Errata Sheet

This Errata Sheet contains corrections or changes made after the publication of this user manual.

AutomationDirect.com *1-800-633-0405*

Product Family:	*GS2 AC Drives*		
User Manual Number:	*GS2-M*	**Errata Sheet Number:**	*GS2-M Errata #7*
User Manual Rev & Date:	*1st Ed, Rev C; 12/2006*	**Errata Sheet Date:**	*11/17/2020*

For the complete GS2 AC Drives user manual, please refer to the AutomationDirect website:
http://www.automationdirect.com/static/manuals/gs2m/gs2m.html

UM Errata Locations

Parts Obsolesence:

The following GS2 parts have been retired and are no longer available:

- *GS2-11P0*

Chapter 1, pg 1–3:

Add new sub-section following "Purpose of AC Drives:"

Selecting the Proper Drive Rating

A) Determine motor full-load amperage (FLA):
Motor FLA is located on the nameplate of the motor.
Note: FLA of motors that have been rewound may be higher than stated.

B) Determine motor overload requirements:
Many applications experience temporary overload conditions due to starting requirements or impact loading. Most AC drives are designed to operate at 150% overload for 60 seconds. If the application requires an overload greater than 150% or longer than 60 seconds, the AC drive must be oversized.
NOTE: *Applications that require replacement of existing motor starters with AC drives may require up to 600% overload*.

C) Installation altitude:
AC drives rely upon the cooling properties of air for cooling. As the altitude increases, the air becomes less dense, and this decrease in air density decreases the cooling properties of the air. Therefore, the AC drive must be oversized to compensate for the decrease in cooling. Most AC drives are designed to operate at 100% capacity up to altitudes of 1000 meters. Above 1000m, the AC drive must be derated.

D) Determine max enclosure internal temperature:
AC drives generate a significant amount of heat and will cause the internal temperature of an enclosure to exceed the rating of the AC drive, even when the ambient temperature is less than 104 °F (40 °C). Enclosure ventilation and/or cooling may be required to maintain a maximum internal temperature of 104 °F (40 °C) or less. Ambient temperature measurements/calculations should be made for the maximum expected temperature.

E) Calculate required output amperage:
Use the chart below to calculate the required FLA of the AC drive, as shown by the following examples. Select the rating that equals the motor's voltage and equals or exceeds the calculated amperage.

- *Example 1 (GS1 or GS2 drive):*
  Motor FLA = 6A; Overload = 200% @ 45s; Altitude = 800m; MEIT = 45°C
- *Example 2 (DURApulse GS3 drive):*
  Motor FLA = 8A; Overload = 135% @ 75s; Altitude = 1100m; MEIT = 35°C

Calculating Required Drive Current				
If		***Then Enter***	***Example 1 GS1 or GS2***	***Example 2 GS3 DURApulse***
Overload Derate (overload %)				
If overload is < 150% and < 60 seconds		1	1.33	1.35
If overload is > 150% and < 60 seconds		(overload / 150)%		
If overload is > 60 seconds		(overload / 100)%		
Overload Result	Multiply FLA x overload entry		**8.0**	**10.8**
Altitude Derate (meters)				
Altitude is < 1,000m		1	1	1.01
Altitude is > 1,000m and < 3,000m		1 + ((altitude - 1,000m) x 0.0001)		
Altitude Result	Multiply overload result x altitude entry		**8.0**	**10.91**
Ambient Temperature (°C)				
Maximum enclosure internal temperature (MEIT) is < 40°C		1	1	1
40°C < MEIT < 50° and GS1/2 AC drive up to 5hp		1		
40°C < MEIT < 50° and GS1/2 AC drive > 5hp or *DURAPULSE* AC drive		1.2		
Required Drive FLA	Multiply altitude result x MEIT entry		**8.0**	**10.91**

Chapter 1, pgs 1–5,6:

Add footnote to 230V, 460V, and 575V GS2 AC Drive Specifications tables as shown:

** All 3-phase power sources must be symmetrical. Do NOT connect GS2 drives to grounded, center-tapped, delta transformers (which are typically used for lighting circuits).*

Chapter 2, pg 2–2:

Add "Storage Conditions" section as follows:

STORAGE CONDITIONS

The AC drives should be kept in their shipping cartons or crates until they are installed. In order to retain their warranty coverage, they should be stored as described below if they are not to be installed and used within three months.

- *Store in a clean and dry location free from direct sunlight and corrosive fumes.*
- *For storage of longer than 3 months, store within an ambient temperature range of -20 °C to 30 °C (-4°F to 86°F).*
- *For storage of 3 months or less, store within an ambient temperature range of -20 °C to 60 °C (-4°F to 140°F).*
- *Store within a relative humidity range of 0% to 90% and non-condensing environment.*
- *Store within an air pressure range of 86 kPA to 106 kPA.*
- *DO NOT store in an area with rapid changes in temperature. (It may cause condensation and frost.)*
- *DO NOT place directly on the ground.*

If the drive is stored or is otherwise unused for more than a year, the drive's internal DC link capacitors should be recharged before use. Otherwise, the capacitors may be damaged when the drive starts to operate. We recommend recharging the capacitors of any unused drive at least once per year. (Refer to Chapter 6, "Maintenance and Troubleshooting" for information about recharging DC link capacitors.)

Chapter 2, pg 2–7:

Remove note in parentheses under "Short Circuit Withstand Current" regarding line reactor:

~~(An optional line reactor can be installed in the incoming power circuit to reduce the available short circuit current.)~~

Chapter 2, pg 2–10:

Add control terminal wire range & tightening torque info as Control Circuit Terminals table footnote:

Control Terminal Wire Range: 24–12 AWG
Control Terminal Tightening Torque: 5kgf·cm [4lbf·in]

Chapter 2, pg 2–11:

Remove potentiometer note from AO/ACM circuit of "Basic Wiring Diagram:"

~~Potentiometer (3-5 k) (may be required for some meters)~~

Chapter 3, pgs 3–9,13; Chapter 4, pg 4–32; P4.00:

Add note for parameter P4.00 (Source of Frequency Command) as shown:

When configured for setting 01 (Frequency determined by digital keypad Up/Down), the drive will reset the commanded frequency to zero hertz on a power cycle. This happens only if the drive faults when it powers down (if its running when it loses power). If the drive is stopped when it loses power (and doesn't trigger a Low Voltage Fault), the drive will retain the last set speed when powered back up.

Chapter 4, pgs 4–3,21; P2.08:

Change range of P2.08 as shown:

Volts/Hertz Parameters				
GS2 Parameter & Description		***Range***		***Default***
P2.08	PWM Carrier Frequency	115V/230V/460V 575V	01 to 12 kHz 01 to 10 kHz	12 06

P2.08 ***PWM Carrier Frequency***

Range: 115V/230V/460V: 01 to 12 kHz — *Default Setting*: 12
575V: 01 to 10 kHz — 06

Chapter 4, pg 4–5; P4.00:

Change P4.00 descriptions of settings 02, 03, and 04 as shown:

Analog Parameters			
GS2 Parameter # & Description		***Range***	***Default***
P4.00	Source of Frequency Command	00: Frequency determined by keypad potentiometer 01: Frequency determined by digital keypad up/down 02: Frequency determined by 0 to +10V input on AI terminal (switch set to "V") 03: Frequency determined by 4 to 20mA input on AI terminal (switch set to "I") 04: Frequency determined by 0 to 20mA input on AI terminal (switch set to "I") 05: Frequency determined by RS-232C/ RS-485 communication interface	00

Chapter 4, pg 4–6,47; P6.10 & P6.11:

Denote that a setting of zero (0) disables parameters P6.10 & P6.11:

Protection Parameters			
GS2 Parameter & Description		***Range***	***Default***
P6.10	Over-Current Stall Prevention during Acceleration	20 to 200% [a setting of 0 disables this parameter]	150
P6.11	Over-Current Stall Prevention during Operation	20 to 200% [a setting of 0 disables this parameter]	150

P6.10 ***Over-Current Stall Prevention during Acceleration***
P6.11 ***Over-Current Stall Prevention during Operation***

Range: 20 to 200% [a setting of 0 disables these parameters] *Default Setting*: 150

Chapter 4, pg 4–20; P2.01:

Revise the first sentence of the description of P2.01 as shown:

When controlling an asynchronous induction motor, an increase in load on the motor will result in an increase in slip within the motor.

Chapter 4, pg 4–32; P4.00:

Add note for P4.00 as shown:

When configured for "Frequency determined by digital keypad Up/Down," the drive will reset the commanded frequency to zero hertz on a power cycle. This happens only if the drive faults when it powers down (if its running when it loses power). If the drive is stopped when it loses power (and doesn't trigger a Low Voltage Fault), the drive will retain the last set speed when powered back up.

Chapter 4, pg 4–39:

Add a new Analog Parameter Example #6 for positive offset with reduced gain as shown:

Example 6: Positive Offset with Reduced Analog Gain

This example illustrates how to provide a positive offset of the Analog Input, while using the full scale of the potentiometer or other analog device. At the same time, the Maximum Frequency Reference is limited by reducing the Analog Input Gain. When the analog signal is at its lowest value, the set-point frequency will be at 11.5Hz. When the analog signal is at its maximum value, the set-point frequency will be 39.6Hz.

- *Minimum frequency reference = 11.5Hz*
- *Maximum frequency reference = 39.6Hz*

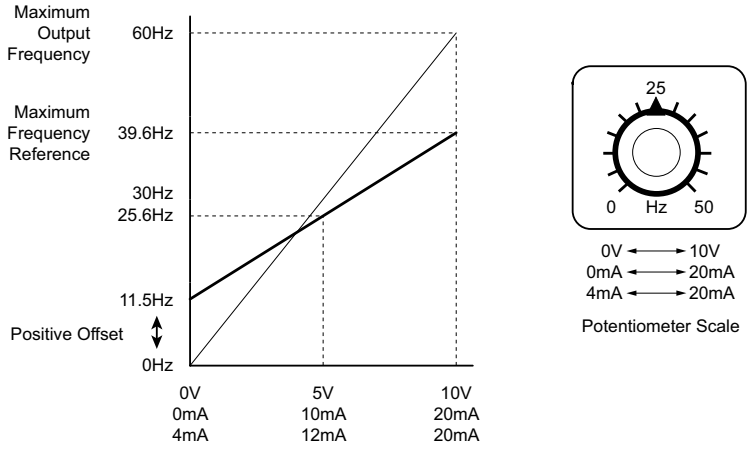
Calculations

A) Max output frequency = (1750rpm ÷ 1750rpm) x (60Hz) = 60Hz
B) Analog Offset % = (11.5Hz ÷ 60Hz) x 100 = 19.2%
C) Analog Gain % = ((39.6Hz – 11.5Hz) ÷ 60Hz) x 100 = 46.8%
D) Mid-point frequency = ((39.6Hz – 11.5Hz) ÷ 2) + (11.5Hz) = 25.6Hz

Parameter Settings

- *P4.01: 01 [Positive Input Offset Polarity]*
- *P4.02: 19.2 [19.2% Analog Input Offset]*
- *P4.03: 46.8 [46.8% Analog Input Gain]*
- *P4.04: 00 (default) [Forward Motion Only]*

Results



Chapter 4, pg 4–39:

Add a new Analog Parameter Example #7 for inverting analog input signals as shown:

Example 7: Invert the Analog Input Signal

This example illustrates how to invert the analog input signal so that the drive is at 0Hz output at full analog signal, and full output at 0 analog signal.

Parameter Settings

- *P4.01: 02 [Negative Input Offset Polarity]*
- *P4.02: 100.0 [100.0% Analog Input Offset]*
- *P4.03: 100.0 [100.0% Analog Input Gain]*
- *P4.04: 01 (default) [Forward Motion Only]*

This change might require two of the motor leads to be swapped at the T terminals of the drive.

Chapter 4, pg 4–43; P6.00:

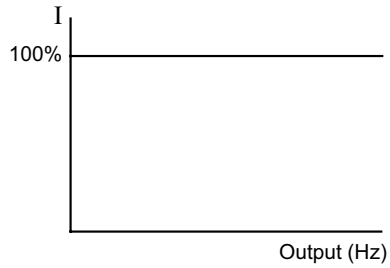
Revise P6.00 description as shown:

P6.00* *Electronic Thermal Overload Relay

Settings: *Default Setting*: 00

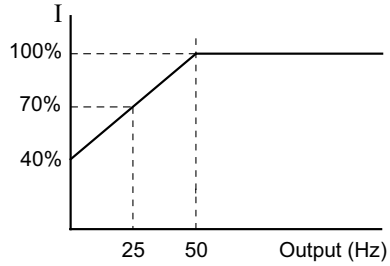
00 Constant Torque (Recommended **for inverter/vector duty motors**)

Use this setting when using the drives with motors designed specifically for AC drive outputs and for running at low speeds with high currents. Motor currents will be 100% throughout the speed range, and can be up to 150% for one minute.



01 Variable Torque (Recommended **for fan-cooled standard motors**)

Use this setting when using the drives with motors which are NOT designed specifically for AC drive outputs. Motors with shaft mounted fans offer poor cooling at low speeds; therefore the output can be derated at lower output frequencies. This derated current is for protecting the motor at lower speeds.



The output current is derated as follows:

• I_{output} (%) = [f_{output} (Hz) x 1.2 (% / Hz)] + 40%

Example: If the rated motor current is 10A, and the output frequency is 25Hz, the derating will be 70%, and the overload will be 10.5A (150%) for one minute.

• I_{output} (%) = [(25Hz) (1.2 %/Hz)] + 40% = 70%

• 10A x 70% = 7A

• 7A x 150% = 10.5A

02 Inactive

This parameter determines the drive's motor overload protection characteristic. The Variable Torque setting (01) allows less motor current at lower speeds than does the Constant Torque setting (00).

Chapter 4, pg 4–45,46; P6.04, P6.05, P6.06:

Add the following bullet points to the explanation of P6.04 (Auto Voltage Regulation):

- *When using a braking resistor, select a parameter value of 02.*
- *GS2 drives with firmware version v2.00 (serial #s beginning with W18) may be subject to nuisance overvoltage "OV" faults when decelerating overhauling loads with AVR (P6.04) and OVSP (P6.05) both enabled. In these situations, OV faults can be reduced by disabling AVR during deceleration (P6.04 = 2).*

Add the following bullet points to the explanation of P6.05 (Over-Voltage Stall Prevention):

- *When using a braking resistor, select a parameter value of 01.*

Add the following bullet points to the explanation of P6.06:

- *When using a braking resistor, retain the default parameter value of 00.*

Chapter 4, pgs 4–57; P9.04:

Revise P9.04 explanation as follows:

P9.04* *Time Out Detection

Settings: 00: Disable *Default Setting*: 00
01: Enable

When this parameter is set to 01, the communications Time Out Detection is Enabled. If a delay in communications for more than the Time Out Duration (P9.05) is detected, the action selected by the Transmission Fault Treatment (P9.03) will be used. The separation between characters within a message cannot exceed 500ms.

Chapter 5, pg 5–2:

Add numeric data note for the Communication Parameters as shown:

Unless otherwise stated, numeric data is in the unsigned decimal data format.

Chapter 5, pgs 5–4 thru 5–8:

Add footnotes to Parameter Memory Addresses tables re Modbus Decimal addresses used with CLICK PLCs:

** For Modbus Decimal addresses used with CLICK PLCs, insert another zero as the next-to-most-significant digit, e.g. 402333 instead of 42333.*

Chapter 5, pgs 5–9,11:

Add addresses h210C and h210D to GS2 Status Addresses table (pg.5–9)as shown:

GS2 Status Addresses			
Description	***Hexadecimal***	***Modbus Decimal***	***Octal***
...	...	...	...
PID Setpoint	210C	48461	20414
PID Feedback Signal (PV)	210D	48462	20415
...	...	...	...

Add addresses h210C and h210D to address descriptions (pg.5–11) as shown:

PID Setpoint **h210C**

Status location for the PID setpoint

PID Feedback Signal (Process Variable) **h210D**

Status location for the PID process variable

Chapter 5, pgs 5–12,13:

Add and revise cable notes as shown:

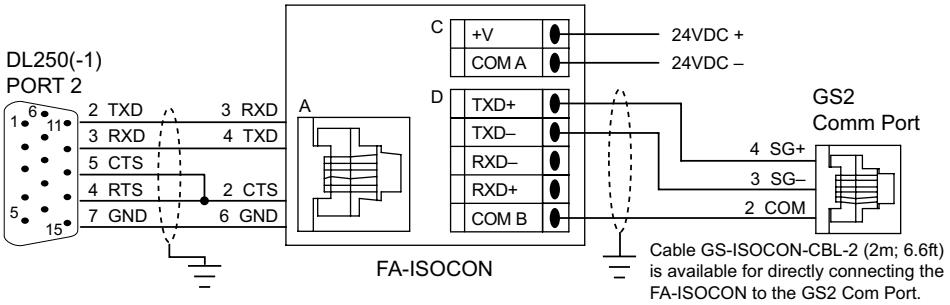
Recommended cable for RS-232: Belden 8102 or equivalent.
Recommended cable for RS-485: Belden 9842 or equivalent.
Various pre-terminated cables for specific wiring connections are available from AutomationDirect, as listed in applicable individual wiring sections of this chapter.

If an FA-ISOCON module is used in your connection, set the module dipswitches S21 = ON; S22 - S27 = OFF; TERMINATE, BIAS, and DPX = ON. Refer to FA-ISOCON manual for more detailed information.
Cable GS-ISOCON-CBL-2 (2m; 6.6ft) is available for direct connection of the FA-ISOCON to the GS2 Com Port.

Chapter 5, pgs 5–13,14:

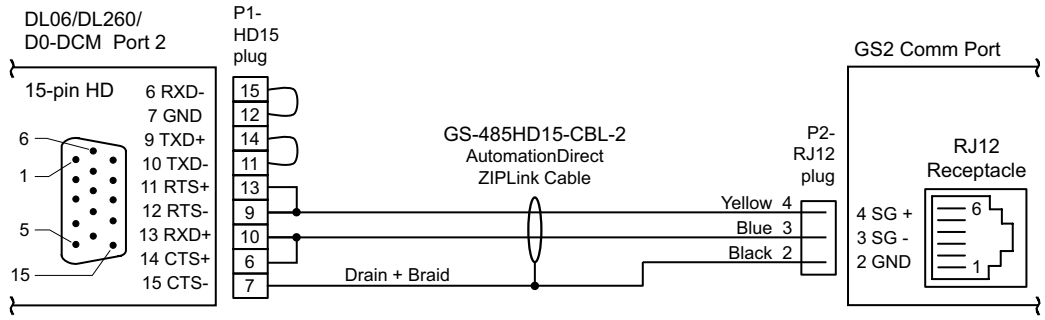
Revise DL250 RS-485 wiring diagram (pg.5–13) as shown:

DL250(-1): RS-485 Connection Wiring

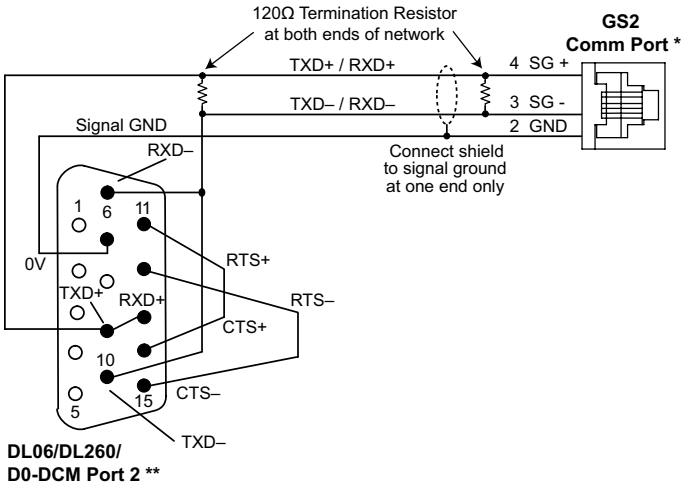


Add/Revise DL06/DL260/D0-DCM RS-485 wiring diagrams (pg.5–14) as shown:

DL06/DL260/D0-DCM: RS-485 Connection Wiring – for distances of 2 meters (6.6 ft) or less



DL06/DL260/D0-DCM: RS-485 Connection Wiring – for distances up to 1000 meters (4000 ft)



* Consider using ZIPLink RJ12 Feedthrough Module ZL-RTB-RJ12 for easy wiring termination.
** Consider using ZIPLink 15-pin high-density Comm Port Adapter, ZL-CMA15 or ZL-CMA15L, for easy wiring termination.

Termination Resistors are required on both ends of RS-485 networks; especially on long runs. Select resistors that match the impedance rating of the cable (between 100 and 500W).

Chapter 5, pgs 5–18,22,26:

Revise the DirectLOGIC Modbus Ladder PLC Program rungs 5, 11, 12, and 15:

Change the load block of rungs 5, 11, 12, and 15 to LD Kf101 (instead of LD ~~Kf201~~).

Chapter 5, pg 5–24:

Revise the DirectLOGIC Modbus Ladder PLC Program Alternate Modbus Write Instruction rung 15:

Change the MWX block of rung 15 to Start Master Memory Address: V3001 (instead of ~~V2000~~).

Chapter 5, pg 5–28:

Revise the DirectLOGIC Modbus Ladder PLC Program rungs 25 and 26:

Change the External Fault Reset N.O. and N.C. contacts of rungs 25 and 26 to X10 (instead of ~~X8~~).

Chapter 6, pg 6–2:

Replace page completely as shown:

Maintenance and Inspection

Modern AC drives are based on solid state electronics technology. Preventive maintenance is required to operate the AC drive in its optimal condition, and to ensure a long life. We recommend that a qualified technician perform a regular inspection of the AC drive. Some items should be checked once a month, and some items should be checked yearly.

If the drive is stored or is otherwise unused for more than a year, the drive's internal DC link capacitors should be recharged before use. Otherwise, the capacitors may be damaged when the drive starts to operate. We recommend recharging the capacitors of any unused drive at least once per year.

WARNING! Disconnect AC power and ensure that the internal capacitors have fully discharged before inspecting the AC drive! Wait at least two minutes after all display lamps have turned off.

Monthly Inspection:

Check the following items at least once a month.

1) Make sure the motors are operating as expected.
2) Make sure the installation environment is normal.
3) Make sure the cooling system is operating as expected.
4) Check for irregular vibrations or sounds during operation.
5) Make sure the motors are not overheating during operation.
6) Check the input voltage of the AC drive and make sure the voltage is within the operating range. Check the voltage with a voltmeter.

Annual Inspection

Check the following items once annually.

1) Tighten and reinforce the screws of the AC drive if necessary. They may loosen due to vibration or changing temperatures.
2) Make sure the conductors and insulators are not corroded or damaged.
3) Check the resistance of the insulation with a megohmmeter.
4) Check the capacitors and relays, and replace if necessary.
5) Clean off any dust and dirt with a vacuum cleaner. Pay special attention to cleaning the ventilation ports and PCBs. Always keep these areas clean. Accumulation of dust and dirt in these areas can cause unforeseen failures.
6) Recharge the capacitors of any drive that is in storage or is otherwise unused.

Recharge Capacitors (for unused drives)

Recharge the DC link before using any drive that has not been operated within a year:

1) Disconnect the motor from the drive.
2) Apply input power to the drive for 2 hours.

Chapter 6, pg 6–3:

Revise the Fault Codes table OV Corrective Actions number 3 as shown:

Revise the Fault Codes table OL Corrective Actions numbers 2 and 3 as shown:

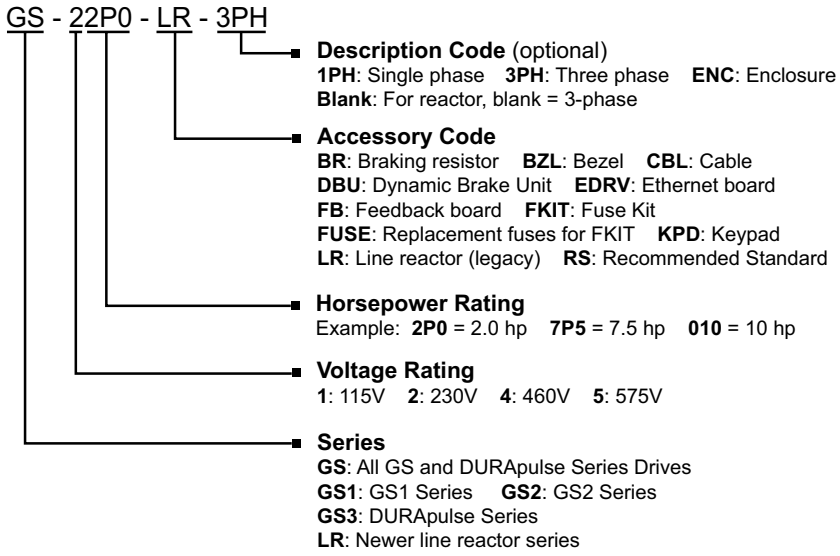
Fault Codes		
Fault Name	***Fault Descriptions***	***Corrective Actions***
...	...	...
ov	The AC drive detects that the DC bus voltage has exceeded its maximum allowable value.	1) Check whether the input voltage falls within the rated AC drive input voltage. 2) Check for possible voltage transients. 3) Bus over-voltage may also be caused by motor regeneration. Either increase the decel time or add an optional braking resistor. For GS2 drives with firmware v2.00 (serial #s W18...) and AVR (P6.04) and OVSP (P6.05) both enabled, disable AVR during deceleration (P6.04 = 2). 4) Check whether the required braking power is within the specified limits.
...	...	...
oL	The AC drive detects excessive drive output current. *Note*: The AC drive can withstand up to 150% of the rated current for a maximum of 60 seconds.	1) Check whether the motor is overloaded. 2) Reduce Auto-torque Boost setting in P2.02. 3) Install a drive and motor with a higher horsepower rating.

Appendix A, pg A–2:

Replace "Accessories Part Numbering" and "Line Reactors" information as shown:

With the exception of EMI filters, RF filters, and LR(2) series line reactors, each accessory part number begins with GS, followed by the AC Drive rating, and then the relevant accessory code. Following the accessory code, you will find a description code when applicable. The diagram below shows the accessory part numbering scheme.

GS Series-specific Part Number Explanation



Line Reactors

Input line reactors protect the AC drive from transient overvoltage conditions typically caused by utility capacitor switching. Input line reactors also reduce the harmonics associated with AC drives, and are recommended for all installations.

Output line (load) reactors protect the motor insulation against AC drive short circuits and IGBT reflective wave damage, and also allow the motor to run cooler by "smoothing" the motor current waveform. They are recommended for operating "non-inverter-duty" motors, and for any motors where the length of wiring between the AC drive and motor is less than or equal to 100 feet. For AC drive-to-motor wiring distances over 100 feet, use of the VTF series output filter is recommended.

There are two types of AutomationDirect line reactors that can be used with GS2 AC Drives; the original GS series reactors and the newer LR series reactors.

LR series reactors have universal mounting feet with multiple mounting slots, and they can replace most reactors using the existing mounting holes. Use four bolts to mount the reactors to the mounting panel.

Appendix A, pg A–2:

Label existing GS-xxxx-LR line reactor tables as follows:

Line Reactors – Legacy GS Series (do not use for new installations)

Appendix A, pg A–2:

Add new line reactor information as shown (before existing GS-xxxx-LR line reactor tables):

Line Reactors – LR Series

Line Reactors – LR Series								
Part Number	***Rated Amps***	***Imped -ance***	***Inductance (mH)***	***Watt Loss***	***System Voltage***	***Phase – Use (0)***	***GS2 Drive Model***	***Drive hp***
LR-10P2-1PH (2)(3) ***LR2-10P2-1PH (2)***	5.8 10	3%	1.58 1.35	8.0 21	120	1 – In	GS2-10P2 (1)	0.25
LR-10P5-1PH (2)(3) ***LR2-10P5-1PH (2)***	9.8 12		0.93 0.971	11.7 29			GS2-10P5 (1)	0.5
LR-11P0-1PH (2)(3) ***LR2-11P0-1PH (2)***	16 17		0.57 1.03	17.4 53			GS2-11P0 (1)	1
LR-20P5-1PH (2)(3) ***LR2-20P5-1PH (2)***	4.9 7.6		3.74 3.56	11.2 39	240		GS2-20P5	0.5
LR-20P5 (3) ***LR2-20P5***	2.4 5		4.2 4.6	7 30.6	208/240 240	3 – Out 3 – Out 3 – I/O	GS2-10P2 GS2-10P5 GS2-20P5	0.25 0.5 0.5
LR2-20P7	8.2		2.9	49	240	3 – In	GS2-21P0	1
LR-21P0-1PH (2)	8		2.29	15.9	240	1 – In	GS2-21P0	1
LR-21P0 (3) ***LR2-21P0***	4.6 11.6		2.46 2.0	11 64	208/240 240	3 – Out	GS2-11P0 GS2-21P0	1 1
LR-22P0-1PH (2)(3) ***LR2-22P0-1PH***	12 17		1.53 1.03	24.3 53	240	1 – In	GS2-22P0	2
LR-22P0 (3) ***LR2-22P0***	7.5 11.6		1.35 2.0	21 64	208/240 240	3 – I/O	GS2-22P0	2
LR-23P0-1PH (2)	17		1.08	27.3	240	1 – In	GS2-23P0	3
LR-23P0	10.6		0.97	38	208/240	3 – I/O	GS2-23P0	3
LR-25P0	16.7		0.626	48			GS2-25P0	5
LR-27P5	24.2		0.434	65			GS2-27P5	7.5
LR-41P0 (3) ***LR2-41P0***	2.1 2.3		8.927 10.5	10.4 25.2	480		GS2-41P0	1
LR-42P0 (3) ***LR2-42P0***	3.4 4.2		5.79 6.5	19 23.5			GS2-42P0	2
LR-43P0 (3) ***LR2-43P0***	4.8 5		4.27 4.6	23 30.6			GS2-43P0	3
LR-45P0 (3) ***LR2-45P0***	7.6 8.2		2.77 2.9	49 49			GS2-45P0	5
LR-47P5 (3) ***LR2-47P5***	11 11.6		1.68 2	40 64			GS2-47P5	7.5
LR-4010	14		1.29	64			GS2-4010	10
LR-51P0 (3) ***LR2-51P0***	1.7 2.1		15.9 16.2	12 16.2	575/600		GS2-51P0	1
LR-52P0 (3) ***LR2-52P0***	2.7 3.2		9.29 10.2	22 20.5			GS2-52P0	2
LR-53P0 (3) ***LR2-53P0***	3.9 4.8		6.74 7.07	23.3 30			GS2-53P0	3
LR-55P0 (3) ***LR2-55P0***	6.1 7.6		4.51 4.52	34.7 44			GS2-55P0	5
LR2-57P5	9.6		3.1	57			GS2-57P5	7.5
LR-5010	11		2.47 mH	43.8			GS2-5010	10

0) Use (side of drive): In = input only; Out = output only; I/O = input or output.

1) GS2-1xxx drives require 115V class input line reactors and 230V class output line reactors.

2) Single-phase line reactors, fuse kits, and fuses are used only with single-phase drive inputs. Single-phase line reactors should NOT be installed on the output side of AC drives.

3) This reactor is recommended for existing installations only; product will be discontinued after existing stock is depleted.

Appendix A, pg A–2:

Add new line reactor information as shown:

115V CLASS GS2 SERIES				
Model		***GS2-10P2***	***GS2-10P5***	***GS2-11P0***
Motor Rating	HP	1/4hp	1/2hp	1hp
	kW	0.2kW	0.4kW	0.75kW
Rated Input Voltage		Single-phase : 100 to 120 VAC ±10% 50/60 Hz ±5%		
Rated Output Voltage		Three-phase, two times proportion to input voltage		
Rated Input Current (A)		6	9	16
Rated Output Current (A)		1.6	2.5	4.2
Accessories				
Line Reactor (1)	Input / 1-Phase (1)(2)	LR-10P2-1PH (1)(2)(3) LR2-10P2-1PH (2)	LR-10P5-1PH (1)(2)(3) LR2-10P5-1PH (2)	LR-11P0-1PH (1)(2)(3) LR2-11P0-1PH (2)
	Output / 3-Phase	LR-20P5 (3) LR2-20P5	LR-20P5 (3) LR2-20P5	LR-21P0 (3) LR2-21P0
Drive Output Filter		VTF-46-DE	VTF-246-CFG	VTF-24-FH

1) GS2-1xxx drives require 115V class input line reactors and 230V class output line reactors.
2) Single-phase line reactors, fuse kits, and fuses are used only with GS2-1xxx drives. Single-phase line reactors should NOT be installed on the output side of AC drives.
3) This reactor is recommended for existing installations only; product will be discontinued after existing stock is depleted.

230V CLASS GS2 SERIES							
Model		***GS2-20P5***	***GS2-21P0***	***GS2-22P0***	***GS2-23P0***	***GS2-25P0***	***GS2-27P5***
Motor Rating	HP	1/2hp	1hp	2hp	3hp	5hp	7.5hp
	kW	0.4kW	0.75kW	1.5kW	2.2kW	3.7kW	5.5kW
Rated Output Capacity (kVA)		1.0	1.9	2.7	3.8	6.5	9.5
Rated Input Voltage		Single/Three-phase : 200/208/220/230/240 VAC ±10%; 50/60Hz ±5%				Three-phase : 200/208/220/230/240 VAC ±10%; 50/60 Hz ±5%	
Rated Output Voltage		Three-phase : Corresponds to input voltage					
Rated Input Current (A)		6.3/2.9	11.5/6.3	15.7/8.8	27.0/12.5	19.6	28
Rated Output Current (A)		2.5	5.0	7.0	10	17	25
Accessories							
Line Reactor	Input / 1-Phase (1)	LR-20P5-1PH (1)(2) LR2-20P5-1PH (1)	LR-21P0-1PH (1)	LR-22P0-1PH (1)	LR-23P0-1PH (1)	–	–
	Input / 3-Phase	LR2-20P5	LR2-20P7	LR2-22P0	LR-23P0	LR-25P0	LR-27P5
	Output / 3-Phase	LR-20P5 (2) LR2-20P5	LR-21P0 (2) LR2-21P0	LR-22P0 (2) LR2-22P0	LR-23P0	LR-25P0	LR-27P5
Drive Output Filter		VTF-246-CFG	VTF-24-FH	VTF-246-GJJ	VTF-246-HKL	VTF-46-LM	VTF-246-KMN

1) Single-phase line reactors, fuse kits, and fuses are used only with GS2-xxxx drives with single-phase input power. Single-phase line reactors should NOT be installed on the output side of AC drives.
2) This reactor is recommended for existing installations only; product will be discontinued after existing stock is depleted.

460V CLASS GS2 SERIES							
Model		***GS2-41P0***	***GS2-42P0***	***GS2-43P0***	***GS2-45P0***	***GS2-47P5***	***GS2-4010***
Motor Rating	HP	1hp	2hp	3hp	5hp	7.5hp	10hp
	kW	0.8kW	1.5kW	2.2kW	4kW	5.5kW	7.5kW
Rated Output Capacity (kVA)		2.3	3.1	3.8	6.2	9.9	13.7
Rated Input Voltage		Three-phase: 380/400/415/440/460/480 VAC ±10%; 50/60 Hz ±5%					
Rated Output Voltage		Corresponds to input voltage					
Rated Input Current (A)		4.2	5.7	6.0	8.5	14	23
Rated Output Current (A)		3.0	4.0	5.0	8.2	13	18
Accessories							
Line Reactor	Input / 3-Phase	LR2-41P0	LR2-42P0	LR2-43P0	LR2-45P0	LR2-47P5	LR-4010
	Output / 3-Phase	LR-41P0 (2) LR2-41P0	LR-42P0 (2) LR2-42P0	LR-43P0 (2) LR2-43P0	LR-45P0 (2) LR2-45P0	LR-47P5 (2) LR2-47P5	LR-4010
Drive Output Filter	Output / 3-Phase	VTF-246-CFG	VTF-246-DGH	VTF-24-FH	VTF-246-HKL	VTF-24-JL	VTF-46-LM

1) Single-phase line reactors, fuse kits, and fuses are used only with GS2-xxxx drives with single-phase input power. Single-phase line reactors should NOT be installed on the output side of AC drives.
2) This reactor is recommended for existing installations only; product will be discontinued after existing stock is depleted.

575V CLASS GS2 SERIES							
Model		***GS2-51P0***	***GS2-52P0***	***GS2-53P0***	***GS2-55P0***	***GS2-57P5***	***GS2-5010***
Motor Rating	HP	1hp	2hp	3hp	5hp	7.5hp	10hp
	kW	0.75kW	1.5kW	2.2kW	3.7kW	5.5kW	7.5kW
Rated Output Capacity (kVA)		1.7	3.0	4.2	6.6	9.9	12.2
Rated Input Voltage		Three-phase: 500 to 600 VAC -15/+10%; 50/60 Hz ±5%					
Rated Output Voltage		Corresponds to input voltage					
Rated Input Current (A)		2.4	4.2	5.9	7.0	10.5	12.9
Rated Output Current (A)		1.7	3.0	4.2	6.6	9.9	12.2
Accessories							
Line Reactor	Input / 3-Phase	LR2-51P0	LR2-52P0	LR2-53P0	LR2-55P0	LR2-57P5	LR-5010
	Output / 3-Phase	LR-51P0 (2) LR2-51P0	LR-52P0 (2) LR2-52P0	LR-53P0 (2) LR2-53P0	LR-55P0 (2) LR2-55P0	LR-5010 LR2-57P5	LR-5010
Drive Output Filter	Output / 3-Phase	VTF-46-DE	VTF-246-CFG	VTF-246-DGH	VTF-246-GJJ	VTF-246-HKL	VTF-246-HKL

1) Single-phase line reactors, fuse kits, and fuses are used only with GS2-xxxx drives with single-phase input power. Single-phase line reactors should NOT be installed on the output side of AC drives.
2) This reactor is recommended for existing installations only; product will be discontinued after existing stock is depleted.

Line Reactors – LR Series – Additional Specifications

Line Reactors – LR Series – Additional Specifications						
Part Number	***Wire Range***	***Terminal Torque***	***Fasteners***	***Temperature Range***		***Environment***
				Operating	***Storage***	
LR-10P2-1PH	#12–#18 AWG	10 lb·in	#6-32x5/16in flathead screw	-40 – 104 °F [-40 – 40 °C]	-40 – 149 °F [-40 – 65 °C]	NEMA: open IP00 no corrosive gases
LR-10P5-1PH						
LR-11P0-1PH		20 lb·in	1/4in-28x3/8in setscrew			
LR-20P5-1PH		10 lb·in	#6-32x5/16in flathead screw			
LR-20P5						
LR-21P0-1PH						
LR-21P0						
LR-22P0-1PH		20 lb·in				
LR-22P0		10 lb·in				
LR-23P0-1PH		20 lb·in	1/4in-28x3/8in setscrew			
LR-23P0		10 lb·in	#6-32x5/16in flathead screw			
LR-25P0	#18–#4 AWG	20 lb·in	1/4in-28x3/8in setscrew			
LR-27P5						
LR-41P0	#12–#18 AWG	10 lb·in	#6-32x5/16in flathead screw			
LR-42P0						
LR-43P0						
LR-45P0						
LR-47P5						
LR-4010						
LR-51P0						
LR-52P0						
LR-53P0						
LR-55P0						
LR-5010						

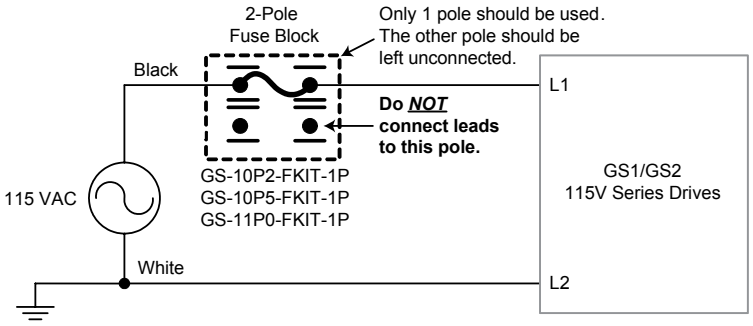
For more detailed information, please refer to the AutomationDirect website:
https://cdn.automationdirect.com/static/specs/aclr.pdf

Appendix A, pg A–17:

Add fuse block single-phase 115VAC wiring information and warning as shown:

Fuse Block Single-Phase 115VAC Wiring

Warning: The single-phase fuse kits contain a 2-pole fuseblock. Per NEC 240.22, fusing is correct only for the hot leg of a source; not for an intentionally grounded source conductor. The hot leg of a grounded 115VAC supply is the only supply line that should be fused.



Appendix A, pg A–17:

Revise Fuse Kit Specifications table as shown:

Fuse Kit Specifications (for 115V, 230V, 460V GS2 drive models)									
Part Number	***Drive Model / Phase***	***Fuse Block***	***Dimen-sions***	***Wire Size***	***Wire Connector Torque (lb·in)***	***Fuse Bolt Torque (lb·in)***	***Fuse Type***	***Fuse Rating***	***Replacement Fuses***
GS-10P2-FKIT-1P*	GS2-10P2 / 1	2 pole	Figure 1	Al/Cu #2-14	20	spring clips	A3T	300V@20A	***GS-10P2-FUSE-1P***
GS-10P5-FKIT-1P*	GS2-10P5 / 1							300V@30A	***GS-10P5-FUSE-1P***
GS-11P0-FKIT-1P*	GS2-11P0 / 1				45			300V@50A	***GS-11P0-FUSE-1P***
GS-20P5-FKIT-1P*	GS2-20P5 / 1	2 pole	Figure 1		20			300V@20A	***GS-20P5-FUSE-1P***
GS-20P5-FKIT-3P	GS2-20P5 / 3	3 pole	Figure 2					300V@10A	***GS-20P5-FUSE-3P***
GS-21P0-FKIT-1P*	GS2-21P0 / 1	2 pole	Figure 1					300V@30A	***GS-21P0-FUSE-1P***
GS-21P0-FKIT-3P	GS2-21P0 / 3	3 pole	Figure 2					300V@20A	***GS-21P0-FUSE-3P***
GS-22P0-FKIT-1P*	GS2-22P0 / 1	2 pole	Figure 1		45			300V@45A	***GS-22P0-FUSE-1P***
GS-22P0-FKIT-3P	GS2-22P0 / 3	3 pole	Figure 2					300V@25A	***GS-22P0-FUSE-3P***
GS-23P0-FKIT-1P*	GS2-23P0 / 1	2 pole	Figure 1					300V@60A	***GS-23P0-FUSE-1P***
GS-23P0-FKIT-3P	GS2-23P0 / 3	3 pole	Figure 2					300V@40A	***GS-23P0-FUSE-3P***
GS-25P0-FKIT	GS2-25P0 / 3							300V@60A	***GS-25P0-FUSE***
GS-27P5-FKIT	GS2-27P5 / 3		Figure 3	Al/Cu 2/0-#6	50	72		300V @125A	***GS-27P5-FUSE***
GS-41P0-FKIT	GS2-41P0 / 3		Figure 4	Al/Cu #2-14	20	spring clips	A6T	600V@10A	***GS-41P0-FUSE***
GS-42P0-FKIT	GS2-42P0 / 3							600V@15A	***GS-42P0-FUSE***
GS-43P0-FKIT	GS2-43P0 / 3							600V@20A	***GS-43P0-FUSE***
GS-45P0-FKIT	GS2-45P0 / 3							600V@30A	***GS-45P0-FUSE***
GS-47P5-FKIT	GS2-47P5 / 3		Figure 5		45			600V@50A	***GS-47P5-FUSE***
GS-4010-FKIT	GS2-4010 / 3		Figure 6	Cu 2/0-#12	120	72		600V@70A	***GS-4010-FUSE***

Short Circuit Current Rating (SCCR) = 200 kA

** Single-phase fuse kits contain a 2-pole fuseblock. Per NEC 240.22, fusing is correct only for the hot leg of a source; not for an intentionally grounded source conductor. The hot leg of a grounded 115VAC supply is the only supply line that should be fused.*