PumpSmart
PS75

Advanced Parameter Listing

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PumpSmart

ITT Industries

PumpSmart PS75 (U1/01) Set-up & Configuration Guide

Available at www.pumpsmart.com/products/ps75

- Installation
- Configuration
- Options & Features
- Diagnostics / Troubleshooting
- Maintenance
- Technical Data
- Parameter listing
- Installation / Wiring Diagrams

PumpSmart PS75 Embedded Fieldbus Manual

Available at www.pumpsmart.com/products/ps75

PumpSmart PS75 Fieldbus Adaptor Manual

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PumpSmart PS75 Advanced Parameters List

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ADVANCED PARAMETERS

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ADVANCED PARAMETERS

GROUP 01	OPERATING DATA	DESCRIPTION
0102	SPEED	Calculated motor speed, RPM.
0103	OUTPUT FREQ	The frequency (Hz) applied to the motor.
0104	CURRENT	Measured motor current, A.
0105	TORQUE	Calculated motor torque %. 100% is the motor nominal torque.
0106	POWER	The measured motor power in HP (US Version) or kW (IEC Version)
0107	DC BUS VOLTAGE	The measured DC bus voltage in VDC.
0109	OUTPUT VOLTAGE	The voltage applied to the motor.
0110	DRIVE TEMP	The temperature of the drive power transistors in degrees Centigrade.
0111	EXT SPD REF 1	External reference, Spd Ref 1, in RPM (Hz if 9904 is set to Scalar:Speed).
0112	EXT REF 2	External reference, Ref 2, in % of 1108 Ref 2 Max
0113	CTRL LOCATION	Active control location: 0 = local, 1 = Ext 1, 2 = Ext 2.
0114	RUN TIME	Drive accumulated run time, hrs. Resettable.
0115	KWH COUNTER	Drive accumulated power consumption in kilowatt hrs. Resettable.
0116	APPL BLK OUTPUT	Application block output signal in %. Value is from PFC Control (if active) or 0112 External Ref 2.
0118	DI1-3 STATUS	Status of digital inputs 1 – 3. Activated = 1, deactivated = 0.
0119	DI4-6 STATUS	Status of digital inputs 4 – 6. Activated = 1, deactivated = 0.
0120	AI1	Relative value of Analog Input 1 in %. Example: 2 – 10 VDC signal. 2V = 20%.
0121	AI2	Relative value of Analog Input 2 in %. Example: 4 – 20mA signal. 4mA = 20%.
0122	RO1-3 STATUS	Status of Relay Outputs 1 – 3. Energized = 1. De-energized = 0.
0123	RO4-6 STATUS	Status of Relay Outputs 1 – 3. Energized = 1. De-energized = 0.
0124	AO1	Value of Analog Output 1, mA.
0125	AO2	Value of Analog Output 2, mA.
0126	PID 1 OUTPUT	The PID 1 controller output value in %.
0127	PID 2 OUTPUT	The PID 1 controller output value in %.
0128	PID 1 SETPOINT	The PID 1 controller setpoint signal. Units and scale defined by PID parameters.
0129	PID 2 SETPOINT	The PID 2 controller setpoint signal. Units and scale defined by PID parameters.
0130	PID 1 ACTUAL	The PID 1 controller feedback signal. Units and scale defined by PID parameters.
0131	PID 2 ACTUAL	The PID 2 controller feedback signal. Units and scale defined by PID parameters.
0132	PID 1 DEVIATION	The difference between the PID1 controller setpoint value and actual value. Units and scale defined by PID parameters.
0133	PID 2 DEVIATION	The difference between the PID2 controller setpoint value and actual value. Units and scale defined by PID parameters.
0134	COMM RO WORD	Free data location that can be written from serial link. Used for relay output control.
0135	COMM VALUE 1	Free data location that can be written from serial link.
0136	COMM VALUE 2	Free data location that can be written from serial link.
0137	PROCESS VAR 1	Process Variable 1. Defined by parameter 3401. The first actual signal displayed on the keypad display.
0138	PROCESS VAR 2	Process Variable 2. Defined by parameter 3408. The second actual signal displayed on the keypad display.
0139	PROCESS VAR 3	Process Variable 3. Defined by parameter 3415. The third actual signal displayed on the keypad display.
0140	RUN TIME	The drive's accumulated running time in thousands of hrs (kh).
0141	MWH COUNTER	The drive's accumulated power consumption in megawatt hrs.
0142	REVOLUTION CNTR	The motor's accumulated revolutions in "millions of revolutions".
0143	DRIVE ON TIME (HI)	The drive's accumulated power-on time in days.
0144	DRIVE ON TIME (LO)	The drive's accumulated power-on time in 2 second ticks (30 ticks = 60 seconds)
0145	MOTOR TEMP	Motor temperature in degrees centigrade. Applies only if motor temperature sensor is setup (parameter 3501).

ADVANCED PARAMETERS

GROUP 03	FIELDBUS ACTUAL SIGNALS	DESCRIPTION
0301(a)	FB CMD WORD 1	Read-only copy of the Fieldbus Command Word 1. The fieldbus command is the principal means for controlling the drive from a fieldbus controller. The command consists of two Command Words. Bit coded instructions in command words switch the drive between states. An external location (1001 EXT 1 or 1002 EXT2) must be active and set to COMM. The keypad displays the word in hex.
0302(a)	FB CMD WORD 2	Read-only copy of the Fieldbus Command Word 2.
0303(a)	FB STS WORD 1	Read-only copy of the Status Word 1. The drive sends status information to the fieldbus controller. The status consists of two Status Words. The keypad displays the word in hex.
0304(a)	FB STS WORD 2	Read-only copy of the Status Word 2.
0305(a)	FAULT WORD 1	Read-only copy of the Fault Word 1. When a fault is active the corresponding bit for the active fault is set in the Fault Words. Each fault has a dedicated bit allocated within Fault Words. The keypad displays the fault word in hex.
0306(a)	FAULT WORD 2	Read-only copy of the Fault Word 2.
0307(a)	FAULT WORD 3	Read-only copy of the Fault Word 3.
0308(a)	ALARM WORD 1	When an alarm is active the corresponding bit for the active alarm is set in the Alarm Words. Each alarm has a dedicated bit allocated within Alarm Words. Bits remain set until the whole alarm word is reset. The keypad displays the fault word in hex.
0309(a)	ALARM WORD 2	See parameter 0308

BIT#	0301 FB CMD WORD 1	0302 FB CMD WORD 2
0	STOP	Reserved
1	START	Reserved
2	REVERSE	START_DISABLE_1
3	LOCAL	START_DISABLE_2
4	RESET	Reserved
5	EXT2	Reserved
6	RUN_DISABLE	Reserved
7	STPMODE_R	Reserved
8	STPMODE_EM	Reserved
9	STPMODE_C	Reserved
10	RAMP_2	Reserved
11	RAMP_OUT_0	REF_CONST
12	RAMP_HOLD	REF_AVE
13	RAMP_IN_0	LINK_ON
14	RREQ_LOCALLOC	REQ_STARTINH
15	TORQLIM2	OFF_INTERLOCK

ADVANCED PARAMETERS

BIT#	0303 FB STS WORD 1	0304 FB STS WORD 2
0	READY	ALARM
1	ENABLED	REQ_MAINT
2	STARTED	DIRLOCK
3	RUNNING	LOCALLOCK
4	ZERO_SPEED	CTL_MODE
5	ACCELERATE	Reserved
6	DECELERATE	Reserved
7	AT_SETPOINT	Reserved
8	LIMIT	Reserved
9	SUPERVISION	Reserved
10	REV_REF	REQ_CTL
11	REV_ACT	REQ_REF1
12	PANEL_LOCAL	REQ_REF2
13	FIELDBUS_LOCAL	REQ_REF2EXT
14	EXT2_ACT	ACK_STARTINH
15	FAULT	ACK_OFF_ILCK

BIT#	0305 FAULT WORD 1	0306 FAULT WORD 2	0307 FAULT WORD 3
0	OVERCURRENT	UNDERLOAD	EFB 1
1	DC OVERVOLT	THERM FAIL	EFB 2
2	DEV OVERTEMP	OPEX LINK	EFB 3
3	SHORT CIRCUIT	OPEX PWR	Incompatible software type
4	Reserved	CURR MEAS	Reserved
5	DC UNDERVOLT	SUPPLY PHASE	Reserved
6	SENSOR ERR AI1	ENCODER ERROR	PUMP PROTECT
7	SENSOR ERR AI2	OVERSPEED	MIN FLOW
8	MOT OVERTEMP	Reserved	DRY RUN
9	KEYPAD FAIL	DRIVE ID	Reserved
10	ID RUN FAIL	CONFIG FILE	System error
11	MOTOR STALL	SERIAL 1 ERR	System error
12	Reserved	EFB CON FILE	System error
13	SECOND PROT A	FORCE TRIP	System error
14	SECOND PROT B	MOTOR PHASE	HARDWARE ERROR
15	EARTH FAULT	OUTPUT WIRING	PARAM SETTING FAULT

BIT#	0308 ALARM WORD 1	0309 ALARM WORD 2
0	OVERCURRENT	Reserved
1	OVERVOLTAGE	PID SLEEP
2	UNDERVOLTAGE	ID RUN
3	DIR LOCK	Reserved
4	I/O COMM	START ENABLE 1 MISSING
5	SENSOR ERR AI1	START ENABLE 2 MISSING
6	SENSOR ERR AI2	EMERGENCY STOP
7	KEYPAD FAIL	ENCODER ERROR
8	DEVICE OVERTEMP	FIRST START
9	MOT OVERTEMP	Reserved
10	UNDERLOAD	Reserved
11	MOTOR STALL	Reserved
12	AUTORESET	PUMP PROTECT
13	PFC AUTOCHANGE	MIN FLOW
14	PFC INTERLOCK	DRY RUN
15	Reserved	RUNOUT

ADVANCED PARAMETERS

GROUP 04	FAULT HISTORY	DESCRIPTION
0401	LAST FAULT	Fault code of the last fault
0402	FAULT TIME 1	The day on which the last fault occurred. Either as: a date if real time clock is operating or number of days after power on – if real time clock is not used or set.
0403	FAULT TIME 2	The day on which the last fault occurred. Either as: hh:mm:ss if real time clock is operating or the time since power on (less the whole days in 0402) in format hh:mm:ss – if real time clock is not used or set.
0404	SPEED AT FAULT	Motor speed (Rpm) at time last fault occurred.
0405	FREQ AT FAULT	The frequency (Hz) at time last fault occurred.
0406	VOLTAGE AT FAULT	The DC bus voltage (V) at time last fault occurred.
0407	CURRENT AT FAULT	The motor current (A) at time last fault occurred.
0408	TORQUE AT FAULT	The motor torque (%) at time last fault occurred.
0409	STATUS AT FAULT	The drive status (hex code word) at time last fault occurred.
0410	DI1-3 AT FAULT	The status of digital inputs 1-3 at time last fault occurred.
0411	DI4-6 AT FAULT	The status of digital inputs 4-6 at time last fault occurred.
0412	PREVIOUS FAULT 1	Fault code of the second last fault.
0413	PREVIOUS FAULT 2	Fault code of third last fault.

ADVANCED PARAMETERS

GROUP 10	START/STOP/DIR	DESCRIPTION
1001	EXT 1 COMMANDS	Defines the configuration of start/stop for external control location 1 (EXT 1) used for Start-Up "Speed Control Mode". PS75 selections are:
	0=Not Sel	Not Selected.
	1=2W DI1	2 wire start/stop through DI1
	3=3W DI1P,2P	3-wire pulse start through DI1: 0>1 Start. Pulse stop through DI2: 1>0: Stop
	8=Keypad	Start/stop from the keypad in (REM) mode. [default for Startup "Speed Control"]
	10=Comm	Start/stop via fieldbus control word
1002	EXT 2 COMMANDS	Defines the configuration of start/stop for external control location 2 (EXT 2) used for "Process Control Mode". PS75 selections are:
	0=Not Sel	Not Selected.
	1=2W DI1	2 wire start/stop through DI1
	3=3W DI1P,2P	3-wire pulse start through DI1: 0>1 Start. Pulse stop through DI2: 1>0: Stop
	8=Keypad	Start/stop from the keypad in (REM) mode. *[default for "Process Control"]*
	10=Comm	Start/stop via fieldbus control word
1003	DIRECTION	Defines the control of motor rotation direction.
	1= Forward *[default]*	Rotation is fixed in forward direction
	2= Reverse	Rotation is fixed in reverse direction
	3= Request	Rotation direction can be changed on command. Applies to (LOC) control and (REM) Keypad control only.
1004	MOTOR JOG	Motor jogs at 60 RPM for 15 seconds
	Disabled *[Default]*	Motor jog is not active
	Jog	Jogs motor for 15 sec at 60 rpm. After jog is complete this parameter returns to disabled.

ADVANCED PARAMETERS

GRP 11	REFERENCE SELECT	DESCRIPTION
1101(a)	KEYPAD REF SEL	Selects the reference controlled in LOC mode
	1= Ref1 (Hz/rpm)	Speed Reference (Rpm), reference is in (Hz) if 9904 is set to Scalar Speed. *[default]*
	2= Ref2 (%)	Reference 2 in %
1102(a)	EXT1/EXT2 SEL	Defines the source for switching between two external control locations. Defines the source for Start/Stop commands and reference signals.
	0= Ext 1	Selects External location 1. See parameter 1001 for Start/Stop. See parameter 1103 for Reference source. *[Default for Start-Up].*
	3…5= DI3…DI5	Assigns control to EXT1 or EXT2 based on state of selected digital input. DI activated = EXT2, De-activated = EXT1
	7= Ext 2	Selects External location 2. See parameter 1002 for Start/Stop. See parameter 1106 for Reference source. *[Default for Process Control].*
	8= Comm	Assigns control of EXT1 or EXT 2 based on fieldbus control word. See Bit 5 of the Command Word 1 (parameter 0301).
1103	SPD REF 1 SEL	Selects the source of the speed reference (setpoint). PS75 selections are:
	0=Keypad *[default]*	The setpoint is set from the keypad.
	1=AI1	The setpoint is set from analog input 1
	2=AI2	The setpoint is set from analog input 2
	8=Comm	The setpoint is sent via fieldbus control word
1104	SPD REF I MIN	Sets the minimum speed in Rpm or Hz (in scalar speed mode) for the reference source. If sending an analog signal the minimum analog input signal (mA or V) corresponds to Spd Ref 1 Min. *[Default is 0]*
1105	SPD REF 1 MAX	Sets the maximum speed in Rpm or Hz (in scalar speed mode) for the reference source. If sending an analog signal the maximum analog input signal (mA or V) corresponds to Spd Ref 1 Max. *[Default is 9908 Motor Nominal Speed]*
1106	REF 2 SELECT	Selects the signal source for external reference Ref 2 Min and Ref 2 Max.
	0=Keypad	The setpoint is set from the keypad.
	1=AI1	The setpoint is set from analog input 1
	2=AI2	The setpoint is set from analog input 2
	8=Comm	The setpoint is sent via fieldbus control word
	19=PID1 OUT	The reference is taken from PID 1 Output. Refer to Group 40. *[default Process Control].*
1107	REF 2 MIN	Sets the minimum for External Reference 2. The minimum analog input signal corresponds to Ref 2 Min in %. The value is a % of maximum speed (frequency) or maximum process reference. *[Default is 0%]*
1108	REF 2 MAX	Sets the maximum for External Reference 2. The maximum analog input signal corresponds to Ref 2 Max in %. The value is a % of maximum speed (frequency) or maximum process reference. *[Default is 100%]*

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 12	CONSTANT SPEEDS	DESCRIPTION
1201	CONST SPEED SEL	Defines the digital inputs to select Constant Speeds
	0=Not Sel	Not Selected.
	9=DI3/DI4	Selects one of three Constant Speeds using DI3 and DI4. If both digital inputs are deactivated there is no constant speed selected. Activation of DI3 selects constant speed 1 (1201). Activation of DI4 selects constant speed 2 (1203). Activation of DI3 and DI4 selects constant speed 3 (1204). *[default for Startup "Speed Control"]*
1202	CONST SPEED 1	Sets value range for Constant Speed 1. *[Default 2001 Minimum Speed]*
1203	CONST SPEED 2	Sets value range for Constant Speed 2. *[Default 2001 Minimum Speed]*
1204	CONST SPEED 3	Sets value range for Constant Speed 3. *[Default 2001 Minimum Speed]*
1209(a)	TIMED MODE SEL	Defines timer activated, constant speed mode. Timers can be used to change between an external reference and a maximum of three constant speeds or to change between a maximum of three constant speeds.
	1= Ext/CS1/2/3	Selects an external reference when no timer is active, selects CS1 (1202) when timer 1 is active, selects CS2 (1203) when timer 2 is active, selects CS3 (1204) when both timer 1 and 2 are active.
	2= CS1/2/3/4 *[default]*	Selects CS1 (1202) when no timer is active, when timer 1 is active, selects CS2 (1203) when timer 2 is active, selects CS3 (1204). CS4 is not applicable in PS75.

GRP 13	ANALOG INPUTS	DESCRIPTION
1301	MINIMUM AI1	Defines the minimum value of analog input 1. Defines the value as a % of the full analog signal range. Example: 4 mA is 20% (4 mA/20 mA * 100). The minimum analog input signal corresponds to 1104 Spd Ref 1 Min and 1107 Ref 2 Min. *[Default is 20%]*
1302(a)	MAXIMUM AI1	Defines the maximum value of the analog input. The value is defined as a % of the full analog signal range. The maximum signal corresponds to parameters 1105 Spd Ref 1 Max or 1108 Ref 2 Max. *[Default is 100%]*
1303(a)	FILTER AI1	Defines the filter time constant for analog input 1. The filtered signal reaches 63% of a step change within the time specified. Range is 0 – 10 sec. Default is 0.1 sec.
1304	MINIMUM AI2	Defines the minimum value of analog input 2. Defines the value as a % of the full analog signal range. Example: 4 mA is 20% (4 mA/20 mA * 100). The minimum analog input signal corresponds to 1104 Spd Ref 1 Min and 1107 Ref 2 Min. *[Default is 20%]*
1305(a)	MAXIMUM AI2	Defines the maximum value of the analog input. The value is defined as a % of the full analog signal range. The maximum signal corresponds to parameters 1105 Spd Ref 1 Max or 1108 Ref 2 Max. *[Default is 100%]*
1306(a)	FILTER AI2	Defines the filter time constant for analog input 2. The filtered signal reaches 63% of a step change within the time specified. Range is 0 – 10 sec. Default is 0.1 sec.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 14	RELAY OUTPUTS	DESCRIPTION
1401	RELAY OUTPUT 1	Defines the condition that activates relay 1. Selections are:
	0= Not Sel	Relay is not used and is de-energized.
	1=Ready *[default]*	Relay energizes when drive is ready to run. Run enable is present, no faults exist, supply voltage is within range and E-Stop is satisfied (if present).
	2=Run	Energize relay when the drive is running.
	3=Fault(-1)	Energize relay when power is applied. De-energizes when a fault occurs.
	4=Fault	Relay energizes when a fault occurs.
	5=Alarm	Relay energizes when an alarm is active.
	15=Fault (Rst)	The relay energizes when the drive is in a fault condition and will reset after the Reset Delay (3103).
	16=Flt/Alarm	The relay energizes when a fault or alarm occurs.
	21=Overcurrent	Energize the relay after an Overcurrent alarm or fault occurs.
	22=Overvoltage	Energize the relay after an Overvoltage alarm or fault occurs.
	23=Drive Temp	Energize the relay when a Drive Overtemperature alarm or fault occurs.
	24=Undervoltage	Energize the relay after an Undervoltage alarm or fault occurs.
	25=Sens Err AI1	Energize relay when AI1 signal is lost.
	26=Sens Err AI2	Energize relay when AI2 signal is lost.
	27=Motor Temp	Energize the relay when a Motor Overtemperature alarm or fault occurs.
	28=Stall	Energize relay when a stall alarm or fault occurs.
	29=Underload	Energize the relay when a Underload alarm or fault occurs.
	30=PID Sleep	Energize relay when PID sleep function is active.
	31=PFC	Use relay to start/stop the motor in PFC Control.
1402	RELAY OUTPUT 2	Defines the condition that activates relay 2. Selections are:
	0= Not Sel	Relay is not used and is de-energized.
	1=Ready	Relay energizes when drive is ready to run. Run enable is present, no faults exist, supply voltage is within range and E-Stop is satisfied (if present).
	2=Run *[default]*	Energize relay when the drive is running.
	3=Fault(-1)	Energize relay when power is applied. De-energizes when a fault occurs.
	4=Fault	Relay energizes when a fault occurs.
	5=Alarm	Relay energizes when an alarm is active.
	15=Fault (Rst)	The relay energizes when the drive is in a fault condition and will reset after the Reset Delay (3103).
	16=Flt/Alarm	The relay energizes when a fault or alarm occurs.
	21=Overcurrent	Energize the relay after an Overcurrent alarm or fault occurs.
	22=Overvoltage	Energize the relay after an Overvoltage alarm or fault occurs.
	23=Drive Temp	Energize the relay when a Drive Overtemperature alarm or fault occurs.
	24=Undervoltage	Energize the relay after an Undervoltage alarm or fault occurs.
	25= Sens Err AI1	Energize relay when AI1 signal is lost.
	26= Sens Err AI2	Energize relay when AI2 signal is lost.
	27=Motor Temp	Energize the relay when a Motor Overtemperature alarm or fault occurs.
	28=Stall	Energize relay when a stall alarm or fault occurs.
	29=Underload	Energize the relay when a Underload alarm or fault occurs.
	30=PID Sleep	Energize relay when PID sleep function is active.
	31=PFC	Use relay to start/stop the motor in PFC Control.

ADVANCED PARAMETERS

GRP 14	RELAY OUTPUTS	DESCRIPTION
1403	RELAY OUTPUT 3	Defines the condition that activates relay 3. Selections are:
	0= Not Sel	Relay is not used and is de-energized.
	1=Ready	Relay energizes when drive is ready to run. Run enable is present, no faults exist, supply voltage is within range and E-Stop is satisfied (if present).
	2=Run	Energize relay when the drive is running.
	3=Fault(-1)	Energize relay when power is applied. De-energizes when a fault occurs.
	4=Fault *[default]*	Relay energizes when a fault occurs.
	5=Alarm	Relay energizes when an alarm is active.
	15=Fault (Rst)	The relay energizes when the drive is in a fault condition and will reset after the Reset Delay (3103).
	16=Flt/Alarm	The relay energizes when a fault or alarm occurs.
	21=Overcurrent	Energize the relay after an Overcurrent alarm or fault occurs.
	22=Overvoltage	Energize the relay after an Overvoltage alarm or fault occurs.
	23=Drive Temp	Energize the relay when a Drive Overtemperature alarm or fault occurs.
	24=Undervoltage	Energize the relay after an Undervoltage alarm or fault occurs.
	25= Sens Err AI1	Energize relay when AI1 signal is lost.
	26= Sens Err AI2	Energize relay when AI2 signal is lost.
	27=Motor Temp	Energize the relay when a Motor Overtemperature alarm or fault occurs.
	28=Stall	Energize relay when a stall alarm or fault occurs.
	29=Underload	Energize the relay when a Underload alarm or fault occurs.
	30=PID Sleep	Energize relay when PID sleep function is active.
	31=PFC	Use relay to start/stop the motor in PFC Control.
1404(a)	RO 1 ON DELAY	Defines the switch-on delay for relay 1. On/off delays are ignored when relay output 1401 is set to PFC. Range is 0 – 3600 sec. Default =0
1405(a)	RO 1 OFF DELAY	Defines the switch-off delay for relay 1. On/off delays are ignored when relay output 1401 is set to PFC Range is 0 – 3600 sec. Default =0.
1406(a)	RO 2 ON DELAY	Defines the switch-on delay for relay 2. On/off delays are ignored when relay output 1402 is set to PFC. Range is 0 – 3600 sec. Default =0
1407(a)	RO 2 OFF DELAY	Defines the switch-off delay for relay 2. On/off delays are ignored when relay output 1402 is set to PFC. Range is 0 – 3600 sec. Default =0
1408(a)	RO 3 ON DELAY	Defines the switch-on delay for relay 3. On/off delays are ignored when relay output 1403 is set to PFC. Range is 0 – 3600 sec. Default =0
1409(a)	RO 3 OFF DELAY	Defines the switch-off delay for relay 3. On/off delays are ignored when relay output 1403 is set to PFC. Range is 0 – 3600 sec. Default =0
1410(a)	RELAY OUTPUT 4	See Relay RO 1 (1401) for selections. Requires optional module. Default is not selected.
1411(a)	RELAY OUTPUT 5	See Relay RO 1 (1401) for selections. Requires optional module. Default is not selected.
1412(a)	RELAY OUTPUT 6	See Relay RO 1 (1401) for selections. Requires optional module. Default is not selected.
1413(a)	RO 4 ON DELAY	Defines the switch-on delay for relay 4. On/off delays are ignored when relay output 1413 is set to PFC. Range is 0 – 3600 sec. Default =0
1414(a)	RO 4 OFF DELAY	Defines the switch-off delay for relay 4. On/off delays are ignored when relay output 1414 is set to PFC Range is 0 – 3600 sec. Default =0.
1415(a)	RO 5 ON DELAY	Defines the switch-on delay for relay 5. On/off delays are ignored when relay output 1415 is set to PFC. Range is 0 – 3600 sec. Default =0
1416(a)	RO 5 OFF DELAY	Defines the switch-off delay for relay 5. On/off delays are ignored when relay output 1416 is set to PFC. Range is 0 – 3600 sec. Default =0
1417(a)	RO 6 ON DELAY	Defines the switch-on delay for relay 6. On/off delays are ignored when relay output 1417 is set to PFC. Range is 0 – 3600 sec. Default =0
1418(a)	RO 6 OFF DELAY	Defines the switch-off delay for relay 6. On/off delays are ignored when relay output 1418 is set to PFC. Range is 0 – 3600 sec. Default =0

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 15	ANALOG OUTPUTS	DESCRIPTION
1501	AO1 CONFIG	Configures a PS75 signal to analog output 1 (AO1)
	102…145	Output corresponds to any parameter in Grp 01 Operating Data. *[Default is 0102 Speed]*.
	99 Excite PTC	Provides a current source for sensor type PTC. Output =1.6 mA.
	100 Excite PT100	Provides a current source for sensor type Pt100. Output =9.1 mA.
1502(a)	AO1 CONTENT MIN	Sets the minimum value for the signal selected in parameter 1501 for scaling the output.
1503(a)	AO1 CONTENT MAX	Sets the maximum value for the signal selected in parameter 1501 for scaling the output.
1504(a)	MINIMUM AO1	Sets the minimum output current. Range is 0 – 20 mA. Default is 4 mA.
1505(a)	MAXIMUM AO1	Sets the maximum output current. Range is 0 – 20 mA. Default is 20 mA.
1506(a)	FILTER AO1	Defines the filter time constant for AO1. The filtered signal reaches 63% of a step change within time specified. Range is 0 – 10 sec. Default is 0.1 sec.
1507	AO2 CONFIG	Configures a PS75 signal to analog output 1 (AO2)
	102…145	Output corresponds to any parameter in Grp 01 Operating Data. *[Default is 0104 Current]*.
	99 Excite PTC	Provides a current source for sensor type PTC. Output =1.6 mA.
	100 Excite PT100	Provides a current source for sensor type Pt100. Output =9.1 mA.
1508(a)	AO2 CONTENT MIN	Sets the minimum value for the signal selected in parameter 1507 for scaling the output.
1509(a)	AO2 CONTENT MAX	Sets the maximum value for the signal selected in parameter 1507 for scaling the output.
1510(a)	MINIMUM AO2	Sets the minimum output current. Range is 0 – 20 mA. Default is 4 mA.
1511(a)	MAXIMUM AO2	Sets the maximum output current. Range is 0 – 20 mA. Default is 20 mA.
1512(a)	FILTER AO2	Defines the filter time constant for AO2. The filtered signal reaches 63% of a step change within time specified. Range is 0 – 10 sec. Default is 0.1 sec.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 16	SYSTEM CONTROLS	DESCRIPTION
1601	Run Enable	Selects the source of the run enable signal.
	0= Not Sel *[default]*	Allows the drive to start without an external run enable signal.
	6 = DI6	Defines digital input 6 as the source of the run enable signal.
	7 = Comm	Assigns the Fieldbus Command Word 1 Bit 6 (parameter 0301) as the source to activate the run disable signal.
1602	PARAMETER LOCK	Determines if the keypad can change parameter values. This lock does not limit parameter changes written by fieldbus inputs. This parameter can only be opened by entering the correct pass code in parameter 1603.
	0 = Locked	Parameters cannot be changed by the keypad. The lock can be opened by entering the valid pass code to parameter 1603.
	1= Open *[default]*	The control panel can make changes to parameter values.
	2 = Not Saved	The parameter can change parameter values but they are not stored in permanent memory.
1603	PASSCODE	Entering the correct pass code opens the parameter lock. The code "358" allows you to change the value of parameter 1602 once. The displayed entry reverts back to "0" automatically
1604(a)	FAULT RESET SEL	Selects the source for the fault reset signal. The signal resets the drive after a fault trip if the cause of the fault no longer exists.
	0 = Keypad	Defines the keypad as the only fault reset source. Fault reset is always possible with the keypad.
	5 = DI5 *[default]*	Defines digital input DI5 as a fault reset source.
	7 = Start/Stop	Defines the Stop command as a fault reset source.
	8 = Comm	Defines Fieldbus as a fault reset source. The Bit 4 of the Command Word 1 (parameter 0301) resets the drive.
	-5 = DI5(INV)	Defines an inverted digital input (DI5) as a fault reset source. De-activating the digital input resets the drive.
1605(a)	USER PAR SET CHG	Defines control for changing the User Parameter Set (see parameter 9902 Applic Macro). The drive must be stopped to change and load a User Parameter Set. When changing parameter settings in a User Set (or doing a motor ID) always save any new settings. If power is cycled or a User Set is re-selected the drive will load the last settings saved; any unsaved changes are lost. Note, the value of this parameter (1605) is not included in a User Parameter Set and does not change if User Parameter Sets change. Also note relays can be used to supervise the selection of User Parameter Sets.
	0 = Not Sel *[default]*	Defines the keypad (parameter 9902) as the only source for selecting a user parameter Set.
	3 =DI3….5 = DI5	Defines a digital input as the control for changing a User parameter Set. Any open digital input can be used. The drive loads User Parameter Set 1 on the falling edge of the digital input and loads User Parameter Set 2 on the rising edge of the digital input. The change is made only when the drive is stopped.
	3 =DI3(INV)….5 = DI5(INV)	Defines an inverted digital input as the control for changing a User parameter Set. Any open digital input can be used. The drive loads User Parameter Set 1 on the rising edge of the digital input and loads User Parameter Set 2 on the falling edge of the digital input. The change is made only when the drive is stopped.
1606	LOCAL LOCK	Defines control for use of the LOC mode. The LOC mode allows drive control from the keypad. When local lock is active the keypad cannot be changed to LOC mode.
	0=Not Sel *[default]*	Disables the lock. The keypad can select LOC and control the drive.
	7=On	Sets the lock. The keypad cannot select LOC to control the drive.
	8=Comm	Defines Bit 14 of the command word 1 (0301) via fieldbus communication as the control for setting the local lock.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 16	SYSTEM CONTROLS	DESCRIPTION
1607	PARAM SAVE	Save all altered parameters to permanent memory. Parameters altered by fieldbus are not automatically saved to permanent memory. To save you must use this parameter. If 1602 Parameter Lock is set to "Not Saved". To save you must use this parameter.
	0 = Done *[default]*	Value changes automatically when all parameters are saved.
	1 = Save	Saves altered parameters to permanent memory.
1608	START ENABLE 1	Selects the source of the start enable 1 signal. If the voltage drops and de-activates this digital input, the drive will coast to a stop and show alarm 2021 Start Enable 1 Missing. The drive will not start until the start enable 1 signal resumes.
	0 = Not Sel *[default]*	Allows the drive to start without an external Start Enable signal.
	6 = DI6	Defines digital input 6 as the start enable signal.
	7 = Comm	Assigns the Fieldbus Command Word as the source of the start enable signal. Bit 2 of the Command Word 2 (parameter 0302) activates the start enable signal. See fieldbus user's manual for detailed instructions.
1609(a)	START ENABLE 2	Selects the source of the start enable 2 signal. If the voltage drop sand de-activates this digital input, the drive will coast to a stop and show alarm 2022 Start Enable 2 Missing. The drive will not start until the start enable 2 signal resumes.
	0 = Not Sel *[default]*	Allows the drive to start without an external Start Enable signal.
	3 = DI3…..5 = DI5	Defines a digital input as the start enable 2 signal. Any open digital input can be used.
	7 = Comm	Assigns the Fieldbus Command Word as the source of the start enable signal. Bit 3 of the Command Word 2 (parameter 0302) activates the start enable signal. See fieldbus user's manual for detailed instructions.
	-3 = DI3(INV)….-5 = DI5(INV)	Defines an inverted digital input as the start enable 2 signal. Any open digital input can be used.
1610(a)	DISPLAY ALARMS	Controls the visibility of the following alarms: 2001 Overcurrent alarm 2002 Overvoltage alarm 2003 Undervoltage alarm 2009 device Overtemperature alarm
	0 = No *[default]*	The above alarms are suppressed.
	1 = Yes	All of the above alarms are enabled.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 19	PROTECTION	DESCRIPTION
1901	CONFIG_SPD_MIN	Defines the reaction of the drive during a Pump Protect or Min Flow "Alarm and Control" condition.
	Spd=Min Spd	If an "Alarm and Control" condition is detected the PS75 will drop to parameter 2001 Minimum Speed between parameter 3101 Error Resets. If the condition is not corrected and all reset trials have been exhausted the drive will fault. If parameter 3101 Error Reset is set to zero the drive will fault once an "Alarm and Control" condition is detected.
	Spd=0 *[default]*	The PS75 will shutdown and fault if an "Alarm and Control" condition is detected. If parameter 3101 Error Reset is set to "n" resets then the drive will restart after the parameter 3103 Reset Delay Time. If the condition is not corrected and all reset trials have been exhausted the drive will fault. If parameter 3101 Error Reset is set to zero the drive will fault once an "Alarm and Control" condition is detected.
1902	PUMP_PROTECT	If parameter 4005 is set to "Normal" and actual process value is lower than protection limit (1903) for protection delay (1904) and PS75 is at (2002) max speed for the protection delay a pump protect condition occurs. If parameter 4005 is set to "Inverse" and actual process value is >= [1/protection limit * PV ref] for the protection delay a pump protect condition occurs.
	Disabled *[default]*	Protection is disabled
	Alarm	The PS75 generates a warning only "Pump Protect"; no other action is taken unless Group 14 Relay Outputs are configured.
	Alarm & Ctrl	The PS75 generates a warning "Pump Protect" and controls according to the setting of Config Speed Min (1901).
1903	PROTECT_LIMIT	This is the protection limit for the process value at which Pump Protect (1902) activates when pump is at (2002) max speed for the protection delay (1904). Setting range: 0 – 100% of setpoint. *The default setting is 97%.*
1904	PROTECT_DELAY	This is the protection delay period prior to activation of Pump Protect (1902). Setting = 0 – 200 sec. *Default setting is "0 sec".*
1905	BEP_POWER	Value range setting is 0 - 9999. Defines the power at best efficiency point of the pump. *The default is 90% of the motor nominal power HP or kW (parameter 9909).*
1906	PWR_OFFSET	This is a mechanical power loss offset value (e.g. seal losses). *Default value is 0.5 hp/0.0 kW.* Units are same as in 9909. (Hp or kW).
1907	BEP_SPEED	Value range setting is 50 – 18000. Defines the pump speed associated with the Bep power. *The default is Motor Nom Rpm (parameter 9908).*
1908	MIN_FLOW_CTL	If enabled and the actual torque is less than the min flow torque (corrected for speed) for the protection delay 1904 a minimum flow condition is detected.
	Disabled *[default]*	Protection is disabled
	Warning	The PS75 generates a "Min Flow Warning" only; no other action is taken unless Group 14 Relay Outputs are configured.
	Alarm & Control	The PS75 generates a "Min Flow" warning or fault and controls according to the setting of Config Spd Min (1901). The fault is resettable if Error Reset (3101) is active.
1909	MIN_FLOW_TRQ	Value range setting is 0 – 200%. *The default is 0%.* This is the min flow torque expressed as a % of Bep Torque.
1910	DRY _RUN_CTL	If enabled and the actual torque is less than the dry run torque (corrected for speed) for the protection delay 1904 a dry run condition is detected.
	Disabled *[default]*	Protection is disabled
	Warning	The PS75 generates a "Dry Run Warning" only; no other action is taken unless Group 14 Relay Outputs are configured.
	Fault	The drive trips on fault and the motor coasts to a stop. A fault message is generated "Dry Run". This fault is <u>not</u> resettable by Error Reset (3101)

ADVANCED PARAMETERS

GRP 19	PROTECTION	DESCRIPTION
1911	DRY_RUN_TRQ	Value range setting is 0 – 200%. *The default is 0%.* This is the Dry Run Torque expressed as a % of Bep Torque.
1912	RUNOUT_CTL	If enabled and the actual torque is greater than the run out torque (corrected for speed) for the protection delay 1904 a run out condition is detected.
	Disabled *[default]*	Protection is disabled
	Warning	The PS75 generates a "Run Out Warning" only; no other action is taken unless Group 14 Relay Outputs are configured.
	Alarm & Control	The unit will issue a warning and decrease speed enough so the actual torque is equal to the runout torque (corrected for speed). The ramp rate can be adjusted by setting of parameter 1914. This warning is resettable by Error Reset (3101) and Reset Delay (3103) after the unit has reached min speed (2001). Once all parameter 3101 Error Resets have been exhausted the drive will remain at (2001) Min Speed until manually shutdown (unless a fault occurs).
1913	RUNOUT_TRQ	Value range setting is 0 – 200%. *Default is 200%.* This is the Runout torque expressed as a % of Bep torque.
1914	RUNOUT_ RAMP	Settable deceleration ramp during Runout warning. *Default is 20 sec.* Range equals 5 - 100 sec.
1915	CALC_ TEST_ TRQ	The actual Torque/Corr BEP Trq expressed as a %. This is the operating % which is compared to the 1909, 1911 and 1913 settings. Useful during setup. Viewable only. Write Protected.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 20	LIMITS	DESCRIPTION
2001	MINIMUM SPEED	Defines the allowable minimum speed. *The default setting is 25% of 9908 motor nominal speed.*
2002	MAXIMUM SPEED	Defines the maximum allowable speed. *The default is 9908 Motor Nominal Speed.*
2003(a)	MAX CURRENT	Defines the maximum output current (A) supplied by the drive to the motor. Default value is 1.8 x I_{2hd}.
2005(a)	OVERVOLT CTRL	Sets the DC Overvoltage controller on or off. Fast braking of a high inertia load may cause the DC bus voltage to rise to the Overvoltage control limit. To prevent this the Overvoltage controller automatically decreases the braking torque by increasing output frequency. **Warning! If a braking chopper or braking resistor is connected to the drive, this parameter must be set to "disable" to ensure proper operation.**
	0 = Disable	Disables the Overvoltage controller
	1 = Enable *[default]*	Enables the Overvoltage controller
2006(a)	UNDERVOLT CTRL	Sets the DC Undervoltage controller on or off. If the DC bus voltage drops due to loss of input power, the Undervoltage controller decreases the motor speed to help keep the bus voltage above the lower limit.
	0 = Disable	Disables the Undervoltage controller
	1 = Enable (Time) *[default]*	Enables the Undervoltage controller with a 500 ms time limit for operation.
	2 = Enable	Enables the Undervoltage controller without the maximum time limit for operation.
2007(a)	MINIMUM FREQ	Defines the minimum limit for the drive output frequency. Default is 0 Hz.
2008(a)	MAXIMUM FREQ	Defines the maximum limit for the drive output frequency. Defaults model 01/02 is 50 Hz; model U1/U2 is 60 Hz.
2013(a)	MIN TORQUE SEL	Defines control of the selection between two minimum torque limits (2015 Min Torque 1 and 2016 Min Torque 2).
	0 = Min Torque 1 *[default]*	Selects 2015 Min Torque 1 as the minimum limit used.
	3 = DI3…5 = DI5	Defines a digital input as the control for selecting the minimum limit used. Activating the digital selects Min Torque 2; de-activating selects Min Torque 1.
	7 = Comm	Defines bit 15 of Control Word 1 (0301) as the control for selecting the minimum limit used via fieldbus.
	-3 = DI3(INV)… -5 = DI5(INV)	Defines a inverted digital input as the control for selecting the minimum limit used. Activating the digital selects Min Torque 1; de-activating selects Min Torque 2.
2014(a)	MAX TORQUE SEL	Defines control of the selection between two maximum torque limits (2017 Max Torque 1 and 2018 Max Torque 2).
	0 = Max Torque 1 *[default]*	Selects 2017 Max Torque 1 as the maximum limit used.
	3 = DI3…5 = DI5	Defines a digital input as the control for selecting the maximum limit used. Activating the digital selects Max Torque 2; de-activating selects Max Torque 1.
	7 = Comm	Defines bit 15 of Control Word 1 (0301) as the control for selecting the minimum limit used via fieldbus.
	-3 = DI3(INV)… -5 = DI5(INV)	Defines a inverted digital input as the control for selecting the maximum limit used. Activating the digital selects Max Torque 1; de-activating selects Max Torque 2.
2015(a)	MIN TORQUE 1	Sets the first minimum limit for torque (%). Value is a % of motor nominal torque. *Default is -300%.*
2016(a)	MIN TORQUE 2	Sets the second minimum limit for torque (%). Value is a % of motor nominal torque. *Default is -300%.*
2017(a)	MAX TORQUE 1	Sets the first maximum limit for torque (%). Value is a % of motor nominal torque. *Default is 300%.*
2018(a)	MAX TORQUE 2	Sets the second maximum limit for torque (%). Value is a % of motor nominal torque. *Default is 300%.*

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 21	START/STOP	DESCRIPTION
2101(a)	START FUNCTION	Selects the motor Start method
	1 = Auto *[default]*	Selects the automatic start mode. Vector control mode: optimal start in most cases. The drive automatically selects the correct output frequency to start the motor. Scalar speed mode: immediate start from zero frequency.
	2 = DC Magn	Selects the DC magnetizing start mode. This mode cannot start a rotating motor. The drive starts when the set pre-magnetizing time (2103) has passed even if motor magnetizing is not complete. Vector control mode: magnetizes the motor within the time set by parameter 2103. The normal control is released exactly after the magnetizing time thereby guaranteeing the highest breakaway torque. Scalar Speed Mode: magnetizes the motor within the time set by parameter 2103, the normal control is released exactly after the magnetizing time.
	3 = Scalar Flystart	Selects the flying start mode. Not applicable to vector control mode. Scalar Speed Mode: the drive automatically selects the correct output frequency to start a rotating motor. Useful if the motor is already rotating and if the drive will start smoothly at the current frequency.
	4 = Torq Boost	Selects the automatic torque boost mode (scalar speed mode only). May be necessary in drives with high starting torque. Torque boost is only applied at the start, ending when the output frequency exceeds 20 Hz or when output frequency is equal to the reference.
	5 = Flystart + Torq Boost	Selects both the flying start and torque boost mode (scalar speed mode only). The flying start routine is performed first and the motor is magnetized. If the speed is found to be zero, the torque boost is done.
2102	STOP FUNCTION	Selects how the motor should stop under normal conditions.
	1 = Coast *[default]*	Power is cut immediately to the motor allowing it to coast to a stop.
	2= Ramp	Pump shutsdown using the ramp rate defined in parameter 2203 DECELER TIME 1.
2103(a)	DC MAGN TIME	Defines the pre-magnetizing start mode selected by parameter 2101. After the start command the drive pre-magnetizes the motor for the time defined here and then starts the motor. Set the motor magnetizing time just long enough to allow full motor magnetization. Too long a time heats the motor excessively. Range 0 – 10 sec. default is 0.3 sec.
2104(a)	DC HOLD CTRL	Selects whether DC current is used for braking or DC hold.
	0 = Not Sel	Disables the DC current operation. *[default]*
	1 = DC Hold	Enables the DC hold function. Requires parameter 9904 set to vector Speed. Stops generating sinusoidal current and injects DC into the motor when both the reference and the motor speed drop below the value of parameter 2105 DC hold Speed. When the reference rises above the level of parameter 2105 DC hold Speed the drive resumes normal operation.
	2 = DC Braking	Enables the DC injection braking after the modulation has stopped. If 2102 Stop Function is set to "Coast" braking is applied after start is removed. If 2102 Stop Function is set to "Ramp" braking is applied after ramp.
2105(a)	DC HOLD SPEED	Sets the speed for DC Hold. Requires that parameter 2104 DC Curr Ctl =1 DC Hold. (default 5 rpm)
2106(a)	DC CURR REF	Defines the DC current control reference as a percent of parameter 9906 Motor Nom Current.(default 30%)

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 21	START/STOP	DESCRIPTION
2107(a)	DC BRAKE TIME	Defines the DC Brake Time after modulation has stopped, if parameter 2104 = 2 DC Braking. (default 0.0 s)
2108(a)	START INHIBIT	Sets the start inhibit function on or off. The start inhibit function ignores a pending start commanding any of the following situations (a new start command is required): - A fault is reset - Mode changes from local to remote - Control switches from EXT 1 to EXT 2 - Control switches from EXT2 to EXT 1 - Run enable (1601) activates while start command is active
	0= On	Start inhibit is active.
	1 = Off *[default]*	Start inhibit is disabled.
2109(a)	EM STOP SEL	Defines control of the emergency stop command. When activated: - Emergency stop decelerates the motor using the emergency stop ramp (2208 EM Dec Time) - Requires an external stop command and removal of the emergency stop command before drive can restart.
	0 = Not Sel	Disables the E-Stop function through digital inputs. *[default]*
	3 = DI3 ….5 = DI5	Defines a digital input as the control for the emergency stop command. Activation of the DI issues an E-Stop command. De-activating the DI removes the E-Stop command. Use any open digital input.
	-3 = DI3(INV)….-5 = DI5(INV)	Defines an inverted digital input as the control for the emergency stop command. Activation of the DI removes an E-Stop command. De-activating the DI activates an E-Stop command. Use any open digital input.
2110(a)	TORQUE BOOST CURR	Sets the maximum supplied current during torque boost. See parameter 2101 Start Function. (default 100%)

ADVANCED PARAMETERS

GRP 22	ACCEL/DECEL	DESCRIPTION
2201(a)	ACC/DEC 1 / 2 SEL	Defines control for selection of acceleration/deceleration ramps. Ramps are defined in pairs, one each for acceleration and deceleration. See parameters 2202 – 2207 for ramp definition parameters.
	0 = Not Sel	Disables the selection the first ramp pair is used. *[default]*
	2=DI2…6=DI6	Defines the digital input as the control for ramp pair selection. Activating the digital input selects ramp pair 2. De-activating the digital input selects ramp pair 1.
	7=Comm	Defines serial communication as the control for ramp pair selection.
	-2=DI2(INV)..6= DI6(INV)	Defines an inverted digital input as the control for ramp pair selection. Activating the digital input selects ramp pair 1. De-activating the digital input selects ramp pair 2.
2202	ACCELER TIME 1	Sets the acceleration time for zero to maximum speed for ramp pair 1 Actual acceleration time also depends on 2204 Ramp Shape 1. Range 0-1800 sec. *Default is 5 sec.*
2203	DECELER TIME 1	Sets the deceleration time from maximum speed to zero for ramp pair 1. Actual deceleration time also depends on 2204 Ramp Shape 1. Range 0-1800 sec. *Default is 5 sec.*
2204(a)	RAMP SHAPE 1	Selects the shape of the acceleration/deceleration ramp for ramp pair 1. - Default shape is defined as a ramp, a longer time results in an s-curve shape. - Rule of thumb: 1/5 is a suitable relation between ramp shape and acc ramp time.
	Linear *[default]*	Linear acc/decel ramp for ramp pair 1.
	0.1…1000.0	S-curve acc/dec ramp for ramp pair 1.
2205(a)	ACCELER TIME 2	Sets the acceleration time for zero to maximum speed for ramp pair 2. Actual acceleration time also depends on 2207 Ramp Shape 2. Range 0-1800 sec. *Default is 60 sec.*
2206(a)	DECELER TIME 2	Sets the deceleration time from maximum speed to zero for ramp pair 2. Actual deceleration time also depends on 2207 Ramp Shape 2. Range 0-1800 sec. *Default is 60 sec.*
2207(a)	RAMP SHAPE 2	Selects the shape of the acceleration/deceleration ramp for ramp pair 2. - Default shape is defined as a ramp, a longer time results in an s-curve shape. - Rule of thumb: 1/5 is a suitable relation between ramp shape and acc ramp time.
	Linear *[default]*	Linear acc/decel ramp for ramp pair 2.
	0.1…1000.0	S-curve acc/decel ramp for ramp pair 2.
2208(a)	EM DEC TIME	Sets the deceleration time for maximum speed to zero in an emergency. Ramp is linear. Default is 1 sec. Range 0 – 1800 sec
2209(a)	RAMP INPUT 0	Defines control for forcing the ramp input to zero.
	0= Not Sel	Disables this function. *[default]*
	3 = DI3 ….5 = DI5	Defines the digital input as the control for forcing the ramp input to zero. Activating the digital input forces the ramp input to zero. Ramp output will ramp to zero according to the currently used ramp time, after which it will stay at zero. De-activating the digital input: ramp resumes normal operation. Use any open digital input.
	-3 = DI3(INV)….-5 = DI5(INV)	Defines an inverted digital input as the control for forcing the ramp input to zero. De-activating the digital input forces ramp input to zero. Activating the digital input: ramp resumes normal operation.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 23	SPEED CONTROL	DESCRIPTION
2301(a)	PROP GAIN	Sets the relative gain for the speed controller. Larger values may cause speed oscillation. Range = 0-200 sec. default is 10 sec. Parameter 2305 Autotune Run can automatically set proportional gain.
2302(a)	INTEGRATION TIME	Sets the integration time for the speed controller. Control becomes unstable if the integration time is too short. Range =0-200. Default is 2.5 sec. Parameter 2305 Autotune Run can automatically set Integration Time.
2303(a)	DERIVATION TIME	Sets the derivation time for the speed controller. If set to zero the controller works as a PI controller. Range is 0-10000 ms. Default is 0.
2304(a)	ACC COMPENSATION	Sets the derivation time for acceleration compensation which compensates for inertia during acceleration. Note parameter 2305 Autotune Run can automatically set acceleration compensation. Range is 0-600 sec. Default is 0.
2305(a)	AUTOTUNE RUN	Starts automatic tuning of the speed controller.
	0=Off *[default]*	Disables the autotune creation process
	1=On	Activates speed controller autotuning. Automatically reverts to off. Note Motor load must be connected. Procedure: - Run motor at a constant speed of 20 to 40% of rated speed. - Change autotuning parameter 2305 to “On”. The drive: - Accelerates the motor - Calculates and sets the values for parameters 2301, 2302 and 2304. - Resets parameter 2305 to Off

GRP 24	TORQUE CONTROL	DESCRIPTION
2401(a)	TORQ RAMP UP	Defines the torque reference ramp up time. The minimum time for the reference to increase from zero to the nominal motor torque. (default 0.0 s). Used with the Torque Control application macro in parameter 9902.
2402(a)	TORQUE RAMP DOWN	Defines the torque reference ramp down time. The minimum time for the reference to decrease from the nominal motor torque to zero. (Default 0.0 s). Used with the Torque Control application macro in parameter 9902.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 25	CRITICAL SPEEDS	DESCRIPTION
2501	CRIT SPEED SEL	Sets the critical speed function on or off. The critical speed function avoids specified speed ranges. Used for speed control mode only.
	0 = Off *[default]*	Disables the critical speed function.
	1= On	Enables the critical speed function.
2502	CRIT SPEED 1 LO	Sets the minimum limit for critical speed range 1. The value must be less than or equal to 2503 Crit Spd 1 Hi. Units are in rpm unless parameter 9904 is set to scalar: speed mode. Range is 0 – 30000 rpm (0 – 500 Hz). Default is 0.
2503	CRIT SPEED 1 HI	Sets the maximum limit for critical speed range 1. The value must be greater than or equal to 2502 Crit Spd 1 Lo. Units are in rpm unless parameter 9904 is set to scalar: speed mode. Range is 0 – 30000 rpm (0 – 500 Hz). Default is 0.
2504	CRIT SPEED 2 LO	Sets the minimum limit for critical speed range 2. The value must be less than or equal to 2505 Crit Spd 2 Hi. Units are rpm unless parameter 9904 is set to scalar: speed mode. Range is 0 – 30000 rpm (0 – 500 Hz). Default is 0.
2505	CRIT SPEED 2 HI	Sets the maximum limit for critical speed range 2. The value must be greater than or equal to 2504 Crit Spd 2 Lo. Units are in rpm unless parameter 9904 is set to scalar: speed mode. Range is 0 – 30000 rpm (0 – 500 Hz). Default is 0.
2506(a)	CRIT SPEED 3 LO	Sets the minimum limit for critical speed range 3. The value must be less than or equal to 2507 Crit Spd 3 Hi. Units are rpm unless parameter 9904 is set to scalar: speed mode. Range is 0 – 30000 rpm (0 – 500 Hz). Default is 0.
2507(a)	CRIT SPEED 3 HI	Sets the maximum limit for critical speed range 3. The value must be greater than or equal to 2506 Crit Spd 3 Lo. Units are in rpm unless parameter 9904 is set to scalar: speed mode. Range is 0 – 30000 rpm (0 – 500 Hz). Default is 0.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 26	MOTOR CONTROL	DESCRIPTION
2601(a)	FLUX OPTIMIZATION	Changes the magnitude of the flux depending on the actual load. Flux Optimization can reduce the total energy consumption and noise, and should be enabled for drives that usually operate below nominal load.
	0= Disable	Disables this feature *[default]*
	1=Enable	Enables this feature
2602(a)	FLUX BRAKING	Provides faster deceleration by raising the level of magnetization in the motor when needed, instead of limiting the deceleration ramp. By increasing the flux in the motor, the energy of the mechanical systems is changed to thermal energy in the motor.
	0= Disable	Disables this feature *[default]*
	1=Enable	Enables this feature
2603 (a)	IR COMP VOLT	Sets the IR compensation voltage used for 0 Hz. Requires 9904 MOTOR CONTROL MODE = 3 SCALAR SPEED. Keep IR compensation as low as possible to prevent overheating. When enabled, IR Compensation provides an extra voltage boost to the motor at low speeds. Used in applications that require a high breakaway torque. Range 0-100V.
2604(a)	IR COMP FREQ	Sets the frequency at which IR compensation is 0V (in % of motor frequency). Range = 0-100%. Default is 80%.
2605(a)	U/f RATIO	Selects the form for the U/f (voltage to frequency) ratio below field weakening point.
	1=Linear	Preferred for constant torque applications *[default]*.
	2=Square	Preferred for centrifugal pump and fan applications (square is quieter for most operating frequencies).
2606(a)	SWITCHING FREQUENCY	Sets the switching frequency of the drive. - Higher switching frequencies mean less noise. - The 12 kHz switching frequency is only available on frame sizes R1..R6 and only if 9904 Motor Ctrl Mode =3 Scalar Speed. - Range is 1, 4, 8 and 12 KhZ. Default is 4 KhZ.
2607(a)	SW FREQ CTRL	The switching frequency may be reduced if the ACH550 internal temperature rises above a limit. This function allows the highest possible switching frequency to be used based on operating conditions.
	0=Off	Function is disabled
	1=On	The switching frequency is limited based on application conditions. *[default]*
2608(a)	SLIP COMP RATIO	Sets gain for slip compensation (in %). A squirrel cage motor slips under load. Increasing the frequency as the motor torque increases compensates for slip. Requires 9904 Motor Control Mode = 3 (Scalar Speed)
	0	No slip compensation *[default]*
	1…200	Increasing slip compensation. 100% = full slip compensation.
2609(a)	NOISE SMOOTHING	This parameter introduces a random component to the switching frequency. Noise smoothing distributes the acoustic motor noise over a range of frequencies instead of a single tonal frequency, resulting in lower peak noise intensity. The random component has an average of 0 Hz and is added to the switching frequency set by parameter 2606 switching Frequency. It has no effect if parameter 266 = 12 khz.
	0= Disable	Disables this function. *[default]*
	1= Enable	Enables this function.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 29	MAINTENANCE TRIG	DESCRIPTION
2901(a)	COOLING FAN TRIG	Sets the trigger point for the drive's cooling fan counter. Range is 0 – 655305 kh. Default is 0.
2902(a)	COOLING FAN ACT	Defines the actual value of the drive's cooling fan counter. This parameter is reset by writing 0.0 to it. Range is 0 – 655305 kh. Default is 0.
2903(a)	REVOLUTION TRIG	Sets the trigger point for the motor's accumulated revolutions counter. Range is 0 – 65535 MRev. Default is 0.
2904(a)	REVOLUTION ACT	Defines the actual value for the motor's accumulated revolutions counter. This parameter is reset by writing 0.0 to it. Range is 0 – 65535 MRev. Default is 0.
2905(a)	RUN TIME TRIG	Sets the trigger point for the drive's run time counter. Range is 6553.5 kh. Default is 0.
2906(a)	RUN TIME ACT	Defines the actual value for the drive's run time counter. This parameter is reset by writing 0.0 to it. Range is 6553.5 kh. Default is 0.
2907(a)	USER MWh TRIG	Sets the trigger point for the drive's accumulated power consumption (in mega watt hrs) counter. Range is 0 – 6553.5 MWh. Default is 0.
2908(a)	USER MWh ACT	Defines the actual value of the drive's accumulated power consumption (in mega watt hrs) counter. This parameter is reset by writing 0.0 to it. Range is 0 – 6553.5 MWh. Default is 0.

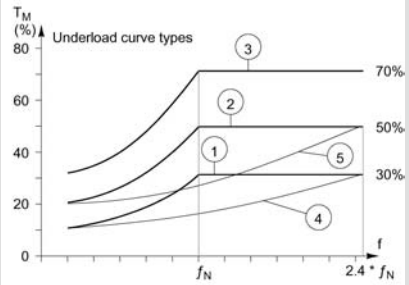
NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 30	FAULT FUNCTIONS	DESCRIPTION
3001	SENSOR FAILURE	Defines the drive response if the analog input signal drops below 3 mA or 1.5 VDC. Parameters 3021 AI1 Fault Limit and 3022 AI2 Fault Limit set the fault limits.
	0=Not Sel	Disables response.
	1 = Fault	Displays a fault "Sensor Err AI1 or Sensor Err AI2" and the drive coasts to a stop.
	3 = Last Speed *[default]*	Displays a warning "Sensor Err AI1 or Sensor Err AI2" and the drive runs at an average speed over the last 10 seconds.
3002	KEYPAD FAILURE	Defines the drive response to a keypad failure.
	1 = Fault	Displays a fault "Keypad Fail" and the drive coasts to a stop.
	3 = Last Speed *[default]*	Displays a warning "Keypad Fail" and the drive runs at an average speed over the last 10 seconds. **Warning! If you select Last Speed, make sure that continued operation is safe when the keypad communication is lost.**
3003	SECONDARY PROT A	Defines the Secondary Protect A signal input and the drive response to a Secondary Protect fault.
	0 = Not Sel *[default]*	The Secondary Protect function is not used.
	1= DI3 4= DI4 5= DI5	Defines digital input 3, 4 or 5 as the Secondary Protect A function. Although any available digital input can be used. Activating the digital input indicates a fault. The drive displays a Secnd Protect A fault and the drive coasts to a stop. This function can be auto reset by parameter 3108 ER Secnd Protect.
	-1= DI3 (INV) -4= DI4 (INV) -5= DI5 (INV)	Defines an inverted digital input 3, 4 or 5 as the Secondary Protect A function. Although any available digital input can be used. De-activating the digital input indicates a fault. The drive displays a Secnd Protect A fault and the drive coasts to a stop. This function can be auto reset by parameter 3108 ER Secnd Protect.
3004	SECONDARY PROT B	Defines the Secondary Protect B signal input and the drive response to a Secondary Protect fault.
	0 = Not Sel *[default]*	The Secondary Protect function is not used.
	1= DI3 4= DI4 5= DI5	Defines digital input 3, 4 or 5 as the Secondary Protect B function. Although any available digital input can be used. Activating the digital input indicates a fault. The drive displays a Secnd Protect B fault and the drive coasts to a stop. This function can be auto reset by parameter 3108 ER Secnd Protect.
	-1= DI3 (INV) -4= DI4 (INV) -5= DI5 (INV)	Defines an inverted digital input 3, 4 or 5 as the Secondary Protect B function. Although any available digital input can be used. De-activating the digital input indicates a fault. The drive displays a Secnd Protect B fault and the drive coasts to a stop. This function can be auto reset by parameter 3108 ER Secnd Protect.
3005(a)	MOTOR THERM PROT	Defines the drive response to motor overheating.
	0 = Not Sel	Motor protection is not active
	1 = Fault	If the calculated motor temperature exceeds 90 C, displays a warning (2010, Motor Overtemp). When the calculated motor temp exceeds 110 C , displays a fault (9, Mot Overtemp) and the drive coasts to a stop.
	2 = Warning *[default]*	If the calculated motor temperature exceeds 90 C a warning is displayed (2010, Mot Overtemp).
3006(a)	MOT THERM TIME	Sets the motor thermal time constant for the motor temperature model. This is the time required to reach 63% of the final temperature with steady load. For thermal protection according to UL requirements for NEMA motors, use the rule of thumb: Mot Therm Time equals 35 X T6, where T6 (in seconds) is specified by the motor manufacturer as the time that the motor can safely operate at 6 times its rated current. The thermal time for a Class 10 trip curve is 350 s, for a Class 20 trip curve 700 s, and for a Class 30 trip curve 1050 s. Range is 256 – 9999 sec.(default 500 sec)
3007(a)	MOT LOAD CURVE	Sets the maximum allowable operating load of the motor. When set to 100%, the maximum allowable load is equal to the value of parameter 9906 Motor Nom Current. Adjust the load curve level if the ambient temperature differs from nominal. Range is 50 – 150%. (Default 100%)

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 30	FAULT FUNCTIONS	DESCRIPTION
3008(a)	ZERO SPEED LOAD	Sets the maximum allowable current at zero speed. Value is relative to 9906 Motor Nom Current. Range is 25 – 150%. (Default 70%).
3009(a)	BREAK POINT FREQ	Sets the break point frequency for the motor load curve. Range is 1 – 250 Hz. Default is 35 hz.
3010(a)	STALL FUNCTION	This parameter defines the operation of the Stall function. This protection is active if the drive operates in the stall region (greater than 95% max torque and less than or equal to 3011 Stall Frequency) for the time defined by 3012 Stall Time. A user Limit is defined in Group 20 Torque Limit 2017 Max Torque 1, 2018 Max Torque 2, or the limit on the Comm Input.
	0 = Not Sel	Stall protection is not active. *[default]*
	1 = Fault	If the drive operates in the stall region for the time set by 3012 Stall Time: the drive coasts to a stop and a fault indication is displayed.
	2 = Warning	If the drive operates in the stall region for the time set by 3012 Stall Time: a warning indication is displayed. The warning disappears when the drive is out of the stall region for half the time set by 3012 Stall Time.
3011(a)	STALL FREQUENCY	This value sets the frequency value for the stall function. Range is 0.5 – 50 Hz. Default is 20 Hz.
3012(a)	STALL TIME	This parameter sets the time value for the stall function. Range is 10 – 400 sec. Default is 10 sec.
3013(a)	UNDERLOAD FUNCTION	Removal of motor load may indicate a process malfunction. The protection is activated if: the motor torque drops below the load curve selected by 3015 Underload Curve. The condition has lasted longer than the time set by 3014 Underload Time. Output frequency is higher than 10% of the nominal frequency.
	0 = Not Sel	Protection is inactive *[default]*
	1 = Fault	If the protection is activated the drive coasts to a stop and faults.
	2 = Warning	A warning indication is displayed.
3014(a)	UNDERLOAD TIME	The limit for Underload protection. Range is 10 – 400 sec. Default is 20 sec.
3015(a)	UNDERLOAD CURVE	This parameter provides five selectable curves. If the load drops below the curve set for longer than the time set by parameter 3014, the Underload protection is activated. Curves 1 – 3 reach maximum at the motor rated frequency set by 9907 Motor Nom Freq. *[default is curve 1]* 
3017(a)	EARTH FAULT	Defines the response if the drive detects a ground fault in the motor or motor cables. The drive monitors for ground faults while the drive is running, and while the drive is not running.
	0 = Disable	No drive response to ground faults
	1 = Enable *[default]*	Ground faults display fault 16 Earth Fault and if running the drive coasts to a stop.
3018(a)	COMM FAIL CTRL	Defines the drive response if the fieldbus communication is lost.
	0 = Not Sel	No action taken
	1 = Fault	Displays a fault (28, Serial 1 Err) and the drive coasts to a stop.
	3 = Last Speed *[default]*	Displays a warning (2005, I/O Comm) and sets the speed using the last operating level. This value is the average speed over the last 10 seconds. This "alarm speed" remains active until the fieldbus writes a new reference value.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 30	FAULT FUNCTIONS	DESCRIPTION
3019(a)	COMM LOSS TIME	Sets the communication fault time used with 3018 Comm Fault Func. Brief interruptions in the fieldbus communications are not treated as faults if they are less than the Comm Fault Time value. Range 0- 60 sec. Default 3 sec.
3021(a)	AI1 FAULT LIMIT	Sets a fault level for analog input 1. See 3001 Sensor Failure. Range 0 – 100%. Default 15%.
3022(a)	AI2 FAULT LIMIT	Sets a fault level for analog input 2. See 3001 Sensor Failure. Range 0 – 100%. Default 15%.
3023(a)	WIRING FAULT	Defines the drive response to cross wiring faults and to ground faults detected when the drive is NOT running. When the drive is not running monitors for: Improper connections of input power to the drive output (the drive can display fault 35, Output Wiring if improper connections are detected. Ground faults (the drive can display fault 16, Earth fault if a ground fault is detected.
	0 = Disable	No drive response to either of the above conditions.
	1 = Enable *[default]*	The drive displays faults when this monitoring detects problems.

GRP 31	AUTOMATIC RESET	DESCRIPTION
3101	ERROR RESET	Sets the number of allowed automatic resets. The selection range is 0 – 5. *The zero setting disables this function [default].* The time between resets is set by parameter 3103 Reset Delay. Parameter 3102 Trial Time sets the time period for counting and limiting the number of resets [default is 60 sec]. Manual intervention is required if fault is still active after set number of resets has been achieved. Error Reset is applicable to parameters 1902, 1908, 1912 and 3104 – 3108.
3102(a)	TRIAL TIME	Sets the time period used for counting and limiting the number of resets. Default is 60 sec.
3103	RESET DELAY	Sets the delay time between a fault detection and attempted drive restart. Setting range is 120 sec. *Default is 60 sec.*
3104(a)	ER OVERCURRENT	Sets the automatic reset feature for overcurrent on or off after the delay set by 3103 Reset Delay and the drive resumes normal operation..
	0 = Disable	Disables the automatic reset *[default]*
	1 = Enable	Enables the automatic reset
3105(a)	ER OVERVOLTAGE	Sets the automatic reset feature for overvoltage on or off after the delay set by 3103 Reset Delay and the drive resumes normal operation.
	0 = Disable	Disables the automatic reset *[default]*
	1 = Enable	Enables the automatic reset
3106(a)	ER UNDERVOLTAGE	Sets the automatic reset feature for undervoltage on or off after the delay set by 3103 Reset Delay and the drive resumes normal operation.
	0 = Disable	Disables the automatic reset *[default]*
	1 = Enable	Enables the automatic reset
3107(a)	ER SENSOR FAIL	Sets the automatic reset feature for the analog input less than minimum value (parameters 1301 and 1304) function on or off after the delay set by 3103 Reset Delay and the drive resumes normal operation. **Warning! When the analog input signal is restored, the drive may restart, even after a long stop. Make sure the automatic, long delayed starts will not cause physical injury and/or damage equipment.**
	0 = Disable	Disables the automatic reset *[default]*
	1 = Enable	Enables the automatic reset
3108(a)	ER SECNDRY PROTECT	Sets the automatic reset feature for the Secondary Protect (parameter 3003 and 3004) function on or off after the delay set by 3103 Reset Delay and the drive resumes normal operation.
	0 = Disable	Disables the automatic reset *[default]*
	1 = Enable	Enables the automatic reset

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 32	SUPERVISION	DESCRIPTION
3201(a)	SUPERV 1 PARAM	Selects the first supervised parameter. Must be a parameter number from Group 01 Operating Data. The default is 0102 Speed. If the supervised parameter passes a limit, a relay output is energized. The supervision limits are defined in this group. The Relay Outputs are defined in Group 14 and specify which supervision limit is monitored. **LO<= HI** Operating data supervision using relay outputs, when LO<=HI. Case A: Parameter 1401 Relay Output 1 or 1402 Relay Output 2 value is SUPRV1 OVER or SUPRV2 OVER. Use for monitoring when/if the supervised signal exceeds a given limit. The relay remains active until the supervised value drops below the low limit. Case B: Parameter 1401 Relay Output 1 or 1402 Relay Output 2 value is SUPRV1 UNDER or SUPRV2 UNDER. Use for monitoring when/if the supervised signal falls below a given limit. The relay remains active until the supervised value rises above the high limit. **LO>HI** Operating data supervision using relay outputs, when LO>HI. The lowest limit is active initially, and remains active until the supervised parameter goes above the highest limit making that limit the active limit. That limit remains active until the supervised parameter goes below the lowest limit making that limit active. Case A: Parameter 1401 Relay Output 1 or 1402 Relay Output 2 value is SUPRV1 OVER or SUPRV2 OVER. Initially the relay is de-energized. It is energized whenever the supervised parameter goes above the active limit. Case B: Parameter 1401 Relay Output 1 or 1402 Relay Output 2 value is SUPRV1 UNDER or SUPRV2 UNDER. Initially the relay is energized. It is de-energized whenever the supervised parameter goes below the active limit.
3202(a)	SUPERV 1 LIM LO	Sets the low limit for the first supervised parameter. See parameter 3201 above.
3203(a)	SUPERV1 LIM HI	Sets the high limit for the first supervised parameter. See parameter 3201 above.
3204(a)	SUPERV 2 PARAM	Selects the second supervised parameter. See parameter 3201 above. The default is 0104 Current.
3205(a)	SUPERV 2 LIM LO	Sets the low limit for the second supervised parameter. See parameter 3204 above.
3206(a)	SUPERV 2 LIM HI	Sets the high limit for the second supervised parameter. See parameter 3204 above.
3207(a)	SUPERV 3 PARAM	Selects the third supervised parameter. See parameter 3201 above. The default is 0105 torque.
3208(a)	SUPERV 3 LIM LO	Sets the low limit for the third supervised parameter. See parameter 3207 above.
3209(a)	SUPERV 3 LIM HI	Sets the high limit for the third supervised parameter. See parameter 3207 above.

GRP 33	INFORMATION	DESCRIPTION
3301	PS75 VERSION	Contains the version of the drive's firmware. Current version is V2.0
3302	LP VERSION	Contains the version of the loading package
3303	TEST DATE	Contains the test date (yy.ww)
3304	DRIVE RATING	Indicates the drive's current and voltage rating. The format is XXXY, where: XXX = the nominal current rating of the drive in amps. If present an "A" indicates a decimal point in the rating for the current. For example, XXX = 8A8 indicates a nominal current rating of 8.8 amps. Y = the voltage rating of the drive, where: 2 indicates a 208…240 volt rating. 4 indicates a 380 …480 volt rating.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 34	PANEL DISPLAY PROCESS VARIABLES	DESCRIPTION
3401	SIGNAL 1 PARAM	Selects the first parameter (by parameter number) displayed on the keypad. Any Grp 01 parameter can be displayed. Using parameters 3402 – 3407, the display can be scaled, converted to other units and/or displayed as a bar graph. *The default for Startup "Speed Control" and Process Control modes is 0102 Speed in Rpm.*
	100	Not selected. The first parameter is not displayed.
	101….145	Selection displays the selected Grp 01 parameter.
3402(a)	SIGNAL I MIN	Defines the minimum expected value for the first display parameter. Use parameters 3402, 3403, 3406 and 3407, for example to convert a Group 1 parameter such as 0102 speed (in rpm) to the speed of a conveyor driven by the motor (in ft/min). For this type conversion the source values are the min and max motor speed, and the display values are the corresponding min and max conveyor speed. Use parameter 3405 to select the proper units for the display. Note! Selecting units does not convert values.
3403(a)	SIGNAL 1 MAX	Defines the maximum expected value for the first display parameter.
3404(a)	OUTPUT1 DSP FORM	Defines the decimal point location for the first display parameter.
	0…7	Defines the decimal point location. Enter the number of digits desired to the right of the decimal point. See format below (selections 0 – 3 are signed and 4-7 are unsigned0 : 0 = +- x, 1= +- x.x, 2=+-x.xx, 3= +-x.xxx, 4=x, 5=x.x,6=x.xx,7=x.xxx
	8 = Bar Meter	Specifies a Bar Meter display
	9 = Direct *[default]*	Decimal point location and units of measure are identical to the source signal.
3405(a)	OUTPUT 1 UNIT	Selects the units for the first display parameter. 0= Not sel, 1=A, 2=V, 3=Hz, 4=%, 5=s, 6=h, 7=rpm, 8=kh, 9=, 10=lb ft, 11= mA, 12=mV, 13=kW, 14=W, 15=kWh, 16=, 17=hp, 18=MWh, 19=m/s, 20=m3/h, 21=dm3/s, 22=bar, 23=kPa, 24=GPM, 25=PSI, 26=CFM, 27=ft, 28=M, 29=inHg, 30=FPM, 31=kb/s, 32=kHz, 33=Ohm, 34=ppm, 35=pps, 36=l/s, 37= l/min, 38=l/h, 39=m3/s, 40 = m3/m, 41=kg/s, 42=kg/m, 43=kg/h, 44=mbar, 45=Pa, 46=GPS, 47=gal/s, 48=gal/min, 49=gal/h, 50=ft3/h, 51=ft3/m, 52=ft3/h, 53=lb/s, 54=lb/m, 55=lb/h, 56=FPM, 57=ft/s, 58=inH2O, 59=in wg, 60=ft wg, 61=lbsi, 62=ms, 63=Mrev, 64=d, 65=inWC, 66=m/min, 67= RPM ac, 68=RPM sp, 69=PSI ac, 70=PSI sp, 71=GPM ac, 72=GPM sp, 73=BAR ac, 74=BAR sp, 75=M3/H ac, 76=M3/H sp, 77=Ft ac, 78= Ft sp, 79= M ac, 80= M sp, 81=% ac, 82= % sp, 83= #/s ac, 84 = #/s sp, 85= #/Hr ac, 86= #/Hr sp, 87= °F ac, 88=°F sp, 89= °C ac, 90=°C sp, 91= Kg/H ac, 92= Kg/H sp 117=%ref, 118= %act, 119=5dev, 120=%LD, 121=%SP, 122=%FBK, 123=Iout, 124=Vout, 125=Fout, 126=Tout, 127=Vdc
3406(a)	OUTPUT I MIN	Sets the minimum value displayed for the first display parameter.
3407(a)	OUTPUT 1 MAX	Sets the maximum value displayed for the first display parameter.
3408	SIGNAL 2 PARAM	Selects the second parameter (by parameter number) displayed on the keypad. Any Grp 01 parameter can be displayed. Using parameters 3409 – 3414, the display can be scaled, converted to other units and/or displayed as a bar graph. *The default for Startup "Speed Control" mode is 0111 External Spd Ref 1 in Rpm. The default for Process Control mode is 0128 PID 1 Setpoint in units selected by parameter 4006.*
	100	Not selected. The first parameter is not displayed.
	101….145	Selection displays the selected Grp 01 parameter.
3409(a)	SIGNAL 2 MIN	Defines the minimum expected value for the second display parameter. See parameter 3402.
3410(a)	SIGNAL 2 MAX	Defines the maximum expected value for the second display parameter. See parameter 3403.
3411(a)	OUTPUT 2 DSP FORM	Defines the decimal point location for the second display parameter. See parameter 3404.
3412(a)	OUTPUT 2 UNIT	Selects the units used with the second display parameter. See parameter 3405.
3413(a)	OUTPUT 2 MIN	Sets the minimum value displayed for the second display parameter. See parameter 3406.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 34	PANEL DISPLAY PROCESS VARIABLES	DESCRIPTION
3414(a)	OUTPUT 2 MAX	Sets the maximum value displayed for the second display parameter. See parameter 3407.
3415	SIGNAL 3 PARAM	Selects the third parameter (by parameter number) displayed on the keypad. Any Grp 01 parameter can be displayed. Using parameters 3416 – 3421, the display can be scaled, converted to other units and/or displayed as a bar graph. *The default for Startup "Speed Control" mode is 0104 Current, Amps. The default for Process Control mode is 0130 PID 1 ACTUAL in units selected by parameter 4006.*
	100	Not selected. The first parameter is not displayed.
	101….145	Selection displays the selected Grp 01 parameter.
3416(a)	SIGNAL 3 MIN	Defines the minimum expected value for the third display parameter. See parameter 3402.
3417(a)	SIGNAL 3 MAX	Defines the maximum expected value for the third display parameter. See parameter 3403.
3418(a)	OUTPUT 3 DSP FORM	Defines the decimal point location for the third display parameter. See parameter 3404.
3419(a)	OUTPUT 3 UNIT	Selects the units used with the third display parameter. See parameter 3405.
3420(a)	OUTPUT 3 MIN	Sets the minimum value displayed for the third display parameter. See parameter 3406.
3421(a)	OUTPUT 3 MAX	Sets the maximum value displayed for the third display parameter. See parameter 3407.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 35	MOTOR TEMP MEAS	DESCRIPTION
3501(a)	SENSOR TYPE	Identifies the type of motor temperature sensor used, PT100 (Ω) or PTC (ohms). Refer to Analog Output parameters 1501 and 1507.
	0=None *[default]*	Disabled
	1= 1xPT100	Sensor configuration uses 1 PT100 sensor. Analog output AO1 or AO2 feeds constant current through the sensor. The sensor resistance increases as the motor temperature rises, as does the voltage over the sensor. The temperature measurement function reads the voltage through analog input AI1 or AI2 and converts it to °C.
	2= 2XPT100	Sensor configuration uses 2 PT100 sensors. Operation is the same as for above 1xPT100.
	3= 3XPT100	Sensor configuration uses 3 PT100 sensors. Operation is the same as for above 1xPT100.
	4= PTC	Sensor configuration uses PTC. The analog output feeds a constant current through the sensor. The resistance of the sensor increases sharply as the motor temperature rises over the PTC reference temperature (Tref), as does the voltage over the resistor. The temperature measurement function reads the voltage through analog input AI1 and converts it to ohms. Normal temperature is 0..1.5 kohms, excessive temperature is >=4 kohm.
	5= Thermistor (0)	Sensor configuration uses a thermistor. Motor thermal protection is activated through a digital input. Connect either a PTC sensor or a normally closed thermistor relay to a digital input. The drive reads the digital input state: normal temperature is 0..1.5 kohms, excessive temperature is >=4 kohm. When the digital input is "0" the motor is overheated.
	6= Thermistor (1)	Sensor configuration uses a thermistor. Motor thermal protection is activated through a digital input. Connect a normally open thermistor relay to a digital input. The drive reads the digital input state: normal temperature is 0..1.5 kohms, excessive temperature is >=4 kohm. When the digital input is "1" the motor is overheated.
3502(a)	INPUT SELECTION	Defines the input used for the temperature sensor.
	1= AI1 *[default]*	Selects analog input AI1 for the PT100 or PTC sensor.
	2= AI2	Selects analog input AI2 for the PT100 or PTC sensor.
	3…8= DI3…DI6	Selects a digital input for the thermistor
3503(a)	ALARM LIMIT	Defines the alarm limit for motor temperature measurement. At motor temperatures above this limit the drive displays an alarm (2010 Motor Overtemp). For thermistors 0= de-activated, 1= activated. Range is -10.. 200 °C /0..5000 Ohm/0..1. Default is 110°C /1500 Ohm/0=de-activated
3504(a)	FAULT LIMIT	Defines the fault limit for motor temperature measurement. At motor temperatures above this limit, the drive displays a fault (9 Motor Overtemp) and stops the drive. For thermistors 0= de-activated, 1= activated. Range is -10.. 200 °C/0..5000 Ohm/0..1. Default is 130°C /4000 Ohm/0=de-activated

ADVANCED PARAMETERS

GRP 36	TIMER FUNCTIONS	DESCRIPTION
3601(a)	TIMERS ENABLE	Selects the source for the timer enable signal.
	0= Not Sel *[default]*	Timed functions are disabled.
	1=DI1…6=DI6	Defines the selected digital input as the timed function enable signal. The digital input must be activated to enable the timed function.
	7= Enabled	Timed functions are enabled.
	-1=DI1(INV)…-6=DI6(INV)	Defines an inverted digital input selection as the timed function enable signal. This digital input must be de-activated to enable the timed function.
3602(a)	START TIME 1	Defines the daily start time. The time can be changed in steps of 2 seconds. If parameter value is 07:00:00 then the timer is activated at 7 a.m.
3603(a)	STOP TIME 1	Defines the daily stop time. The timer can be set in steps of 2 seconds. If the parameter value is set at 09:00:00 then the timer is deactivated at 9 a.m.
3604(a)	START DAY 1	Defines the weekly start day.
	1= Monday…7= Sunday	If the parameter value is 1, then timer 1 weekly is active from Monday midnight (00:00:00)
3605(a)	STOP DAY 1	Defines weekly stop day.
	1= Monday…7= Sunday	If parameter value is 5, then timer 1 weekly is deactivated on Friday midnight (23:59:58).
3606(a)	START TIME 2	Defines timer 2 daily start time. See parameter 3602.
3607(a)	STOP TIME 2	Defines timer 2 daily stop time. See parameter 3603.
3608(a)	START DAY 2	Defines timer 2 weekly start day. See parameter 3604.
3609(a)	STOP DAY 2	Defines timer 2 weekly stop day See parameter 3605.
3610(a)	START TIME 3	Defines timer 3 daily start time. See parameter 3602.
3611(a)	STOP TIME 3	Defines timer 3 daily stop time. See parameter 3603.
3612(a)	START DAY 3	Defines timer 3 weekly start day. See parameter 3604.
3613(a)	STOP DAY 3	Defines timer 3 weekly stop day See parameter 3605.
3614(a)	START TIME 4	Defines timer 4 daily start time. See parameter 3602.
3615(a)	STOP TIME 4	Defines timer 4 daily stop time. See parameter 3603.
3616(a)	START DAY 4	Defines timer 4 weekly start day. See parameter 3604.
3617(a)	STOP DAY 4	Defines timer 4 weekly stop day. See parameter 3605.
3622(a)	BOOSTER SEL	Selects the source for the booster signal
	0=Not Sel *[default]*	Booster signal is disabled.
	1= DI1.. 6=DI6	Defnes the selected digital input as the source for the booster signal.
	-1=DI1(INV)…-6=DI6(INV)	Defines an inverted digital input as the booster signal.
3623(a)	BOOSTER TIME	Defines the booster ON time. Time is started when booster sel signal is released. If parameter range is 01:30:00, then booster is active for 1 hr and 30 minutes after activation DI is released.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 36	TIMER FUNCTIONS	DESCRIPTION
3626(a)	TIMER FUNC1 SRC	Defines the time periods used by the timer.
	0= Not Sel	No time periods have been selected. *[default]*
	1= P1	Time period 1 selected in the timer
	2= P2	Time period 2 selected in the timer
	3= P2+P1	Time periods 2 and 1 selected in the timer.
	4= P3	Time period 3 selected in the timer.
	5= P3+P1	Time periods 3 and 1 selected in the timer.
	6= P3+P2	Time periods 3 and 2 selected in the timer.
	7= P3+P2+P1	Time periods 3, 2 and 1 selected in the timer.
	8= P4	Time period 4 selected in the timer.
	9= P4+P1	Time periods 4 and 1 selected in the timer.
	10= P4+P2	Time periods 4 and 2 selected in the timer.
	11=P4+P2+P1	Time periods 4, 2 and 1 selected in the timer.
	12=P4+P3	Time periods 4 and 3 selected in the timer.
	13= P4+P3+P1	Time periods 4, 3 and 1 selected in the timer.
	14= P4+P3+P2	Time periods 4, 3 and 2 selected in the timer.
	15=P4+P3+P2+P1	Time periods 4, 3, 2 and 1 selected in the timer.
	16= Booster(B)	Booster selected in the timer
	17= B+P1	Booster and time period 1 selected in the timer.
	18= B+P2	Booster and time period 2 selected in the timer.
	19=B+P2+P1	Booster and time periods 2 and 1 selected in the timer.
	20= B+P3	Booster and time period 3 selected in the timer.
	21= B+P3+P1	Booster and time periods 3 and 1 selected in the timer.
	22= B+P3+P2	Booster and time periods 3 and 2 selected in the timer.
	23=B+P3+P2+P1	Booster and time periods 3, 2 and 1 selected in the timer.
	24= B+P4	Booster and time period 4 selected in the timer.
	25= B+P4+P1	Booster and time periods 4 and 1 selected in the timer.
	26= B+P4+P2	Booster and time periods 4 and 2 selected in the timer.
	27= B+P4+P2+P1	Booster and time periods 4, 2 and 1 selected in the timer.
	28= B+P4+P3	Booster and time periods 4 and 3 selected in the timer.
	29=B+P4+P3+P1	Booster and time periods 4, 3 and 1 selected in the timer.
	30= B+P4+P3+P2	Booster and time periods 4, 3 and 2 selected in the timer.
	31= B+P4+P3+P2+P1	Booster and time periods 4, 3, 2 and 1 selected in the timer.
3627(a)	TIMER FUNC2 SRC	See parameter 3626
3628(a)	TIMER FUNC3 SRC	See parameter 3626
3629(a)	TIMER FUNC4 SRC	See parameter 3626

ADVANCED PARAMETERS

GRP 40	PROCESS PID SET 1	DESCRIPTION
4001	GAIN	Defines the PID controller's gain. The setting range is 0.1….100. *The defaults for Process Control mode are as follows:* *PID Std:1.0* *PID Inv: 25*
4002	INTEGRATION TIME	Defines the PID controller's integration time. The setting range is 0.1….3600 sec. A setting of zero disables the integration time. *The defaults for Process Control mode are as follows:* *PID Std: 0.7 sec* *PID Inv: 150 sec*
4003(a)	DERIVATION TIME	Defines the PID controller's derivation time. You can add the derivative of the error to the PID controller output. The derivative is the error value's rate of change. The error-derivative is filtered with a 1-pole filter. The time constant of the filter is defined by parameter 4004 PID Derivative filter.
	0.0= Not Sel *[default]*	Disables the error-derivative part of the PID controller.
	0.1 – 10.0	Derivation time in seconds.
4004(a)	PID DERIV FILTER	Defines the filter time constant for the error-derivative part of the PID controller output. Before being added to the PID controller output, the error derivative is filtered with a 1-pole filter. Increasing the filter time smoothes the error derivative, reducing noise.
	0.0= Not Sel	Disables the error-derivative filter
	0.1 – 10.0	Filter time constant in seconds. Default is 1 second.
4005	REGULATION MODE	Selects either a normal or inverse relationship between the feedback signal and drive speed.
	0= Normal	Increases the output speed with falling process variable signal. For level control applications the tank is on the discharge side. *[default]*
	1 = Inverse	Decreases the output speed with falling process variable signal. For level control applications the tank is on the suction side.
4006	UNITS	Selects the units for the PID controller actual values. The most common units for PS75 are:
	0 = Not Sel	Selects the units for the primary process transmitter connected at AI2.
	4 = % *[default]*	
	9 = °C	
	16 = °F	
	20 = M3/H	
	22 = Bar	
	24 = GPM	
	25 = PSI	
	27 = Ft	
	28 = M	
	41 = Kg/s	
	42 = Kg/m	
	43 = Kg/h	
	53 = Lb/s	
	54 = Lb/m	
	55 = Lb/h	
4007(a)	UNIT SCALE	Defines the decimal point location in PID controller actual values. Enter the decimal point location counting in from the right of the entry. Example 0=X, 1=x.x *[default]*, 2=x.xx, and 3=x.xxx.
4008	0% PV SCALE	This is the reading of the primary process transmitter that corresponds to it's 4 mA signal. Units are the same as in parameter 4006. The default is 0.
4009	100% PV SCALE	This is the reading of the primary process transmitter that corresponds to it's 20 mA (full scale) signal. Units are the same as in parameter 4006. *[default is 100]*
4010	SETPOINT SEL	Defines the source from which the drive reads the signal that selects the setpoint. Common settings are:
	0= Keypad *[default]*	The setpoint is set using the keypad.
	1= AI1	Analog input 1 provides the reference.
	8= Comm	Fieldbus provides the reference
	19=Internal	A constant value set using parameter 4011 provides the reference.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

PROCESS PID SET 1	DESCRIPTION	
4011(a)	INTERNAL SETPNT	Sets a constant value for the process reference. Units and scale are defined by parameters 4006 and 4007. Default is 0%.
4012(a)	SETPOINT MIN	Sets the minimum value for the reference signal source. See parameter 4010. range is -500%...500%. Default is 0%.
4013(a)	SETPOINT MAX	Sets the maximum value for the process reference signal source. See parameter 4010. range is -500%...500%. Default is 100%.
4014(a)	FBK SEL	Defines the PID controller feedback (actual signal). You can define a combination of two actual values (ACT1 and ACT2) as the feedback signal. Use parameter 4016 to define the source for actual value 1 (ACT1). Use parameter 4017 to define the source for actual value 2 (ACT2).
	1= ACT1	Actual Value 1 (ACT 1) provides the feedback signal. *[default]*
	2=ACT1 – ACT2	ACT 1 – ACT 2 provides the feedback signal.
	3= ACT1 + ACT2	ACT 1 + ACT 2 provides the feedback signal.
	4= ACT1 * ACT2	ACT 1 times ACT 2 provides the feedback signal.
	5= ACT1/ACT2	ACT 1 divided by ACT 2 provides the feedback signal.
	6=MIN (A1, A2)	The smaller of ACT 1 or ACT 2 provides the feedback signal.
	7=MAX (A1,A2)	The larger of ACT 1 or ACT 2 provides the feedback signal.
	8= SQRT (AI – A2)	The square root of the value ACT1 minus ACT 2 provides the feedback signal.
	9= SAQA1 + SQA2	The square root of ACT 1 + the square root of ACT 2 provides the feedback signal.
	10= SQRT (ACT1)	The square root of ACT 1 provides the feedback signal.
4015(a)	FBK MULTIPLIER	Defines the extra multiplier for the PID feedback value defined by parameter 4014. Used where flow is calculated from a differential pressure such as in an orifice plate.
	0 = Not Used *[default]*	Function not used
	-32.768 … 32.767	Multiplier applied to the signal defined by parameter 4014 FBK Sel. Example FBK = Multiplier x Square root of)P
4016(a)	ACT 1 INPUT	Defines the source for Actual Value 1 (ACT1).
	0= AI1	Uses analog input 1 for ACT 1.
	1 = AI2	Uses analog input 2 for ACT 1. *[default]*
	2 = Current	Uses current for ACT 1. Scaled so Min ACT 1 = 0 current. Max ACT1 = 2x nominal current
	3 = Torque	Uses torque for ACT 1. Scaled so Min ACT 1 = -2 x nominal torque. Max ACT1 = 2x nominal torque.
	4 = Power	Uses power for ACT 1. Scaled so Min ACT 1 = -2 x nominal power. Max ACT1 = 2x nominal power.
4017(a)	ACT 2 INPUT	Defines the source for Actual Value 2 (ACT2).
	0= AI1	Uses) analog input 1 for ACT 2. *[default]*
	1 = AI2	Uses analog input 2 for ACT 2.
	2 = Current	Uses current for ACT 2. Scaled so Min ACT 2 = 0 current. Max ACT2 = 2x nominal current
	3 = Torque	Uses torque for ACT 2. Scaled so Min ACT 2 = -2 x nominal torque. Max ACT2 = 2x nominal torque.
	4 = Power	Uses power for ACT 2. Scaled so Min ACT 2 = -2 x nominal power. Max ACT2 = 2x nominal power.
4018(a)	ACT 1 MINIMUM	Sets the minimum value for ACT1. Used with analog input min/max settings (see parameters 1301 and 1302). Scales analog inputs used as actual values. Range is -1000% …1000%. Default is 0%.
4019(a)	ACT 1 MAXIMUM	Sets the maximum value for ACT 1. See 4018 ACT 1 MINIMUM. Range is -1000% …1000%. Default is 100%.
4020(a)	ACT 2 MINIMUM	Sets the minimum value for ACT2. Used with analog input min/max settings (see parameters 1301 and 1302). Scales analog inputs used as actual values. Range is -1000% …1000%. Default is 0%.
4021(a)	ACT 2 MAXIMUM	Sets the maximum value for ACT 2. See 4018 ACT 1 MINIMUM. Range is -1000% …1000%. Default is 100%.
4022	SLEEP SELECTION	Defines the control for the PID sleep function.
	0= Not Sel *[default]*	Disables the PID sleep function.
	7= Internal	Uses the output rpm, process reference and process actual value as the control for the PID sleep function.
4023	PID SLEEP SPEED	Sets the motor speed that enables the PID sleep function. A motor speed below this level for at least the time period 4024 PID Sleep delay enables the PID sleep function which stops the drive. Range is 0 *[default]* -7200 rpm.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

PROCESS PID SET 1	DESCRIPTION	
4024	PID SLEEP DELAY	Sets the time delay for the PID sleep function – a motor speed below the 4023 PID Sleep Speed for at least this time period enables the PID sleep function. Range is 0 – 3600 sec. *The default is 2 sec.*
4025	WAKE-UP DEV	Defines the wake-up deviation - a deviation from the setpoint greater than this value for at least the time period 4026 Wake-up Delay, restarts the drive. The units are defined by parameter 4006. In normal mode (4005) Wake-up Level = Setpoint – Wake-up Deviation. In inverse mode (4005) Wake-up Level = Setpoint + Wake-up Deviation. (default is 0.0)
4026	WAKE-UP DELAY	Defines the wake-up delay – a deviation from the setpoint greater than 4025 wake-up deviation, for at least this time period, restarts the drive. The range is 0 – 60 sec. *The default is 0.5 sec.*
4027(a)	PID 1 PARAM SET	Defines how selections are made between PID set 1 and PID Set 2. PID parameter Set selection when set 1 is selected, parameters 4001.. 4026 are used. When set 2 is selected, parameters 4101… 4126 are used.
	0= Set 1	PID set 1 is active (parameters 4001 .. 4026 are used)
	1= DI1…6=DI6 Default is 3= DI3	Defines the selected digital input as the control for the PID Set selection. Activating the digital input selects PID Set 2. De-activating the digital input selects PID Set 1.
	7 = Set 2	PID set 2 is active (parameters 4101 .. 4126 are used)
	8…11 = Timer Function 1..4	Defines the timer function as the control for the PID Set selection. Timer function de-activated = PID Set 1. Timer function activated = PID Set 2. see Group 36 Timer Functions.
	-1= DI1(INV)..-6 = DI6(INV)	Defines the selected inverted digital input as the control for the PID Set selection. Activating the digital input selects PID Set 1. De-activating the digital input selects PID Set 2.

GRP 41	PROCESS PID SET 2	DESCRIPTION
4101… 4126(a)	See parameter 4001…4026 description	Parameters of this group belong to PID parameter Set 2. The operation of parameters 4101...4126 is analogous with set 1 parameters 4001…4026. PID parameter set 2 can be selected by parameter 4027 PID 1 parameter set.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

GRP 51	EXT COMM MODULE	DESCRIPTION
5101(a)	FBA TYPE	Displays the type of the connected fieldbus adapter module.
	0= Not defined (default)	Module not found, or not properly connected, or parameter 9802 is not set to 4 (Ext FBA).
	1=Profibus DP	
	21=LonWorks	
	32= CanOpen	
	37=DeviceNet	
	101= ControlNet	
5102…. 5126(a)	FB PAR 2 …FB PAR 26	Refer to communication module documentation for more information on these parameters.
5127(a)	FBA PAR REFRESH	Validates any changed fieldbus parameter settings .
	0 = Done	Default
	1 = Refresh	After refreshing tie parameter reverts automatically to done.
5128(a)	FILE CPI FW REV	Displays the CPI firmware revision of the drive's fieldbus adapter configuration file. Format is xyz where: X = major revision number Y = minor revision number Z = correction number Example: 107 = revision1.07
5129(a)	FILE CONFIG ID	Displays the revision of the drive's fieldbus adapter module's configuration file identification. File configuration information is drive application program dependent.
5130(a)	FILE CONFIG REV	Contains the revision of the drive's fieldbus adapter module configuration file. Example: 1 = revision 1
5131(a)	FBA STATUS	Contains the status of the adapter module.
	0 = Idle (default)	Adapter not configured
	1 = Exec. Init	Adapter is initializing
	2 = Time Out	A timeout has occurred in the communication between the adapter and the drive.
	3 = Config Error	Adapter configuration error. The revision code of the adapter's CPI firmware revision is older than required CPI firmware version defined in the drive's configuration file (parameter 5132 < 5128).
	4 = Off-Line	Adapter is off-line
	5 = On-Line	Adapter is on-line
	6 = Reset	Adapter is performing a hardware reset
5132(a)	FBA CPI FW REV	Contains the revision of the module's CPI program. Format is xyz where: x = major revision number y = minor revision number z = correction number Example: 107 = revision1.07
5133(a)	FBA APPL FW REV	Contains the revision of the module's application program format is xyz (see parameter 5132).

ADVANCED PARAMETERS

GRP 52	PANEL COMMUNICATION	DESCRIPTION
5201(a)	STATION ID	Defines the address of the drive. Two units with the same address are not allowed on-line. Range is 1 – 247. default is 1.
5202(a)	BAUD RATE	Defines the communication speed of the drive in kbits per second
	9.6 (default)	
	19.2	
	38.4	
	57.6	
	115.2	
5203(a)	PARITY	Sets the character format to be used with the panel communication.
	0 = 8N1 (default)	No parity, one stop bit
	1 = 8N2	No parity, two stop bits
	2 = 8E1	Even parity, one stop bit
	3 = 8O1	Odd parity, one stop bit
5204(a)	OK MESSAGES	Contains a count of valid Modbus messages received by the drive. During normal operation the counter is increasing normally.
5205(a)	PARITY ERRORS	Contains a count of the characters with a parity error that is received from the bus. For high counts check: Parity settings of devices connected on the bus – they must not differ. Ambient electro-magnetic noise levels – high noise levels generate errors.
5206(a)	FRAME ERRORS	Contains a count of the characters with a framing error that the bus receives. For high counts check: Communication speed settings of devices connected on the bus – they must not differ. Ambient electromagnetic noise levels – high noise levels generate errors.
5207(a)	BUFFER OVERRUNS	Contains a count of the characters received that cannot be placed in the buffer. The longest possible message length for the drive is 128 bytes. Received messages exceeding 128 bytes overflow the buffer. The excess characters are counted.
5208(a)	CRS ERRORS	Contains a count of the messages with a CRC error that the drive receives. For high counts check: Ambient electromagnetic noise levels – high noise levels generate errors. CRC calculations for possible errors.

GRP 53	EFB PROTOCOL	DESCRIPTION
5301(a)	EFB PROTOCOL ID	Contains the identification and program revision of the protocol. Format xxyy, where xx = protocol ID, and yy = program revision
5302(a)	EFB STATION ID	Defines the node address of the RS485 link. The node address on each unit must be unique. Range 0 – 65535. default = 1.
5303(a)	EFB BAUD RATE	Defines the communication speed of the RS485 link in kbits per second (kbits/s).
	1.2 2.4 4.8 9.6 (default) 19.2 38.4 57.6 76.8	

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 53	EFB PROTOCOL	DESCRIPTION
5304(a)	EFB PARITY	Defines the data length, parity and stop bits to be used with the RS485 link communication. The same settings must be used on all on-line stations.
	0 = 8N1 (default)	8 data bits, No parity, one stop bit
	1 = 8N2	8 data bits, No parity, two stop bits
	2 = 8E1	8 data bits, Even parity, one stop bit
	3 = 8O1	8 data bits, Odd parity, one stop bit
5305(a)	EFB CTRL PROFILE	Selects the communication profile, used by the EFB protocol.
	0 = ABB Drv Lim (default)	Operation of Control/Status Words conforms to ABB Drives Profile, as used in AS400.
	1 = DCU Profile	Operation of Control/Status Words conforms to 32 bit DCU Profile.
	2 = ABB Drv Full	Operation of Control/Status Words conforms to ABB Drives Profile as used in the ACS600/800.
5306(a)	EFB OK MESSAGES	Contains a count of valid messages received by the drive. During normal operation, this counter is increasing constantly.
5307(a)	EFB CRC ERRORS	Contains a count of the messages with a CRC error received by the drive. For high counts check: - Ambient electromagnetic noise levels – high noise levels generate errors. - CRC calculations for possible errors.
5308(a)	EFB UART ERRORS	Contains a count of the messages with a character error received by the drive.
5309(a)	EFB STATUS	Contains the status of the EFB protocol
	0 = Idle	EFB Protocol is configured but not receiving any messages. (default)
	1 = Exec. Init	EFB Protocol is initializing
	2 = Time Out	A timeout has occurred in the communication between the network master and the EFB Protocol
	3 = Config Error	EFB Protocol has a configuration error
	4 = Off-Line	EFB Protocol is receiving messages that are not addressed to this drive
	5 = On-Line	EFB Protocol is receiving messages that are addressed to this drive
	6 = Reset	EFB Protocol is performing a hardware reset
	7 = Listen Only	EFB Protocol is in Listen-only mode
5310(a)	EFB PAR 10	Specifies the parameter mapped to Modbus register 40005.
5311(a)	EFB PAR 11	Specifies the parameter mapped to Modbus register 40006.
5312(a)	EFB PAR 12	Specifies the parameter mapped to Modbus register 40007.
5313(a)	EFB PAR 13	Specifies the parameter mapped to Modbus register 40008.
5314(a)	EFB PAR 14	Specifies the parameter mapped to Modbus register 40009.
5315(a)	EFB PAR 15	Specifies the parameter mapped to Modbus register 40010.
5316(a)	EFB PAR 16	Specifies the parameter mapped to Modbus register 40011.
5317(a)	EFB PAR 17	Specifies the parameter mapped to Modbus register 40012.
5318(a)	EFB PAR 18	Reserved
5319(a)	EFB PAR 19	ABB Drives Profile (ABB Drv Lim or ABB Drv Full) Control Word. Read only copy of the Fieldbus Control Word.
5320(a)	EFB PAR 20	ABB Drives Profile (ABB Drv Lim or ABB Drv Full) Status Word. Read only copy of the Fieldbus Status Word.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 81	PFC CONTROL	DESCRIPTION
8103(a)	REFERENCE STEP 1	Sets a percentage value that is added to the process reference. Applies only when at least one auxiliary (slave) pump is running. Range is 0 – 100%. Default is 0. - When the first auxiliary (slave) pump operates, increase the reference with 8103 Reference Step 1. - When the both auxiliary (slave) pumps operate, increase the reference with 8103 Reference Step 1 + 8104 reference Step 2. - When three auxiliary (slave) pumps operate, increase the reference with 8103 Reference Step 1 + 8104 Reference Step 2 + 8105 reference Step 3.
8104(a)	REFERENCE STEP 2	Sets a percentage value that is added to the process reference. Applies only when at least two auxiliary (slave) pumps are running. Range is 0 – 100%. Default is 0. See parameter 8103 Reference Step 1.
8105(a)	REFERENCE STEP 3	Sets a percentage value that is added to the process reference. Applies only when at least three auxiliary (slave) pumps are running. Range is 0 – 100%. Default is 0. See parameter 8103 Reference Step 1.
8109(a)	START FREQ 1	Sets the frequency limit used to start the first auxiliary (slave) pump. The first slave pump starts if : - No slave pumps are running - The PS75 frequency output exceeds the limit 8109 + 1 Hz - Output frequency stays above a relaxed limit 8109 – 1 Hz for at least the time: 8115 Aux Motor Start D. After the first slave pump starts: - Output frequency decreases by the value = (8109 Start Freq 1) – (8112 Low Freq 1). - In effect the output of the PS75 (regulated pump) drops to compensate for the input from the slave pump. Note! 8109 Start Freq 1 value must be between : - 8112 Low Freq 1 - (2008 Maximum Freq) – 1. Range 0 – 500 Hz. Default = 58 Hz.
8110(a)	START FREQ 2	Sets the frequency limit used to start the second auxiliary (slave) pump. The second slave pump starts if : - One slave pump is running - The PS75 frequency output exceeds the limit 8110 + 1 Hz - Output frequency stays above a relaxed limit 8110 – 1 Hz for at least the time: 8115 Aux Motor Start D. Range 0 – 500 Hz. Default = 60 Hz (US), 50 Hz (IEC).
8111(a)	START FREQ 3	Sets the frequency limit used to start the third auxiliary (slave) pump. The third slave pump starts if : - two slave pumps are running - The PS75 frequency output exceeds the limit 8111 + 1 Hz - Output frequency stays above a relaxed limit 8111 – 1 Hz for at least the time: 8115 Aux Motor Start D. Range 0 – 500 Hz. Default = 60 Hz (US), 50 Hz (IEC).
8112(a)	LOW FREQ 1	Sets the frequency limit used to stop the first auxiliary (slave) pump. The first slave pump stops if : - The first slave pump is running alone. - The PS75 output frequency drops below the limit (8112-1). - Output frequency stays below the relaxed limit (8112 + 1 Hz) for at least the 8116 Aux Motor Stop D. After the first slave stops: - Output frequency increases by the value = (8109 Start Freq 1) - (8112 Low Freq 1) - In effect, the output of the PS75 speed regulated motor increases to compensate for the loss of the auxiliary motor. Note! Low Frequency 1 value must be between : - (2007 Minimum Freq) + 1 - 8109 Start Freq 1 Range 0 – 500 Hz. Default = 39 Hz.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 81	PFC CONTROL	DESCRIPTION
8113(a)	LOW FREQ 2	Sets the frequency limit used to stop the second auxiliary (slave) pump. The second slave pump stops if : - Two slave pumps are running. - The PS75 output frequency drops below the limit (8113-1). - Output frequency stays below the relaxed limit (8113 + 1 Hz) for at least the 8116 Aux Motor Stop D. Range 0 – 500 Hz. Default = 30 Hz (US), 25 Hz (IEC).
8114(a)	LOW FREQ 3	Sets the frequency limit used to stop the third auxiliary (slave) pump. The second slave pump stops if : - Three slave pumps are running. - The PS75 output frequency drops below the limit (8114-1). - Output frequency stays below the relaxed limit (8114 + 1 Hz) for at least the 8116 Aux Motor Stop D. Range 0 – 500 Hz. Default = 30 Hz (US), 25 Hz (IEC).
8115(a)	AUX MOT START D	Sets the start delay for the auxiliary (slave) pumps. - The output frequency must remain above the start frequency limit (parameters 8109, 8110, or 8111) for this time period before the auxiliary motor starts. Range 0 – 3600 seconds (default = 5 sec)
8116(a)	AUX MOT STOP D	Sets the stop delay for the auxiliary (slave) pumps. - The output frequency must remain below the low frequency limit (parameters 8112, 8113, or 8114) for this time period before the auxiliary motor stops. Range 0 – 3600 seconds (default = 3 sec)
8117(a)	NR OF AUX MOT	Sets the number of auxiliary (slave) motors. - Each Aux motor requires a relay output, which the drive uses to send start/stop signals. - The Autochange function, if used, requires an additional relay output for the speed regulated motor. - The PS75 provides relay outputs RO1…RO3. - An external digital output module can be added to provide relay outputs RO4…RO6. - Parameters 1401..1403 and 1410…1412 define, respectively, how relays RO1…RO6 are used. The parameter value 31 = PFC defines the relay as used for PFC. - The PS75 assigns aux motors to relays in ascending order. If the Autochange function is disabled, the first aux motor is the one connected to the first relay with a parameter setting = 31 PFC and so on. If the Autochange function is used, the assignments rotate. Initially, the speed regulated motor is the one connected to the first relay with a parameter setting of = 31 PFC , the first aux motor is connected to the second relay with a parameter setting = 31 PFC, and so on. - Note if a fourth aux motor is used it uses the same reference step, low frequency and start frequency values as the third aux motor. Range = 0 – 4. Default = 1.

GRP 81	PFC CONTROL	DESCRIPTION
8118(a)	AUTOCHNG INTERV	Controls operation of the Autochange function and sets the interval between changes. - The Autochange time interval only applies to the time when the speed regulated motor (PS75) is running. - See parameter 8119 Autochange Level for an overview of the Autochange function. - The drive always coasts to a stop when Autochange is performed. - Autochange enabled requires parameter 8120 Interlocks = value >0.
	0.0= Not Sel	Disables the Autochange function. (default)
	0.1…336 hrs	The operating time interval in hrs (the time when the start signal is on) between automatic motor changes. **Warning!** When enabled, the Autochange function requires the interlocks (8120 interlocks = value > 0) enabled. During Autochange the interlocks interrupt the drive's power output, preventing damage to the contacts.
8119(a)	AUTOCHNG LEVEL	Sets an upper limit, as a percent of output capacity, for the Autochange logic. When the output from the PID/PFC control block exceeds this limit, Autochange is prevented. For example, use this parameter to deny Autochange when the Pump system is operating near maximum capacity. The purpose of the Autochange operation is to equalize duty time between multiple pumps used in a system. At each Autochange operation: - A different pump takes a turn connected to the PS75 output. - The starting order of the other motors rotates. The Autochange function requires: - External switchgear for changing the drives output power connections. - Parameter 8120 Interlocks = Value >0. Autochange is performed when: - The running time since the previous Autochange reaches the time set by 8118 Autochange Interval - The PFC input is below the level set by this parameter, 8119 Autochange Level. Note the PS75 always coasts to a stop when Autochange is performed. Range is 0 – 100%. (Default is 50%)

GRP 81	PFC CONTROL	DESCRIPTION
8120(a)	INTERLOCKS	Defines operation of the interlock function. When the interlock function is enabled: - An interlock is active when its command signal is absent and inactive when its command signal is present. - The PS75 will not start if a start command occurs when the speed regulated motor's interlock is active – the control panel displays an alarm 2015 PFC Interlock. Wire each interlock circuit as follows: - Wire a contact of the motor's On/Off switch to the interlock circuit – the drive's PFC logic can then recognize that the motor is switched off, and start the next available motor. - Wire a contact of the motor thermal relay (or other protective device in the motor circuit) to the interlock input - the drive's PFC logic can then recognize that a motor fault is activated and stop the motor.
	0 = Not Sel	Disables the interlock function. Requires 8118 Autochng Interv = 0. The Autochange function must be disabled if the Interlock function is disabled.
	3 = DI3 (default)	Enables the Interlock function, and assigns a digital input (starting with DI3) to the interlock signal for each PFC Relay. The assignments are defined in the table below and depend on: - The number of PFC Relays with value = 31 PFC (see 1401..1403 and 1410..1412). - The Autochange function status (8118 disabled or enabled).

No. of PFC Relays	8118 Autochange Disabled	8118 Autochange Enabled
0	DI3 Speed Reg Motor	Not allowed
1	DI3 Speed Reg Motor DI4 First PFC Relay	DI3 First PFC Relay
2	DI3 Speed Reg Motor DI4 First PFC Relay DI5 Second PFC Relay	DI3 First PFC Relay DI4 Second PFC Relay
3	DI3 Speed Reg Motor DI4 First PFC Relay DI5 Second PFC Relay DI6 Third PFC relay	DI3 First PFC Relay DI4 Second PFC Relay DI5 Third PFC Relay
4	Not Allowed	DI3 First PFC Relay DI4 Second PFC Relay DI5 Third PFC Relay DI6 Fourth PFC Relay (requires optional Relay Output module for 4th PFC Relay)
5….6	Not Allowed	Not Allowed

ADVANCED PARAMETERS

GRP 81	PFC CONTROL	DESCRIPTION
8121(a)	REG BYPASS CTRL	Selects Regulator Bypass Control. When enabled, Regulator Bypass Control provides a simple control mechanism without a PID regulator. Use Regulator Bypass Control only in special applications. Not normally used for the PS75.
	0 = No	Disables Regulator Bypass Control. The PS75 uses the normal PFC reference: 1106 Ref 2 Select. (default)
	1 = Yes	Enables Regulator Bypass Control. - The process PID regulator is bypassed. Actual value of PID is used as the PFC reference (input). Normally Ext Ref 2 is used as the PFC reference. - The drive uses the feedback signal defined by 4014 (Fbk Sel (or 4114) and the speed regulated motor's frequency in a three motor system.
8122(a)	PFC START DELAY	Sets the start delay for speed regulated motors in the system. Using the delay, the drive works as follows: - Switches on the contactor of the speed regulated motor – connecting the motor to the Ps75 power output. - Delays motor start for the time 8122 PFC Start delay. - Starts the speed regulated motor. - Starts aux (slave) pumps. See parameter 8115 for delay. **Warning!** Motors equipped with star-delta starters require a PFC start delay. - After the PS75 relay output switches a motor "on", the star-delta starter must switch to the star connection and then back to the delta connection before the drive applies power. - The PFC Start Delay must be longer than the setting of the star-delta starter. Range is 0 ..10 sec. default is 0.5 sec.
8123(a)	PFC ENABLE	Selects PFC control. When enabled PFC Control: - Switches on or off slave pump motors as output demand increases or decreases. Parameter 8109 Start Freq 1 to 8114 Low Freq 3 define the switch points in terms of the drive output frequency. - Adjusts the speed regulated motor output down, as slave pump motors are added, and adjusts the speed regulated motor output up , as slave units are taken offline. - Provides interlock functions, if enabled. - Requires 9904 Motor Control Mode = 3 Scalar.
	0 = Not Sel	Disables PFC Control
	1 = Active	Enables PFC control (default for PFC application macro only)
8124(a)	ACC IN AUX STOP	Sets the PFC acceleration time for a zero to maximum frequency ramp. This PFC acceleration ramp: - Applies to the PS75 speed regulated motor , when an aux motor is switched off. - Replaces the acceleration ramp defined in Grp 22 Accel/Decel. - Applies only until the output of the regulated motor increases by an amount equal to the output of the switched off aux motor. Then the acceleration ramp in Grp 22 Accel/Decel applies.
	0 = Not Sel	Function is disabled (default)
	0.1 ..1800 sec	Activates this function using the value entered as the acceleration time.
8125(a)	DEC IN AUX START	Sets the PFC deceleration time for a maximum to zero frequency ramp. This PFC deceleration ramp: - Applies to the PS75 speed regulated motor, when an aux motor is switched on. - Replaces the deceleration ramp defined in Grp 22 Accel/Decel. - Applies only until the output of the regulated motor decreases by an amount equal to the output of the aux motor. Then the deceleration ramp in Grp 22 Accel/Decel applies.
	0 = Not Sel	Function is disabled (default)
	0.1 ..1800 sec	Activates this function using the value entered as the deceleration time.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

ADVANCED PARAMETERS

GRP 81	PFC CONTROL	DESCRIPTION
8126(a)	TIMED AUTOCHNG	Sets the Autochange using the Timer function. See parameter 8119 Autochange Level.
	0 = Not Sel	Disables this function. (default)
	1 = Timer Function	Enables Autochange when timer function 1 is active.
	2..4 = Timer Function	Enables Autochange when timer function 2..4 is active.
8127(a)	MOTORS	Sets the actual number of PFC controlled motors (maximum 7 motors, 1 speed regulated motor, 3 connected direct on line and 3 spare motors). - This value also includes the speed regulated motor. - This value must be compatible with the number of relays allocated to the PFC if the Autochange function is used. - If Autochange function is not used, the speed regulated motor does not need to have a relay output allocated to PFC but it needs to be included in this value. (default=2)

GRP 98	OPTIONS	DESCRIPTION
9802(a)	COMM PROT SEL	Selects the communication protocol.
	0 = Not Sel (default)	No communication protocol selected
	1 = Std Modbus	The drive communicates with Modbus via the RS485 channel (x1-communications, terminal). See also parameter Group 53 EFB Protocol.
	4 = Ext FBA	The drive communicates via a fieldbus adapter module in option slot 2 of the drive. See also parameter Group 51 EXT Comm Module.

ADVANCED PARAMETERS

GROUP 99	START-UP DATA	DESCRIPTION
9901	LANGUAGE	Selects the display language. The default units of power for NEMA drive models is hp. For IEC drive models the default units of power is kW.
	1= English(Am)	Selects American English. *[Default for US version]*
	0= English	Selects British English. *[Default for IEC version]*
	4= Espanol	Selects Spanish.
	2= Deutsch	Selects German.
	7= Francais	Selects French.
9902(a)	APPLIC MACRO	Selects an application macro. Application macros preset parameters to configure the PS75 for a particular application.
	1= Assist Default	This is the default setting and contains the Startup and Process Control Assistant defaults
	2= Torque Control	Used for constant torque applications such as PD pumps.
	3= PFC Control	Used to start slave pump(s) with constant speed drivers.
	0= User S1 Load	Loads parameters to User Set 1
	-1= User S1 save	Saves parameters to User Set 1
	-2= User S2 Load	Loads parameters to User Set 2
	-3= User S2 Save	Saves parameters to User Set 2
9904(a)	MOTOR CTRL MODE	Selects the motor control mode
	1= Vector:Speed	Sensorless Vector Control *[default]*. Reference 1 is speed reference in rpm. Reference 2 is speed reference in % (100% is maximum speed parameter 2002).
	2= Vector:Torque	Used with the Constant Torque application macro (9902). Reference 1 is speed reference in rpm. Reference 2 is torque reference in % (100% is nominal torque). Used with torque control application macro 9902.
	3= Scalar:Speed	Scalar Control Mode (Hz). Used with the PFC application macro (9902). Reference 1 is frequency reference in Hz. Reference 2 is frequency reference in % (100% is maximum frequency parameter 2008). Must be used with PFC application macro 9902.
9905	MOTOR NOM VOLT	Defines the nominal motor voltage. Equal to the value on the motor nameplate.
9906	MOTOR FL CURR	Defines the full load motor current. Equal to the value on the motor nameplate.
9907	MOTOR NOM FREQ	Defines the nominal motor frequency. Typically 50 or 60 hz. Equal to the value on the motor nameplate.
9908	MOTOR NOM SPEED	Defines the nominal motor speed. Equal to the value on the motor nameplate.
9909	MOTOR NOM PWR	Defines the nominal motor power. Equal to the value on the motor nameplate.

NOTE: Parameter numbers with an (a) represent advanced parameters.
Access via Advanced parameter selection at MENU

GROUP 99	START-UP DATA	DESCRIPTION
9910(a)	MOTOR ID RUN	This parameter controls a self-calibration process called the Motor ID Run. During this process, the drive operates the motor and makes measurements in order to identify motor characteristics and create a model used for internal calculations. Note the Motor ID Run is not normally used for the PS75. **First Start**: if no motor ID is performed, the drive estimates motor characteristics when the drive is first run. This is performed as part of the PS75 Startup Assistant. The first start is also requested at the next run command whenever a motor parameter is changed or saved (even if value is not changed). The First Start magnetizes the motor for 10 – 15 seconds at zero speed. Requires that parameter 9904 equals Vector:Speed or Scalar:Speed.
	0= No ID Run *[default]*	Motor ID Run process is not running.
	1= ID Run	Note the Motor ID Run is not normally used for the PS75. This setting enables a motor ID Run at the next start command. After run completion this value automatically changes to 0 (No ID Run). To perform a Motor ID Run: 1. De-couple the motor from the pump shaft. 2. Verify motor operation is safe in the forward direction at the speed range indicated below. The run automatically operates the motor in the forward direction at 50 – 80% of nominal speed. 3. Verify following parameter settings: a. 2001 Minimum Speed <=0 b. 2002 Maximum Speed >80% of motor rated speed. c. 2003 Max Current >= 100% of I2hdvalue. d. The maximum torque parameters 2014, 2017 and/or 2018) >50%. 4. At the Keypad Main Menu select: a. Parameters b. Group 99 c. Select parameter 9910 d. Set value to 1 and press Enter. The display shows a warning. e. Press Start: the display shows the progress of the ID Run. Note: pressing Stop or removing the Run Enable signal stops the ID Run. In this case the above procedure would need to be repeated to create the motor model.