



Lista de Instrumentação

Descrição	Elemento	Intervalo de Medida	Especificação	Fornecedor	Sinal	Voltagem	Localização Planta	Equipamento
Temperatura								
Temperatura	Digester 1	0...100°C	flange PN10 - DN25	Endress & Hauser	4...20 mA	24VDC		DIG-101
Temperatura	Digester 2	0...100°C	flange PN10 - DN25	Endress & Hauser	4...20 mA	24VDC		DIG-102
Temperatura	Post Digester 1	0...100°C	flange PN10 - DN25	Endress & Hauser	4...20 mA	24VDC		DIG-103
Temperatura	Post Digester 2	0...100°C	flange PN10 - DN25	Endress & Hauser	4...20 mA	24VDC		DIG-104
Temperatura	pretank heated 1	0...100°C	flange PN10 - DN25	Endress & Hauser	4...20 mA	24VDC		T-104
Temperatura	Sanitization tank 1	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-105
Temperatura	Sanitization tank 1	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-105
Temperatura	Sanitization tank 1	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-105
Temperatura	Sanitization tank 2	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-106
Temperatura	Sanitization tank 2	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-106
Temperatura	Sanitization tank 2	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-106
Temperatura	Sanitization tank 3	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-107
Temperatura	Sanitization tank 3	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-107
Temperatura	Sanitization tank 3	0...100°C	HTF50 PT1000	Thermokon	4...20 mA	24VDC		T-107
Temperatura	Stator premix n°1	0...100°C	Jumo 902150/10-378-1001	Jumo	4...20 mA	24VDC		T-108
Temperatura	Stator premix n°2	0...100°C	Jumo 902150/10-378-1001	Jumo	4...20 mA	24VDC		T-109
Temperatura	Stator pump pretank 1	0...100°C	Jumo 902150/10-378-1001	Jumo	4...20 mA	24VDC		T-104
Temperatura	Stator premix n°2	0...100°C	Jumo 902150/10-378-1001	Jumo	4...20 mA	24VDC		T-109
Temperatura	Stator excentric pump pretank 1	0...100°C	Jumo 902150/10-378-1001	Jumo	4...20 mA	24VDC		T-103
Temperatura	Stator excentric pump pretank 2 & 3	0...100°C	Jumo 902150/10-378-1001	Jumo	4...20 mA	24VDC		P-104
Temperatura	Stator excentric pump separation	0...100°C	Jumo 902150/10-378-1001	Jumo	4...20 mA	24VDC		S-301
Temperatura	Hot water outlet boiler	0...100°C	PT 100	Endress & Hauser	4...20 mA	24VDC		BOIL-201
Temperatura	Hot water inlet boiler	0...100°C	PT 100	Endress & Hauser	4...20 mA	24VDC		BOIL-201
Temperatura	Hot water inlet dig 1	0...100°C	PT 100	Endress & Hauser	4...20 mA	24VDC		DIG-101
Temperatura	Hot water inlet dig 2	0...100°C	PT 100	Endress & Hauser	4...20 mA	24VDC		DIG-102
Temperatura	Hot water inlet p-dig 1	0...100°C	PT 100	Endress & Hauser	4...20 mA	24VDC		DIG-103
Temperatura	Hot water inlet p-dig 2	0...100°C	PT 100	Endress & Hauser	4...20 mA	24VDC		DIG-104
Temperatura	Outside temperature	-35...90°C	PT1000	Thermokon AGS54+	4...20 mA	24VDC	5.8	
Temperatura	Electrical cabinet temperature	-35...90°C	PT1000	Thermokon AGS54+	4...20 mA	24VDC	2.5	



Descrição	Elemento	Intervalo de Medida	Especificação	Fornecedor	Sinal	Voltagem	Localização Planta	Equipamento
Nível								
Nível	Digester 1	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		DIG-101
Nível	Digester 1	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		DIG-101
Nível	Digester 1	0,,,10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		DIG-101
Nível	Digester 2	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		DIG-102
Nível	Digester 2	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		DIG-102
Nível	Digester 2	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		DIG-102
Nível	Post digester 1	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		DIG-103
Nível	Post digester 1	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		DIG-103
Nível	Post digester 1	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		DIG-103
Nível	Post digester 2	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		DIG-104
Nível	Post digester 2	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		DIG-104
Nível	Post digester 2	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		DIG-104
Nível	Pre-tank 1	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		T-103
Nível	Pre-tank 1	0,,,10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		T-103
Nível	Pre-tank 2	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		T-101
Nível	Pre-tank 2	0,,,10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		T-101
Nível	Pre-tank 3	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		T-102
Nível	Pre-tank 3	0,,,10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		T-102
Nível	Pre-tank 4	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		T-104
Nível	Pre-tank 4	0,,,10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		T-104
Nível	Sanitization tank 1	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		T-105
Nível	Sanitization tank 1	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		T-105
Nível	Sanitization tank 2	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		T-106
Nível	Sanitization tank 2	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		T-106
Nível	Sanitization tank 3	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		T-107
Nível	Sanitization tank 3	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		T-107
Nível	Liquid digestate tank	0... 10m	flange PN10 - DN25	E+H Deltapilot S FMB70	4...20 mA	24VDC		T-301
Nível	Liquid digestate tank	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC		T-301
Nível	Liquid digestate lagoon 1	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC	4.4	
Nível	Liquid digestate lagoon 1	LSH	N/A	E+H Liquifloat FTS20-N-PVC5	TOR	24VDC	4.4	
Nível	Liquid digestate lagoon 2	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC	4.5	
Nível	Liquid digestate lagoon 2	LSH	N/A	E+H Liquifloat FTS20-N-PVC5	TOR	24VDC	4.5	
Nível	Liquid digestate lagoon 3	0... 10m	flange PN10 - DN25	E+H Liquicap FTI51	4...20 mA	24VDC	4.6	
Nível	Liquid digestate lagoon 3	LSH	N/A	E+H Liquifloat FTS20-N-PVC5	TOR	24VDC	4.6	
Nível	Condensate pit	LSL	N/A	E+H Liquifloat FTS20-N-PVC5	TOR	24VDC	5.2	
Nível	Condensate pit	LSH	N/A	E+H Liquifloat FTS20-N-PVC5	TOR	24VDC	5.2	
Nível	Pumping room	LSH	N/A	E+H Liquiphant FTL31	TOR	24VDC	2.5	



Descrição	Elemento	Intervalo de Medida	Especificação	Fornecedor	Sinal	Voltagem	Localização Planta	Equipamento
Pressão								
Pressão Biogás	Digester 1	-10 ...10 mbar	Type Cerabar M PMC51, flange DN 25	Endress &Hauser	4...20 mA	24VDC		DIG-101
Pressão Biogás	Digester 2	-10 ...10 mbar	Type Cerabar M PMC51, flange DN 25	Endress &Hauser	4...20 mA	24VDC		DIG-102
Pressão Biogás	Post Digester 1	-10 ...10 mbar	Type Cerabar M PMC51, flange DN 25	Endress &Hauser	4...20 mA	24VDC		DIG-103
Pressão Biogás	Post Digester 2	-10 ...10 mbar	Type Cerabar M PMC51, flange DN 25	Endress &Hauser	4...20 mA	24VDC		DIG-104
Bomba - montante	Excentric pump pretank 1	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC		T-104
Bomba - jusante	Excentric pump pretank 4	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC		T-103
Bomba - montante	Excentric pump pretank 2 & 3	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC		T-101 / T-102
Bomba - jusante	Excentric pump pretank 2 & 3	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC		T-101 / T-102
Bomba - montante	Excentric pump liquid digestate	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC		T-301
Bomba - jusante	Excentric pump liquid digestate	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC		T-301
Bomba - montante	Excentric pump room 1	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC	2.5	
Bomba - jusante	Excentric pump room 1	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC	2.5	
Bomba - montante	Excentric pump room 2	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC	2.5	
Bomba - jusante	Excentric pump room 2	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC	2.5	
Bomba - montante	Excentric pump room 3	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC	2.5	
Bomba - jusante	Excentric pump room 3	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC	2.5	
Bomba - montante	Excentric pump room 4	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC	2.5	
Bomba - jusante	Excentric pump room 4	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC	2.5	
Bomba - jusante	Landia pump	-1...10 bar	IFM PI2894	IFM	4...20 mA	24VDC		T-103
Pressão Digerido	Inlet phase separator	0...600 mabr	E+H PMP21	Endress & Hauser	4...20 mA	24VDC		S-301
Caudal								
Caudal Biogás	Before upgrading plant	0...2000 Nm3/h	Prosonic 200	Endress & Hauser	4...20 mA	24VDC	3.1	
Caudal Biogás	Before flare	0...2000 Nm3/h	Prosonic 200	Endress & Hauser	4...20 mA	24VDC	3.3	
Caudal Biogás	Before boiler	0...2000 Nm3/h	Prosonic 200	Endress & Hauser	4...20 mA	24VDC		BOIL-201
Caudal Matéria-Prima - Pretank 1	To digestion process	0-100 Nm3/h	Promag W400	Endress & Hauser	4...20 mA	24VDC		T-104
Caudal Matéria-Prima - Pretank 2&3	To digestion process	0-100 Nm3/h	Promag W400	Endress & Hauser	4...20 mA	24VDC		T-101 / T-102
Caudal Matéria-Prima - Pretank 4	To sanitization process	0-100 Nm3/h	Promag W400	Endress & Hauser	4...20 mA	24VDC		T-103
Caudal Bomba Excêntrica - Circuito de Líquidos	To sanitization process	0-100 Nm3/h	Promag W400	Endress & Hauser	4...20 mA	24VDC	2.5	
Caudal Bomba Excêntrica - Circuito de Higienização	To digestion process	0-100 Nm3/h	Promag W400	Endress & Hauser	4...20 mA	24VDC	2.5	
Caudal Bomba Excêntrica - Circuito de Digeridos	To storage or process	0-100 Nm3/h	Promag W400	Endress & Hauser	4...20 mA	24VDC		T-301
Peso								
Peso	Feeder 1	0-120 to	Weight sensor	Havelberger	4-20mA	24VDC		T-108
Peso	Feeder 2	0-120 to	Weight sensor	Havelberger	4-20mA	24VDC		T-109
Peso	Weight bridge	0-120 to	Weight sensor	tbd	4-20mA	24VDC	5.1	
Contador de eletricidade								
Contador de eletricidade	Global	0-1500 kVA	Electrical counter	Siemens	4-20 mA	24VDC	5.6	



Descrição	Elemento	Intervalo de Medida	Especificação	Fornecedor	Sinal	Voltagem	Localização Planta	Equipamento
Analisador de Biogás								
Composição do Biogás	Digester 1	0...100 %CH ₄	Awiflex	Awite	4-20mA	230 V		DIG-101
Composição do Biogás	Digester 2	0...100 %CH ₄	Awiflex	Awite	4-20mA	230 V		DIG-102
Composição do Biogás	Post digester 1	0...100 %CH ₄	Awiflex	Awite	4-20mA	230 V		DIG-103
Composição do Biogás	Post digester 2	0...100 %CH ₄	Awiflex	Awite	4-20mA	230 V		DIG-104
Composição do Biogás	Digester 1	0...25%O ₂	Awiflex	Awite	4-20mA	230 V		DIG-101
Composição do Biogás	Digester 2	0...25%O ₂	Awiflex	Awite	4-20mA	230 V		DIG-102
Composição do Biogás	Post digester 1	0...25%O ₂	Awiflex	Awite	4-20mA	230 V		DIG-103
Composição do Biogás	Post digester 2	0...25%O ₂	Awiflex	Awite	4-20mA	230 V		DIG-104
Composição do Biogás	Digester 1	0...3000 ppm H ₂ S	Awiflex	Awite	4-20mA	230 V		DIG-101
Composição do Biogás	Digester 2	0...3000 ppm H ₂ S	Awiflex	Awite	4-20mA	230 V		DIG-102
Composição do Biogás	Post digester 1	0...3000 ppm H ₂ S	Awiflex	Awite	4-20mA	230 V		DIG-103
Composição do Biogás	Post digester 2	0...3000 ppm H ₂ S	Awiflex	Awite	4-20mA	230 V		DIG-104
Composição do Biogás	Inlet upgrading plant	0...100 %CH ₄	Awiflex	Awite	4-20mA	230 V	3.1	
Composição do Biogás	Inlet upgrading plant	0...25%O ₂	Awiflex	Awite	4-20mA	230 V	3.1	
Composição do Biogás	Inlet upgrading plant	0...3000 ppm H ₂ S	Awiflex	Awite	4-20mA	230 V	3.1	
Composição do Biogás	Intermembrane volume	0...100 %CH ₄	SE237PM	Tecnocontrol	4-20mA	24VDC		DIG-101
Composição do Biogás	Intermembrane volume	0...100 %CH ₄	SE237PM	Tecnocontrol	4-20mA	24VDC		DIG-102
Composição do Biogás	Intermembrane volume	0...100 %CH ₄	SE237PM	Tecnocontrol	4-20mA	24VDC		DIG-103
Composição do Biogás	Intermembrane volume	0...100 %CH ₄	SE237PM	Tecnocontrol	4-20mA	24VDC		DIG-104
Posição / Desgaste								
Porta biomix nº1	Premix nº1	TOR	Door contact switch	tbd	TOR	24VDC		T-108
Porta biomix nº1	Premix nº2	TOR	Door contact switch	tbd	TOR	24VDC		T-109
Porta Rotacut	Rotacut sanitization	TOR	Door contact switch	tbd	TOR	24VDC		R-101
Desgaste lâmina	Premix nº1	0...100%	ELOBAU 424A01A030	Elobau	4-20 mA	24VDC		T-108
Desgaste lâmina	Premix nº2	0...100%	ELOBAU 424A01A030	Elobau	4-20 mA	24VDC		T-109
Desgaste lâmina	Rotacut sanitization	0...100%	ELOBAU 424A01A030	Elobau	4-20 mA	24VDC		R-101
Enchimento membrana	Digester 1	0...100%	Schmachtl SL 3010-MH 1023	Fernsteuergeräte Kurt Oelsch GmbH	4-20 mA	24VDC		DIG-101
Enchimento membrana	Digester 2	0...100%	Schmachtl SL 3010-MH 1023	Fernsteuergeräte Kurt Oelsch GmbH	4-20 mA	24VDC		DIG-102
Enchimento membrana	Post digester 1	0...100%	Schmachtl SL 3010-MH 1023	Fernsteuergeräte Kurt Oelsch GmbH	4-20 mA	24VDC		DIG-103
Enchimento membrana	Post digester 2	0...100%	Schmachtl SL 3010-MH 1023	Fernsteuergeräte Kurt Oelsch GmbH	4-20 mA	24VDC		DIG-104
Sensor do interruptor de fim de curso	Pneumatic gate valve open	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve close	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve open	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve close	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve open	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve close	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve open	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve close	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve open	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve close	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve open	TOR	NI5001	IFM	TOR	24VDC	2.5	
Sensor do interruptor de fim de curso	Pneumatic gate valve close	TOR	NI5001	IFM	TOR	24VDC	2.5	