

Instruction and Operating Manual

Foundation Fieldbus Function Block and Transducer Block Design



Power-Genex Ltd.



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1. Function Block

RESOURCE (RB2)

POS_TB (TB)

AI1 (AI)

AI2(AI)

AO (AO)

DI1 (DI)

DI2 (DI)

PID (PID)

2. Block Parameter

2.1 Resource Block

Index	Parameter Mnemonic	VIEW_1	VIEW_2	VIEW_3	VIEW_4
1	ST_REV	2	2	2	2
2	TAG_DESC				
3	STRATEGY				2
4	ALERT_KEY				1
5	MODE_BLK	4		4	
6	BLOCK_ERR	2		2	
7	RS_STATE	1		1	
8	TEST_RW				
9	DD_RESOURCE				
10	MANUFAC_ID				4
11	DEV_TYPE				2
12	DEV_REV				1
13	DD_REV				1
14	GRANT_DENY		2		
15	HARD_TYPES				2
16	RESTART				
17	FEATURES				2
18	FEATURE_SEL		2		
19	CYCLE_TYPE				2
20	CYCLE_SEL		2		
21	MIN_CYCLE_T				4
22	MEMORY_SIZE				2
23	NV_CYCLE_T		4		
24	FREE_SPACE		4		

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Index	Parameter Mnemonic	VIEW_ 1	VIEW_ 2	VIEW_ 3	VIEW_ 4
25	FREE_TIME	4		4	
26	SHED_RCAS		4		
27	SHED_ROUT		4		
28	FAULT_STATE	1		1	
29	SET_FSTATE				
30	CLR_FSTATE				
31	MAX_NOTIFY				1
32	LIM_NOTIFY		1		
33	CONFIRM_TIME		4		
34	WRITE_LOCK		1		
35	UPDATE_EVT				
36	BLOCK_ALM				
37	ALARM_SUM	8		8	
38	ACK_OPTION				2
39	WRITE_PRI				1
40	WRITE_ALM				
41	ITK_VER				2
42	FD_VER				2
43	FD_FAIL_ACTIVE	4		4	
44	FD_OFFSPEC_ACTIVE	4		4	
45	FD_MAINT_ACTIVE	4		4	
46	FD_CHECK_ACTIVE	4		4	
47	FD_FAIL_MAP				4
48	FD_OFFSPEC_MAP				4
49	FD_MAINT_MAP				4
50	FD_CHECK_MAP				4
51	FD_FAIL_MASK				4
52	FD_OFFSPEC_MASK				4
53	FD_MAINT_MASK				4
54	FD_CHECK_MASK				4
55	FD_FAIL_ALM				
56	FD_OFFSPEC_ALM				
57	FD_MAINT_ALM				
58	FD_CHECK_ALM				
59	FD_FAIL_PRI				1
60	FD_OFFSPEC_PRI				1
61	FD_MAINT_PRI				1
62	FD_CHECK_PRI				1
63	FD_SIMULATE			9	
64	FD_RECOMMEN_ACT	2		2	
	Totals	40	30	49	69

2.2 Positioner Transducer Block

Index	Parameter Mnemonic	VIEW _ 1	VIEW _ 2	VIEW _ 3	VIEW _ 4 1st	VIEW _ 4 2nd	VIEW _ 4 3rd
1	ST_REV	2	2	2	1	2	3
2	TAG_DESC						
3	STRATEGY				2	2	2
4	ALERT_KEY						
5	MODE_BLK	4		4	2		
6	BLOCK_ERR	2		2	1		
7	UPDATE_EVT						
8	BLOCK_ALM						
9	TRANSDUCER_DIRECTORY						
10	TRANSDUCER_TYPE	2	2	2			
11	TRANSDUCER_TYPE_VER	2	2	2			
12	XD_ERROR	1		1	2		
13	COLLECTION_DIRECTORY				2		
14	FINAL_VALUE	5		5			
15	FINAL_VALUE_RANGE		11				
16	FINAL_VALUE_CUTOFF_HI						
17	FINAL_VALUE_CUTOFF_LO						
18	FINAL_POSITION_VALUE	5		5	4		
19	TEMPERATURE	5		5			
20	TEMPERATURE_RANGE		11				
21	DI1	2		2			
22	DI2	2		2			
23	INPUT_RANGE		1				
24	VALVE_DIRECTION				1		
25	VALVE_CHARACTERISTIC				1		
26	USER_SET				68		
27	ZERO_SPAN					8	
28	PID_PARAMETERS					6	
29	PID_GROUP					1	
30	SPEED					2	
31	SLOW_START					1	
32	CONTROL_LIMIT					1	
33	GAP_CONTROL_LIMIT					1	
34	DEADZONE			4			
35	FDGN					1	
36	CONTROL_MODE					1	
37	SHUT					4	

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Index	Parameter Mnemonic	VIEW _ 1	VIEW _ 2	VIEW _ 3	VIEW _ 4 1st	VIEW _ 4 2nd	VIEW _ 4 3rd
38	FOPN					4	
39	OUTPUT_RANGE					2	
40	SPLT					1	
41	USER_ALARM						6
42	PST_ON_OFF						1
43	PST_TIME_INTERVAL						2
44	PST_COMMAND_SET						2
45	PST_RAMP_RATE						1
46	PST_RESPONSE_TIME						1
47	AUTO_TUNE			1			
48	AUTO_TUNE_STATUS			1			
	Totals	32	29	38	84	37	18

2.2.1 Transducer Channels

Index	Function Name	Description	Type
1	AI1	Actual Position	AI
2	AI2	Temperature	AI
3	AO	Command Position	AO
4	DI1	DI1	DI
5	DI2	DI2	DI

2.3 Analog Input Block

Index	Parameter Mnemonic	VIEW_ 1	VIEW_ 2	VIEW_ 3	VIEW_ 4
1	ST_REV	2	2	2	2
2	TAG_DESC				
3	STRATEGY				2
4	ALERT_KEY				1
5	MODE_BLK	4		4	
6	BLOCK_ERR	2		2	
7	PV	5		5	
8	OUT	5		5	
9	SIMULATE				
10	XD_SCALE		11		
11	OUT_SCALE		11		
12	GRANT_DENY		2		
13	IO_OPTS				2

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Index	Parameter Mnemonic	VIEW_1	VIEW_2	VIEW_3	VIEW_4
14	STATUS_OPTS				2
15	CHANNEL				2
16	L_TYPE				1
17	LOW_CUT				4
18	PV_FTIME				4
19	FIELD_VAL	5		5	
20	UPDATE_EVT				
21	BLOCK_ALM				
22	ALARM_SUM	8		8	
23	ACK_OPTION				2
24	ALARM_HYS				4
25	HI_HI_PRI				1
26	HI_HI_LIM				4
27	HI_PRI				1
28	HI_LIM				4
29	LO_PRI				1
30	LO_LIM				4
31	LO_LO_PRI				1
32	LO_LO_LIM				4
33	HI_HI_ALM				
34	HI_ALM				
35	LO_ALM				
36	LO_LO_ALM				
	Totals	31	26	31	46

2.4 Analog Output Block

Index	Parameter Mnemonic	VIEW_1	VIEW_2	VIEW_3	VIEW_4
1	ST_REV	2	2	2	2
2	TAG_DESC				
3	STRATEGY				2
4	ALERT_KEY				1
5	MODE_BLK	4		4	
6	BLOCK_ERR	2		2	
7	PV	5		5	
8	SP	5		5	
9	OUT	5		5	

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Index	Parameter Mnemonic	VIEW_1	VIEW_2	VIEW_3	VIEW_4
10	SIMULATE				
11	PV_SCALE		11		
12	XD_SCALE		11		
13	GRANT_DENY		2		
14	IO_OPTS				2
15	STATUS_OPTS				2
16	READBACK	5		5	
17	CAS_IN	5		5	
18	SP_RATE_DN				4
19	SP_RATE_UP				4
20	SP_HI_LIM		4		
21	SP_LO_LIM		4		
22	CHANNEL				2
23	FSTATE_TIME				4
24	FSTATE_VAL				4
25	BKCAL_OUT			5	
26	RCAS_IN			5	
27	SHED_OPT				1
28	RCAS_OUT			5	
29	UPDATE_EVT				
30	BLOCK_ALM				
	Totals	33	34	48	28

2.5 Discrete Input Block

Index	Parameter Mnemonic	VIEW_1	VIEW_2	VIEW_3	VIEW_4
1	ST_REV	2	2	2	2
2	TAG_DESC				
3	STRATEGY				2
4	ALERT_KEY				1
5	MODE_BLK	4		4	
6	BLOCK_ERR	2		2	
7	PV_D	2		2	
8	OUT_D	2		2	
9	SIMULATE_D				
10	XD_STATE		2		
11	OUT_STATE		2		

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Index	Parameter Mnemonic	VIEW_1	VIEW_2	VIEW_3	VIEW_4
12	GRANT_DENY		2		
13	IO_OPTS				2
14	STATUS_OPTS				2
15	CHANNEL				2
16	PV_FTIME				4
17	FIELD_VAL_D	2		2	
18	UPDATE_EVT				
19	BLOCK_ALM				
20	ALARM_SUM	8		8	
21	ACK_OPTION				2
22	DISC_PRI				1
23	DISC_LIM				1
24	DISC_ALM				
	Totals	22	8	22	19

2.6 PID Control Block

Index	Parameter Mnemonic	VIEW_1	VIEW_2	VIEW_3	VIEW_4
1	ST_REV	2	2	2	2
2	TAG_DESC				
3	STRATEGY				2
4	ALERT_KEY				1
5	MODE_BLK	4		4	
6	BLOCK_ERR	2		2	
7	PV	5		5	
8	SP	5		5	
9	OUT	5		5	
10	PV_SCALE		11		
11	OUT_SCALE		11		
12	GRANT_DENY		2		
13	CONTROL_OPTS				2
14	STATUS_OPTS				2
15	IN			5	
16	PV_FTIME				4
17	BYPASS		1		
18	CAS_IN	5		5	
19	SP_RATE_DN				4

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Index	Parameter Mnemonic	VIEW_ 1	VIEW_ 2	VIEW_ 3	VIEW_ 4
20	SP_RATE_UP				4
21	SP_HI_LIM		4		
22	SP_LO_LIM		4		
23	GAIN				4
24	RESET				4
25	BAL_TIME				4
26	RATE				4
27	BKCAL_IN			5	
28	OUT_HI_LIM		4		
29	OUT_LO_LIM		4		
30	BKCAL_HYS				4
31	BKCAL_OUT			5	
32	RCAS_IN			5	
33	ROUT_IN			5	
34	SHED_OPT				1
35	RCAS_OUT			5	
36	ROUT_OUT			5	
37	TRK_SCALE				11
38	TRK_IN_D	2		2	
39	TRK_VAL	5		5	
40	FF_VAL			5	
41	FF_SCALE				11
42	FF_GAIN				4
43	UPDATE_EVT				
44	BLOCK_ALM				
45	ALARM_SUM	8		8	
46	ACK_OPTION				2
47	ALARM_HYS				4
48	HI_HI_PRI				1
49	HI_HI_LIM				4
50	HI_PRI				1
51	HI_LIM				4
52	LO_PRI				1
53	LO_LIM				4
54	LO_LO_PRI				1
55	LO_LO_LIM				4
56	DV_HI_PRI				1
57	DV_HI_LIM				4
58	DV_LO_PRI				1

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Index	Parameter Mnemonic	VIEW_ 1	VIEW_ 2	VIEW_ 3	VIEW_ 4
59	DV_LO_LIM				4
60	HI_HI_ALM				
61	HI_ALM				
62	LO_ALM				
63	LO_LO_ALM				
64	DV_HI_ALM				
65	DV_LO_ALM				
	Totals	43	43	83	104

3. Parameter Attribute Definitions

3.1 Function Block Parameter Attribute Definitions

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
ACK_OPTION	S	Bit String	C/Contained	S	2	0 : Auto Ack Disabled 1 : Auto Ack Enabled	0		na	ALARM			
ALARM_HYS	S	Float	C/Contained	S	4	0 to 50 Percent	0.50%		%	ALARM		Positive	Yes
ALARM_SUM	R	DS-74	C/Alarm Summary	mix	8				na	ALARM			
ALERT_KEY	S	Unsigned8	C/Alert Key	S	1	1 to 255	0		none				Yes
BAL_TIME	S	Float	C/Contained	S	4	Positive	0		Sec	TUNE		Positive	
BIAS	S	Float	C/Contained	N	4	OUT_SCALE +/- 10%			OUT	See Note 1			Yes
BKCAL_HYS	S	Float	C/Contained	S	4	0 to 50 Percent	0.50%		%	TUNE		Positive	Yes
BKCAL_IN	R	DS-65	I/Back-Calculation Input	N	5			BKWD	OUT				
BKCAL_OUT	R	DS-65	O/Back-Calculation Output	D	5			BKWD	PV			Read only	
BKCAL_OUT_D	R	DS-66	O/Back-Calculation Output	D	2			BKWD	PV			Read only	
BKCAL_SEL_1	R	DS-65	O/Back-Calculation Output	D	5			BKWD	OUT			Read only	
BKCAL_SEL_2	R	DS-65	O/ Back-Calculation Output	D	5			BKWD	OUT			Read only	
BKCAL_SEL_3	R	DS-65	O/ Back-Calculation Output	D	5			BKWD	OUT			Read only	
BLOCK_ALM	R	DS-72	C/Alarm	D	13				na				
BLOCK_ERR	S	Bit String	C/Block Error	D	2				E			Read only	
BYPASS	S	Unsigned8	C/Contained	S	1	1: Off 2: On	0		E		Man		
CAS_IN	R	DS-65	I/Cascade Input	N	5			FWD	PV				
CAS_IN_D	R	DS-66	I/Cascade Input	N	2			FWD	PV				

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
CHANNEL	S	Unsigned16	C/Channel	S	2	1 to Mfr limit	0		none		O/S		Yes
CLR_FSTATE	S	Unsigned8	C/Contained	D	1	1: Off 2: Clear	1		E	See Note 3			
CONFIRM_TIME	S	Unsigned32	C/Contained	S	4		640000		1/32 millisec	TUNE			Yes
CONTROL_OPTS	S	Bit String	C/Contained	S	2		0		na		O/S		
CYCLE_SEL	S	Bit String	C/Contained	S	2		0		na	See Note 4			
CYCLE_TYPE	S	Bit String	C/Contained	S	2	Set by mfr			na			Read only	
DEV_REV	S	Unsigned8	C/Contained	S	1	Set by mfr			none			Read only	
DEV_TYPE	S	Unsigned16	C/Contained	S	2	Set by mfr			E			Read only	
DD_RESOURCE	S	Visible String	C/DD Resource	S	32		null		na			Read only	
DD_REV	S	Unsigned8	C/Contained	S	1	Set by mfr			none			Read only	
DISC_ALM	R	DS-72	C/Alarm	D	13				PV				
DISC_LIM	S	Unsigned8	C/Contained	S	1	PV_STATE	0		PV	ALARM			Yes
DISC_PRI	S	Unsigned8	C/Alert Priority	S	1	0 to 15	0		none	ALARM			Yes
DV_HI_ALM	R	DS-71	C/Alarm	D	16				PV				
DV_HI_LIM	S	Float	C/Contained	S	4	0 to PV span, +INF	+INF		PV	ALARM			Yes
DV_HI_PRI	S	Unsigned8	C/Alert Priority	S	1	0 to 15	0		none	ALARM			Yes
DV_LO_ALM	R	DS-71	C/Alarm	D	16				PV				
DV_LO_LIM	S	Float	C/Contained	S	4	-INF, -PV span to 0	-INF		PV	ALARM			Yes
DV_LO_PRI	S	Unsigned8	C/Alert Priority	S	1	0 to 15	0		none	ALARM			Yes
FAULT_STATE	S	Unsigned8	C/Contained	N	1	1: Clear 2: Active			E			Read only	
FEATURE_SEL	S	Bit String	C/Contained	S	2		Set by mfr		na				

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
FEATURES	S	Bit String	C/Contained	S	2	Set by mfr			na			Read only	
FF_GAIN	S	Float	C/Contained	S	4		0		none	TUNE	Man		
FF_SCALE	R	DS-68	C/Scaling	S	11		0-100%		FF		O/S		
FF_VAL	R	DS-65	I /Input	N	5			FWD	FF				
FIELD_VAL	R	DS-65	C/Contained	D	5				%			Read only	
FIELD_VAL_D	R	DS-66	C/Contained	D	2				On/Off			Read only	
FREE_SPACE	S	Float	C/Contained	D	4	0-100 Percent			%			Read only	
FREE_TIME	S	Float	C/Contained	D	4	0-100 Percent			%			Read only	
FSTATE_TIME	S	Float	C/Contained	S	4	Positive	0		Sec			Positive	
FSTATE_VAL	S	Float	C/Contained	S	4	PV_SCALE +/- 10%	0		PV				Yes
FSTATE_VAL_D	S	Unsigned8	C/Contained	S	1		0		PV				
GAIN	S	Float	C/Contained	S	4		0		none	TUNE			
GRANT_DENY	R	DS-70	C/Access Permission	S	2				na				
HARD_TYPES	S	Bit String	C/Contained	S	2	Set by mfr			na			Read only	
HI_ALM	R	DS-71	C/Alarm	D	16				PV				
HI_HI_ALM	R	DS-71	C/Alarm	D	16				PV				
HI_HI_LIM	S	Float	C/Contained	S	4	PV_SCALE, +INF	+INF		PV	ALARM			Yes
HI_HI_PRI	S	Unsigned8	C/Alert Priority	S	1	0 to 15	0		none	ALARM			Yes
HI_LIM	S	Float	C/Contained	S	4	PV_SCALE, +INF	+INF		PV	ALARM			Yes
HI_PRI	S	Unsigned8	C/Alert Priority	S	1	0 to 15	0		none	ALARM			Yes
IO_OPTS	S	Bit String	C/Contained	S	2		0		na		O/S		
IN	R	DS-65	I/Primary Input	N	5			FWD	PV				

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
IN_1	R	DS-65	I/Input	N	5			FWD	See Note 7				
ITK_VER	S	Unsigned16	C/Contained	S	2	Set by FF			none			Read only	
LIM_NOTIFY	S	Unsigned8	C/Contained	S	1	0 to MAX_NOTIFY	MAX_NOTIFY		none	TUNE			Yes
L_TYPE	S	Unsigned8	C/Contained	S	1	1: Direct 2: Indirect 3: Ind Sqr Root	0		E		Man		
LOW_CUT	S	Float	C/Contained	S	4	Non-negative	0		OUT	TUNE		Positive	Yes
LO_ALM	R	DS-71	C/Alarm	D	16				PV				
LO_LIM	S	Float	C/Contained	S	4	-INF, PV_SCALE	-INF		PV	ALARM			Yes
LO_PRI	S	Unsigned8	C/Alert Priority	S	1	0 to 15	0		none	ALARM			Yes
LO_LO_ALM	R	DS-71	C/Alarm	D	16				PV				
LO_LO_LIM	S	Float	C/Contained	S	4	-INF, PV_SCALE	-INF		PV	ALARM			Yes
LO_LO_PRI	S	Unsigned8	C/Alert Priority	S	1	0 to 15	0		none	ALARM			Yes
MANUFAC_ID	S	Unsigned32	C/Contained	S	4	Enumeration; controlled by FF			none			Read only	
MAX_NOTIFY	S	Unsigned8	C/Contained	S	1	Set by mfr			none			Read only	
MEMORY_SIZE	S	Unsigned16	C/Contained	S	2	Set by mfr			Kbytes			Read only	
MIN_CYCLE_T	S	Unsigned32	C/Contained	S	4	Set by mfr			1/32 millisec			Read only	
MODE_BLK	R	DS-69	C/Mode	mix	4	See MODE	O/S		na	See Note 1		Note 2	
NV_CYCLE_T	S	Unsigned32	C/Contained	S	4				1/32 millisec			Read only	
OUT	R	DS-65	O/Primary Output	N	5	OUT_SCALE +/- 10% See Note 6		FWD	OUT	See Note 1	Man		Yes
OUT_D	R	DS-66	O/Primary Output	N	2	OUT_STATE		FWD	OUT	See Note 1	Man		Yes
OUT_HI_LIM	S	Float	C/Contained	S	4	OUT_SCALE +/- 10%	100		OUT				Yes

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
OUT_LO_LIM	S	Float	C/Contained	S	4	OUT_SCALE +/- 10%	0		OUT				Yes
OUT_SCALE	R	DS-68	C/Scaling	S	11		0-100%		OUT		O/S		
OUT_STATE	S	Unsigned16	C/Contained	S	2		0		OUT				
PV	R	DS-65	C/Process Variable	D	5				PV			Read only	
PV_D	R	DS-66	C/Process Variable	D	2				PV			Read only	
PV_FTIME	S	Float	C/Contained	S	4	non-negative	0		Sec	TUNE		Positive	
PV_SCALE	R	DS-68	C/Scaling	S	11		0-100%		PV		O/S		
PV_STATE	S	Unsigned16	C/Contained	S	2		0		PV				
RA_FTIME	S	Float	C/Contained	S	4	Positive	0		Sec	TUNE		Positive	
RATE	S	Float	C/Contained	S	4	Positive	0		Sec	TUNE		Positive	
RCAS_IN	R	DS-65	C/Remote-Cascade In	N	5			FWD_R	PV				
RCAS_IN_D	R	DS-66	C/Remote-Cascade In	N	2			FWD_R	PV				
RCAS_OUT	R	DS-65	C/Remote-Cascade Out	D	5			BKWD_R	PV			Read only	
RCAS_OUT_D	R	DS-66	C/Remote-Cascade Out	D	2			BKWD_R	PV			Read only	
READBACK	R	DS-65	C/Contained	D	5				XD			Read only	
READBACK_D	R	DS-66	C/Contained	D	2				XD			Read only	
RESET	S	Float	C/Contained	S	4	Positive	+INF		Sec	TUNE		Positive	
RESTART	S	Unsigned8	C/Contained	D	1	See Note 5			E	See Note 4			
ROUT_IN	R	DS-65	C/Remote-Output In	N	5			FWD_R	OUT				
ROUT_OUT	R	DS-65	C/Remotr-Output Out	D	5			BKWD_R	OUT			Read only	
RS_STATE	S	Unsigned8	C/Resource State	D	1	See Part 1 for enumeration			E			Read only	

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
SEL_1	R	DS-65	I/Cascade Input	N	5			FWD	OUT				
SEL_2	R	DS-65	I/Cascade Input	N	5			FWD	OUT				
SEL_3	R	DS-65	I/Cascade Input	N	5			FWD	OUT				
SEL_TYPE	S	Unsigned8	C/Contained	S	1	1: High 2: Low 3: Middle	0		E		Man		
SET_FSTATE	S	Unsigned8	C/Contained	D	1	1: Off 2: Set	1		E	See Note 3			
SHED_OPT	S	Unsigned8	C/Shed Option	S	1	See SHED_OPT	0		E				
SHED_RCAS	S	Unsigned32	C/Contained	S	4		640000		1/32 millisec	TUNE			Yes
SHED_ROUT	S	Unsigned32	C/Contained	S	4		640000		1/32 millisec	TUNE			Yes
SIMULATE	R	DS-82	C/Simulate	D	11		disable		none				
SIMULATE_D	R	DS-83	C/Simulate	D	5		disable		none				
SP	R	DS-65	C/Setpoint	N	5	PV_SCALE +/- 10%			PV	See Note 1	Auto or Rout		Yes
SP_D	R	DS-66	C/Setpoint	N	2	PV_STATE			PV	See Note 1	Auto		
SP_HI_LIM	S	Float	C/Contained	S	4	PV_SCALE +/- 10%	100		PV				Yes
SP_LO_LIM	S	Float	C/Contained	S	4	PV_SCALE +/- 10%	0		PV				Yes
SP_RATE_DN	S	Float	C/Contained	S	4	Positive	+INF		PV/Sec			Positive	
SP_RATE_UP	S	Float	C/Contained	S	4	Positive	+INF		PV/Sec			Positive	
ST_REV	S	Unsigned16	C/Static Revision	S	2		0		none			Read only	
STATUS_OPTS	S	Bit String	C/Contained	S	2		0		na		O/S		
STRATEGY	S	Unsigned16	C/Strategy	S	2		0		none				
TAG_DESC	S	Octet String	C/Tag Description	S	32		spaces		na				
TEST_RW	R	DS-85	C/Test	D	112				none				

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
TRK_IN_D	R	DS-66	I/Input	N	2			FWD	On/Off				
TRK_SCALE	R	DS-68	C/Scaling	S	11		0-100%		TRK		O/S		
TRK_VAL	R	DS-65	I/Input	N	5				TRK				
UPDATE_EVT	R	DS-73	C/Event Update	D	1 4				na			Read only	
WRITE_ALM	R	DS-72	C/Alarm	D	1 3				none				
WRITE_LOCK	S	Unsigned8	C/Contained	S	1	1: Unlocked 2: Locked	1		E	See Note 3			
WRITE_PRI	S	Unsigned8	C/Alert Priority	S	1	0 to 15	0		none	ALARM			Yes
XD_SCALE	R	DS-68	C/Scaling	S	11		0-100%		XD		O/S		
XD_STATE	S	Unsigned16	C/Contained	S	2		0		XD				

- Note 1 Normally, the operator has permission to write these values, but PROGRAM or LOCAL remove that permission and grant it to a supervisory computer or a local control panel.
- Note 2 MODE_BLK has a mixture of storage types. See the Mode parameter formal model in Part 1.
- Note 3 The operator can control PROGRAM or LOCAL access to these values
- Note 4 Changing these parameters may be fatal to communication.
- Note 5
 1: Run
 2: Restart resource
 3: Restart with defaults
 4: Restart processor
 5-10: Restart with factory defaults
- Note 6 OUT will be restricted to OUT_SCALE+/- 10% where the OUT_SCALE parameter is defined in the block and the Control Option “No OUT limits in Manual” has not been selected.”
- Note 7 Units are specific to the function block – see specific function block description.

3.2 Field Diagnostics Profile Parameter Attribute Definitions

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
FD_CHECK_ACTIVE	S	Bit String	C/FD Active	D	4				na			Read only	
FD_CHECK_ALM	R	DS-87	C/Alarm	D	15				na				
FD_CHECK_MAP	S	Bit String	C/Contained	S	4				na	ALARM			
FD_CHECK_MASK	S	Bit String	C/Contained	S	4				na	ALARM			
FD_CHECK_PRI	S	Unsigned8	C/Alert	S	1	0 - 15	0		na	ALARM			Yes
FD_EXTENDED_ACTIVE_n	S	Bit String	Priority	D	4				na			Read only	
FD_EXTENDED_MAP_n	S	Bit String	C/Contained	S	4				na				
FD_FAIL_ACTIVE	S	Bit String	C/Contained	D	4				na			Read only	
FD_FAIL_ALM	R	DS-87	C/FD Active	D	15				na				
FD_FAIL_MAP	S	Bit String	C/Alarm	S	4				na	ALARM			
FD_FAIL_MASK	S	Bit String	C/Contained	S	4				na	ALARM			
FD_FAIL_PRI	S	Unsigned8	C/Contained	S	1	0 - 15	0		na	ALARM			Yes
FD_MAINT_ACTIVE	S	Bit String	C/Alert	D	4				na			Read only	
FD_MAINT_ALM	R	DS-87	Priority	D	15				na				
FD_MAINT_MAP	S	Bit String	C/FD Active	S	4				na	ALARM			
FD_MAINT_MASK	S	Bit String	C/Alarm	S	4				na	ALARM			
FD_MAINT_PRI	S	Unsigned8	C/Contained	S	1	0 - 15	0		na	ALARM			Yes
FD_OFFSPEC_ACTIVE	S	Bit String	C/Contained	D	4				na			Read only	
FD_OFFSPEC_ALM	R	DS-87	C/Alert	D	15				na				
FD_OFFSPEC_MAP	S	Bit String	Priority	S	4				na	ALARM			

Parameter Mnemonic	Obj Type	Data Type/ Structure	Use/Model	Store	Size	Valid Range	Initial Value	Direction	Units	Permission	Mode	Other	Range Check
FD_OFFSPEC_MASK	S	Bit String	C/FD Active	S	4				na	ALARM			
FD_OFFSPEC_PRI	S	Unsigned8	C/Alarm	S	1	0 - 15	0		na	ALARM			Yes
FD_RECOMMEN_ACT	S	Unsigned16	C/Contained	D	2	1 – manf spec	0		na			Read only	
FD_SIMULATE	R	DS-89	C/Contained	D	9		disabled		na				
FD_VER	S	Unsigned16	C/Contained	S	2				na			Read only	

3.3 Transducer Parameter Attribute Definitions

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
CLOSED_POS_DEADBAND	S	Float	S	4						
CHARACTERIZATION	S	Unsigned8	S	1	0: Linear 1: Equal Percent 2: Quick Opening 3: Custom 4-7: Reserved 8-255: Mfg Specific	0	E	Not in Auto		
CLOSED_POS_SHIFT	S	Float	N	4					Rd Only	
CUSTOM_CURVE_DESCRIPTION	R	DS-180							Rd Only	
CUSTOM_CURVE_XY	R	DS-181	S					Not in Auto		
CUSTOM_CURVE_XY_FLOAT	R	DS-182	S					Not in Auto		
CYCLE_CNTR_DEADBAND	S	Float	S	4			%			
CYCLE_CNTR	S	Unsigned32	N	4					Rd Only	
CYCLE_CNTR_LIM	S	Unsigned32	S	4						
DEVIATION_DEADBAND	S	Float	S	4			%			

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
DEVIATION_TIME	S	Float	S	4			Sec			
DEVIATION_VALUE	S	Float	D	4					Rd Only	
FRICTION_UNITS	S	Unsigned16	S	2			E	OOS		
FRICTION	S	Float	N	4			Fric Unit		Rd Only	
FST_BREAKOUT_TIME	S	Float	S	4			Sec		Rd Only	
FST_BREAKOUT_TIMEOUT	S	Float	S	4			Sec			
FST_RAMP_RATE	S	Float	S	4			%/s			
FST_STRK_TRAV_TIMEOUT	S	Float	S	4			Sec			
FST_COMPLETION_TIMEOUT	S	Float	S	4			Sec			
HYSTERISIS	S	Float	N	4			%			
INTERNAL_TEMP	S	Float	N	4			E		Rd Only	
INTERNAL_TEMP_MIN	S	Float	N	4			Internal Temp Units		Rd Only	
INTERNAL_TEMP_MAX	S	Float	N	4			Internal Temp Units		Rd Only	
INTERNAL_TEMP_UNITS	S	Unsigned16	S	2			E	OOS		
STROKE_TIME_CLOSE_LIM	S	Float	S	4		0	Sec	Not in Auto		
STROKE_TIME_OPEN_LIM	S	Float	S	4		0	Sec	Not in Auto		
PRESSURE_PORT_A	S	Float	D	4			Pres Unit		Rd Only	
PRESSURE_PORT_B	S	Float	D	4			Pres Unit		Rd Only	
POS_ALERT_HI	S	Float	S	4			%			
POS_ALERT_LO	S	Float	S	4			%			

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
POS_DEADBAND	S	Float	S	4				Not in Auto		
POS_FEATURES	S	Bit String	S	2	0: Group A 1: Group B 2: Group C 3: Group D 4: Group E 5: Group F 6: Group G 7: Group H 8: Group I 9: Group J 10: Group K 11: Group L 12-15 Reserved		E		Rd Only	
PRESSURE_UNITS	S	Unsigned16	S	2			E	OOS		
PST_BREAKOUT_TIME	S	Float	N	4			Sec		Rd Only	
PST_BREAKOUT_TIMEOUT	S	Float	S	4			Sec			
PST_INITIAL_START_TIME	S	Date	S	7						
PST_INTERVAL	S	Float	S	4		0	Days			
PST_OPTIONS	S	Bit String	S	2	0: Freeze analog Feedback 1: Freeze discrete Feedback 2-7: Reserved 8-15: Mfg Specific		E			
PST_RAMP_RATE	S	Float	S	4			%/s			
PST_STRK_TRAV	S	Float	S	4	0 to 100	10	%			YES
PST_STRK_TRAV_TIMEOUT	S	Float	S	4			Sec			
PST_COMPLETION_TIMEOUT	S	Float	S	4			Sec			
RATED_TRAVEL	S	Float	S	4			Tvl Units			
SIGNAL_ACTION	S	Unsigned8	S	1	0 : Increase to Open 1: Increase to Close	0	E	Not in Auto		YES
STOP_HI_POS	S	Float	S	4			%	Not in		

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
								Auto		
STOP_LO_POS	S	Float	S	4			%	Not in Auto		
STROKE_TIME_CLOSED	S	Float	S	4					Rd Only	
STROKE_TIME_OPEN	S	Float	S	4					Rd Only	
PRESSURE_SUPPLY	S	Float	D	4			Pres Unit		Rd Only	
TORQUE_UNITS	S	Unsigned16	S	2			E	OOS		
TORQUE	S	Float	N	4			Torque Unit		Rd Only	
TRAVEL_ACCUM_DEADBAND	S	Float	S	4			%			
TRAVEL_ACCUM	S	Float	N	4			TAU		Rd Only	
TRAVEL_ACCUM_LIM	S	Float	S	4			TAU			
TRAVEL_ACCUM_UNITS	S	Unsigned16	S	2			E	OOS		
TRAVEL_UNITS	S	Unsigned16	S	2			E	OOS		
TRIP_TIMEOUT	S	Float	S	4			Sec			
VST_COMMAND	S	Unsigned8	D	1	0: Un-initialized 1: Execute VST (store as reference) 2: Execute VST (store as current) 3: Abort stroke test 4: Reset VST_RESULT to "no initial result" 5...7: Reserved 8-255: Mfg Specific	0	E			
VST_DETAILED_RESULT	S	Bit String	N	2	0: Test command rejected 1: Time Limit Exceeded 2: Pres Limit Exceeded 3: Friction Limit Exceeded 4: PST Travel Limit Exceeded 5: Overridden (abort due to external event)		E		Rd Only	

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
					6-7: Reserved 8-15: Mfg Specific					
VST_MODE	S	Unsigned8	S	1	0: Disable 1: PST for ESD valves 2: FST for ESD valves 3 .. 7: Reserved 8-255: Mfg Specific	0	E			
VST_PAUSE	S	Float	S	4			Sec			
VST_RESULT	S	Unsigned8	N	1	0: No initial results 1: Last VST successful 2: Last VST failed	0	E		Rd Only	
WORKING_POS	R	DS-65	D	5					Rd Only	
READBACK_SELECT	S	Unsigned8	S	1	0: Final Position Value 1: Working Position Value	0	E			
WORKING_POS_D	R	DS-66	D	2					Rd Only	
WORKING_SP_D	R	DS-66	N	2				Not in Auto		
WORKING_SP	R	DS-65	N	5	FVR		FVR	Not in Auto		
XD_COMMAND	S	Unsigned16	D	2	0: Normal Operation 1-7: Reserved 8-65535: Mfg Specific	0	E	Not in Auto		
XD_COMMAND_FLAGS	S	Bit String	D	2	0: No Procedure Selected 1-7: Reserved 8-15: Mfg Specific	0	E	Not in Auto		
XD_COMMAND_STATE	S	Unsigned16	D	2	0: Normal Operation 1-7: Reserved 8-65535: Mfg Specific	0	E		Rd Only	
XD_FSTATE_OPT	S	Unsigned8	S	1	0: Hold Last Value 1: Fail Closed 2: Fail Open 3: XD_FSTATE_VAL 4-7: Reserved 8-255: Mfg Specific	0	E			
XD_FSTATE_VAL	S	Float	S	4	FINAL_VALUE_RANGE	0	FVR			
XD_FSTATE_VAL_D	S	Unsigned8	S	1		0				

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
XD_OOS_OPT	S	Unsigned8	S	1	0: Hold Last Value 1: Fail Closed 2: Fail Open 3: XD_FSTATE_VAL 4-7: Reserved 8-255: Mfg Specific	0	E			
FINAL_POSITION_VALUE	R	DS-65	D	5			FVR		Rd Only	
FINAL_VALUE	R	DS-65	N	5			FVR		See t1	
FINAL_VALUE_CUTOFF_HI	S	Float	S	4	FINAL_VALUE_RANGE, +INF	+INF	FVR	O/S		
FINAL_VALUE_CUTOFF_LO	S	Float	S	4	FINAL_VALUE_RANGE, -INF	-INF	FVR	O/S		
FINAL_VALUE_D	R	DS-66	N	2			none		See t1	
FINAL_VALUE_RANGE	R	DS-68	S	11			FVR			
FINAL_POSITION_VALUE_D	R	DS-66	D	2			None		Rd Only	
ACT_FAIL_ACTION	S	Unsigned8	S	1	See Standard Tables Specification (TN-016)	0	E			
ACT_MAN_ID	S	Unsigned 32	S	4			none			
ACT_MODEL_NUM	S	Visible String	S	32		Spac	none			
ACT_SN	S	Visible String	S	32		Spac	none			
VALVE_MAN_ID	S	Unsigned 32	S	4			none			
VALVE_MODEL_NUM	S	Visible String	S	32		Spac	none			
VALVE_SN	S	Visible String	S	32		Spac	none			
VALVE_TYPE	S	Unsigned8	S	1	See Standard Tables Specification (TN-016)	0	E			
XD_CAL_LOC	S	Visible String	S	32		Spac	none			

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
XD_CAL_DATE	S	Date	S	7			none			
XD_CAL_WHO	S	Visible String	S	32		Spac	none			
XD_OOS_OPT	S	Unsigned8	S	1		1	none			

Note This is the parameter attribute table, not all the parameters in this table are available for YTC positioner, please refer to clause 2.4 for the parameter list of transducer block.

3.4 User Parameter Attribute Definitions

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
INPUT_RANGE	S	Unsigned8	S	1	0 : 0-100% 1 : 100-0%	0	none			
VALVE_DIRECTION	S	Unsigned8	S	1	0 : Reverse Action(RA) 1 : Direct Action(DA)	0	none			
VALVE_CHARACTERISTIC	S	Unsigned8	S	1	0 : Linear 1 : EQ25% 2 : EQ50% 3 : Quick 4 : User	0	none			
USER_SET	S	Float	S	68	0.0 ~ 100.0	0	%			
ZERO_SPAN	R	DS-270	S	8			%			
PID_PARAMETERS	R	DS-271	S	6			none			
PID_GROUP	S	Unsigned8	S	1	0 : Low 1 : Middle 2 : High	0	none			
SPEED	S	Unsigned16	S	2			none			
SLOW_START	S	Unsigned8	S	1	0 : Off 1 : On	0	none			

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
CONTROL_LIMIT	S	Unsigned8	S	1		0	none			
GAP_CONTROL_LIMIT	S	Unsigned8	S	1		0	none			
DEADZONE	S	Float	S	4		0	%			
FDGN	S	Unsigned8	S	1		0	none			
CONTROL_MODE	S	Unsigned8	S	1	0 : Norm 1 : Small 2 : Hard	0	none			
SHUT	S	Float	S	4		0	%			
FOPN	S	Float	S	4		0	%			
OUTPUT_RANGE	S	Unsigned16	S	2	0 : 0-100% 1 : 100-0%	0	none			
SPLT	S	Unsigned8	S	1	0 : 0-100% 1 : Lower 50% 2 : Upper 50%	0	none			
USER_ALARM	R	DS-272	S	8		0	%			
PST_ON_OFF	S	Unsigned8	S	1	0 : Off 1 : On	0	none			
PST_TIME_INTERVAL	S	Unsigned16	S	2		0	Hr			
PST_COMMAND_SET	S	Unsigned16	S	2		0	%			
PST_RAMP_RATE	S	Unsigned8	S	1	0 : 0.06 %/Sec 1 : 0.12 %/Sec 2 : 0.25 %/Sec 3 : 0.5 %/Sec 4 : 1 %/Sec	0	none			
PST_RESPONSE_TIME	S	Unsigned8	S	1	0 : 5 Sec 1 : 10 Sec 2 : 15 Sec 3 : 20 Sec 4 : 30 Sec	0	none			
AUTO_TUNE	S	Unsigned8	S	1	0 : Uninitialized 1 : Tuning Start 2 : Tuning Stop 3 : Parameter Reset	0	none			

Parameter Mnemonic	Obj Type	Data Type/ Structure	Store	Size	Valid Range	Initial Value	Units	Mode	Other	Range Check
					4 : Cold Start					
AUTO_TUNE_STATUS	S	Unsigned8	D	1	0 : Step 0 1 : Step 1 2 : Step 2 3 : Step 3 4 : Step 4 5 : Step 5 10 : Step 10 240 : Ready	0	none		Rd Only	
ZERO	S	Float	S	4		0	%			
SPAN	S	Float	S	4		0	%			
P_GAIN	S	Unsigned16	S	2			none			
I_GAIN	S	Unsigned16	S	2			none			
D_GAIN	S	Unsigned16	S	2			none			
ALARM1_LOW_LIMIT	S	Unsigned16	S	2			%			
ALARM1_HIGH_LIMIT	S	Unsigned16	S	2			%			
ALARM2_LOW_LIMIT	S	Unsigned16	S	2			%			
ALARM2_HIGH_LIMIT	S	Unsigned16	S	2			%			

3.4.1 ZEOR_SPAN Structure

This parameter is calibration value for the potentiometer value.

Data Type : Attribute

Key Attribute : Index = 270

Attribute : Number of Elements = 2

Attribute : List of Elements (shown below)

E	Element Name	Data Type (Index)	Size
1	ZERO	Float - (8)	4
2	SPAN	Float - (8)	4

3.4.2 PID_PARAMETERS Structure

Tuning parameter for the PID control algorithm of the inner control loop.

Data Type : Attribute

Key Attribute : Index = 271

Attribute : Number of Elements = 3

Attribute : List of Elements (shown below)

E	Element Name	Data Type (Index)	Size
1	P_GAIN	Unsigned16 – (6)	2
2	I_GAIN	Unsigned16 – (6)	2
3	D_GAIN	Unsigned16 – (6)	2

3.4.3 USER_ALARM Structure

Tuning parameter for the PID control algorithm of the inner control loop.

Data Type : Attribute

Key Attribute : Index = 272

Attribute : Number of Elements = 4

Attribute : List of Elements (shown below)

E	Element Name	Data Type (Index)	Size
1	ALARM1_LOW_LIMIT	Unsigned16 – (6)	2
2	ALARM1_HIGH_LIMIT	Unsigned16 – (6)	2
3	ALARM2_LOW_LIMIT	Unsigned16 – (6)	2
4	ALARM2_HIGH_LIMIT	Unsigned16 – (6)	2

4. Parameter Descriptions

4.1 Function Block Parameter Descriptions

Parameter	Descriptions
ACK_OPTION	Selection of whether alarms associated with the block will be automatically acknowledged.
ALARM_HYS	Amount the PV must return within the alarm limits before the alarm condition clears. Alarm Hysteresis is expressed as a percent of the PV span .
ALARM_SUM	The current alert status, unacknowledged states, unreported states, and disabled states of the alarms associated with the function block.
ALERT_KEY	The identification number of the plant unit. This information may be used in the host for sorting alarms, etc.
BAL_TIME	This specifies the time for the internal working value of bias or ratio to return to the operator set bias or ratio, in seconds. In the PID block, it may be used to specify the time constant at which the integral term will move to obtain balance when the output is limited and the mode is Auto, Cas, or RCas.
BIAS	The bias value used in computing the function block output, expressed in engineering units.

Parameter	Descriptions
BKCAL_HYS	The amount that the output must change away from its output limit before the limit status is turned off, expressed as a percent of the span of the output.
BKCAL_IN	The value and status from a lower block's BKCAL_OUT that is used to prevent reset windup and to initialize the control loop.
BKCAL_OUT	The value and status required by an upper block's BKCAL_IN so that the upper block may prevent reset windup and provide bumpless transfer to closed loop control.
BKCAL_OUT_D	The output value and status provided to an upstream discrete block. This information is used to provide bumpless transfer to closed loop control.
BKCAL_SEL_1	Control selector output value and status associated with SEL_1 input which is provided to BKCAL_IN of the block connected to SEL_1 in order to prevent reset windup.
BKCAL_SEL_2	Control selector output value and status associated with SEL_2 input which is provided to BKCAL_IN of the block connected to SEL_2 in order to prevent reset windup.
BKCAL_SEL_3	Control selector output value and status associated with SEL_3 input which is provided to BKCAL_IN of the block connected to SEL_3 in order to prevent reset windup.
BLOCK_ALM	The block alarm is used for all configuration, hardware, connection failure or system problems in the block. The cause of the alert is entered in the subcode field. The first alert to become active will set the Active status in the Status attribute. As soon as the Unreported status is cleared by the alert reporting task, another block alert may be reported without clearing the Active status, if the subcode has changed.
BLOCK_ERR	This parameter reflects the error status associated with the hardware or software components associated with a block. It is a bit string, so that multiple errors may be shown.
BYPASS	The normal control algorithm may be bypassed through this parameter. When bypass is set, the setpoint value (in percent) will be directly transferred to the output. To prevent a bump on transfer to/from bypass, the setpoint will automatically be initialized to the output value or process variable, respectively, and the path broken flag will be set for one execution.
CAS_IN	This parameter is the remote setpoint value, which must come from another Fieldbus block, or a DCS block through a defined link.
CAS_IN_D	This parameter is the remote setpoint value of a discrete block, which must come from another Fieldbus block, or a DCS block through a defined link.
CHANNEL	The number of the logical hardware channel that is connected to this I/O block. This information defines the transducer to be used going to or from the physical world.
CLR_FSTATE	Writing a Clear to this parameter will clear the device fault state if the field condition, if any, has cleared.
CONFIRM_TIME	The time the resource will wait for confirmation of receipt of a report before trying again. Retry shall not happen when CONFIRM_TIME = 0.
CONTROL_OPTS	Options which the user may select to alter the calculations done in a control block.
CYCLE_SEL	Used to select the block execution method for this resource.
CYCLE_TYPE	Identifies the block execution methods available for this resource.
DD_RESOURCE	String identifying the tag of the resource which contains the Device Description for this resource.
DD_REV	Revision of the DD associated with the resource - used by an interface device to locate the DD file for the resource.
DEV_REV	Manufacturer revision number associated with the resource - used by an interface device to locate the DD file for the resource.
DEV_TYPE	Manufacturer's model number associated with the resource - used by interface devices to locate the DD file for the resource.
DISC_ALM	The status and time stamp associated with the discrete alarm.

Parameter	Descriptions
DISC_LIM	State of discrete input which will generate an alarm.
DISC_PRI	Priority of the discrete alarm.
DV_HI_ALM	The status and time stamp associated with the high deviation alarm.
DV_HI_LIM	The setting of the high deviation alarm limit in engineering units.
DV_HI_PRI	Priority of the high deviation alarm.
DV_LO_ALM	The status and time stamp associated with the low deviation alarm.
DV_LO_LIM	The setting of the low deviation alarm limit in engineering units.
DV_LO_PRI	Priority of the low deviation alarm.
FAULT_STATE	Condition set by loss of communication to an output block, fault promoted to an output block or a physical contact. When Fault State condition is set, Then output function blocks will perform their FSTATE actions.
FEATURE_SEL	Used to select resource block options.
FEATURES	Used to show supported resource block options.
FF_GAIN	The gain that the feed forward input is multiplied by before it is added to the calculated control output.
FF_SCALE	The feedforward input high and low scale values, engineering units code, and number of digits to the right of the decimal point.
FF_VAL	The feed forward value and status.
FIELD_VAL	Raw value of the field device in percent of the PV range, with a status reflecting the Transducer condition, before signal characterization (L_TYPE) or filtering (PV_FTIME).
FIELD_VAL_D	Raw value of the field device discrete input, with a status reflecting the Transducer condition.
FREE_SPACE	Percent of memory available for further configuration. Zero in a preconfigured resource.
FREE_TIME	Percent of the block processing time that is free to process additional blocks.
FSTATE_TIME	The time in seconds from detection of fault of the output block remote setpoint to the output action of the block output if the condition still exists.
FSTATE_VAL	The preset analog SP value to use when fault occurs. This value will be used if the I/O option Fault State to value is selected.
FSTATE_VAL_D	The preset discrete SP_D value to use when fault occurs. This value will be used if the I/O option Fault State to value is selected.
GAIN	Dimensionless value used by the block algorithm in calculating the block output.
GRANT_DENY	Options for controlling access of host computer and local control panels to operating, tuning and alarm parameters of the block.
HARD_TYPES	The types of hardware available as channel numbers.
HI_ALM	The status for high alarm and its associated time stamp.
HI_HI_ALM	The status for high high alarm and its associated time stamp.

Parameter	Descriptions
HI_HI_LIM	The setting for high high alarm in engineering units.
HI_HI_PRI	Priority of the high high alarm.
HI_LIM	The setting for high alarm in engineering units.
HI_PRI	Priority of the high alarm.
IO_OPTS	Options which the user may select to alter input and output block processing.
IN	The primary input value of the block, required for blocks that filter the input to get the PV.
IN_1	Auxiliary input value to the block, used for other values than the PV.
ITK_VER	Major revision number of the interoperability test case used in certifying this device as interoperable. The format and range of the version number is defined and controlled by the Fieldbus Foundation. Note: The value of this parameter will be zero (0) if the device has not been registered as interoperable by the FF.
LIM_NOTIFY	Maximum number of unconfirmed alert notify messages allowed.
L_TYPE	Determines if the values passed by the transducer block to the AI block may be used directly (Direct) or if the value is in different units and must be converted linearly (Indirect), or with square root (Ind Sqr Root), using the input range defined by the transducer and the associated output range.
LO_ALM	The status of the low alarm and its associated time stamp.
LO_LIM	The setting for the low alarm in engineering units.
LO_LO_ALM	The status of the low low alarm and its associated time stamp.
LO_LO_LIM	The setting of the low low alarm in engineering units.
LO_LO_PRI	Priority of the low low alarm.
LO_PRI	Priority of the low alarm.
LOW_CUT	Limit used in square root processing. A value of zero percent of scale is used in block processing if the transducer value falls below this limit, in % of scale. This feature may be used to eliminate noise near zero for a flow sensor.
MANUFAC_ID	Manufacturer identification number - used by an interface device to locate the DD file for the resource.
MAX_NOTIFY	Maximum number of unconfirmed notify messages possible.
MEMORY_SIZE	Available configuration memory in the empty resource. To be checked before attempting a download.
MIN_CYCLE_T	Time duration of the shortest cycle interval of which the resource is capable.
MODE_BLK	The actual, target, permitted, and normal modes of the block.
NV_CYCLE_T	Minimum time interval specified by the manufacturer for writing copies of NV parameters to non-volatile memory. Zero means it will never be automatically copied. At the end of NV_CYCLE_TIME, only those parameters which have changed (as defined by the manufacturer) need to be updated in NVRAM.
OUT	The primary analog value calculated as a result of executing the function.

Parameter	Descriptions
OUT_D	The primary discrete value calculated as a result of executing the function.
OUT_HI_LIM	Limits the maximum output value.
OUT_LO_LIM	Limits the minimum output value.
OUT_SCALE	The high and low scale values, engineering units code, and number of digits to the right of the decimal point to be used in displaying the OUT parameter and parameters which have the same scaling as OUT.
OUT_STATE	Index to the text describing the states of a discrete output.
PV	Either the primary analog value for use in executing the function, or a process value associated with it. May also be calculated from the READBACK value of an AO block.
PV_D	Either the primary discrete value for use in executing the function, or a process value associated with it. May also be calculated from the READBACK_D value of a DO block.
PV_FTIME	Time constant of a single exponential filter for the PV, in seconds.
PV_SCALE	The high and low scale values, engineering units code, and number of digits to the right of the decimal point to be used in displaying the PV parameter and parameters which have the same scaling as PV.
PV_STATE	Index to the text describing the states of a discrete PV.
RA_FTIME	Time constant of a single exponential filter for the value to be ratioed, in seconds.
RATE	Defines the derivative time constant, in seconds.
RCAS_IN	Target setpoint and status provided by a supervisory Host to a analog control or output block.
RCAS_IN_D	Target setpoint and status provided by a supervisory Host to a discrete control or output block.
RCAS_OUT	Block setpoint and status after ramping - provided to a supervisory Host for back calculation and to allow action to be taken under limiting conditions or mode change.
RCAS_OUT_D	Block setpoint and status provided to a supervisory Host for back calculation and to allow action to be taken under limiting conditions or mode change.
READBACK	This indicates the readback of the actual continuous valve or other actuator position, in transducer units.
READBACK_D	This indicates the readback of the actual discrete valve or other actuator position, in the transducer state.
RESET	The integral time constant, in seconds per repeat.
RESTART	Allows a manual restart to be initiated. Several degrees of restart are possible. They are 1: Run, 2: Restart resource, 3: Restart with defaults, and 4: Restart process or.
ROUT_IN	Target output and status provided by a Host to the control block for use as the output (ROut mode).
ROUT_OUT	Block output and status - provided to a Host for back calculation in ROut mode and to allow action to be taken under limited conditions or mode change.
RS_STATE	State of the function block application state machine.
SEL_1	First input value to the selector.

Parameter	Descriptions
SEL_2	Second input value to the selector.
SEL_3	Third input value to the selector.
SEL_TYPE	This parameter specifies the type of selector action, from choices of High, Medium, and Low.
SET_FSTATE	Allows the Fault State condition to be manually initiated by selecting Set.
SHED_OPT	Defines action to be taken on remote control device timeout.
SHED_RCAS	Time duration at which to give up on computer writes to function block RCas locations. Shed from RCas shall never happen when SHED_RCAS = 0.
SHED_ROUT	Time duration at which to give up on computer writes to function block ROut locations. Shed from Rout shall never happen when SHED_ROUT = 0.
SIMULATE	Allows the transducer analog input or output to the block to be manually supplied when simulate is enabled. When simulation is disabled, the simulate value and status track the actual value and status.
SIMULATE_D	Allows the transducer discrete input or output to the block to be manually supplied when simulate is enabled. When simulation is disabled, the simulate value and status track the actual value and status.
SP	The analog setpoint of this block.
SP_D	The discrete setpoint of this block.
SP_HI_LIM	The setpoint high limit is the highest setpoint operator entry that can be used for the block.
SP_LO_LIM	The setpoint low limit is the lowest setpoint operator entry that can be used for the block.
SP_RATE_DN	Ramp rate at which downward setpoint changes are acted on in Auto mode, in PV units per second. If the ramp rate is set to zero, then the setpoint will be used immediately. For control blocks, rate limiting will apply only in Auto. For output blocks, rate limiting will apply in Auto, Cas, and RCas modes.
SP_RATE_UP	Ramp rate at which upward setpoint changes are acted on in Auto mode, in PV units per second. If the ramp rate is set to zero, then the setpoint will be used immediately. For control blocks, rate limiting will apply only in Auto. For output blocks, rate limiting will apply in Auto, Cas, and RCas modes.
ST_REV	The revision level of the static data associated with the function block. To support tracking changes in static parameter attributes, the associated block's static revision parameter will be incremented each time a static parameter attribute value is changed. Also, the associated block's static revision parameter may be incremented if a static parameter attribute is written but the value is not changed.
STATUS_OPTS	Options which the user may select in the block processing of status.
STRATEGY	The strategy field can be used to identify grouping of blocks.. This data is not checked or processed by the block.
TAG_DESC	The user description of the intended application of the block.
TEST_RW	Read/write test parameter - used only for conformance testing.
TRK_IN_D	This discrete input is used to initiate external tracking of the block output to the value specified by TRK_VAL.
TRK_SCALE	The high and low scale values, engineering units code, and number of digits to the right of the decimal point, associated with TRK_VAL.
TRK_VAL	This input is used as the track value when external tracking is enabled by TRK_IN_D.
UPDATE_EVT	This alert is generated by any change to the static data.

Parameter	Descriptions
WRITE_ALM	This alert is generated if the write lock parameter is cleared.
WRITE_LOCK	If set, no writes from anywhere are allowed, except to clear WRITE_LOCK. Block inputs will continue to be updated.
WRITE_PRI	Priority of the alarm generated by clearing the write lock.
XD_SCALE	The high and low scale values, engineering units code, and number of digits to the right of the decimal point used with the value obtained from the transducer for a specified channel.
XD_STATE	Index to the text describing the states of a discrete for the value obtained from the transducer.

4.2 Field Diagnostics Profile Parameter Descriptions

Parameter	Descriptions
FD_CHECK_ACTIVE	This parameter reflects the error conditions that are being detected as active as selected for this category. It is a bit string, so that multiple conditions may be shown.
FD_CHECK_ALM	This parameter is used primarily to broadcast a change in the associated active conditions, which are not masked, for this alarm category to a Host System.
FD_CHECK_MAP	This parameter maps conditions to be detected as active for this alarm category. Thus the same condition may be active in all, some, or none of the 4 alarm categories.
FD_CHECK_MASK	This parameter allows the user to suppress any single or multiple conditions that are active, in this category, from being broadcast to the host through the alarm parameter. A bit equal to '1' will mask i.e. inhibit the broadcast of a condition, and a bit equal to '0' will unmask i.e. allow broadcast of a condition.
FD_CHECK_PRI	This parameter allows the user to specify the priority of this alarm category.
FD_EXTENDED_MAP_n	An optional parameter or parameters to allow the user finer control on enabling conditions contributing to the conditions in FD_*_ACTIVE parameters.
FD_EXTENDED_ACTIVE_n	An optional parameter or parameters to allow the user finer detail on conditions causing an active condition in the FD_*_ACTIVE parameters.
FD_FAIL_ACTIVE	This parameter reflects the error conditions that are being detected as active as selected for this category. It is a bit string, so that multiple conditions may be shown.
FD_FAIL_ALM	This parameter is used primarily to broadcast a change in the associated active conditions, which are not masked, for this alarm category to a Host System.
FD_FAIL_MAP	This parameter maps conditions to be detected as active for this alarm category. Thus the same condition may be active in all, some, or none of the 4 alarm categories.
FD_FAIL_MASK	This parameter allows the user to suppress any single or multiple conditions that are active, in this category, from being broadcast to the host through the alarm parameter. A bit equal to '1' will mask i.e. inhibit the broadcast of a condition, and a bit equal to '0' will unmask i.e. allow broadcast of a condition.
FD_FAIL_PRI	This parameter allows the user to specify the priority of this alarm category.
FD_MAINT_ACTIVE	This parameter reflects the error conditions that are being detected as active as selected for this category. It is a bit string, so that multiple conditions may be shown.
FD_MAINT_ALM	This parameter is used primarily to broadcast a change in the associated active conditions, which are not masked, for this alarm category to a Host System.

Parameter	Descriptions
FD_MAINT_MAP	This parameter maps conditions to be detected as active for this alarm category. Thus the same condition may be active in all, some, or none of the 4 alarm categories.
FD_MAINT_MASK	This parameter allows the user to suppress any single or multiple conditions that are active, in this category, from being broadcast to the host through the alarm parameter. A bit equal to '1' will mask i.e. inhibit the broadcast of a condition, and a bit equal to '0' will unmask i.e. allow broadcast of a condition.
FD_MAINT_PRI	This parameter allows the user to specify the priority of this alarm category.
FD_OFFSPEC_ACTIVE	This parameter reflects the error conditions that are being detected as active as selected for this category. It is a bit string, so that multiple conditions may be shown.
FD_OFFSPEC_ALM	This parameter is used primarily to broadcast a change in the associated active conditions, which are not masked, for this alarm category to a Host System.
FD_OFFSPEC_MAP	This parameter maps conditions to be detected as active for this alarm category. Thus the same condition may be active in all, some, or none of the 4 alarm categories.
FD_OFFSPEC_MASK	This parameter allows the user to suppress any single or multiple conditions that are active, in this category, from being broadcast to the host through the alarm parameter. A bit equal to '1' will mask i.e. inhibit the broadcast of a condition, and a bit equal to '0' will unmask i.e. allow broadcast of a condition.
FD_OFFSPEC_PRI	This parameter allows the user to specify the priority of this alarm category.
FD_RECOMMEN_ACT	This parameter is a device enumerated summarization of the most severe condition or conditions detected. The DD help should describe by enumerated action, what should be done to alleviate the condition or conditions. 0 is defined as Not Initialized, 1 is defined as No Action Required, all others defined by manuf.
FD_SIMULATE	This parameter allows the conditions to be manually supplied when simulation is enabled. When simulation is disabled both the diagnostic simulate value and the diagnostic value track the actual conditions. The simulate jumper is required for simulation to be enabled and while simulation is enabled the recommended action will show that simulation is active.
FD_VER	A parameter equal to the value of the major version of the Field Diagnostics specification that this device was designed to.

4.3 Transducer Parameter Descriptions

Parameter	Descriptions
ACT_FAIL_ACTION	Specifies the final failure position of the actuator as defined in the standard tables in TN-016. It is a recommendation that only the first four enumerations of the table be used.
ACT_MAN_ID	Actuator manufacturer identification.
ACT_MODEL_NUM	Actuator model number
ACT_SN	Actuator Serial Number
CHARACTERIZATION	Desired characterization operation. Enumerations defined in Standard Tables (TN-016)
CLOSED_POS_DEADBAND	User defined deadband for the closed position
CLOSED_POS_SHIFT	Closed position change since last calibration

Parameter	Descriptions
CUSTOM_CURVE_DESCRIPTION	Describes size and data type of the curve.
CUSTOM_CURVE_XY	Array unsigned of coordinate pairs for custom characterization curve.
CUSTOM_CURVE_XY_FLOAT	Array float of coordinate pairs for custom characterization curve.
CYCLE_CNTR	Totalized cycle counts since last reset.
CYCLE_CNTR_DEADBAND	User defined minimum movement before incrementing cycle counter.
CYCLE_CNTR_LIM	User defined limit of cycle counter value that will trigger alert.
DEVIATION_DEADBAND	The user defined allowable deviation before alert.
DEVIATION_TIME	The user defined allowable duration in seconds of deviation before alert.
DEVIATION_VALUE	Difference between working setpoint and working position
FINAL_POSITION_VALUE	The actual valve position and status after the de-characterization; can be used as the READBACK_VALUE in the AO block.
FINAL_POSITION_VALUE_D	The actual valve position and status; can be used as the READBACK_VALUE in a DO block.
FINAL_VALUE	The requested valve position and status, before characterization, written by an analog Function Block.
FINAL_VALUE_CUTOFF_HI	If the final value is more positive than this value, the valve is forced to it's maximum high value (fully open).
FINAL_VALUE_CUTOFF_LO	If the final value is more negative than this value, the valve is forced to it's maximum low value (fully closed).
FINAL_VALUE_D	The requested valve position and status written by a discrete Function Block
FINAL_VALUE_RANGE	The allowable range for final value.
FRICTION	Calculated dynamic friction value.
FRICTION_UNITS	Friction units as defined in standard table in (TN-016)
FST_BREAKOUT_TIME	The actual delay until movement is detected.
FST_BREAKOUT_TIMEOUT	Allowable delay at the start of a Full Stroke Valve test
FST_RAMP_RATE	Defined rate of valve travel (% per second) during the valve test.
FST_COMPLETION_TIMEOUT	Maximum time allowed initiating valve travel until test is aborted.
FST_STRK_TRAV_TIMEOUT	Allowed time to reach the fully closed position.
HYSTERISIS	Maximum measured amount of difference between desired and actual position after a signal reversal.
INTERNAL_TEMP	Internal device temperature in user defined temperature units.
INTERNAL_TEMP_UNITS	Internal temperature units as defined in standard table in (TN-016).

Parameter	Descriptions
STROKE_TIME_CLOSE_LIM	The user defined time of a full span travel in closing direction in seconds, used to slow down valve movement.
STROKE_TIME_OPEN_LIM	The user defined time of a full span travel in opening direction in seconds, used to slow down valve movement.
INTERNAL_TEMP_MIN	Minimum internal device temperature in user defined temperature units over operation lifetime of device.
INTERNAL_TEMP_MAX	Maximum internal device temperature in user defined temperature units over operation lifetime of device.
PRESSURE_PORT_A	Pressure value of output port A (1) in user defined pressure units.
PRESSURE_PORT_B	Pressure value of output port B (2) in user defined pressure units.
POS_ALERT_HI	User defined high position threshold that when FINAL_VALUE is more positive will trigger a position high alert.
POS_ALERT_LO	User defined low position threshold that when FINAL_VALUE is more negative will trigger a position low alert.
POS_DEADBAND	Configurable deadband for the control algorithm.
POS_FEATURES_BIT_ENUMERATED	parameter indicating the parameter groups supported by this transducer block
PRESSURE_UNITS	Pressure units as defined in standard table in TN-016.
PST_BREAKOUT_TIME	Actual delay until movement is detected.
PST_BREAKOUT_TIMEOUT	Allowable delay at start of PST test.
PST_INITIAL_START_TIME	Date and time scheduled for start of initial PST.
PST_INTERVAL	Time interval between the periodic execution of the partial stroke test (hours). Setting of 0 indicates no PST.
PST_OPTIONS	Options which the user may select to influence block behavior during valve stroke test 1. Enumerations defined in Standard Tables (TN-016).
PST_RAMP_RATE	Defined rate of valve travel (% per second) during the valve stroke test
PST_STRK_TRAV	Target position for valve travel during partial stroke test.
PST_STRK_TRAV_TIMEOUT	Allowed time to reach the PST target.
PST_COMPLETION_TIMEOUT	Maximum time allowed to until partial stroke test will be aborted.
RATED_TRAVEL	Nominal travel of actuator/valve in travel units.
READBACK_SELECT	Selects whether working position or final position value is passed back to connected function block. Enumerations defined in Standard Tables (TN-016).
SIGNAL_ACTION	Defines actuator movement relative to increasing command. Enumerations defined in Standard Tables (TN-016).
STOP_HI_POS	User defined high limit for valve position that when reached will set a stop hi position limit bit.
STOP_LO_POS	User defined low limit for valve position that when reached will set a stop lo position limit bit.
STROKE_TIME_CLOSED	Measured stroke time in seconds to close.
STROKE_TIME_OPEN	Measured stroke time in seconds to open.

Parameter	Descriptions
PRESSURE_SUPPLY	Available supply pressure in user defined pressure units.
TORQUE	Calculated dynamic torque value.
TORQUE_UNITS	Torque units as defined in standard table in TN-016.
TRAVEL_ACCUM_DEADBAND	User defined allowable movement before incrementing travel accumulator.
TRAVEL_ACCUM	Totalized travel value since last reset.
TRAVEL_ACCUM_LIM	User defined limit of accumulator value that will trigger alert.
TRAVEL_ACCUM_UNITS	Travel accumulator units as defined in standard table in TN-016.
TRAVEL_UNITS	Travel units as defined in standard table in TN-016.
TRIP_TIMEOUT	Time in seconds beyond which an alert will be set if the target is not reached during an actual trip event.
VALVE_MAN_ID	Valve manufacturer identification.
VALVE_MODEL_	NUM Valve model number.
VALVE_SN	Valve serial number.
VALVE_TYPE	The type of valve as defined in the standard tables in TN-016.
VST_COMMAND	Command for VST (PST or FST) execution. Enumerations defined in Standard Tables (TN-016).
VST_DETAILED_RESULT	Detailed results of valve stroke test if VST_RESULT indicates failure. Enumerations defined in Standard Tables (TN-016).
VST_MODE	Specifies different modes of the valve stroke test (start at normal operating position). Enumerations defined in Standard Tables (TN-016).
VST_PAUSE	Pause time between test ramp and ramp back to start position.
VST_RESULT	Result of latest valve stroke test. Enumerations defined in Standard Tables (TN-016).
WORKING_POS	The actual measured feedback position before de-characterization.
WORKING_POS_D	The actual measured discrete feedback position before de-characterization.
WORKING_SP	The final command value to the positioning algorithm after characterization.
WORKING_SP_D	The final discrete command value to the positioning algorithm after characterization.
XD_CAL_DATE	The date of the last positioner calibration.
XD_CAL_LOC	The location of last positioner calibration. This describes the physical location at which the calibration was performed. (ex. "NIST", "Acme Labs").
XD_CAL_WHO	The name of the person responsible for the last positioner calibration.
XD_COMMAND	Command to start device-specific procedure. Command value will reset to zero after execution of procedure regardless of value of XD_COMMAND_STATE. Enumerations defined in Standard Tables (TN-016).
XD_COMMAND_FLAGS	Manufacturer specific enumerated procedures.

Parameter	Descriptions
XD_COMMAND_STATE	The state of the procedure initiated by XD_COMMAND. Enumerations defined in Standard Tables (TN-016).
XD_ERROR	One of the error codes defined in section 5 Transducer Block Enumerations XD_ERROR and Block Alarm Sub-codes below.
XD_FSTATE_OPT	Defines an action to be taken on a transducer fault state. Enumerations defined in Standard Tables (TN-016).
XD_FSTATE_VAL	User defined position incase of fault state of transducer.
XD_FSTATE_VAL_D	User defined discrete position incase of fault state of transducer.
XD_OOS_OPT	Defines an action to be taken whenever the Transducer Block transitions to Out of Service mode.

4.4 User Parameter Descriptions

Parameter	Descriptions
INPUT_RANGE	Defines the positioner response to 4-20mA input signal or 20-4mA input signal.
VALVE_DIRECTION	Defines the actuator movement. It is automatically set after auto-calibration.
VALVE_CHARACTERISTIC	Defines the characteristics of the valve movements.
USER_SET	This Parameter is used when CHARACTERISTIC Parameter are selected Custom
ZERO_SPAN	This parameter is calibration value for the potentiometer value.
PID_PARAMETERS	Tuning parameter for the PID control algorithm of the inner control loop.
PID_GROUP	Defines modification of PID control values set automatically.
SPEED	Defines adjustment of the valve response speed.
SLOW_START	Defines a more smooth valve movement.
CONTROL_LIMIT	Defines a setting of the maximum value to control a coil (set automatically).
GAP_CONTROL_LIMIT	Defines a setting of the control value for a coil when reaching a target position of $\pm 2\%$ (Gap control limit = Control limit / 2)
DEADZONE	Defines that the input signals within Deadband range are ignored. The default of the Deadband is 0.5%
FDGN	Defines a valve control mode in case of a hard friction.
CONTROL_MODE	Defines a valve control mode.

Parameter	Descriptions
SHUT	Defines that the valve is kept closed by ignoring some input signals.
FOPN	Defines that the valve is kept open by ignoring some input signals.
OUTPUT_RANGE	Defines the ourput signals (feedback signals).
SPLT	Defines a spilt range control with 4-12mA input signal or 12-20mA input signal.
USER_ALARM	Alarm
PST_ON_OFF	Defines a setting of a scheduled valve movement.
PST_TIME_INTERVAL	Defines a setting of PST time interval.
PST_COMMAND_SET	Defines a moving stroke during PST.
PST_RAMP_RATE	Defines a measurement of the signal change per 1 second.
PST_RESPONSE_TIME	Defines a response waiting tiem of PST.
AUTO_TUNE	Auto Tune
AUTO_TUNE_STATUS	Auto Tuning Status
ZERO	Defines adjustment of the valve closing
SPAN	Defines adjustment of the valve opening
P_GAIN	Defines the parmaters for PID control (set automatically)
I_GAIN	Defines the parmaters for PID control (set automatically)
D_GAIN	Defines the parmaters for PID control (set automatically)
ALARM1_LOW_LIMIT	ALARM 1L~1H : 0~10%
ALARM1_HIGH_LIMIT	ALARM 1L~1H : 0~10%
ALARM2_LOW_LIMIT	ALARM 2L~2H : 90~105%
ALARM2_HIGH_LIMIT	ALARM 2L~2H : 90~105%