

## INSTRUCTION SHEET D2-3269 Regulator Upgrade Kit Models 1RG2002, 1RG2100, 1RG5003 For use with GP2000/VTAC V General Purpose A-C V+S Controllers

The products described in this supplement are manufactured by Reliance<sup>st</sup> Electric Industrial Company.

The Regulator Upgrade Kit provides an updated regulator version that allows connection of the optional communications cards, 1SC4000 (Rail Interface Card), 1SC4232 (RS232 Serial Communications Card) and 1RK4000 (Remote Mounted Keypad). These regulators will have added programming functions, that may not have been found in earlier controllers. These regulators are compatible with any GP2000/VTAC V series con-

trollers. This kit also provides an updated instruction manual describing the features found in the new software version.

Special Note: The Remote Meter Interface Kit (Model Number 1 MI4000), is installed on the same connectors as the optional communications cards. Only one card can be installed on these connectors! You must choose between using the Remote Meter Interface or the other optional communications cards.

Refer to Tables 1, 2, or 3, to verify the kit contents.

#### Table 1. Kit Contents, Model Number 1RG2002.

Part Description	Quantity	Part Number
Regulator Board	1	0-48680-116B,C, or higher <sup>(1)</sup> Designated as: GPI-2
Instruction Manual	1	D2-3166

 The regulator can ship ea a B, C, or higher version. Also denotes mirúmum software version number for Regulator Board required to operate optional kits.

#### Table 2. Kit Contents, Model Number 1RG2100.

Part Description	Quantity	Part Number
Regulator Board	1	0-48680-117C(1) Designated as: GPI-100
Instruction Manual	i.	D2-3182 (25-40HP), or D2-3217 (50-100HP)

(1) \*C\* denotes minimum software version number for Regulator Board required to operate optional kits.

#### Table 3. Kit Contents. Model Number 1RG5003.

Part Description	Quantity	Part Number
Regulator Board	1	0-48680-118C <sup>(1)</sup> Designated as: VTAC V-3
Instruction Manual	1	D2-3167 (1 50HP) D2-3244 (60-125HP)

(1) "C" denotes minimum software version number for Regulator Board required to operate optional kits.

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#### DANGER

ONLY QUALIFIED ELECTRICAL PERSON-NEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS EQUIPMENT AND THE MAZARDS INVOLVED SHOULD INSTALL, ADJUST, OPERATE AND/OR SER-VICE THIS EQUIPMENT. READ AND UNDER-STAND THIS INSTRUCTION SHEET AND THE MAIN CONTROLLER INSTRUCTION MANUAL PROVIDED WITH THIS KIT IN THEIR ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

## INSTALLATION OF THE REGULATOR BOARD IN THE GP2000/VTAC V CONTROLLER

#### DANGER

DO NOT INSTALL MODIFICATION KITS WITH POWER APPLIED TO THE CONTROL-LER. DISCONNECT AND LOCK OUT INCOM-ING POWER BEFORE ATTEMPTING SUCH INSTALLATION. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SE-VERE BODILY INJURY OR LOSS OF LIFE.

- Make a record of all parameter settings before removing the regulator board. Table 5 is provided for this purpose. This list will be used later after installing the updated board.
- Removing the Existing Regulator Board
- Disconnect all AC power to the Controller before installing the Regulator Board.
- Remove the Controller cover and set aside for reassembly.
- Locate the Control Signal Buffer Board and the Regulator Assembly. See Figure 1 (1–20HP)

Controllars), or Figure 2 (25–125HP Controllers).

Note: The 1~20HP GP2000 controller does not use a Control Signal Buffer Board.

- Remove the wires that go from the Control Signal Buffer Board Interface Connector (CN47) from all terminal points on the Regulator Board (TB1). See Figure 3.
- Carefully pull out all of the connectors/harnesses from the Regulator Board. Verify that any kit option at connectors CN21 and CN22 are also removed. See Figure 4. Mark wires from any additional wiring connections to the Regulator.
- Lift the Regulator Board up and off from the (4) standoffs at the corners. Do not pull or bend the board when removing.
- Installing the New Regulator Board
- Remove the Regulator Board from the packing material.
- Install the Regulator Board on the (4) standoffs, pressing lightly (without bending) to snap in place.
- Reconnect all connectors and any additional wining.
- Re-wire from the Control Signal Buffer Board to the new Regulator Board, carefully matching the wire colors as shown in Figure 3.
- Check that all connections are light and wiring is correct.
- Installation of Optional Cards to the Regulator

Refer to the respective instruction manuals as listed:

Rail Interface Card	D2-3170
Serial Communication Card	D2-3270
Remote Meter Interface Card	D2-3168
Remote Mounting Keypad	D2-3272



Figure 1. Location of the Regulator. (1-20 HP Controllers)

7.11



Figure 2. Location of the Control Signal Buffer Board and Regulator. (25-125HP Controllers)



Figure 3. Control Signal Buffer Board Wiring.



Figure 4. Regulator Board Connectors.

### SETTING UP THE CONTROLLER FOR USE WITH SERIAL COMMUNICATIONS OPTIONS

- Set the operation control source (via the GP2000/VTAC V keypad) to Function 0. Parameter = 2, or 3.
- Power up the controller (but do not apply a speed reference) and verify that the display is operating properly, and that there are no fault codes displayed.
- Set all parameters to the required settings. Table 5 provides a listing of all parameters, initial factory settings, and a column to enter in user settings.
- Perform the controller startup procedure as given in the controller instruction manual before proceeding with the application process.

#### Fault Codes associated with this Kit

Two additional fault codes can appear on the display when using the communications option. Table 4 lists these faults and the recommended actions. If no faults are displayed after power up, and the controller still will not operate, check that Function 0 is set correctly, or that the regulator board is one of the part numbers as listed in Tables 1,2, or 3 in this manual.

# Table 4. Fault Codes.

Code Type of IET		Possible Cause	Action		
OP	Option Fauli	Option Board Internal Fault	<ol> <li>Check the communication card installation.</li> <li>Check that Function 0 is set to Parameter 2 or 3.</li> </ol>		
CF	Communication Fauli	Communications have been disrupted between the Host and the GP/VTAC controller.	<ol> <li>Check that cable connections from the Host to the option communications card are tight.</li> </ol>		

# Table 5. Record of User's Parameter Selection/Adjustments.

8 1				<u>75</u>		User Data	
Function Number		Function Descriptions		Parameter Selection/ Adjustment Range	Initial Factory Setting	Date	Setting
First Manu	a	Lecal/Remote Operation Control		0 ~ Local Control 1 = Remote Control/Terminal Strip 2 = Remote Control I/O Port 3 = RS232 Communications	Ø		
į –	1	Accel. Time (See Function 44)		5.0 - 380.0 Seconds	20.0		
1 2	2	Dace Time (Sea Function 45)		5.0 - 350.0 Seconds	20.0		
	3	Minimum Hz (See Function 43)		5.0 - 60 Hz	0.0		
	4	Maximum Hz (See Punction 38)		15 Overfrequency Limit	62.0		
	5	Curtent Limit		50 - 150% Current	150		
	6	Expand to Second Menu (First Password Necessary)		D - Basic (First Menu Only) 1 = Expand to Second Menu	O	- 82	19166253
Second Menu	7	Manual Torque Boost		0 – 10% Voltage	5	8-3-3-	
	8	Jog Frequency		0.0 – 60.0 Hz (Note: The actual jog frequency automatically is limited be tween minimum Hz and maximum Hz.)	<del>5</del> .0		
	9	Stop Mode Selection		0 - Coast-to-rest 1 = Ramp-to-rest	O		
	10	AutoMatic Flux Control		0 – 5% Rated Voltage	a		. I
	11	Base Frequency Selection (Volla/Hz Ratio)		30 – 120 Hz (variable torque) 30 – 400 Hz (constant torque)	60.0		
	12	Electronic Thermal Overload Selection		D = Normal Motor 1 = Forced Cooled Motor	0		
	13	Electronic Thermal Overload	Level	20 - 100% Current	100		
	14	Linear/S-Curve Acceleration		0 = Linear Appeleration 5 = S-Curve Acceleration	a		
	15	Linear/S Gurve Decoleration		0 - Linear Deceleration 1 - S-Curve Dage eration	a		
	16	Mut-Speec Preset 1	MS1	0.0 - Max HZ (Note: the actual preset fre-	5.0		
	17	Multi-Speec Presel 2	MS2	quency between minimum Hz and maxi-	5.0		
	18	Mula-Speec Preset 3	MSS	100001154	5.0		
	79	Avoidance Encourney 1	AFI	0.0 — Max H2 (Note: the actual preset fre- quency between minimum Hz and max6- mum Hz.)	0.0		
	20	Avoidance Frequency 2 Avoidance Erecurrory S	AF2		0.0	L	
	00	Avoidance Frequency 5	400	03 - 1001/2	0.0	î –	
	23	Variable Torque Volts/Hz	N° D	0 - Constant Torque Curve (GP2000) 1 - Veriable Torque Curve (GP2000)	0 or		
	24	D-C Braking Operation Time		00 - 100 Seconds	20	1	
	25	D-C Braking Voltage		0 – 2015 Voltzge	0		
	26	D-C Braking Start Frequency	. i	0.5 - 10% Hz	1.0		
	27	Line-Dro-Ride-Through		15 – 500 milliseconds	15		
	29	Outcut Balay 1		0 = Not Land	1	1	
		(Form C Contact)		1 = Zeru Speed Detect 2 = input Contactor 3 = Output Contactor 4 = Frequency Level Detection 1			

Function Number		and the restriction of			User Data	
		Function Descriptions	Parameter Selection/ Adjustment Range	Initial Factory Setting	Date	Setting
	29	Output Relay 2 (Form O Contact)	5 - Frequency Level Detection 2 6 - Current Level Detection 7 - Reverse Hotstion 8 - D-C Brisking Operation 9 - Reserved	0		
	80	Slip Compensation	0.0 - 5.0 Hz	0.0		
	<b>S1</b>	Inverse Reference (Second Password Necessary)	C = Normal 1 - Inverse	0		
	32	Function Loss Selection (Second Password Necessary)	0 – IET at Function Loss. 1 – Cteet-to-rest without an IET	0		
	33	Freq. Level Detection 1	0.5 - Max Hz	0.5		
	30	Freq. Level Detection 2	C.5 - Max dz	0.5		
	35	Current Level Detection	30 110% Current	100		
	36	Reverse Disable	0 = Forward/Reverse Enable (GP2000) 1 - Roverse Disable on Keypad (VTAC VI	0 or 1		
	37	Automatic (Process Control) Disable on Local Control	0 – AL/TO/MAN Key Esabls 1 – AL/TO Olsable on Keypad	o	3	
	38	Overfrequency Limit (Second Password Nacessary)	50.0 - 405 Hz	90.0		ę – 2
	39	D C Offset Enable (Second Password Necessary)	5 - Offset Disable 1 - Offset Enable	0		2 8
	40	Auto-reset Enable (Second Password Nacessary)	0 – Auto-reset Disable 1 = Auto-reset Enable	o		
	41	Auto reset Time	0 – 10 Times	0		
	42	Auto-reset Interval Time	1 - 60 Seconds	1		
	43	Extended Minimum Hz Bange (Second Password Necessary)	0 = Disable (5 - 60 H2) 1 = Enable (0 - 60 Hz)	0		
	44	Extended Acceleration Time Range	0 = 5.0 - 360.0 Seconds 1 = 0.1 - 360.0 Seconds	0		
	45	Extended Deceleration Time Range	G = 5.0 - 360.0 Seconds 1 - 0 1 - 360.0 Seconds	a		
	48	RPM Monitor Display Enable	0 – Disable 1 – Enable	0		
	47	RPM Monitor Range Selection (Second Password Nacessary)	S = 150 - 9999 RPM 1 - 0 9929 RPM	•		
	<b>4</b> a	RPM Monitor Base Frequency Selection (See Function 47)	150 9969 RPM	1750		
	49	Output Voltage Regulation Mode Selection (See Function 60)	0 = Proportional to leput 1 = Fixed to Max Voltage	0		
	50	Maximum Voltage	190.0-230.0 380.0-460.0 475.0-575.0	230 460 575		
	51	Jog Acceleration Value	5.1 - 350.0 Seconds	20.0		1 8
	52	Jog Deceleration Value	0.1 - 360.0 Seconds	23.0		
	53	Jog Acceleration Selection	C = Unear Acceleration 1 = S-Curve Acceleration	0		
	54	Jog Deceleration Selection	C - Linear Deceleration 1 - S Curve Deceleration	0		
	55	Current Limit Deceleration Rate	0 - 100 Hz/Seconds	90		3
	56	Start into a Rotating Motor	C = Enable 1 = Disable (Quick Start)	0		
	57	MS Terminals Selection (Second Password Necessary)	C = Multi-Speed Preset 1 - Static MOP	0		
	99	Reserved				

# Table 5. Record of User's Parameter Selection/Adjustments. (Continued)

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