + Hauser (E+H) or Similar 49

NOTES:

MODEL









TITLE

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MAGNETIC FLOW TRANSMITTER

								2			
	1	INSTRUMENT TAG NUMBE	R		FIT-940009						
	2	SERVIÇE			CO	DLING WATER -	GLYCOL GENERA	TION			
	3	P&ID				7B-	M-0-5-42				
GENERAL	4	PIPE LINE	EQUIPMENT NUI	MBER	8"-TWS-940009-CS1-NI -						
ļ	5	EQUIPMENT MATERIAL / PI	IPE .		CARBON STEEL ASTM-A106 Gr.B						
i	6	AREA CLASSIFICATION			NOT CLASSIFIED						
	7	ENCLOSURE CLASSIFICAT	TON		IP 65 (MÍN.) CONF. NBR IEC 60529						
	8	CERTIFICATES				(SEE GENI	ERAL NOTES 6)				
	9										
Ī	9	DIAMETER OF SENSOR TU	BE			8" (NOTE 1)				
F	10	TUBE MATERIAL			STAINLESS STEEL						
I	11	COATING MATERIAL			PFA						
	12	ELECTRODE MATERIAL			316SS						
F	13	GROUNDING RING MATER	IAL		YES (SEE GENERAL NOTES 7)						
t	14	CONNECTIONS			FLANGED						
r	15	CLASS AND FACE				150# FR, ASM	150# FR, ASME B16.5 / NBR 7669				
t	16	FLANGE FACE FINISH					-				
t	17	ELECTRICAL CONNECTION	I			NOTA	PPLICABLE				
T	18	MOUNTING				INTEGRA	L TO SENSOR				
r	19	POWER SUPPLY				24 Va	cc - 2 FIOS				
t	20	OUTPUT SIGNAL				4 - 20 mA (50	0 ohms @ 24 Vcc)				
h	_	COMMUNICATION PROTOC			HART						
1	22 PRECISION						15% F.E.				
t	23	REPEATABILITY		1	BY MAN	UFACTURER					
\vdash	_	ELECTRICAL CONNECTION			1/2'	' NPT (F)					
t		LOCAL INDICATION			SI		ER NOTAS GERAIS	11)			
E		CALIBRATION RANGE				-	UFACTURER	,			
E	_	CALIBRATED RANGE			1		250 m³/h				
⊢		KEYBOARD FOR LOCAL CO	ONFIGURATION				YES				
⊢	_	METER CASING				ALUMINIO ((COPPER FREE)				
⊢	-	PULSE OUTPUT			1		YES				
+	_	TAGGING				YES (SEE GE	ENERAL NOTES 3)				
H	_	SURGE PROTECTOR				- (-	YES				
F.	33										
⊢	34										
H	35										
+	_	FLUID	PHYSICAL STATUS		INDUSTRIA	L WATER	LIQI	JID			
H		MINIMUM FLOW	NORMAL	MAXIMUM	202.2	202.2	202.2	m³/h			
Н		MINIMUM PRESSURE	NORMAL	MAXIMUM	2.496	2.494	2.519	bar-g			
H		MINIMUM TEMPERATURE	NORMAL	MAXIMUM	31.5	31.5	31.5				
Н	40	PROJECT FLOW		1	1	202.2					
Н	41	DESIGN PRESSURE	DESIGN TEMPER	RATURE	4.6	bar-g	67.0	℃			
H		DENSITY @ OPERATING C				995.3					
Н	43	VISCOSITY @ OPERATING				0.77					
⊢	44 FLUID CONDUCTIVITY				1		ıS/cm²				
-	45 INCRUSTATION						NO				
⊢	-	SUSPENDED SOLIDS (%)			1		NO				
⊢	_	MAXIMUM LOSS OF LOAD	ALLOWED		-	bar					
⊢	48		<u> </u>								
+	_	MANUFACTURER			†	Endress + Hau	ıser (E+H) or Similar				
							Promag (E+H)				









TITLE

SHEET:

9 de 16

2

MAGNETIC FLOW TRANSMITTER

								2		
	1	INSTRUMENT TAG NUMBI	ER			FIT-9	940015			
	2	SERVIÇE			C	COOLING WATER	- BIO-KILL SYSTE	EM		
	3	P&ID				7B-M	l-0-5-42			
ΑΓ	4	PIPE LINE	EQUIPMENT	NUMBER	2"-TWS-94	0015-CS1-NI		-		
GENERAL	5	EQUIPMENT MATERIAL / F	PIPE		CARBON STEEL ASTM-A106 Gr.B					
GE	6	AREA CLASSIFICATION			NOT CLASSIFIED					
-	7	ENCLOSURE CLASSIFICA	TION			IP 65 (MÍN.) CON	IF. NBR IEC 60529)		
	8	CERTIFICATES				(SEE GENEI	RAL NOTES 6)			
	9									
	9	DIAMETER OF SENSOR T	UBE			2" (N	OTE 1)			
	10	TUBE MATERIAL				STAINLE	SS STEEL			
	11	COATING MATERIAL				F	PFA			
٧	12	ELECTRODE MATERIAL			316SS					
MEIER	13	GROUNDING RING MATER	RIAL		YES (SEE GENERAL NOTES 7)					
M		CONNECTIONS			FLANGED					
		CLASS AND FACE				150# FR. ASME	B16.5 / NBR 7669			
	16	FLANGE FACE FINISH				, -	-			
		ELECTRICAL CONNECTIO	N			NOT AP	PLICABLE			
							TO SENSOR			
		POWER SUPPLY	MOUNTING POWER SUPPLY				- 2 FIOS			
		OUTPUT SIGNAL					ohms @ 24 Vcc)			
1			MMUNICATION PROTOCOL HART							
1		2 PRECISION ± 0.15% F.E.								
2		REPEATABILITY				FACTURER				
		ELECTRICAL CONNECTION				NPT (F)				
`		LOCAL INDICATION	74		SI		R NOTAS GERAIS	11)		
		CALIBRATION RANGE			011	-	FACTURER	11)		
JON VENTER / TRAINSIMITIER		CALIBRATED RANGE					15 m³/h			
$\frac{5}{2}$		KEYBOARD FOR LOCAL C	CONFIGURATION		YES					
	_	METER CASING	OWNOON		ALUMINIO (COPPER FREE)					
	-	PULSE OUTPUT					ES			
_		TAGGING					IERAL NOTES 3)			
3		SURGE PROTECTOR					ES			
	33	OOKOET NOTEOTOK								
á	34									
ACCESSONIES	35									
Ì		FLUID	PHYSICAL STAT	119	INDUSTRIA	I WATER	LIQI	UID		
		MINIMUM FLOW	NORMAL	MAXIMUM	12.3	12.3	12.3	מוט m³/h		
		MINIMUM PRESSURE	NORMAL	MAXIMUM	3.833	3.831	3.857	bar-g		
2		MINIMUM TEMPERATURE		MAXIMUM	31.5	31.5	31.5	°C		
$\frac{5}{2}$		PROJECT FLOW		W. D. CHVIOW	01.0	12.3 m				
5		DESIGN PRESSURE	DESIGN TE	MPERATURE	16	3 bar-q	67.0	°C		
3		DENSITY @ OPERATING (7.0	995.3 ki				
	43				1	0.77 C	<u> </u>			
3		FLUID CONDUCTIVITY	2 JOHDINON		1		.p S/cm²			
OFERA IIING CONDITIONS		INCRUSTATION				·	VO			
5		SUSPENDED SOLIDS (%)					VO			
		MAXIMUM LOSS OF LOAD	ALLOWED		<u> </u>		v O			
	47	IVIAAIIVIOIVI LOSS OF LOAD	ALLOWED		<u> </u>	bar				
4	48	MANUEACTURER			 	Endross : !!a::-	or (E. H) or Similer			
	49	MANUFACTURER					er (E+H) or Similar			
	50	MODEL				Proline Pr	omag (E+H)			









TITLE

MAGNETIC FLOW TRANSMITTER

SHEET: 10 de 16 REV.:

VIA	Gr	NETIC FLOW TRAN	SMITTER					REV.: 2		
	1	INSTRUMENT TAG NUMBEI	R			FIT-	-940023	_		
ŀ	2	SERVIÇE			COOLING	S WATER - COM	PRESSED AIR GE	NERATION		
ı	3	P&ID				7B-I	M-0-5-42			
	4	PIPE LINE	EQUIPMENT NUM	MBER	2"-TWS-94	2"-TWS-940023-CS1-NI -				
ŀ	5	EQUIPMENT MATERIAL / PI	IPE			CARBON STEE	L ASTM-A106 Gr.E	3		
ŀ	6	AREA CLASSIFICATION				NOT C	LASSIFIED			
ŀ	7	ENCLOSURE CLASSIFICAT	TON			IP 65 (MÍN.) CO	NF. NBR IEC 6052	9		
ŀ	8	CERTIFICATES				(SEE GENE	ERAL NOTES 6)			
ŀ	9					<u> </u>				
t	9	DIAMETER OF SENSOR TU	BE			2" (1	NOTE 1)			
İ	10	TUBE MATERIAL			STAINLESS STEEL					
l	11	COATING MATERIAL			PFA					
ľ	12	ELECTRODE MATERIAL			316SS					
İ	13	GROUNDING RING MATERI	IAL		YES (SEE GENERAL NOTES 7)					
İ	14	CONNECTIONS			FLANGED					
ľ	15	CLASS AND FACE				150# FR, ASME	E B16.5 / NBR 7669)		
ľ	16	FLANGE FACE FINISH					-			
ľ	17	ELECTRICAL CONNECTION	I			NOT AF	PPLICABLE			
T	18	MOUNTING				INTEGRAL	L TO SENSOR			
ľ	19	POWER SUPPLY		24 Vc	c - 2 FIOS					
ľ	20	OUTPUT SIGNAL		4 - 20 mA (500	0 ohms @ 24 Vcc)					
ľ	21	COMMUNICATION PROTOC	COL			F	HART	?T		
ľ	22	PRECISION		± 0.1	15% F.E.					
ľ	23	REPEATABILITY				BY MAN	UFACTURER			
- - - -	24	ELECTRICAL CONNECTION	I			1/2"	NPT (F)			
ľ	25	LOCAL INDICATION			SI	M, TIPO LCD (VE	R NOTAS GERAIS	S 11)		
Ī	26	CALIBRATION RANGE				BY MAN	UFACTURER			
Ī	27	CALIBRATED RANGE				0 @	20 m³/h			
Ī	28	KEYBOARD FOR LOCAL CO	ONFIGURATION		YES					
ſ	29	METER CASING				ALUMINIO (COPPER FREE)				
	30	PULSE OUTPUT					YES			
I		TAGGING				YES (SEE GE	NERAL NOTES 3)			
	32	SURGE PROTECTOR					YES			
L	33									
	34									
	35									
L	36	FLUID	PHYSICAL STATUS		INDUSTRIA	L WATER	LIQ	UID		
ļ	37	MINIMUM FLOW	NORMAL	MAXIMUM	14.4	14.4	14.4	m³/h		
ļ	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	3.41	3.41	3.43	bar-g		
		MINIMUM TEMPERATURE	NORMAL	MAXIMUM	31.5	31.5	31.5	℃		
ŀ	40	PROJECT FLOW	Ta-a.z.:: :			14.4				
1		DESIGN PRESSURE	DESIGN TEMPER	'A TURE	4.6	3 bar-g	67.0	℃		
ļ		DENSITY @ OPERATING C				995.3				
ŀ		VISCOSITY @ OPERATING	0.77 Cp							
ŀ		FLUID CONDUCTIVITY		· · · · · · · · · · · · · · · · · · ·	S/cm²					
-		INCRUSTATION					NO			
ŀ		SUSPENDED SOLIDS (%)	A. I. O.I./ED				NO			
-		MAXIMUM LOSS OF LOAD A	4LLUWED		-	bar				
4	48	AAAUUFAOTUBED			1	For element 11	(F.II) O' "			
ŀ		MANUFACTURER			1		ser (E+H) or Similar	-		
	50	MODEL				Proline P	Promag (E+H)			









TITLE

SHEET:

11 de 16 REV.:

MAGNETIC FLOW TRANSMITTER

								2		
	1	INSTRUMENT TAG NUMBE	ĒR			FIT-9	940035			
	2	SERVIÇE				INDUSTRIAL W	ATER - MAKE UP			
	3	P&ID				7B-M	-0-5-42			
ΑL	4	PIPE LINE	EQUIPMENT I	NUMBER	11/2"-DW-94	10035-PP1-N		-		
IER.	5	EQUIPMENT MATERIAL / F	PIPE		POLIPROPIL	ENO HOMOPOL	ÍMERO CONF. NE	BR EN 15494		
GENERAL	6	AREA CLASSIFICATION				NOT CL	ASSIFIED			
0	_	ENCLOSURE CLASSIFICA	TION				IF. NBR IEC 60529)		
	8	CERTIFICATES					RAL NOTES 6)			
	9	OLIVIII TOTTI LO				(022 02/12/	0127107200)			
		DIAMETER OF SENSOR TO	IIDE			50mm	NOTE 1)			
	_	TUBE MATERIAL	OBL				SS STEEL			
	_									
		COATING MATERIAL			PFA 21655					
ER		ELECTRODE MATERIAL			316SS					
метек		GROUNDING RING MATER	RIAL		YES (SEE GENERAL NOTES 7)					
٧	\vdash	CONNECTIONS			FLANGED					
	_	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669					
		FLANGE FACE FINISH					-			
		ELECTRICAL CONNECTIO	N		NOT APPLICABLE					
	18	MOUNTING				INTEGRAL	TO SENSOR			
						24 Vcc	- 2 FIOS			
æ	20	OUTPUT SIGNAL				4 - 20 mA (500	ohms @ 24 Vcc)			
TTE	21	COMMUNICATION PROTO	COL			H	ART			
SM	22	PRECISION				± 0.18	5% F.E.			
RAN	23	REPEATABILITY			BY MANU	FACTURER				
CONVERTER / TRANSMITTER	24	ELECTRICAL CONNECTIO			1/2" [NPT (F)				
'ER	25	LOCAL INDICATION		SIN	1, TIPO LCD (VEI	R NOTAS GERAIS	11)			
ERI	26	CALIBRATION RANGE			BY MANUFACTURER					
NV	27	CALIBRATED RANGE				0 @	10 m³/h			
\mathcal{C}	28	KEYBOARD FOR LOCAL C	ONFIGURATION			Y	ES			
	29	METER CASING			ALUMINIO (COPPER FREE)					
	30	PULSE OUTPUT			YES					
S	31	TAGGING			YES (SEE GENERAL NOTES 3)					
RIE	32	SURGE PROTECTOR					ES			
os:	33									
ACCESSORIES	34									
ACC	35									
	36	FLUID	PHYSICAL STATU	'S	INDUSTRIAL	WATER	LIQU	IID		
		MINIMUM FLOW	NORMAL	MAXIMUM	0	0	4.11	m³/h		
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.99	1.87	1.48	bar-g		
SV	39	MINIMUM TEMPERATURE		MAXIMUM	25.0	25.0	25.0	°C		
701	40	PROJECT FLOW	THO THE STATE OF T	WASTINION	20.0	4.11 m				
LI QI		DESIGN PRESSURE	DESIGN TEM	DEDATIDE	5.2	bar-q	55.0	<u> </u>		
201	41	DENSITY @ OPERATING (LIMIUNL	5.3	997.2 kg				
VG (42					``				
OPERATING CONDITIONS	43	VISCOSITY @ OPERATING	JONDINON			0.89 C	·			
ΈR	44	FLUID CONDUCTIVITY				•	C/cm²			
0 <i>F</i>	45	INCRUSTATION					VO			
	46	SUSPENDED SOLIDS (%)					VO			
	47	MAXIMUM LOSS OF LOAD	ALLUWED		-	bar				
	48				-		/= 10 5: <i>c</i>			
	49	MANUFACTURER					er (E+H) or Similar			
		MODEL				Proline Pr	omag (E+H)			
107										









TITLE

12 de 16 REV.:

MAGNETIC FLOW TRANSMITTER

INSTRUMENT TAG NUMBER									2		
3 PRID		1	INSTRUMENT TAG NUMBE	R			FIT	Г-980021			
4 PIPE LINE		2	SERVIÇE			DISTRIBUTION SYSTEM - CHILLED GLYCOL FOR BT-7B-1					
COMPANDED CARBON STEEL ASTMATOG G.B		3	P&ID				7B-	M-0-5-44			
REA CLASSIFICATION	4	4	PIPE LINE	EQUIPMENT NUM	MBER	10"-GW0R-9	080021-CS1-CC		-		
FINAL CONTROL CASSIFICATION		5	EQUIPMENT MATERIAL / PI	IPE .		CARBON STEEL ASTM-A106 Gr.B					
CERTIFICATES		6	AREA CLASSIFICATION			NOT CLASSIFIED					
9 DIAMETER OF SENSOR TUBE		7	ENCLOSURE CLASSIFICAT	TON		IP 65 (MÍN.) CONF. NBR IEC 60529					
9 DIAMETER OF SENSOR TUBE	ı	8	CERTIFICATES				(SEE GEN	ERAL NOTES 6)			
TUBE MATERIAL STAINLESS STEEL	ı	9									
11 COATING MATERIAL 316SS 316SFRA. MATERIAL YES (SEE GENERAL NOTES 7) 71 72 72 72 72 72 72 72		9	DIAMETER OF SENSOR TU	'BE			10"	(NOTE 1)			
12 ELECTRODE MATERIAL 316SS 74 74 75 75 75 75 75 75		10	TUBE MATERIAL				STAINL	LESS STEEL			
13 GROUNDING RING MATERIAL YES (SEE GENERAL NOTES 7) 14 CONNECTIONS FLANGED 15 CLASS AND FACE 1508 FR. ASME B16.5 / NBR 7669 16 FLANGE FACE 1508 FR. ASME B16.5 / NBR 7669 17 ELECTRICAL CONNECTION NOT APPLICABLE 18 MOUNTING INTEGRAL TO SENSOR 19 POWER SUPPLY 24 Voc. 2 WIRES 20 DUTPUT SIGNAL 4 - 20 mA (500 ohms @ 24 Voc) 17 ELECTRICAL CONNECTION ELECTRICAL CONNECTION 18 REPEATABILITY BY MANUFACTURER 12 LECTRICAL CONNECTION 1/2" NPT (F) 24 ELECTRICAL CONNECTION YES, LOD TYPE GEE GENERAL NOTES 11) 25 COAL INDICATION YES, LOD TYPE GEE GENERAL NOTES 11) 26 CALIBRATION RANGE BY MANUFACTURER 27 CALIBRATED RANGE BY MANUFACTURER 28 REYBOARD FOR LOCAL CONFIGURATION YES 29 METER CASING ALUMINIO (COPPER FREE) 30 PULSE OUTPUT YES 31 TAGGING YES (SEE GENERAL NOTES 3) 32 SURGE PROTECTOR YES (SEE GENERAL NOTES 3) 33 AUMINIMAL PRESSURE NORMAL MAXIMUM 48.0 215.0 283.0 m³/n 36 FLUID PHYSICAL STATUS CHILLED WATER LIQUID 37 MINIMUM FESSURE NORMAL MAXIMUM 48.0 215.0 283.0 m³/n 38 MINIMUM PRESSURE NORMAL MAXIMUM 48.0 215.0 283.0 m³/n 40 PROJECT FLOW 283.0 m³/n 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 barg 37.4 °C 40 PROJECT FLOW 283.0 m³/n 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 barg 37.4 °C 42 PROJECT FLOW 283.0 m³/n 43 MINIMUM PRESSURE DESIGN TEMPERATURE 3.4 barg 37.4 °C 44 FLUID CONDUCTIVITY µS/cm² 45 MAXIMUM LOSS OF LOAD ALLOWED - bar 46 MANUFACTURER Endress + Hauser (E+H) or Similar 47 MAXIMUM LOSS OF LOAD ALLOWED - bar		11	COATING MATERIAL					PFA			
14 CONNECTIONS		12	ELECTRODE MATERIAL				3	316SS			
150 LASS AND FACE		13	GROUNDING RING MATER	IAL			YES (SEE GE	ENERAL NOTES 7)			
FLANGE FACE FINISH	ı	14	CONNECTIONS				FL	ANGED			
To ELECTRICAL CONNECTION	Ī	15	CLASS AND FACE				150# FR, ASM	E B16.5 / NBR 7669			
18 MOUNTING		16	FLANGE FACE FINISH				MS	SS SP-6			
19 POWER SUPPLY 24 Vcc - 2 WIRES 20 OUTPUT SIGNAL 4 - 20 mA (500 ohms @ 24 Vcc) 21 COMMUNICATION PROTOCOL HART 22 PRECISION ±0.15% F.E. 23 REPEATABILITY BY MANUFACTURER 24 ELECTRICAL CONNECTION 1/2" NPT (F) 25 LOCAL INDICATION YES, LCD TYPE (SEE GENERAL NOTES 11) 26 CALIBRATION RANGE BY MANUFACTURER 27 CALIBRATED RANGE 0 @ 320 m³/h 28 KEYBOARD FOR LOCAL CONFIGURATION YES 29 METER CASING ALUMINIO (COPPER FREE) 30 PULSE OUTPUT YES (SEE GENERAL NOTES 3) 31 TAGGING YES (SEE GENERAL NOTES 3) 32 SURGE PROTECTOR YES 33 34 SURGE PROTECTOR YES 35 36 FLUID PHYSICAL STATUS CHILLED WATER LIQUID 37 MINIMUM FLOW NORMAL MAXIMUM 48.0 215.0 283.0 m³/h 38 MINIMUM PRESSURE NORMAL MAXIMUM 48.0 215.0 283.0 m³/h 39 MINIMUM PRESSURE NORMAL MAXIMUM 40.0 7.2 7.2 °C 40 PROJECT FLOW 283.0 m³/h 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 bar-g 37.4 °C 42 DENSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY µS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) 47 MAXIMUM LOSS OF LOAD ALLOWED - ber 48 MANUFACTURER 49 MANUFACTURER 41 MAXIMUM LOSS OF LOAD ALLOWED - ber 48 MANUFACTURER 41 MAXIMUM LOSS OF LOAD ALLOWED - Similar	Г	17	ELECTRICAL CONNECTION	V			NOTA	PPLICABLE			
OUTPUT SIGNAL	Ť	18	MOUNTING				INTEGRA	L TO SENSOR			
21 COMMUNICATION PROTOCOL 22 PRECISION 23 REPEATABILITY 34 REPEATABILITY 25 LOCAL INDICATION 26 CALL INDICATION 27 CALIBRATION RANGE 28 REYBOARD FOR LOCAL CONFIGURATION 29 METER CASING 30 PULSE OUTPUT 31 TAGGING 32 SURGE PROTECTOR 33 SURGE PROTECTOR 34 35 35 FLUID 36 PHYSICAL STATUS 37 MINIMUM PRESSURE 38 MINIMUM PRESSURE 39 MINIMUM PRESSURE NORMAL MAXIMUM 48.0 215.0 228.0 40 PROJECT FLOW 280.0 40 PROJECT FLOW 280.0 41 DESIGN PRESTURE DESIGN TEMPERATURE 3.4 BAXIMUM 4.0 7.2 7.2 7.2 7.2 7.2 7.2 7.4 PROJECT FLOW 283.0 m³/h 41 DESIGN PRESSURE DESIGN TEMPERATURE JEDION INDICATION 1.57 CP 44 FLUID CONDUCTIVITY 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO MAXIMUM LOSS OF LOAD ALLOWED 46 MANIMUM LOSS OF LOAD ALLOWED 47 MAXIMUM LOSS OF LOAD ALLOWED 48 MANUFACTURER Endress + Hauser (E+H) or Similar		19	POWER SUPPLY				24 Vcc	c - 2 WIRES			
22 PRECISION	:	20	OUTPUT SIGNAL				4 - 20 mA (50	00 ohms @ 24 Vcc)			
23 REPEATABILITY	ı	21	COMMUNICATION PROTOC	COL			i	HART	-		
24 ELECTRICAL CONNECTION 25 LOCAL INDICATION 26 CALIBRATION RANGE 27 CALIBRATION RANGE 28 KEYBOARD FOR LOCAL CONFIGURATION 29 METER CASING 30 PULSE OUTPUT 31 TAGGING 32 SURGE PROTECTOR 33 YES 34 35 36 FLUID 37 MINIMUM FLOW 38 MINIMUM PESSURE 39 MINIMUM PERSURE NORMAL MAXIMUM 48.0 215.0 283.0 m³/h 39 MINIMUM PERSURE NORMAL MAXIMUM 40.0 7.2 7.2 C 40 PROJECT FLOW 40 PROJECT FLOW 41 DESIGN PERSURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE 37.4 °C 48 PLUID CONDUCTIVITY µS/cm² 49 MANUFACTURER PHYSICAL STATUS CHILLED WATER LIQUID 1.72 C C C C C C C C C C C C C	ľ	22	PRECISION				± 0.	15% F.E.			
25 LOCAL INDICATION YES, LCD TYPE (SEE GENERAL NOTES 11) 26 CALIBRATION RANGE BY MANUFACTURER 27 CALIBRATED RANGE 0 @ 320 m³/h 28 KEYBOARD FOR LOCAL CONFIGURATION YES 29 METER CASING ALUMINIO (COPPER FREE) 30 PULSE OUTPUT YES 31 TAGGING YES (SEE GENERAL NOTES 3) 32 SURGE PROTECTOR YES 33 34 35 36 FLUID PHYSICAL STATUS CHILLED WATER LIQUID 37 MINIMUM FLOW NORMAL MAXIMUM 48.0 215.0 283.0 m³/h 38 MINIMUM PRESSURE NORMAL MAXIMUM 0.23 0.24 0.25 barg 39 MINIMUM TEMPERATURE NORMAL MAXIMUM 4.0 7.2 7.2 °C 40 PROJECT FLOW 283.0 m³/h 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 barg 37.4 °C 42 DENSITY @ OPERATING CONDITION 1000.1 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY µS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 MANUFACTURER Endress + Hauser (E+H) or Similar	t	23	REPEATABILITY				BY MAN	IUFACTURER			
26 CALIBRATION RANGE 27 CALIBRATED RANGE 28 KEYBOARD FOR LOCAL CONFIGURATION 29 METER CASING 30 PULSE OUTPUT 31 TAGGING 32 SURGE PROTECTOR 33 YES 34 35 36 FLUID 37 MINIMUM FLOW 38 MINIMUM PRESSURE 39 MINIMUM PRESSURE 40 PROJECT FLOW 40 PROJECT FLOW 41 DESIGN PRESSURE 42 DENSITY @ OPERATING CONDITION 43 INCRUSTATION 44 INCRUSTATION 45 INCRUSTATION 46 SUSPENDED SOLIDS (%) 47 MAXIMUM LOSS OF LOAD ALLOWED 48 MANIMUM LOSS OF LOAD ALLOWED 49 MANUFACTURER CALUBRATEO ALUMINIO (COPPER FREE) 9 (® 320 m³/h ALUMINIO (COPPER FREE) 9 (SEE GENERAL NOTES 3) YES (SEE GENERAL NOTES 3) ### 10001		24	ELECTRICAL CONNECTION	V			1/2	" NPT (F)			
27 CALIBRATED RANGE 0 @ 320 m³/h	i	25	LOCAL INDICATION			YES	S, LCD TYPE (SE	EE GENERAL NOTE	S 11)		
28 KEYBOARD FOR LOCAL CONFIGURATION YES 29 METER CASING ALUMINIO (COPPER FREE) 30 PULSE OUTPUT YES 31 TAGGING YES (SEE GENERAL NOTES 3) 32 SURGE PROTECTOR YES 33 YES 34 SURGE PROTECTOR YES 35 CHILLED WATER LIQUID 37 MINIMUM FLOW NORMAL MAXIMUM 48.0 215.0 283.0 m³/h 38 MINIMUM PRESSURE NORMAL MAXIMUM 0.23 0.24 0.25 barg 39 MINIMUM TEMPERATURE NORMAL MAXIMUM 4.0 7.2 7.2 °C 40 PROJECT FLOW 283.0 m³/h 283.0 m³/h 1 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 barg 37.4 °C 37.4 °C 42 DENSITY @ OPERATING CONDITION 1.57 Cp HULD CONDUCTIVITY µS/cm² 45 INCRUSTATION NO NO 46 SUSPENDED SOLIDS (%) NO <td></td> <td>26</td> <td>CALIBRATION RANGE</td> <td></td> <td></td> <td></td> <td>BY MAN</td> <td>IUFACTURER</td> <td></td>		26	CALIBRATION RANGE				BY MAN	IUFACTURER			
29 METER CASING ALUMINIO (COPPER FREE)		27	CALIBRATED RANGE				0 @	320 m³/h			
30 PULSE OUTPUT 31 TAGGING 32 SURGE PROTECTOR 33 YES 34 35 36 FLUID 37 MINIMUM FLOW 38 MINIMUM PRESSURE 39 MINIMUM PRESSURE 39 MINIMUM TEMPERATURE 30 MINIMUM TEMPERATURE 40 DESIGN PRESSURE 41 DESIGN PRESSURE 42 DENSITY ② OPERATING CONDITION 43 VISCOSITY ③ OPERATING CONDITION 44 FLUID CONDUCTIVITY 45 INCRUSTATION 46 SUSPENDED SOLIDS (%) 47 MAXIMUM LOSS OF LOAD ALLOWED 48 MANUFACTURER 49 MANUFACTURER 49 MANUFACTURER 40 YES YES YES YES YES YES CHILLED WATER LIQUID 48.0 215.0 283.0 m³/h 48.0 215.0 2283.0 m³/h 49 MANUFACTURER CHILLED WATER LIQUID 48.0 215.0 2283.0 m³/h 49 MANUFACTURER CHILLED WATER LIQUID 48.0 215.0 2283.0 m³/h 49 MANUFACTURER Endress + Hauser (E+H) or Similar	Ĭ	28	KEYBOARD FOR LOCAL CO	ONFIGURATION				YES			
31 TAGGING YES (SEE GENERAL NOTES 3) 32 SURGE PROTECTOR YES 33	ı	29	METER CASING				ALUMINIO	(COPPER FREE)			
32 SURGE PROTECTOR 33 34 35 36 FLUID PHYSICAL STATUS CHILLED WATER LIQUID 37 MINIMUM FLOW NORMAL MAXIMUM 48.0 215.0 283.0 m³/h 38 MINIMUM PRESSURE NORMAL MAXIMUM 0.23 0.24 0.25 bar-g 39 MINIMUM TEMPERATURE NORMAL MAXIMUM 4.0 7.2 7.2 °C 40 PROJECT FLOW 283.0 m³/h 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 bar-g 37.4 °C 42 DENSITY @ OPERATING CONDITION 1000.1 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY μS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 MANUFACTURER Endress + Hauser (E+H) or Similar		30	PULSE OUTPUT YES								
33 34 35 36 FLUID PHYSICAL STATUS CHILLED WATER LIQUID 37 MINIMUM FLOW NORMAL MAXIMUM 48.0 215.0 283.0 m³/h 38 MINIMUM PRESSURE NORMAL MAXIMUM 0.23 0.24 0.25 barg 39 MINIMUM TEMPERATURE NORMAL MAXIMUM 4.0 7.2 7.2 °C 40 PROJECT FLOW 283.0 m³/h 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 barg 37.4 °C 42 DENSITY @ OPERATING CONDITION 1000.1 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY µS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 49 MANUFACTURER Endress + Hauser (E+H) or Similar	2	31	TAGGING				YES (SEE GE	ENERAL NOTES 3)			
34 35		32	SURGE PROTECTOR					YES			
35		33									
36 FLUID PHYSICAL STATUS CHILLED WATER LIQUID) 	34									
37 MINIMUM FLOW NORMAL MAXIMUM 48.0 215.0 283.0 m³/h 38 MINIMUM PRESSURE NORMAL MAXIMUM 0.23 0.24 0.25 bar-g 39 MINIMUM TEMPERATURE NORMAL MAXIMUM 4.0 7.2 7.2 °C 40 PROJECT FLOW 283.0 m³/h 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 bar-g 37.4 °C 42 DENSITY @ OPERATING CONDITION 1000.1 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY μS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 49 MANUFACTURER Endress + Hauser (E+H) or Similar		35									
38 MINIMUM PRESSURE NORMAL MAXIMUM 0.23 0.24 0.25 bar-g 39 MINIMUM TEMPERATURE NORMAL MAXIMUM 4.0 7.2 7.2 °C 40 PROJECT FLOW 283.0 m³/h	T	36	FLUID	PHYSICAL STATUS		CHILLED	WATER	LIQU	JID		
39 MINIMUM TEMPERATURE NORMAL MAXIMUM 4.0 7.2 7.2 °C 40 PROJECT FLOW 283.0 m³/h 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 bar-g 37.4 °C 42 DENSITY @ OPERATING CONDITION 1000.1 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY μS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 49 MANUFACTURER Endress + Hauser (E+H) or Similar		37	MINIMUM FLOW	NORMAL	MAXIMUM	48.0	215.0	283.0	m³/h		
40 PROJECT FLOW 283.0 m³/h 41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 bar-g 3.7.4 °C 42 DENSITY @ OPERATING CONDITION 1000.1 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY μS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED 48 49 MANUFACTURER Endress + Hauser (E+H) or Similar		38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0.23	0.24	0.25	bar-g		
41 DESIGN PRESSURE DESIGN TEMPERATURE 3.4 bar-g 37.4 ℃ 42 DENSITY @ OPERATING CONDITION 1000.1 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY μS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 Endress + Hauser (E+H) or Similar		39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	4.0	7.2	7.2	°C		
42 DENSITY @ OPERATING CONDITION 1000.1 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY μS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 Endress + Hauser (E+H) or Similar		40	PROJECT FLOW				283.0	m³/h			
43 VISCOSITY @ OPERATING CONDITION 1.57 Cp 44 FLUID CONDUCTIVITY μS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 Endress + Hauser (E+H) or Similar		41	DESIGN PRESSURE	DESIGN TEMPER	RATURE	3.4	4 bar-g	37.4	℃		
44 FLUID CONDUCTIVITY μS/cm² 45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 Endress + Hauser (E+H) or Similar		42	DENSITY @ OPERATING C	ONDITION			1000.1	kg/m³			
45 INCRUSTATION NO 46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 Endress + Hauser (E+H) or Similar		43	VISCOSITY @ OPERATING	CONDITION			1.57	Ср			
46 SUSPENDED SOLIDS (%) NO 47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 - 49 MANUFACTURER Endress + Hauser (E+H) or Similar		44	FLUID CONDUCTIVITY				ŀ	uS/cm²			
47 MAXIMUM LOSS OF LOAD ALLOWED - bar 48 - Endress + Hauser (E+H) or Similar		45	INCRUSTATION					NO			
48 Endress + Hauser (E+H) or Similar 49 MANUFACTURER		46	SUSPENDED SOLIDS (%)			NO					
49 MANUFACTURER Endress + Hauser (E+H) or Similar		47	MAXIMUM LOSS OF LOAD	- bar							
1 /		48									
50 MODEL Proline Promag (E+H)	⊢					Endress + Hauser (E+H) or Similar					
<u> </u>		50	MODEL				Proline I	Promag (E+H)			









TITLE

SHEET:

13 de 16 REV.:

MAGNETIC FLOW TRANSMITTER

								2	
	1	INSTRUMENT TAG NUMBE	ER			FIT-9	80014		
	2	SERVIÇE			COOLI	NG WATER - COC	LING TOWERS P	CH-7B-1	
	3	P&ID				7B-M-	-0-5-44		
ZAL	4	PIPE LINE	EQUIPMENT	NUMBER	8"-TWR-98	30014-CS1-NI		-	
GENERAL	5	EQUIPMENT MATERIAL / F	PIPE		CARBON STEEL ASTM-A106 Gr.B				
GE	6	AREA CLASSIFICATION			NOT CLASSIFIED				
	7	ENCLOSURE CLASSIFICA	TION		IP 65 (MÍN.) CONF. NBR IEC 60529				
	8	CERTIFICATES				(SEE GENER	RAL NOTES 6)		
	9								
	9	DIAMETER OF SENSOR TO	UBE			8" (N	OTE 1)		
	10	TUBE MATERIAL				STAINLE	SS STEEL		
	11	COATING MATERIAL				P	FA		
<u>ر</u> [12	ELECTRODE MATERIAL			316SS				
METER	13	GROUNDING RING MATER	RIAL		YES (SEE GENERAL NOTES 7)				
₹	14	CONNECTIONS				FLAI	VGED		
	15	CLASS AND FACE				150# FR, ASME	B16.5 / NBR 7669		
	16	FLANGE FACE FINISH				MSS	SP-6		
	17	ELECTRICAL CONNECTIO	N			NOT API	PLICABLE		
	18	MOUNTING				INTEGRAL	TO SENSOR		
	19	POWER SUPPLY				24 Vcc -	2 WIRES		
χ [20	OUTPUT SIGNAL		4 - 20 mA (500	ohms @ 24 Vcc)				
	21	COMMUNICATION PROTO		HA	ART				
IN S	22	PRECISION		± 0.15	± 0.15% F.E.				
A S	23	REPEATABILITY		BY MANUI	FACTURER				
= [24	ELECTRICAL CONNECTIO	N			1/2" N	IPT (F)		
Ĭ.	25	LOCAL INDICATION			YES	S, LCD TYPE (SEE	GENERAL NOTE	S 11)	
וא דא	26	CALIBRATION RANGE				BY MANUI	FACTURER		
CONVERTER / IRANSMITTER	27	CALIBRATED RANGE				0 @ 2	30 m³/h		
<u>ت</u> 5	28	KEYBOARD FOR LOCAL C	ONFIGURATION		YES				
- [29	METER CASING				ALUMINIO (C	OPPER FREE)		
	30	PULSE OUTPUT				Y	ES		
2		TAGGING				YES (SEE GEN	ERAL NOTES 3)		
<u> </u>	32	SURGE PROTECTOR				Y	ES		
22	33								
ACCESSORIES	34								
A	35								
L	36	FLUID	PHYSICAL STATI	US	CHILLED WAT	ER RETURN	LIQI	JID	
L	_	MINIMUM FLOW	NORMAL	MAXIMUM	202.6	202.6	202.6	m³/h	
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0.97	0.97	0.99	bar-g	
š L		MINIMUM TEMPERATURE	NORMAL	MAXIMUM	37.0	37.0	37.0	°C	
<u> </u>	-	PROJECT FLOW				202.6 m			
		DESIGN PRESSURE		MPERATURE	4.0	6 bar-g	67.0	℃	
် ၂	42 DENSITY @ OPERATING CONDITION				993 kg	,			
<u> </u>		VISCOSITY @ OPERATING	CONDITION			0.69 C	·		
ni 🛏		FLUID CONDUCTIVITY				μS	/cm²		
5		INCRUSTATION					10		
Ŀ		SUSPENDED SOLIDS (%)				٨	10		
L	47	MAXIMUM LOSS OF LOAD	ALLOWED		-	bar			
	48								
Ŀ	_	MANUFACTURER					er (E+H) or Similar		
	50	MODEL				Proline Pro	omag (E+H)		









PRD-AIC-DSH-005 NUMBER: 569-DB7B-AIC-713-005 CLIENT NR:

TITLE

MAGNETIC FLOW TRANSMITTER

14 de 16 RFV·

2

INSTRUMENT TAG NUMBER FIT-980016 SERVIÇE COOLING WATER - COOLING TOWERS PCH-7B-2 2 P&ID 7B-M-0-5-44 3 PIPE LINE FOUIPMENT NUMBER 8"-TWR-980016-CS1-NI 4 EQUIPMENT MATERIAL / PIPE CARBON STEEL ASTM-A106 Gr.B 5 AREA CLASSIFICATION 6 NOT CLASSIFIED **ENCLOSURE CLASSIFICATION** IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 JTURE DIAMETER OF SENSOR TUBE 8" (NOTE 1) 9 TUBE MATERIAL STAINLESS STEEL 10 COATING MATERIAL PFA 316SS 12 ELECTRODE MATERIAL GROUNDING RING MATERIAL YES (SEE GENERAL NOTES 7) 13 14 CONNECTIONS **FLANGED** 15 CLASS AND FACE 150# FR, ASME B16.5 / NBR 7669 FLANGE FACE FINISH MSS SP-6 **ELECTRICAL CONNECTION** NOT APPLICABLE MOUNTING INTEGRAL TO SENSOR 18 POWER SUPPLY 24 Vcc - 2 WIRES 19 **OUTPUT SIGNAL** 4 - 20 mA (500 ohms @ 24 Vcc) 20 CONVERTER / TRANSMITTER COMMUNICATION PROTOCOL HART 21 22 **PRECISION** ± 0.15% F.E. REPEATABILITY BY MANUFACTURER 23 ELECTRICAL CONNECTION 24 1/2" NPT (F) 25 LOCAL INDICATION YES, LCD TYPE (SEE GENERAL NOTES 11) CALIBRATION RANGE BY MANUFACTURER 26 CALIBRATED RANGE 0 @ 230 m³/h 27 KEYBOARD FOR LOCAL CONFIGURATION YES METER CASING ALUMINIO (COPPER FREE) 29 PULSE OUTPUT 30 YES 31 TAGGING YES (SEE GENERAL NOTES 3) **ACCESSORIES** SURGE PROTECTOR YES 32 33 34 35 PHYSICAL STATUS 36 FI UID CHILLED WATER RETURN LIQUID MINIMUM FLOW NORMAL MAXIMUM 202.6 202.6 202.6 .37 m³/h MINIMUM PRESSURE NORMAL 38 ΜΑΧΙΜΙ ΙΜ 0.97 0.97 0.99 bar-q OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37.0 37.0 °C 39 37.0 40 PROJECT FLOW 202.6 m³/h DESIGN PRESSURE DESIGN TEMPERATURE 67.0 °C 41 4.6 bar-g DENSITY @ OPERATING CONDITION 993 kg/m³ 43 VISCOSITY @ OPERATING CONDITION 0.69 Cp FLUID CONDUCTIVITY 44 µS/cm² INCRUSTATION NO 45 SUSPENDED SOLIDS (%) NO 46 47 MAXIMUM LOSS OF LOAD ALLOWED 48 MANUFACTURER Endress + Hauser (E+H) or Similar 49 MODEL Proline Promag (E+H)









TITLE

SHEET:

15 de 16 REV.:

MAGNETIC FLOW TRANSMITTER

INSTRUMENT TAG NUMBE SERVIÇE P&ID PIPE LINE EQUIPMENT MATERIAL / F AREA CLASSIFICATION ENCLOSURE CLASSIFICATION CERTIFICATES	EQUIPMENT	NUMBER	10"-GW0R-9	GLYCOL FO 7B-M- 80029-CS1-CC	80029 DR PCH-7B-1 -0-5-44				
P&ID PIPE LINE EQUIPMENT MATERIAL / F AREA CLASSIFICATION ENCLOSURE CLASSIFICATION CERTIFICATES DIAMETER OF SENSOR TO	PIPE	NUMBER	10"-GW0R-9	7B-M- 80029-CS1-CC	-	-			
PIPE LINE EQUIPMENT MATERIAL / P AREA CLASSIFICATION ENCLOSURE CLASSIFICATION CERTIFICATES DIAMETER OF SENSOR TO	PIPE	NUMBER	10"-GW0R-9	80029-CS1-CC	0-5-44				
EQUIPMENT MATERIAL / F AREA CLASSIFICATION ENCLOSURE CLASSIFICATION CERTIFICATES DIAMETER OF SENSOR TO	PIPE	NUMBER	10"-GW0R-9			-			
AREA CLASSIFICATION ENCLOSURE CLASSIFICATION CERTIFICATES DIAMETER OF SENSOR TU				10"-GW0R-980029-CS1-CC -					
ENCLOSURE CLASSIFICATES CERTIFICATES DIAMETER OF SENSOR TU	ΓΙΟΝ		CARBON STEEL ASTM-A106 Gr.B						
CERTIFICATES DIAMETER OF SENSOR TO	TION		NOT CLASSIFIED						
DIAMETER OF SENSOR TU				IP 65 (MÍN.) CON	F. NBR IEC 60529)			
DIAMETER OF SENSOR TU					RAL NOTES 6)	-			
DIAMETER OF SENSOR TU									
	JBE			10" (N	OTE 1)				
TUBE MATERIAL	·——				SS STEEL				
COATING MATERIAL					FA				
ELECTRODE MATERIAL			316SS						
GROUNDING RING MATER	PIAI								
CONNECTIONS	II/AL		YES (SEE GENERAL NOTES 7) FLANGED						
	N./		NOT APPLICABLE						
	V								
			INTEGRAL TO SENSOR						
	001								
	COL								
_									
			YES	•		S 11)			
	ONFIGURATION		YES						
METER CASING				ALUMINIO (C	OPPER FREE)				
PULSE OUTPUT									
TAGGING				YES (SEE GEN	ERAL NOTES 3)				
SURGE PROTECTOR				Y	ES				
3									
1									
5									
FLUID	PHYSICAL STATU	<i>I</i> S	CHILLED	WATER	LIQI	JID			
MINIMUM FLOW	NORMAL	MAXIMUM	287	287	287	m³/h			
MINIMUM PRESSURE	NORMAL	MAXIMUM	1.8	1.8	1.8	bar-g			
MINIMUM TEMPERATURE	NORMAL	MAXIMUM	4.0	7.2	7.2	°C			
PROJECT FLOW	•	•		287 m	³/h				
DESIGN PRESSURE	DESIGN TEM	<i>IPERATURE</i>	2.7	bar-g	37.2	<u>°C</u>			
DENSITY @ OPERATING C	CONDITION			1000.1 kg	ı/m³				
43 VISCOSITY @ OPERATING CONDITION				1.57 C _l	 o				
FLUID CONDUCTIVITY				μS.	/cm²				
INCRUSTATION				. ^	10				
SUSPENDED SOLIDS (%)				٨	10				
	ALLOWED		-	bar					
3									
MANUFACTURER			Endress + Hauser (E+H) or Similar						
			Endress + Hauser (E+H) or Similar Proline Promag (E+H)						
	CLASS AND FACE FLANGE FACE FINISH ELECTRICAL CONNECTION MOUNTING POWER SUPPLY OUTPUT SIGNAL COMMUNICATION PROTON PRECISION REPEATABILITY ELECTRICAL CONNECTION LOCAL INDICATION CALIBRATION RANGE CALIBRATED RANGE KEYBOARD FOR LOCAL COMETER CASING PULSE OUTPUT TAGGING SURGE PROTECTOR FLUID MINIMUM FLOW MINIMUM PRESSURE MINIMUM TEMPERATURE PROJECT FLOW DESIGN PRESSURE DENSITY @ OPERATING COVISCOSITY @ OPERATING CO	CLASS AND FACE FLANGE FACE FINISH ELECTRICAL CONNECTION MOUNTING POWER SUPPLY OUTPUT SIGNAL COMMUNICATION PROTOCOL PRECISION REPEATABILITY ELECTRICAL CONNECTION LOCAL INDICATION CALIBRATION RANGE CALIBRATED RANGE KEYBOARD FOR LOCAL CONFIGURATION METER CASING PULSE OUTPUT TAGGING SURGE PROTECTOR FLUID PHYSICAL STATL MINIMUM FLOW NORMAL MINIMUM PRESSURE NORMAL MINIMUM TEMPERATURE PROJECT FLOW DESIGN PRESSURE DENSITY @ OPERATING CONDITION VISCOSITY @ OPERATING CONDITION FLUID CONDUCTIVITY INCRUSTATION SUSPENDED SOLIDS (%) MAXIMUM LOSS OF LOAD ALLOWED	CLASS AND FACE FLANGE FACE FINISH ELECTRICAL CONNECTION MOUNTING POWER SUPPLY OUTPUT SIGNAL COMMUNICATION PROTOCOL PRECISION REPEATABILITY ELECTRICAL CONNECTION LOCAL INDICATION CALIBRATION RANGE CALIBRATED RANGE KEYBOARD FOR LOCAL CONFIGURATION METER CASING PULSE OUTPUT TAGGING SURGE PROTECTOR FLUID PHYSICAL STATUS MINIMUM PRESSURE NORMAL MINIMUM PRESSURE NORMAL MINIMUM TEMPERATURE DENSITY @ OPERATING CONDITION VISCOSITY @ OPERATING CONDITION FLUID CONDUCTIVITY INCRUSTATION SUSPENDED SOLIDS (%) MAXIMUM LOSS OF LOAD ALLOWED	CLASS AND FACE FLANGE FACE FINISH ELECTRICAL CONNECTION MOUNTING POWER SUPPLY OUTPUT SIGNAL COMMUNICATION PROTOCOL PRECISION REPEATABILITY ELECTRICAL CONNECTION LOCAL INDICATION CALIBRATION RANGE CALIBRATION RANGE CALIBRATED RANGE KEYBOARD FOR LOCAL CONFIGURATION METER CASING PULSE OUTPUT TAGGING SURGE PROTECTOR FLUID PHYSICAL STATUS CHILLED MINIMUM FLOW NORMAL MAXIMUM A.0 PROJECT FLOW DESIGN PRESSURE DESIGN TEMPERATURE DENSITY @ OPERATING CONDITION VISCOSITY @ OPERATING CONDITION FLUID CONDUCTIVITY INCRUSTATION SUSPENDED SOLIDS (%) MAXIMUM LOSS OF LOAD ALLOWED -	CLASS AND FACE FLANGE FACE FINISH BASS ELECTRICAL CONNECTION MOUNTING MOUNTING INTEGRAL: OUTPUT SIGNAL COMMUNICATION PROTOCOL PRECISION REPEATABILITY BY MANUF ELECTRICAL CONNECTION 12° N REPEATABILITY BY MANUF ELECTRICAL CONNECTION 12° N ELECTRICAL CONNECTION 12° N ELECTRICAL CONNECTION CALIBRATED RANGE CALIBRATED RANGE CALIBRATED RANGE CALIBRATED RANGE ALUMINIO (CI PULSE OUTPUT TAGGING SURGE PROTECTOR FLUID PHYSICAL STATUS MINIMUM FLOW NORMAL MAXIMUM MAXIMUM 1.8 MINIMUM TEMPERATURE NORMAL MAXIMUM MAXIMUM 1.8 MINIMUM TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE DESIGN TEMPERATURE PLUID PINCRUSTATION N SUSPENDED SOLIDS (%) N MAXIMUM LOSS OF LOAD ALLOWED DAT DAT 150# FR. ASM.E MSS SUSTEMBLE DESIGN TEMPERATURE DESIGN TEMPERATURE N N N SUSPENDED SOLIDS (%) N MAXIMUM LOSS OF LOAD ALLOWED DAT DAT 150# FR. ASM.E 150# FR. ASM.E 150# FR. ASM.E 150# FR. ASM.E 16 MSS 150# FR. ASM.E 16 MSS 16 MS CLASS AND FACE 150# FR, ASME B16.5 / NBR 7669 FLANGE FACE FINISH MSS SP-6 ELECTRICAL CONNECTION NOT APPLICABLE MOUNTING INTEGRAL TO SENSOR POWER SUPPLY 24 Vcc · 2 WIRES OUTPUT SIGNAL 4 - 20 mA (500 ohms @ 24 Vcc) COMMUNICATION PROTOCOL HART PRECISION ± 0.15% F.E. REPEATABILITY BY MANUFACTURER ELECTRICAL CONNECTION 1/2" NPT (F) LOCAL INDICATION YES, LCD TYPE (SEE GENERAL NOTE. CALIBRATION RANGE BY MANUFACTURER CALIBRATION RANGE BY MANUFACTURER CALIBRATED RANGE 0 @ 330 m³/h KEYBOARD FOR LOCAL CONFIGURATION YES METER CASING ALUMINIO (COPPER FREE) PULSE OUTPUT YES SURGE PROTECTOR YES FLUID PHYSICAL STATUS CHILLED WATER LIOU MINIMUM FLOW NORMAL MAXIMUM 1.8 1.8 1.8 MINIMUM PRESSURE NORMAL MAXIMUM 4.0 7.2 7.2 PROJECT FLOW <t< td=""></t<>				









TITLE

SHEET:

16 de 16 REV.:

2

MAGNETIC FLOW TRANSMITTER

								2	
	1	INSTRUMENT TAG NUMBER			FIT-980030				
GENERAL	2	SERVIÇE				GLYCOL FOR PCH-7B-2			
	3	P&ID			7B-M-0-5-44				
	4	PIPE LINE EQUIPMENT NUMBER			10"-GW0R-980030-CS1-CC -				
	5	EQUIPMENT MATERIAL / PIPE			CARBON STEEL ASTM-A106 Gr.B				
	6	AREA CLASSIFICATION			NOT CLASSIFIED				
		ENCLOSURE CLASSIFICATION			IP 65 (MÍN.) CONF. NBR IEC 60529				
	8	CERTIFICATES			(SEE GENERAL NOTES 6)				
	9	52				(10000000000000000000000000000000000000			
		DIAMETER OF SENSOR TUBE			10" (NOTE 1)				
	_	TUBE MATERIAL				STAINLESS STEEL			
ER	_				PFA				
		COATING MATERIAL							
		ELECTRODE MATERIAL			316SS				
METER		GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)				
<		CONNECTIONS			FLANGED				
		CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669				
		FLANGE FACE FINISH			MSS SP-6				
		ELECTRICAL CONNECTION			NOT APPLICABLE				
		MOUNTING			INTEGRAL TO SENSOR				
	19	POWER SUPPLY			24 Vcc - 2 WIRES				
R.	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)				
1	21	COMMUNICATION PROTOCOL			HART				
SMI	22	PRECISION			± 0.15% F.E.				
SAN	23	REPEATABILITY			BY MANUFACTURER				
7.7	24	ELECTRICAL CONNECTION			1/2" NPT (F)				
CONVERTER / TRANSMITTER	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)				
ĒR7	26	CALIBRATION RANGE			BY MANUFACTURER				
N	27	CALIBRATED RANGE			0 @ 40 m³/h				
8	28	KEYBOARD FOR LOCAL CONFIGURATION			YES				
	29	METER CASING			ALUMINIO (COPPER FREE)				
	_	PULSE OUTPUT			YES				
<u></u>					YES (SEE GENERAL NOTES 3)				
SIES	32	SURGE PROTECTOR			YES				
ACCESSORIES	33	SONGET NOTEGION			120				
	34								
4CC	35				+				
È	36	FLUID PHYSICAL STATUS			CHILLED WATER LIQUID				
					_	-			
		MINIMUM FLOW	NORMAL	MAXIMUM	287	287	287	m³/h	
ις	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.8	1.8	1.8	bar-g °C	
0/	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	4.0	7.2	7.2	Ţ.	
T/Q/	40	PROJECT FLOW			287 m³/h				
ĺδ	41	DESIGN PRESSURE DESIGN TEMPERATURE			2.7 bar-g 37.2 °C				
9	42	DENSITY @ OPERATING CONDITION			1000.1 kg/m³				
4 7.IA	43	VISCOSITY @ OPERATING CONDITION			Cp				
OPERATING CONDITIONS	44	FLUID CONDUCTIVITY			1	μS/cm²			
	45	INCRUSTATION			NO				
	46	SUSPENDED SOLIDS (%)			NO				
	47	MAXIMUM LOSS OF LOAD ALLOWED			- bar				
	48				ļ				
	49	MANUFACTURER			Endress + Hauser (E+H) or Similar				
	50	0 MODEL				Proline Promag (E+H)			
1107		-	<u> </u>						

¹⁻ THE MANUFACTURER MUST CONFIRM THE NOMINAL DIAMETER OF THE METER.