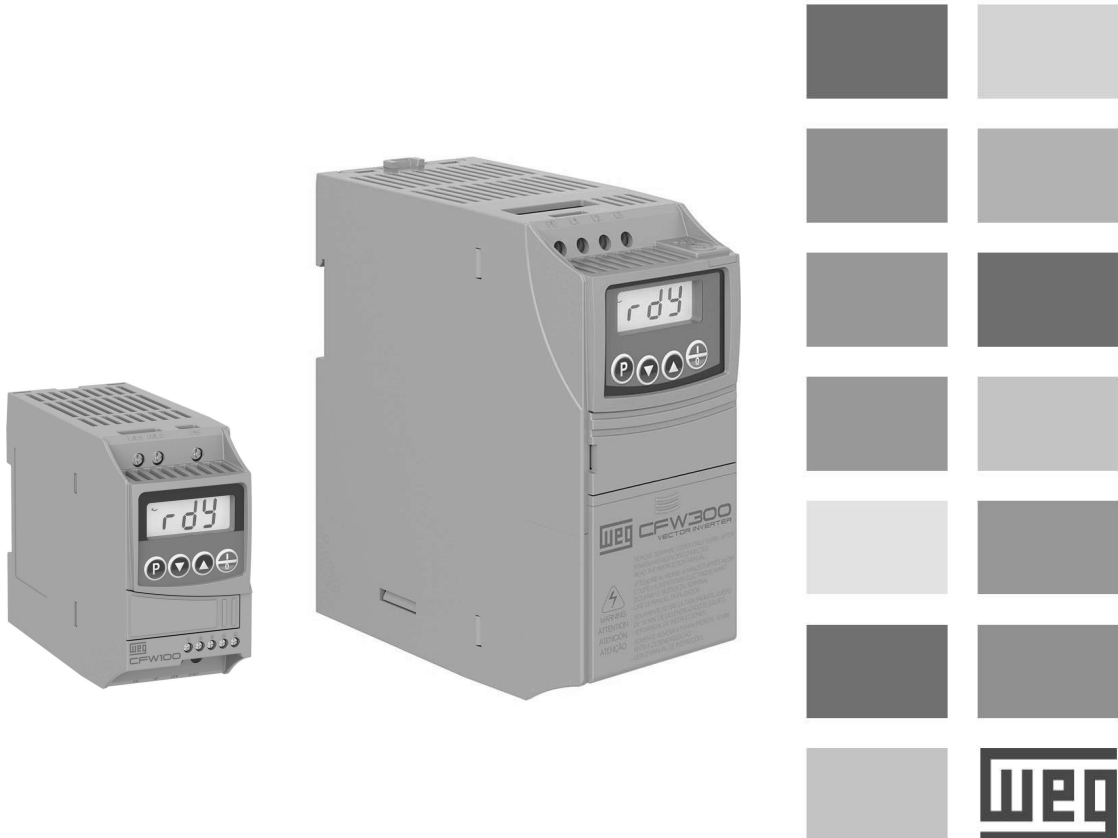


# Frequency Inverter

Micro Mini Drives

Programming Manual







# **Programming Manual**

Language: English

Document: 10006257370 / 02

Build 1927

Publication Date: 11/2019

The information below describes the reviews made in this manual.

<b>Revision</b>	<b>Description</b>
R00	First edition. Applied to CFW100 frequency inverters version V3.00 or newer. Applied to CFW300 frequency inverters version V2.00 or newer.
R01	General revision. Inclusion of the compatibility summary.
R02	General revision. Applied to CFW300 frequency inverters version V3.00 or newer. New parameters P191, P760, P761, P762, P763, P764, P765. New options in the range of parameter values: P263 to P270, P310 and P312. Inclusion of the EtherNet/IP and BACnet Protocols.

The table below lists the feature that **are not applicable** to all micro/mini drives.

Feature	Reference	CFW100 G2	CFW300
Analog Input 2 (AI2)	Section 9.1 ANALOG INPUTS (page 9-1)	X	✓
Analog Output 2 (AO2)	Section 9.4 ANALOG OUTPUTS (page 9-6)	X	✓
Digital Output 4 (DO4)	Section 9.9 DIGITAL OUTPUTS (page 9-22)	X	✓
Dynamic Braking	Section 8.1 COMMON FUNCTIONS (page 8-1)	X	✓
Profibus DP Interface	Section 12.6 PROFIBUS DP (page 12-7)	X	✓
Ethernet Interface	Section 12.7 ETHERNET (page 12-9)	X	✓
BACnet communications protocol	Section 12.4 BACNET (page 12-4)	X	✓

**Notes:**

✓ Available.

X Not available.

\* Check with the manufacturer for feature availability.



<b>0</b>	<b>QUICK REFERENCE OF PARAMETERS .....</b>	<b>0-1</b>
<b>1</b>	<b>QUICK REFERENCE OF ALARMS AND FAULTS .....</b>	<b>1-1</b>
<b>2</b>	<b>SAFETY NOTICES .....</b>	<b>2-1</b>
2.1	SAFETY NOTICES IN THIS MANUAL .....	2-1
2.2	SAFETY NOTICES ON THE PRODUCT .....	2-1
2.3	PRELIMINARY RECOMMENDATIONS .....	2-2
<b>3</b>	<b>GENERAL INFORMATION .....</b>	<b>3-1</b>
3.1	TERMINOLOGY AND DEFINITIONS .....	3-1
3.1.1	Terms and Definitions Used .....	3-1
3.1.2	Numerical Representation .....	3-2
3.1.3	Symbols to Describe Parameter Properties .....	3-2
<b>4</b>	<b>ABOUT THE HMI .....</b>	<b>4-1</b>
4.1	USE OF THE HMI TO OPERATE THE INVERTER .....	4-1
4.2	INDICATIONS ON THE HMI DISPLAY .....	4-1
4.3	OPERATING MODES OF THE HMI .....	4-1
<b>5</b>	<b>HMI .....</b>	<b>5-1</b>
5.1	ACCESS .....	5-1
5.2	INDICATIONS .....	5-3
<b>6</b>	<b>FREQUENCY INVERTER IDENTIFICATION .....</b>	<b>6-1</b>
6.1	INVERTER MODEL .....	6-1
6.2	ACCESSORIES .....	6-3
<b>7</b>	<b>COMMAND AND REFERENCES .....</b>	<b>7-1</b>
7.1	REFERENCE SOURCE SELECTION .....	7-1
7.2	SPEED REFERENCE .....	7-6
<b>8</b>	<b>MOTOR CONTROL .....</b>	<b>8-1</b>
8.1	COMMON FUNCTIONS .....	8-1
8.1.1	Ramps .....	8-1
8.1.2	Regulation .....	8-3
8.1.2.1	DC Link Voltage .....	8-3
8.1.2.1.1	DC Link Voltage Limitation by "Ramp Hold" (P150 = 0 or 2) .....	8-3
8.1.2.1.2	DC Link Voltage Limitation by "Accelerate Ramp" (P150 = 1 or 3) .....	8-4
8.1.2.2	Output Current .....	8-7
8.1.2.2.1	Output Current Limitation by "Ramp Hold" (P150 = 2 or 3) .....	8-7
8.1.2.2.2	Current Limitation Type "Decelerate Ramp" (P150 = 0 or 1) .....	8-7
8.1.2.3	Switching Frequency .....	8-8
8.1.3	Flying Start / Ride-Through .....	8-9
8.1.4	DC Braking .....	8-10
8.1.5	Dynamic Braking .....	8-12
8.1.6	Skip Frequency .....	8-13
8.1.7	Fire Mode .....	8-14
8.1.8	Control Configuration .....	8-16
8.2	V/F .....	8-18
8.2.1	Energy Saver (EOC) .....	8-24
8.3	VVW .....	8-25

<b>9 I/O</b> .....	<b>9-1</b>
9.1 ANALOG INPUTS .....	9-1
9.2 EXTERNAL TEMP. SENSOR INPUT .....	9-5
9.3 SIGNAL POTENTIOMETER INPUT .....	9-5
9.4 ANALOG OUTPUTS .....	9-6
9.5 FREQUENCY INPUT .....	9-10
9.6 DIGITAL INPUTS .....	9-11
9.7 INPUT FOR INFRARED RECEIVER .....	9-20
9.8 ENCODER INPUT .....	9-20
9.9 DIGITAL OUTPUTS .....	9-22
<b>10 FAULTS AND ALARMS</b> .....	<b>10-1</b>
10.1 FAULT HISTORY .....	10-1
10.2 FAULT CONTROL .....	10-2
10.3 PROTECTIONS .....	10-2
10.3.1 Inverter .....	10-3
10.3.1.1 DC Link Voltage Supervision .....	10-3
10.3.1.2 Temperature control .....	10-3
10.3.2 Motor .....	10-3
<b>11 READ</b> .....	<b>11-1</b>
<b>12 COMMUNICATION</b> .....	<b>12-1</b>
12.1 COMMANDS AND COMMUNICATION STATUS .....	12-1
12.2 SERIAL .....	12-2
12.3 BLUETOOTH .....	12-3
12.4 BACNET .....	12-4
12.5 CANOPEN AND DEVICENET .....	12-5
12.6 PROFIBUS DP .....	12-7
12.7 ETHERNET .....	12-9
<b>13 SOFTPLC</b> .....	<b>13-1</b>
13.1 COMMAND AND STATUS .....	13-1
13.2 USER .....	13-2
<b>14 APPLICATIONS</b> .....	<b>14-1</b>
14.1 PID CONTROLLER .....	14-1
14.1.1 Start-Up .....	14-3
14.1.2 Academic PID Controller .....	14-5
14.1.3 Parameters .....	14-5
14.1.4 Sleep Mode .....	14-14
<b>15 APPLICATION EXAMPLES</b> .....	<b>15-1</b>
15.1 ANALOG INPUT APPLICATIONS .....	15-1
15.1.1 Application 1 - Nominal speed .....	15-2
15.1.2 Application 2 - Overspeed .....	15-3
15.1.3 Application 3 - Forward/Reverse using Analog Input .....	15-4
15.1.4 Application 4 - Analog input with dead zone .....	15-5
15.1.5 Application 5 - Reverse reference with Analog input .....	15-6
15.2 PID CONTROLLER APPLICATION .....	15-7



# 0 QUICK REFERENCE OF PARAMETERS

Param.	Description	Adjustable Range	Prop.	Page
<b>P000</b>	Access to Parameters	0 to 9999		5-1
<b>P001</b>	Speed Reference	0 to 9999	ro	11-1
<b>P002</b>	Output Speed (Motor)	0 to 9999	ro	11-1
<b>P003</b>	Motor Current	0,0 to 40,0 A	ro	11-1
<b>P004</b>	DC Link Voltage	0 to 828 V	ro	11-1
<b>P005</b>	Output Frequency (Motor)	0,0 to 400,0 Hz	ro	11-1
<b>P006</b>	Inverter Status	0 = Ready 1 = Run 2 = Undervoltage 3 = Fault 4 = Self-Tuning 5 = Configuration 6 = DC Braking 7 = Reserved 8 = Fire Mode	ro	11-2
<b>P007</b>	Output Voltage	0 to 480 V	ro	11-3
<b>P009</b>	Motor Torque	-200,0 to 200,0 %	ro, VVV	11-4
<b>P011</b>	Power Factor	0,00 to 1,00	ro	8-24
<b>P012</b>	DI8 to DI1 Status	0 to FF (hexa) Bit 0 = DI1 Bit 1 = DI2 Bit 2 = DI3 Bit 3 = DI4 Bit 4 = DI5 Bit 5 = DI6 Bit 6 = DI7 Bit 7 = DI8	ro	9-12
<b>P013</b>	DO4 to DO1 Status	0 to F (hexa) Bit 0 = DO1 Bit 1 = DO2 Bit 2 = DO3 Bit 3 = DO4	ro	9-22
<b>P014 (*)</b>	AO1 Value	0,0 to 100,0 %	ro	9-7
<b>P015 (*)</b>	AO2 Value	0,0 to 100,0 %	ro	9-7
<b>P018</b>	AI1 Value	-100,0 to 100,0 %	ro	9-1
<b>P019 (*)</b>	AI2 Value	-100,0 to 100,0 %	ro	9-1
<b>P020 (*)</b>	Potentiometer Signal Value	-100,0 to 100,0 %	ro	9-5
<b>P022</b>	FI Value in Hz	0 to 3000 Hz	ro	9-10
<b>P023</b>	Main SW Version	0,00 to 99,99	ro	6-1
<b>P024 (*)</b>	IO Acces. SW Version	0,00 to 99,99	ro	6-3
<b>P025 (*)</b>	Comm. Acces. SW Version	0,00 to 99,99	ro	6-3
<b>P027</b>	Config. Acces. IO	0 to 10	ro	6-3
<b>P028</b>	Config. Comm. Acces.	0 to 10	ro	6-3
<b>P029</b>	Power HW Configuration	0 = Not identified 1 = 1,6 A/110 V 2 = 2,6 A/110 V 3 = 4,2 A/110 V 4 = 6,0 A/110 V 5 = 1,6 A/220 V 6 = 2,6 A/220 V 7 = 4,2 A/220 V 8 = 6,0 A/220 V 9 = 7,3 A/220 V 10 = 10,0 A/220 V 11 = 15,2 A/220 V 12 to 19 = Reserved 20 = 1,1 A/380 V 21 = 1,8 A/380 V 22 = 2,6 A/380 V 23 = 3,5 A/380 V 24 = 4,8 A/380 V 25 = 6,5 A/380 V 26 = 8,2 A/380 V 27 = 10,0 A/380 V 28 = 12,0 A/380 V 29 = 15,0 A/380 V	ro	6-1
<b>P030</b>	Module Temperature	-200,0 to 200,0 °C	ro	11-4

Param.	Description	Adjustable Range	Prop.	Page
P037	Motor Overload lxt	0.0 to 100.0 %	ro	10-4
P038 (*)	Encoder Speed	-9999 to 9999 rpm	ro	9-20
P039 (*)	Encoder Pulses Count	0 to 9999	ro	9-21
P045	Fan Enabled Time	0 to FFFF (hexa)	ro	11-4
P047	CONF Status	0 to 33 (Table 11.2 on page 11-5)	ro	11-4
P048	Present Alarm	0 to 999	ro	10-1
P049	Present Fault	0 to 999	ro	10-1
P050	Last Fault	0 to 999	ro	10-1
P051	Current At Last Fault	0.0 to 40.0 A	ro	10-1
P052	DC Link At Last Fault	0 to 828 V	ro	10-1
P053	Frequency At Last Fault	0.0 to 400.0 Hz	ro	10-2
P054	Temperature Last Fault	0.0 to 200.0 °C	ro	10-2
P060	Second Fault	0 to 999	ro	10-1
P070	Third Fault	0 to 999	ro	10-1
P080	Last Fault on Fire Mode	0 to 999	ro	10-2
P081	Second Fault on Fire Mode	0 to 999	ro	10-2
P082	Third Fault on Fire Mode	0 to 999	ro	10-2
P100	Acceleration Time	0.1 to 999.9 s		8-2
P101	Deceleration Time	0.1 to 999.9 s		8-2
P102	Acceleration Time 2nd Ramp	0.1 to 999.9 s		8-2
P103	Deceleration Time 2nd Ramp	0.1 to 999.9 s		8-2
P104	Ramp S	0 = Inactive 1 = Active	cfg	8-2
P105	1st / 2nd Ramp Selection	0 = 1st Ramp 1 = 2nd Ramp 2 = Dlx 3 = Serial/USB 4 = Reserved 5 = CO/DN/DP/ETH 6 = SoftPLC		8-3
P106	Emer. R. Acceleration Time	0.1 to 999.9 s		8-2
P107	Emer. R. Time Deceleration	0.1 to 999.9 s		8-2
P120	Speed Ref. Backup	0 = Inactive 1 = Active 2 = Backup by P121		7-7
P121	Reference via HMI	0.0 to 400.0 Hz		7-7
P122	JOG Reference	-400.0 to 400.0 Hz		7-8
P124	Multispeed Ref. 1	-400.0 to 400.0 Hz		7-8
P125	Multispeed Ref. 2	-400.0 to 400.0 Hz		7-8
P126	Multispeed Ref. 3	-400.0 to 400.0 Hz		7-8
P127	Multispeed Ref. 4	-400.0 to 400.0 Hz		7-8
P128	Multispeed Ref. 5	-400.0 to 400.0 Hz		7-8
P129	Multispeed Ref. 6	-400.0 to 400.0 Hz		7-8
P130	Multispeed Ref. 7	-400.0 to 400.0 Hz		7-8
P131	Multispeed Ref. 8	-400.0 to 400.0 Hz		7-8
P133	Minimum Frequency	0.0 to 400.0 Hz		7-9
P134	Maximum Frequency	0.0 to 400.0 Hz		7-9
P135	Maximum Output Current	0.0 to 40.0 A	V/f	8-7
P136	Manual Torque Boost	0.0 to 30.0 %	V/f	8-21
P137	Automatic Torque Boost	0.0 to 30.0 %	V/f	8-22
P138	Slip Compensation	-10.0 to 10.0 %	V/f	8-22
P139	Output Current Filter	0.000 to 9.999 s	V/f, V/W	8-8
P140	Slip Com. Filter	0.000 to 9.999 s	V/W	8-31
P142	Maximum Output Voltage	0.0 to 100.0 %	cfg, V/f	8-23
P143	Intermediate Output Voltage	0.0 to 100.0 %	cfg, V/f	8-23
P145	Field Weakening Speed	0.0 to 400.0 Hz	cfg, V/f	8-23
P146	Intermediate Frequency	0.0 to 400.0 Hz	cfg, V/f	8-23
P149	DC Link Comp. Mode	0 = Inactive 1 = Standard 2 = Overmodulation 3 = Extended	cfg, V/f	8-4

Param.	Description	Adjustable Range	Prop.	Page
<b>P150</b>	DC/LC Regul. Type	0 = hold_Ud and decel_LC 1 = accel_Ud and decel_LC 2 = hold_Ud and hold_LC 3 = accel_Ud and hold_LC	cfg, V/f, VVW	8-3
<b>P151</b>	DC Link Regul. Level	325 to 810 V	V/f, VVW	8-5
<b>P153</b>	Dynamic Braking Level	348 to 800 V	V/f, VVW	8-12
<b>P156</b>	Rated Speed Overload Current	0.1 to 40.0 A		10-5
<b>P157</b>	Overl.Curr.50 % Speed	0.1 to 40.0 A		10-5
<b>P158</b>	Overl.Curr.20 % Speed	0.1 to 40.0 A		10-5
<b>P178</b>	Rated Flux	50.0 to 150.0 %	VVW	8-32
<b>P191 (*)</b>	Clear Enc. Pulse Counter	0 = No 1 = Yes	cfg	9-21
<b>P200</b>	Password	0 = Inactive 1 = Active 2 to 9999 = New Password	cfg	5-1
<b>P202</b>	Type of Control	0 = V/f 1 = Quadratic V/f 2 to 4 = Not Used 5 = VVW	cfg	8-1
<b>P204</b>	Load/Save Parameters	0 to 4 = Not Used 5 = Load 60 Hz 6 = Load 50 Hz 7 = Load User 8 = Not Used 9 = Save User 10 = Not Used 11 = Load Default SoftPLC 12 to 13 = Reserved	cfg	5-2
<b>P205</b>	Main Display Parameter	0 to 999		5-3
<b>P207</b>	Bar Graph Parameter	0 to 999		5-3
<b>P208</b>	Ref. Scale Factor	1 to 9999		5-3
<b>P209</b>	Ref. Eng. Unit	0 to 1 = Without unit 2 = Volt (V) 3 = Hertz (Hz) 4 = Without unit 5 = Percent (%) 6 = Without unit 7 = Rotation/min. (rpm)		5-3
<b>P210</b>	Ref. Decimal Point	0 = wxyz 1 = wxy.z 2 = wx.yz 3 = w.xyz		5-4
<b>P213</b>	Bar Scale Factor	1 to 9999		5-4
<b>P219</b>	Red. Switch. Freq.	0.0 to 15.0 Hz	cfg	8-8
<b>P220</b>	LOC/REM Selection Source	0 = Always Local 1 = Always Remote 2 to 3 = Not Used 4 = DIx 5 = Serial/USB (LOC) 6 = Serial/USB (REM) 7 to 8 = Not Used 9 = CO/DN/DP/ETH (LOC) 10 = CO/DN/DP/ETH (REM) 11 = SoftPLC	cfg	7-4
<b>P221</b>	LOC Reference Sel.	0 = HMI 1 = AI1 2 = AI2 3 = Potentiometer 4 = FI 5 = AI1 + AI2 > 0 6 = AI1 + AI2 7 = E.P. 8 = Multispeed 9 = Serial/USB 10 = Not Used 11 = CO/DN/DP/ETH 12 = SoftPLC 13 = Not Used 14 = AI1 > 0 15 = AI2 > 0 16 = Potentiometer > 0 17 = FI > 0	cfg	7-4

Param.	Description	Adjustable Range	Prop.	Page
P222	REM Reference Selection	See options in P221	cfg	7-4
P223	LOC FWD/REV Selection	0 = Forward 1 = Reverse 2 to 3 = Not Used 4 = Dlx 5 = Serial/USB (FWD) 6 = Serial/USB (REV) 7 to 8 = Not Used 9 = CO/DN/DP/ETH (FWD) 10 = CO/DN/DP/ETH (REV) 11 = Not Used 12 = SoftPLC	cfg	7-5
P224	LOC Run/Stop Sel.	0 = HMI Keys 1 = Dlx 2 = Serial/USB 3 = Not Used 4 = CO/DN/DP/ETH 5 = SoftPLC	cfg	7-5
P225	LOC JOG Selection	0 = Disabled 1 = Not Used 2 = Dlx 3 = Serial/USB 4 = Not Used 5 = CO/DN/DP/ETH 6 = SoftPLC	cfg	7-6
P226	REM FWD/REV Selection	See options in P223	cfg	7-5
P227	REM Run/Stop Selection	See options in P224	cfg	7-5
P228	REM JOG Selection	See options in P225	cfg	7-6
P229	Stop Mode Selection	0 = Ramp to Stop 1 = Coast to Stop	cfg	7-6
P230	Dead Zone (Als and FI1 )	0 = Inactive 1 = Active	cfg	9-1
P231	AI1 Signal Function	0 = Speed Ref. 1 to 3 = Not Used 4 = PTC 5 to 6 = Not Used 7 = PLC Use 8 = Application Function 1 9 = Application Function 2 10 = Application Function 3 11 = Application Function 4 12 = Application Function 5 13 = Application Function 6 14 = Application Function 7 15 = Application Function 8 16 = Control Setpoint 17 = Process Variable	cfg	9-2
P232	AI1 Input Gain	0.000 to 9.999		9-3
P233	AI1 Input Signal	0 = 0 to 10 V / 20 mA 1 = 4 to 20 mA 2 = 10 V / 20 mA to 0 3 = 20 to 4 mA		9-3
P234	AI1 Input Offset	-100.0 to 100.0 %		9-4
P235	AI1 Input Filter	0.00 to 16.00 s		9-4
P236 (*)	AI2 Signal Function	See options in P231	cfg	9-2
P237 (*)	AI2 Input Gain	0.000 to 9.999		9-3
P238 (*)	AI2 Input Signal	See options in P233		9-3
P239 (*)	AI2 Input Offset	-100.0 to 100.0 %		9-4
P240 (*)	AI2 Input Filter	0.00 to 16.00 s		9-5
P241 (*)	Potentiometer Signal Function	0 = Speed Ref. 1 to 6 = Not Used 7 = SoftPLC 8 = Application Function 1 9 = Application Function 2 10 = Application Function 3 11 = Application Function 4 12 = Application Function 5 13 = Application Function 6 14 = Application Function 7 15 = Application Function 8 16 to 17 = Not Used	cfg	9-6
P242 (*)	Potentiometer Signal Gain	0.000 to 9.999		9-6

Param.	Description	Adjustable Range	Prop.	Page
<b>P244</b> (*)	Potentiometer Signal Offset	-100.0 to 100.0 %		9-6
<b>P245</b>	Potentiometer and FI1 Filter	0.00 to 16.00 s		9-6
<b>P246</b>	FI1 Input Function	0 = Inactive 1 = Active in DI1 2 = Active in DI2 3 = Active in DI3 4 = Active in DI4	cfg	9-11
<b>P247</b>	FI1 Input Gain	0.000 to 9.999		9-11
<b>P248</b>	FI1 Minimum Input	1 to 3000 Hz		9-11
<b>P249</b>	FI1 Input Offset	-100.0 to 100.0 %		9-11
<b>P250</b>	FI1 Maximum Input	1 to 3000 Hz		9-11
<b>P251</b> (*)	AO1 Output Function	0 = Speed Ref. 1 = Not Used 2 = Real Speed 3 to 4 = Not Used 5 = Output Current 6 = Not Used 7 = Active Current 8 to 10 = Not Used 11 = Motor Torque 12 = SoftPLC 13 to 15 = Not Used 16 = Motor Ixt 17 = Not Used 18 = P696 Value 19 = P697 Value 20 = Not Used 21 = Application Function 1 22 = Application Function 2 23 = Application Function 3 24 = Application Function 4 25 = Application Function 5 26 = Application Function 6 27 = Application Function 7 28 = Application Function 8 29 = Control Setpoint 30 = Process Variable		9-7
<b>P252</b> (*)	AO1 Output Gain	0.000 to 9.999		9-8
<b>P253</b> (*)	AO1 Output Signal	0 = 0 to 10 V 1 = 0 to 20 mA 2 = 4 to 20 mA 3 = 10 to 0 V 4 = 20 to 0 mA 5 = 20 to 4 mA		9-9
<b>P254</b> (*)	AO2 Output Function	See options in P251		9-8
<b>P255</b> (*)	AO2 Output Gain	0.000 to 9.999		9-8
<b>P256</b> (*)	AO2 Output Signal	See options in P253		9-9

0

Param.	Description	Adjustable Range	Prop.	Page
P263	DI1 Input Function	0 = Not Used 1 = Run/Stop 2 = General Enable 3 = Quick Stop 4 = Forward Run 5 = Reverse Run 6 = Start 7 = Stop 8 = Direction of Rotation 9 = LOC/REM 10 = JOG 11 = Accelerate E.P. 12 = Decelerate E.P. 13 = Multispeed 14 = 2nd Ramp 15 to 17 = Not Used 18 = No Ext. Alarm 19 = No Ext. Fault 20 = Reset 21 to 23 = Not Used 24 = Disab. Flying Start 25 = Not Used 26 = Lock Prog. 27 to 31 = Not Used 32 = 2nd Ramp Multispeed 33 = 2nd Ramp Increase E.P. 34 = 2nd Ramp Decrease E.P. 35 = 2nd Ramp FWD Run 36 = 2nd Ramp REV Run 37 = Start / Inc. E.P. 38 = Dec. E.P. / Stop 39 = Stop 40 = Safety Switch 41 = Application Function 1 42 = Application Function 2 43 = Application Function 3 44 = Application Function 4 45 = Application Function 5 46 = Application Function 6 47 = Application Function 7 48 = Application Function 8 49 = Enable Fire Mode 50 to 54 = Not Used 55 = Run/Stop with Line Start Lockout 56 = Forward Run with Line Start Lockout 57 = Reverse Run with Line Start Lockout	cfg	9-12

Param.	Description	Adjustable Range	Prop.	Page
P264	DI2 Input Function	0 = Not Used 1 = Run/Stop 2 = General Enable 3 = Quick Stop 4 = Forward Run 5 = Reverse Run 6 = Start 7 = Stop 8 = Direction of Rotation 9 = LOC/REM 10 = JOG 11 = Accelerate E.P. 12 = Decelerate E.P. 13 = Multispeed 14 = 2nd Ramp 15 to 17 = Not Used 18 = No Ext. Alarm 19 = No Ext. Fault 20 = Reset 21 to 23 = Not Used 24 = Disab.FlyStart 25 = Not Used 26 = Progr. Off 27 to 31 = Not Used 32 = 2nd Ramp Multispeed 33 = 2nd Ramp Increase E.P. 34 = 2nd Ramp Decrease E.P. 35 = 2nd Ramp FWD Run 36 = 2nd Ramp REV Run 37 = Turn ON / Ac. E.P. 38 = De. E.P. / Turn OFF 39 = Stop 40 = Safety Switch 41 = Application Function 1 42 = Application Function 2 43 = Application Function 3 44 = Application Function 4 45 = Application Function 5 46 = Application Function 6 47 = Application Function 7 48 = Application Function 8 49 = Enable Fire Mode 50 = PID Manual / Automatic 51 to 54 = Not Used 55 = Run/Stop with Line Start Lockout 56 = Forward Run with Line Start Lockout 57 = Reverse Run with Line Start Lockout	cfg	9-12

Param.	Description	Adjustable Range	Prop.	Page
P265	DI3 Input Function	0 = Not Used 1 = Run/Stop 2 = General Enable 3 = Quick Stop 4 = Forward Run 5 = Reverse Run 6 = Start 7 = Stop 8 = Direction of Rotation 9 = LOC/REM 10 = JOG 11 = Accelerate E.P. 12 = Decelerate E.P. 13 = Multispeed 14 = 2nd Ramp 15 to 17 = Not Used 18 = No Ext. Alarm 19 = No Ext. Fault 20 = Reset 21 to 23 = Not Used 24 = Disab.FlyStart 25 = Not Used 26 = Lock Prog. 27 to 31 = Not Used 32 = 2nd Ramp Multispeed 33 = 2nd Ramp Increase E.P. 34 = 2nd Ramp Decrease E.P. 35 = 2nd Ramp FWD Run 36 = 2nd Ramp REV Run 37 = Start / Inc. E.P. 38 = Dec. E.P. / Stop 39 = Stop 40 = Safety Switch 41 = Application Function 1 42 = Application Function 2 43 = Application Function 3 44 = Application Function 4 45 = Application Function 5 46 = Application Function 6 47 = Application Function 7 48 = Application Function 8 49 = Enable Fire Mode 50 = Not Used 51 = Command to Increase the Control Setpoint (EP) 52 = Not Used 53 = 1st DI for Control Setpoint Selection 54 = Not Used 55 = Run/Stop with Line Start Lockout 56 = Forward Run with Line Start Lockout 57 = Reverse Run with Line Start Lockout	cfg	9-12



Param.	Description	Adjustable Range	Prop.	Page
<b>P266</b>	DI4 Input Function	0 = Not Used 1 = Run/Stop 2 = General Enable 3 = Quick Stop 4 = Forward Run 5 = Reverse Run 6 = Start 7 = Stop 8 = Direction of Rotation 9 = LOC/REM 10 = JOG 11 = Accelerate E.P. 12 = Decelerate E.P. 13 = Multispeed 14 = 2nd Ramp 15 to 17 = Not Used 18 = No Ext. Alarm 19 = No Ext. Fault 20 = Reset 21 to 23 = Not Used 24 = Disab.FlyStart 25 = Not Used 26 = Progr. Off 27 to 31 = Not Used 32 = 2nd Ramp Multispeed 33 = 2nd Ramp Increase E.P. 34 = 2nd Ramp Decrease E.P. 35 = 2nd Ramp FWD Run 36 = 2nd Ramp REV Run 37 = Start / Inc. E.P. 38 = Dec. E.P. / Stop 39 = Stop 40 = Safety Switch 41 = Application Function 1 42 = Application Function 2 43 = Application Function 3 44 = Application Function 4 45 = Application Function 5 46 = Application Function 6 47 = Application Function 7 48 = Application Function 8 49 = Enable Fire Mode 50 to 51 = Not Used 52 = Command to Decrease the Control Setpoint (EP) 53 = Not Used 54 = 2nd DI for Control Setpoint Selection 55 = Run/Stop with Line Start Lockout 56 = Forward Run with Line Start Lockout 57 = Reverse Run with Line Start Lockout	cfg	9-12
<b>P267 (*)</b>	DI5 Input Function	See options in P263	cfg	9-12
<b>P268 (*)</b>	DI6 Input Function	See options in P263	cfg	9-12
<b>P269 (*)</b>	DI7 Input Function	See options in P263	cfg	9-12
<b>P270 (*)</b>	DI8 Input Function	See options in P263	cfg	9-13
<b>P271</b>	DIs Function	0 = (DI1..DI8) NPN 1 = (DI1..DI4) PNP 2 = (DI5..DI8) PNP 3 = (DI1..DI8) PNP	cfg	9-15

Param.	Description	Adjustable Range	Prop.	Page
<b>P275</b>	DO1 Function	0 = Not Used 1 = $F^* \geq F_x$ 2 = $F \geq F_x$ 3 = $F \leq F_x$ 4 = $F = F^*$ 5 = Not Used 6 = $I_s > I_x$ 7 = $I_s < I_x$ 8 = Torque > Tx 9 = Torque < Tx 10 = Remote 11 = Run 12 = Ready 13 = No Fault 14 = No F070 15 = Not Used 16 = No F021/F022 17 = Not Used 18 = No F072 19 = 4-20 mA OK 20 = P695 Value 21 = Forward 22 to 23 = Not Used 24 = Ride-Through 25 = Pre-Charge OK 26 = Fault 27 = Not Used 28 = SoftPLC 29 to 34 = Not Used 35 = No Alarm 36 = Without fault and alarm 37 = Application Function 1 38 = Application Function 2 39 = Application Function 3 40 = Application Function 4 41 = Application Function 5 42 = Application Function 6 43 = Application Function 7 44 = Application Function 8 45 = Fire Mode ON 46 = Low Level of Process Variable 47 = High Level of Process Variable		9-22
<b>P276 (*)</b>	DO2 Function	See options in P275		9-22
<b>P277 (*)</b>	DO3 Function	See options in P275		9-22
<b>P278 (*)</b>	DO4 Function	See options in P275		9-23
<b>P281</b>	Fx Frequency	0.0 to 400.0 Hz		9-24
<b>P282</b>	Fx Hysteresis	0.0 to 15.0 Hz		9-25
<b>P290</b>	Ix Current	0.0 to 40.0 A		9-25
<b>P293</b>	Tx Torque	0 to 200 %		9-25
<b>P295</b>	Inverter Rated Current	1.1 to 15.2 A	ro	6-2
<b>P296</b>	Line Rated Voltage	0 = Reserved 1 = 110 - 127 Vac 2 = 200 - 240 Vac   310 Vdc 3 = Reserved 4 = 380 Vac   513 Vdc 5 = 415 Vac   560 Vdc 6 = 440 Vac   594 Vdc 7 = 480 Vac   650 Vdc	cfg	6-3
<b>P297</b>	Switching Frequency	2.5 to 15.0 kHz	cfg, V/f, VVV	8-9
<b>P299</b>	DC Braking Start Time	0.0 to 15.0 s	V/f, VVV	8-11
<b>P300</b>	DC Braking Stop Time	0.0 to 15.0 s	V/f, VVV	8-11
<b>P301</b>	DC Braking Frequency	0.0 to 15.0 Hz	V/f, VVV	8-12
<b>P302</b>	DC Braking Current	0.0 to 100.0 %	V/f, VVV	8-12
<b>P303</b>	Skip Frequency 1	0.0 to 400.0 Hz	V/f, VVV	8-13
<b>P304</b>	Skip Frequency 2	0.0 to 400.0 Hz	V/f, VVV	8-14
<b>P306</b>	Skip Band	0.0 to 25.0 Hz	V/f, VVV	8-14
<b>P308</b>	Serial Address	1 to 247	cfg	12-2
<b>P310</b>	Serial Baud Rate	0 = 9600 bits/s 1 = 19200 bits/s 2 = 38400 bits/s 3 = 57600 bits/s 4 = 76800 bits/s	cfg	12-3