

DataLogger *Series 4*

Instruction Manual



MAGNETEK
MATERIAL HANDLING

Part Number: 144-27097 R0
March 2014

©Copyright 2014 Magnetek Material Handling

Table of Contents

Service Contact Information	4
Preface and Safety	5
Product Safety Information.....	5
Product Warranty Information	5
DANGER, WARNING, CAUTION, and NOTE Statements.....	6
1. Overview	7
2. Recorded Data Types	8
2.1 Log Data Overview.....	8
2.2 Trend Data Overview	8
2.3 Parameter Data Overview.....	8
3. Event Data	9
3.1 When a Run Occurs.....	9
3.2 When a Fault Occurs	9
3.3 When an Alarm Occurs	9
4. Trend Data	10
5. Parameter Data	10
5.1 Upload Parameter Data from Drive to the DLS4.....	10
5.2 Download Parameter Data from DLS4 to the Drive	10
6. Connecting to a Drive	11
6.1 Drive Compatibility	11
6.2 IMPULSE®•G+/VG+ Series 4 Drive	11
6.3 IMPULSE®•G+/VG+ Series 3 Drive	11
6.4 IMPULSE®•G+ Mini Drive.....	11
7. Main Menu	12
7.1 IMPULSE®•G+/VG+ Series 4	12
7.2 IMPULSE®•G+/VG+ Series 3	13
7.3 IMPULSE®•G+ Mini	14
8. Event History Menu	16
8.1 Run, Fault, and Alarm History	17
8.2 Counters.....	18
8.3 Clear History.....	18
8.4 Fault and Alarm Filters	18
8.5 Run Filter	18
9. Trending Menu	19
9.1 Custom Monitors	20
9.2 Custom Monitor Options	20
9.3 Trend in BB (Base Block).....	20
9.4 Clear Trends.....	20
10. Parameter Backup Menu	21
10.1 Read Parameter Data	21
10.2 Write Parameter Data	22
10.3 Clear Parameter Data	22
10.4 Rename Parameter Data	22

11. DataLogger Settings Menu	23
11.1 Set Date/Time	23
11.2 Version (Firmware) Information.....	24
11.3 Diagnostics.....	24
11.4 Set Baud.....	24
11.5 Test Screen.....	24
12. Remote Mounting Bracket	25
13. Connecting to a PC.....	25
14. Maintenance	25
14.1 Replacing the Battery.....	25
14.2 Firmware Updates.....	25

Service Contact Information

For questions regarding service or technical information contact:

1-866-MAG-SERV
(1-866-624-7378)

Magnetek Material Handling
N49 W13650 Campbell Drive
Menomonee Falls, WI 53051

Telephone: 800-288-8178

Website: www.magnetek.com
E-mail: mhcustomerservice@magnetek.com

Fax Numbers:

Main: 800-298-3503
Sales: 262-783-3510
Service: 262-783-3508

Magnetek, Inc. has additional satellite locations for Canada and the United States. For more information, please visit <http://www.magnetek.com>.

©2014 MAGNETEK

All rights reserved. This notice applies to all copyrighted materials included with this product, including, but not limited to, this manual and software embodied within the product. This manual is intended for the sole use of the person(s) to whom it was provided, and any unauthorized distribution of the manual or dispersal of its contents is strictly forbidden. This manual may not be reproduced in whole or in part by any means whatsoever without the expressed written permission of MAGNETEK.

Preface and Safety

©2014 MAGNETEK

All rights reserved. This notice applies to all copyrighted materials included with this product, including, but not limited to, this manual. This manual is intended for the sole use of the persons to whom it was provided, and any unauthorized distribution of the manual or dispersal of its contents is strictly forbidden. This manual may not be reproduced in whole or in part by any means whatsoever without the expressed written permission of Magnetek.

Product Safety Information

Magnetek, Inc. (Magnetek) offers a broad range of radio remote control products, control products and adjustable frequency drives, industrial braking systems, and power delivery products for material handling applications. This manual has been prepared by Magnetek to provide information and recommendations for the installation, use, operation and service of Magnetek's material handling products and systems (Magnetek Products). Anyone who uses, operates, maintains, services, installs or owns Magnetek Products should know, understand and follow the instructions and safety recommendations in this manual for Magnetek Products.

The recommendations in this manual do not take precedence over any of the following requirements relating to cranes, hoists, lifting devices or other equipment which use or include Magnetek Products:

- Instructions, manuals, and safety warnings of the manufacturers of the equipment where the Magnetek Products are used,
- Plant safety rules and procedures of the employers and the owners of the facilities where the Magnetek Products are being used,
- Regulations issued by the Occupational Health and Safety Administration (OSHA),
- Applicable local, state, provincial, or federal codes, ordinances, standards and requirements, or
- Safety standards and practices for the industries in which Magnetek Products are used.

This manual does not include or address the specific instructions and safety warnings of these manufacturers or any of the other requirements listed above. It is the responsibility of the owners, users and operators of the Magnetek Products to know, understand and follow all of these requirements. It is the responsibility of the employer to make its employees aware of all of the above listed requirements and to make certain that all operators are properly trained.

No one should use Magnetek Products prior to becoming familiar with and being trained in these requirements and the instructions and safety recommendations for this manual.

Product Warranty Information

Magnetek, hereafter referred to as Company, assumes no responsibility for improper programming of a device (such as a drive or radio) by untrained personnel. A device should only be programmed by a trained technician who has read and understands the contents of the relevant manual(s). Improper programming of a device can lead to unexpected, undesirable, or unsafe operation or performance of the device. This may result in damage to equipment or personal injury. Company shall not be liable for economic loss, property damage, or other consequential damages or physical injury sustained by the purchaser or by any third party as a result of such programming. Company neither assumes nor authorizes any other person to assume for Company any other liability in connection with the sale or use of this product.

For information on Magnetek's product warranties by product type, please visit www.magnetek.com.

DANGER, WARNING, CAUTION, and NOTE Statements

Read and understand this manual before installing, operating, or servicing this product. Install the product according to this manual and local codes.

The following conventions indicate safety messages in this manual. Failure to heed these messages could cause fatal injury or damage products and related equipment and systems.



DANGER

DANGER indicated an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE: A NOTE statement is used to notify installation, operation, programming, or maintenance information that is important, but not hazard-related.

1. Overview

The DataLogger Series 4 (DLS4) is designed to simplify troubleshooting by presenting and logging detailed operational histories that are necessary for cost-saving preventive maintenance.

The DataLogger Series 4 is a logging device that allows the operator to easily and logically access Run, Alarm, and Fault histories for the IMPULSE®•G+ Mini, IMPULSE®•G+/VG+ Series 3, and IMPULSE®•G+/VG+ Series 4 drives. The DataLogger Series 4 is also capable of storing 11 parameter sets. It is designed to be a fit-and-form replacement to the Series 4 keypad. The supplied CAT5 serial cable is required to connect the DataLogger Series 4 to a G+ Mini or Series 3 drive. The DLS4 also stores trend data which can be used by IMPULSE®•Link 5 to generate charts of various drive monitors.

The DataLogger Series 4 kit consists of:

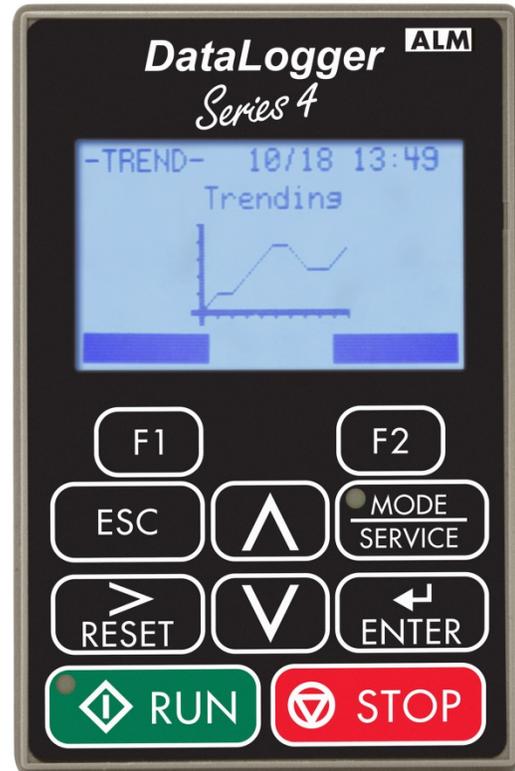
- DataLogger Series 4 unit
- Quick-Start Guide
- Serial (CAT5) cable for drive connection
- USB cable for PC communication
- USB Flash Drive including the IMPULSE®•Link 5 Viewer software

The DataLogger Series 4 can log:

- 5000 Run Events
- 400 Alarm Events
- 400 Fault Events
- Over 900MB (approximately 300 Hours) of monitor data (U01-01–U01-12, plus up to 10 selectable monitors)
- 11 parameter sets

The user-friendly DataLogger can be effectively applied by those with little or no knowledge of inverters. All data acquisition is automatic, and data viewing and analysis is available via the LCD display or by connecting to your PC via USB and viewing the data on the IMPULSE®•Link 5 Viewer software. The DLS4 receives power from either the drive or by USB when connected to the PC. The internal clock is powered by a user-replaceable lithium CR1220 coin battery.

NOTE: Cables for remote mounting must be less than 50 feet in length.



2. Recorded Data Types

The recorded data is organized into three types: log data, trend data, and parameter data. Log data consists of run information, faults, and alarm data. Trend data consists of data suitable for graphing drive monitor information. Parameter data consists of drive settings.

2.1 Log Data Overview

The DLS4 automatically collects data without any input required from the user. Each Run, Alarm, and Fault is recorded in this log with various monitors' measurements linked to each. For more detailed information, see the "Run, Alarm, and Fault History" section on page 17. All log data is stored in a single file named "DLS4_Log.ds4", which is located on the root directory of the DLS4.

2.2 Trend Data Overview

The DLS4 automatically collects Trend data when a Run command is given to the drive. The DLS4 may also be configured to record Trend Data even when the drive is in Base Block. The "Custom Monitors" selection menu allows the user to specify additional monitors that are logged in the trend file. See the "Trending Menu" section on page 19 for more detailed information. A new trend data file is created every hour and is labeled by drive model and time-stamp.

2.3 Parameter Data Overview

When the DataLogger is connected to a drive, it will read all parameter data and store it in parameter Slot 0 in the Parameter Backup section. Slot 0 serves as a starting configuration of the drive at the moment the DataLogger was powered on, which the user may elect to write back to the drive. This default configuration file will not be overwritten until the DataLogger is power-cycled. The user does not need to initiate any steps for the DataLogger to begin collecting this parameter data. The user can also save parameter data to one of ten parameter data file locations.

The parameter data can also be viewed on a PC using the IMPULSE®•Link 5 Viewer PC software, included with each DLS4 or available as a download at:

<http://www.magnetek.com/en/Material%20Handling/Downloads.aspx>

A drive parameter set can be downloaded into a drive of the same software version, model, control method (Flux Vector, Open Loop Vector, or V/f) and motion. Caution should be taken when copying parameters from one Flux Vector drive to another. An auto-tune should be performed even if the motors are seemingly identical to ensure optimal performance.

3. Event Data

3.1 When a Run Occurs

When the DLS4 detects a run, it increments the run counter and begins to take average and peak values of the monitors being logged. It also logs how long the run remains active. When the run has ended, this information is written to the internal memory. If the run ended due to a fault, the reference to that fault gets linked with the particular run. A reference to the last alarm (if any) that occurred during the run is also stored.

3.2 When a Fault Occurs

When the DLS4 detects a fault, it identifies which faults are present on the specific drive. These are then compared to the Fault Filters on the DLS4, and any faults specified to be filtered will not get logged. If a run event was present when the fault occurred, the run number is also saved with the fault data. If the active fault message is active on the display, the RESET key can be pressed to clear the fault.

3.3 When an Alarm Occurs

When the DLS4 detects an alarm, it identifies which alarms are present on the specific drive. These are then compared to the Alarm Filters on the DLS4, and any alarms specified to be filtered will not get logged. A logged alarm includes basic information pertaining to the configuration of the connected drive. If a run event was present when the alarm occurred, the run number is also saved with the alarm data.

4. Trend Data

The DLS4 stores real-time drive information, such as current, voltage and torque. This trending data can be viewed on a PC by using the IMPULSE®•Link 5 Viewer software. A new trend data file is created every hour and is labeled by drive information and time-stamp. See the “Trending Menu” section starting on page 19 for detailed information.

Example: 2007-VG+S4-14705000203100-131016141244.ts4

Format: [Model Text]-[FFFFFF][RR][TT][CC][KK]-[YY][MM][DD][hh][mm][ss].ts4

Table 1: Trend Data File Tag Descriptions

Tag	Description	Example Reference
Model Text	Drive model	230 VAC, 7 Amp, VG+ Series 4
FFFFFF	Firmware version	14705
RR	Revision	00
TT	Motion	02 (Hoist NLB)
CC	Control Method	03 (Flux Vector)
KK	KVA (decimal format)	100 (64 Hex – 002-04 = 64)
YY	Year	13 (2013)
MM	Month	10 (October)
DD	Day	16
hh	Hour	14 (2 PM)
mm	Minute	12
ss	Second	44

5. Parameter Data

The DataLogger Series 4 can store parameter data from a drive. When a DLS4 is connected to a powered-on drive, it will automatically upload the current parameters into Slot 0. This parameter set may be used to “undo” any changes made while troubleshooting an issue. Note that Slot 0 will be overwritten on each power up.

The DLS4 can store up to 10 additional parameter sets. The parameter data can then be easily transferred to other drives with the same model, software version, control method, and motion. The parameter data sets can be individually cleared, and also renamed from the default naming convention (which is the model type and model). See the “Parameter Backup Menu” section starting on page 21 for detailed navigation information.

5.1 Upload Parameter Data from Drive to the DLS4

The stored parameter data on the DataLogger Series 4 can be written to a drive of the same model, software version, control method, and motion. See the “Read Parameter Data” section on page 21 for detailed information and instructions.

5.2 Download Parameter Data from DLS4 to the Drive

The user can store up to 10 parameter sets on the DataLogger Series 4, plus the one parameter set that gets automatically stored when it is connected to a drive. The automatically-stored parameter set cannot be overwritten manually, but will be automatically overwritten when the DLS4 is unplugged and re-plugged into a drive. See the “Write Parameter Data” section on page 22 for detailed information and instructions.

6. Connecting to a Drive

6.1 Drive Compatibility

The DataLogger Series 4 supports all firmware versions of the IMPULSE®•G+/VG+ Series 4, IMPULSE®•G+/VG+ Series 3, and IMPULSE®•G+ Mini drives.

NOTE: If the DLS4 is connected to both a drive and a PC at the same time, it will operate in PC mode only.

6.2 IMPULSE®•G+/VG+ Series 4 Drive

There are two options for connecting to an IMPULSE®•G+/VG+ Series 4 drive. The first option is to simply replace the factory keypad, which is seated in the keypad pocket, with the DataLogger Series 4. The second option is to remove the keypad and use a serial cable to connect the DLS4 to the drive.

6.3 IMPULSE®•G+/VG+ Series 3 Drive

For connection to an IMPULSE®•G+/VG+ Series 3 drive, remove the existing keypad from the drive. Use a serial cable to connect the DLS4 to the Series 3 drive.

6.4 IMPULSE®•G+ Mini Drive

For connection to an IMPULSE®•G+ Mini drive, open the  door on the drive's front panel (located by the keypad/display). Use a serial cable to connect the DLS4 to the G+ Mini drive.

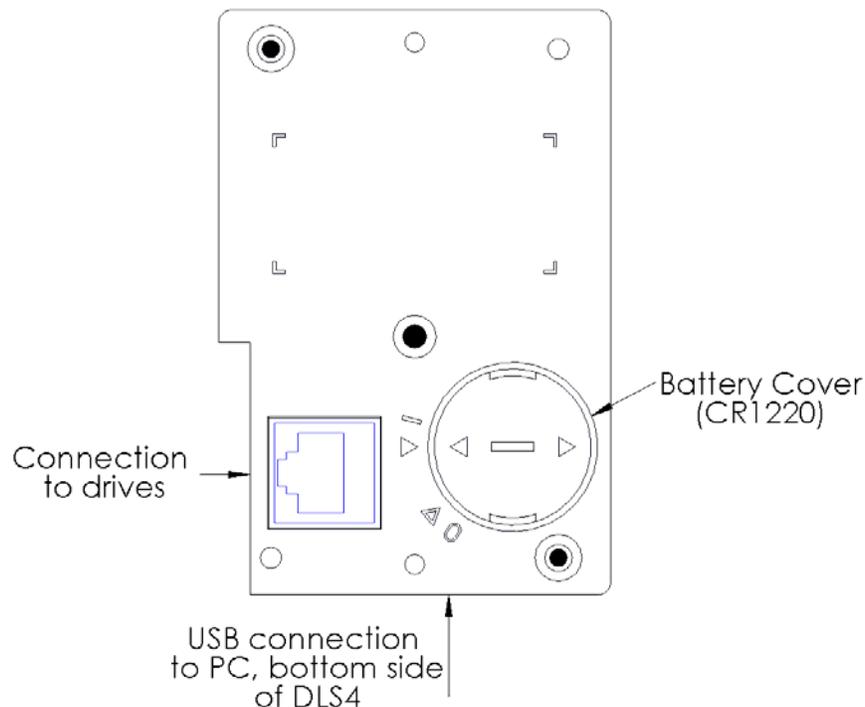


Figure 1: Drive Connection Locations

7. Main Menu

7.1 IMPULSE®•G+/VG+ Series 4

When the DataLogger is connected to a Series 4 drive, the menu is structured exactly the same as the regular keypad and will retain all the existing functionality plus the four additional menus for the DataLogger functions.

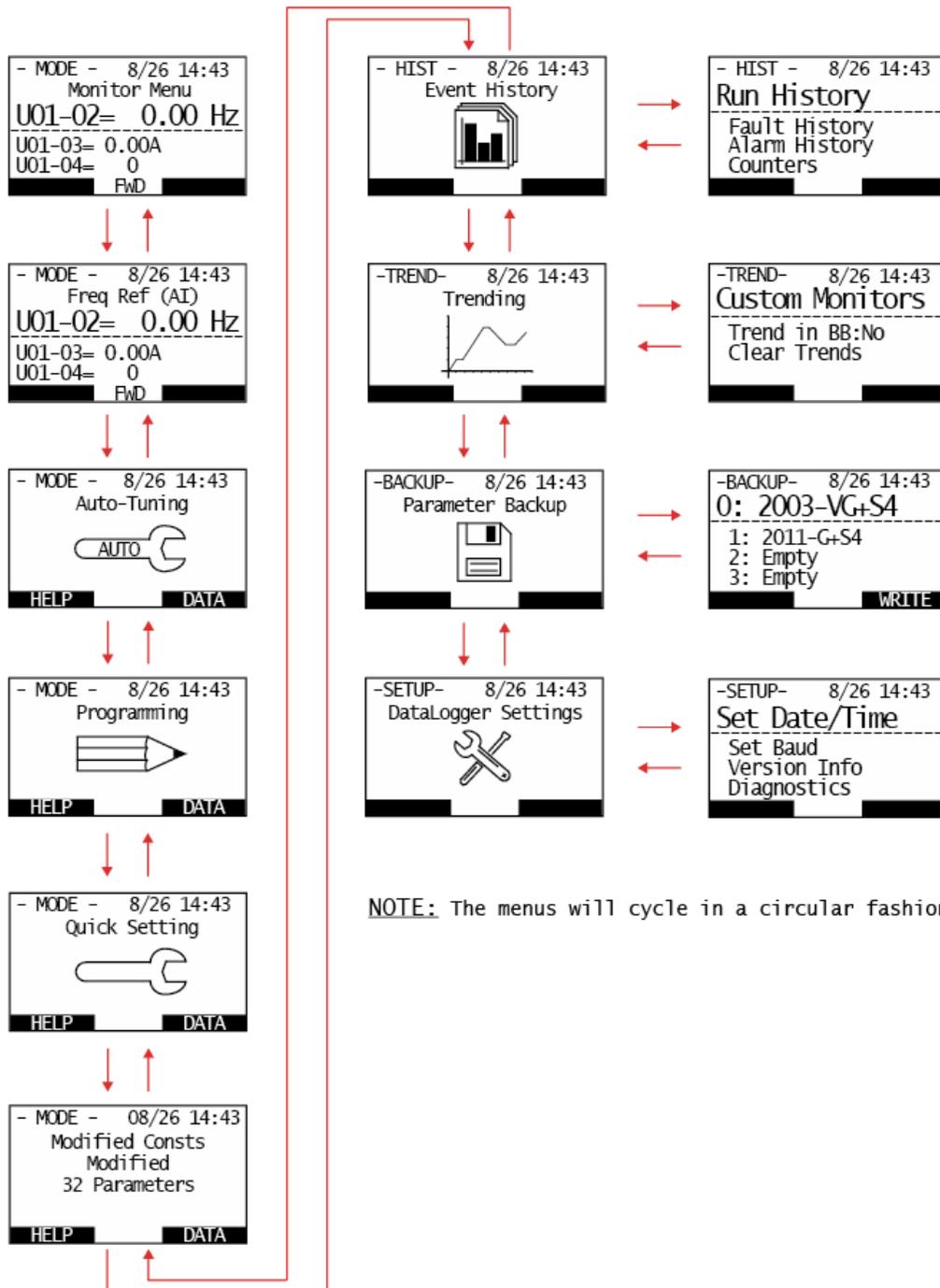
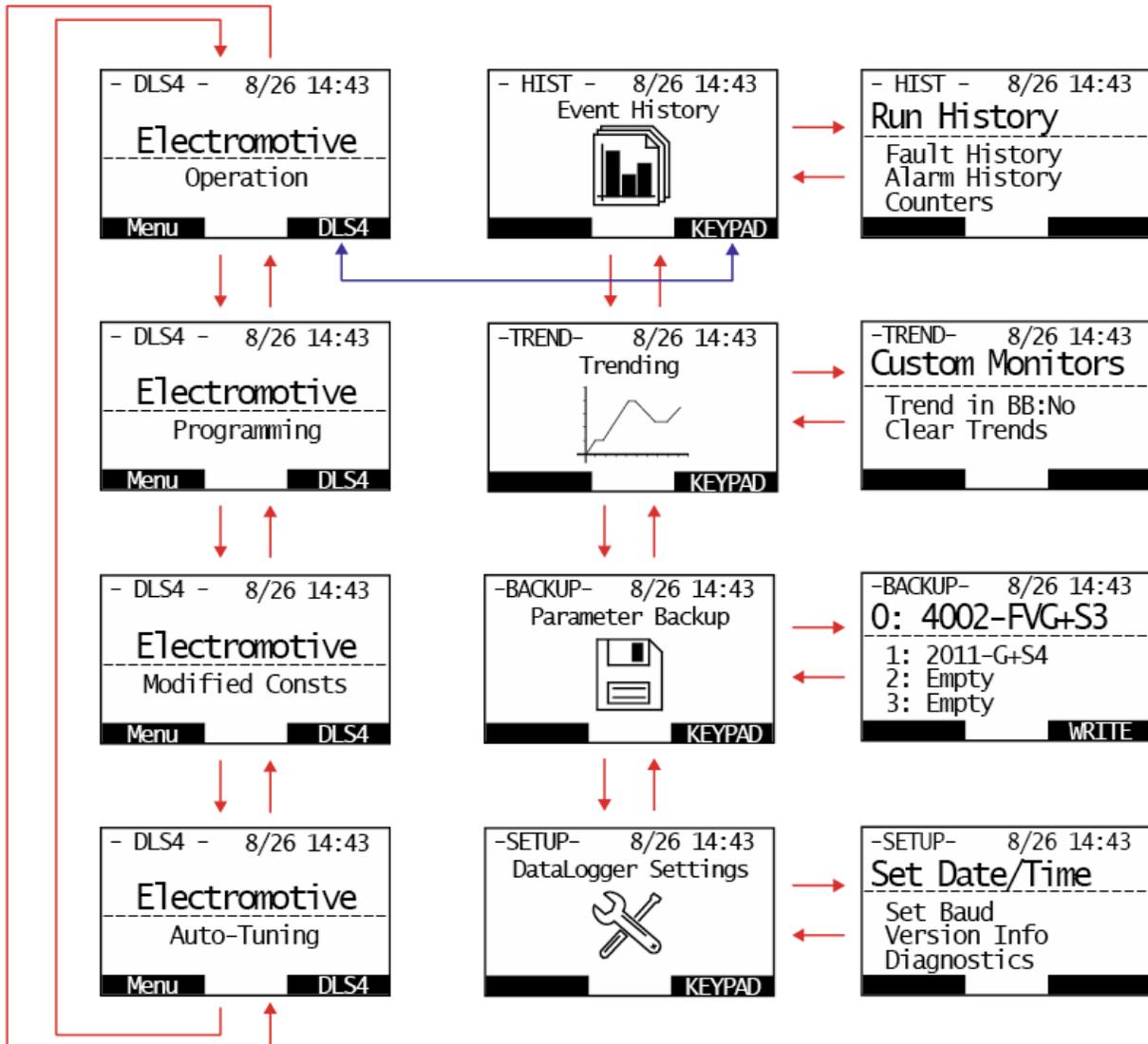


Figure 2: Main Menu Navigation - IMPULSE®•G+/VG+ Series 4

7.2 IMPULSE®G+/VG+ Series 3

When the DataLogger is connected to a Series 3 drive, the menu structure will remain the same as its normal keypad. Navigating to the DataLogger functions is executed by pressing the F2 key when the label above the F2 key shows "DLS4". Returning to the normal keypad menu is accomplished by pressing the F2 key when "Keypad" is labeled above it.



NOTE: Cycle through the menus by pressing the F1 key, which is labeled "Menu".

NOTE: The DLS4 will boot to the Monitor screen inside the Operation menu.
Browse to the DataLogger function screens by pressing the F2 key, when it's labeled "DLS4".
Browse back to the Series 3 keypad screens by pressing the F2 key, when it's labeled "Keypad".

NOTE: The DLS4 must be in Operation mode in order to respond to run commands.
Switching to DLS4 mode does not change the drive's keypad state.

Figure 3: Main Menu Navigation - IMPULSE®G+/VG+ Series 3

7.3 IMPULSE®•G+ Mini

When the DataLogger is connected to a G+ Mini drive, the menu structure will be simulated on the display, and it will function exactly the same as using the integrated keypad. Navigating to the DataLogger functions is executed by pressing the F2 key when the label above the F2 key shows "DLS4". Returning to the normal keypad menu is accomplished by pressing the F2 key when "Keypad" is labeled above it.

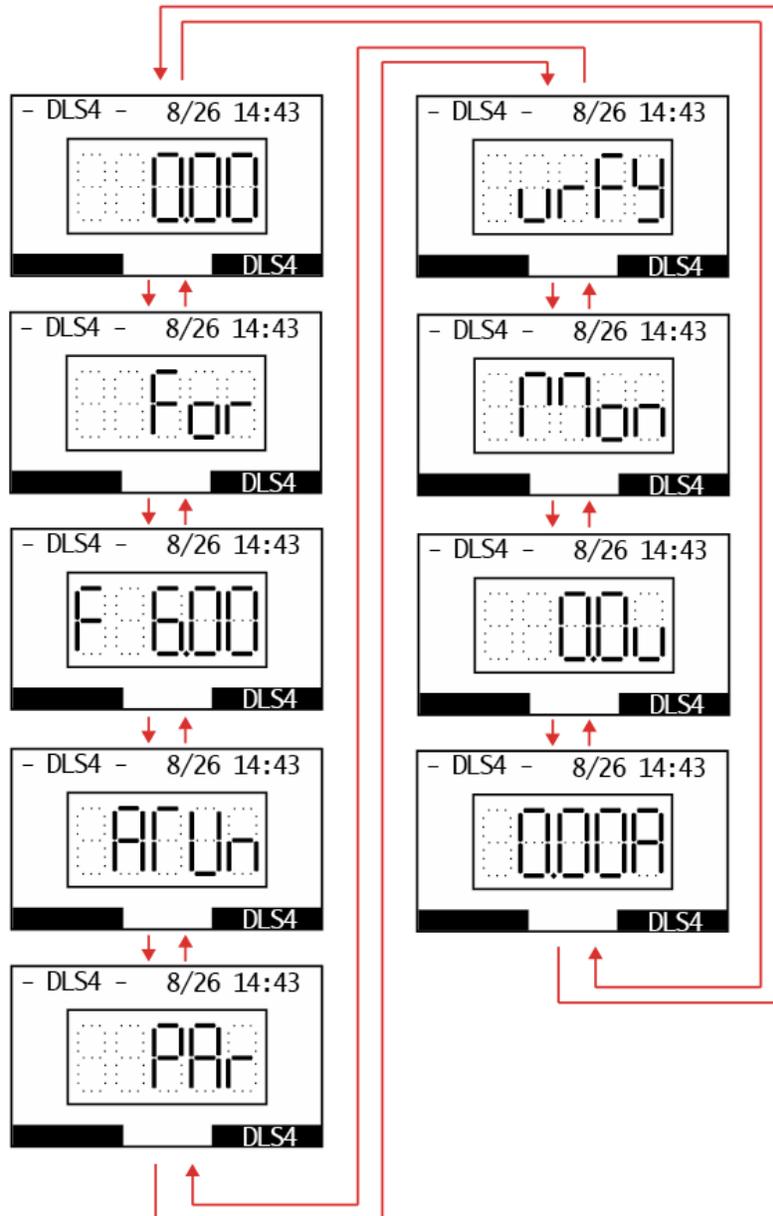
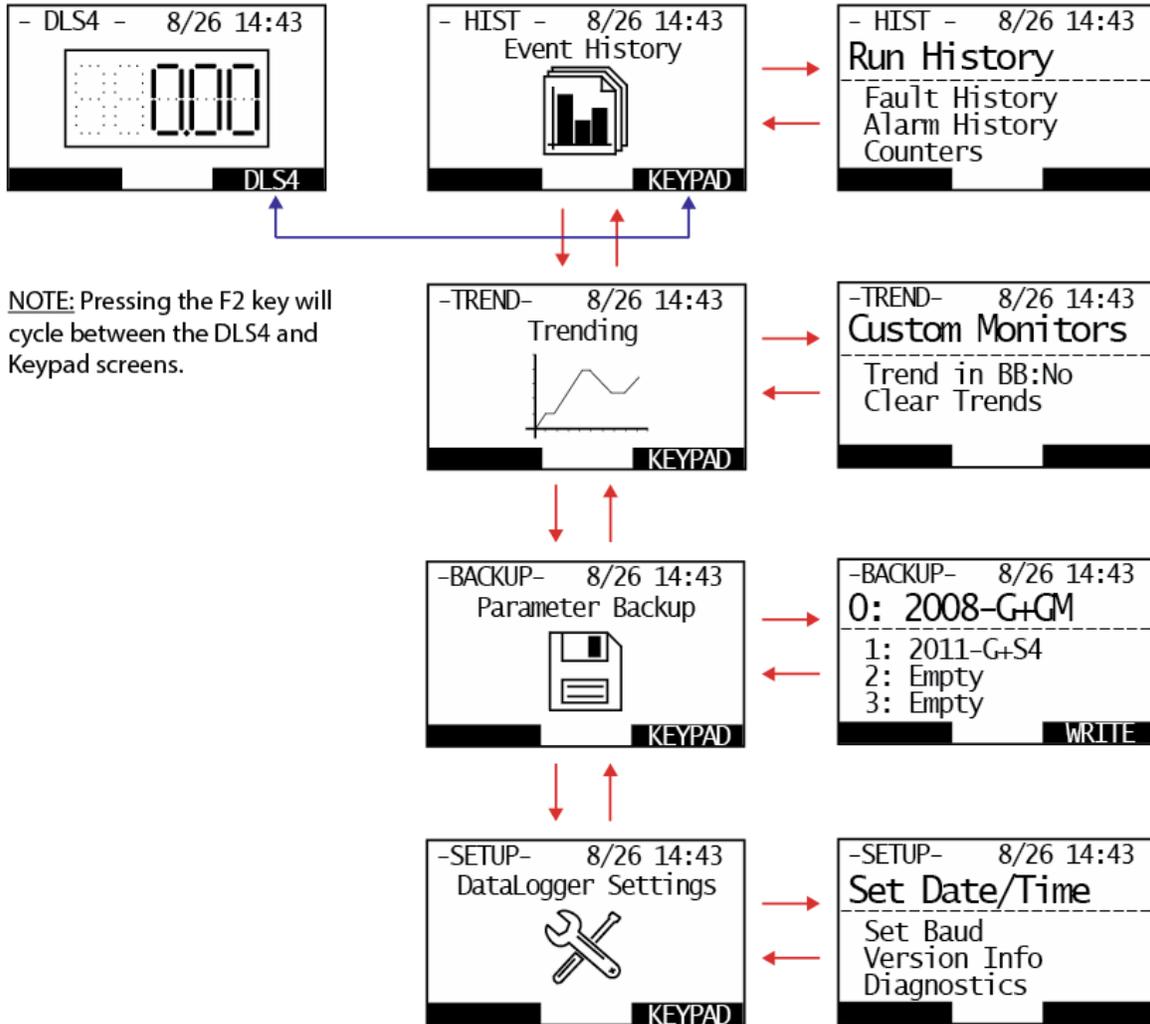


Figure 4: Main Menu Navigation - IMPULSE®•G+ Mini



NOTE: The DLS4 must be in Operation mode in order to respond to run commands. Switching to DLS4 mode does not change the drive's keypad state.

Figure 5: DataLogger Menu Navigation - IMPULSE®G+ Mini

8. Event History Menu

The Event History menu contains:

- Run, Fault, and Alarm History logs
- Counter of the stored Run, Fault, and Alarm events
- Filter settings for Faults and Alarms
- Option to clear the Run, Fault, and Alarm history logs
- Run duration filter

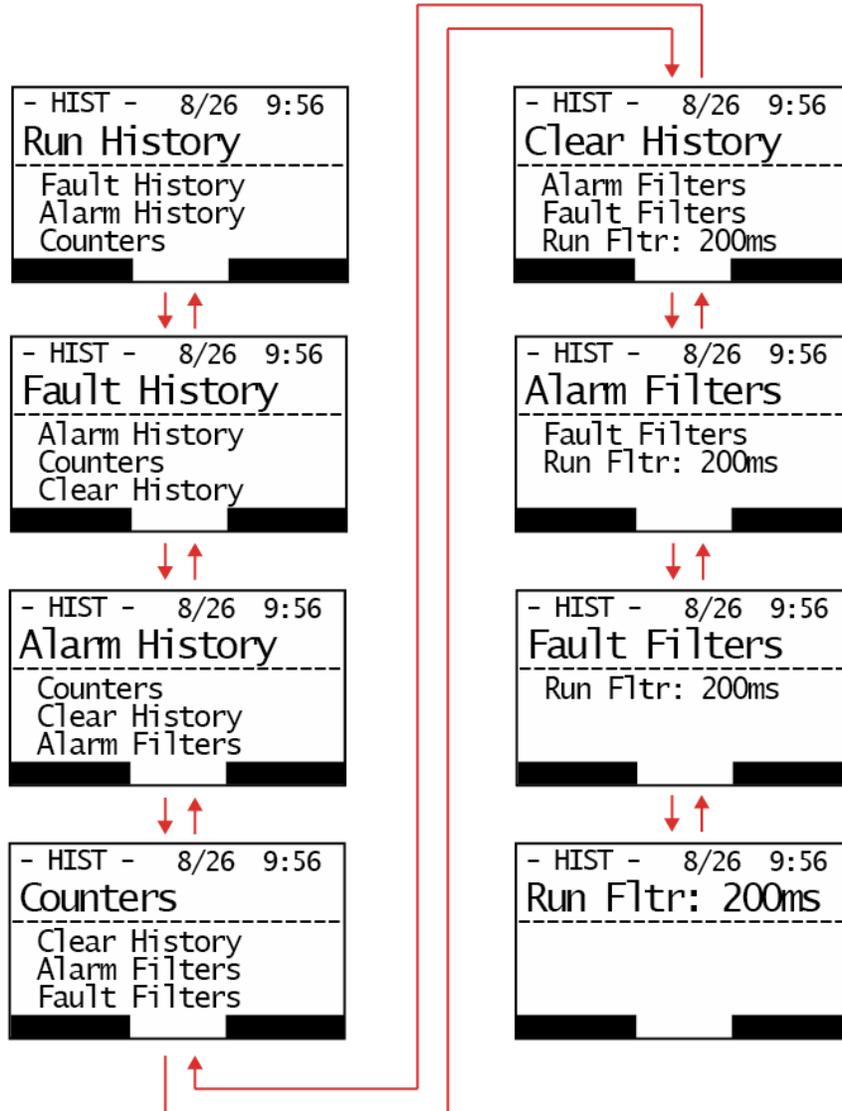


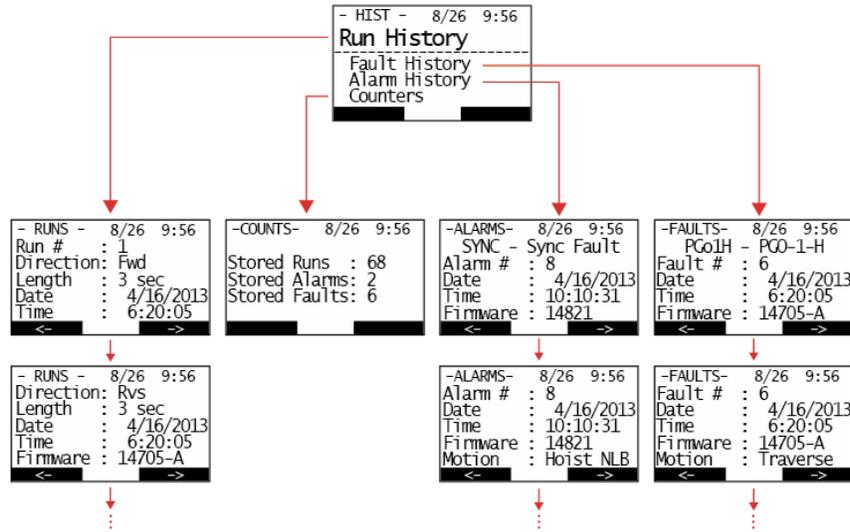
Figure 6: Event History Menu

8.1 Run, Fault, and Alarm History

The Run History menu contains information on each time the drive receives a run command or changes direction. Various measurements are logged for the duration of the run.

The Fault History menu contains information for each stored fault event. Various measurements are logged at the exact moment the fault occurs.

The Alarm History menu contains information for each stored alarm event. Basic information about the drive configuration is logged at the moment of the alarm.



Push/hold the DOWN/UP key to scroll through the history information.
Push/hold the F1 or F2 (arrow) key to browse to the next history page.

Items in this section:

- Run #
- Direction
- Length
- Date
- Time
- Firmware
- Motion
- Ctrl Mthd
- Avg Amps
- Peak Amps
- Avg FOut
- Peak FOut
- Avg Spd
- Peak Spd
- Avg Trq
- Peak Trq
- Avg Bus
- Peak Bus
- Heatsink
- Fault
- LastAlarm
- Run LoCnt
- Run HiCnt
- MB Addr

Items in this section:

- Stored Runs
- Stored Alarms
- Stored Faults

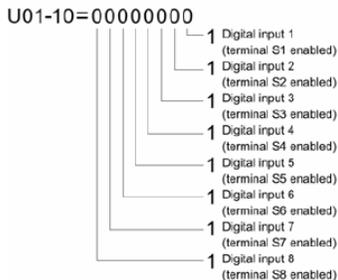
Items in this section:

- Alarm Text
- Alarm #
- Date
- Time
- Firmware
- Motion
- Ctrl Mthd
- Run #
- Run LoCnt
- Run HiCnt
- MB Addr

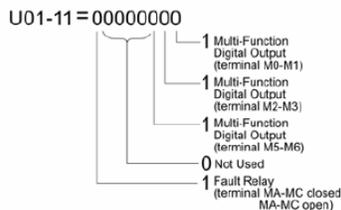
Items in this section:

- Fault Text
- Fault #
- Date
- Time
- Firmware
- Motion
- Ctrl Mthd
- Direction
- Freq Ref
- Freq Out
- Output A
- Motor Spd
- Output V
- DC Bus V
- Output HP
- Trq Ref
- Input Trm
- OutputTrm
- Ctrl Sts
- HeatSink
- Run #
- Run LoCnt
- Run HiCnt
- MB Addr

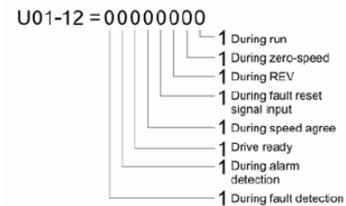
Input Terminal Status



Output Terminal Status



Operation Status



8.2 Counters

This screen displays the total number of logged Run, Fault, and Alarm events stored in the DLS4 memory.

8.3 Clear History

The Run, Fault, and Alarm history logs can be cleared with this option. With “Clear History” selected, press the ENTER key and a confirmation dialog will appear on the screen. To cancel this action, choose the “No” option by pressing the F1 key or the ESC key. To confirm this action and clear the history logs, choose the “Yes” option by pressing the F2 key. A “Please Wait” message will appear on the display for around 10 seconds while the history is being cleared.

8.4 Fault and Alarm Filters

The Fault and Alarm filters allow the user to indicate specific faults or alarms that shouldn't be recorded in the Fault and Alarm History logs. Press the Down Arrow key until the “Alarm Filters” or “Fault Filters” is highlighted on the first line and then press the Enter key. A dot indicates that the corresponding fault or alarm will NOT get logged. Pressing the Enter key when the desired fault or alarm is highlighted will toggle the diamond.

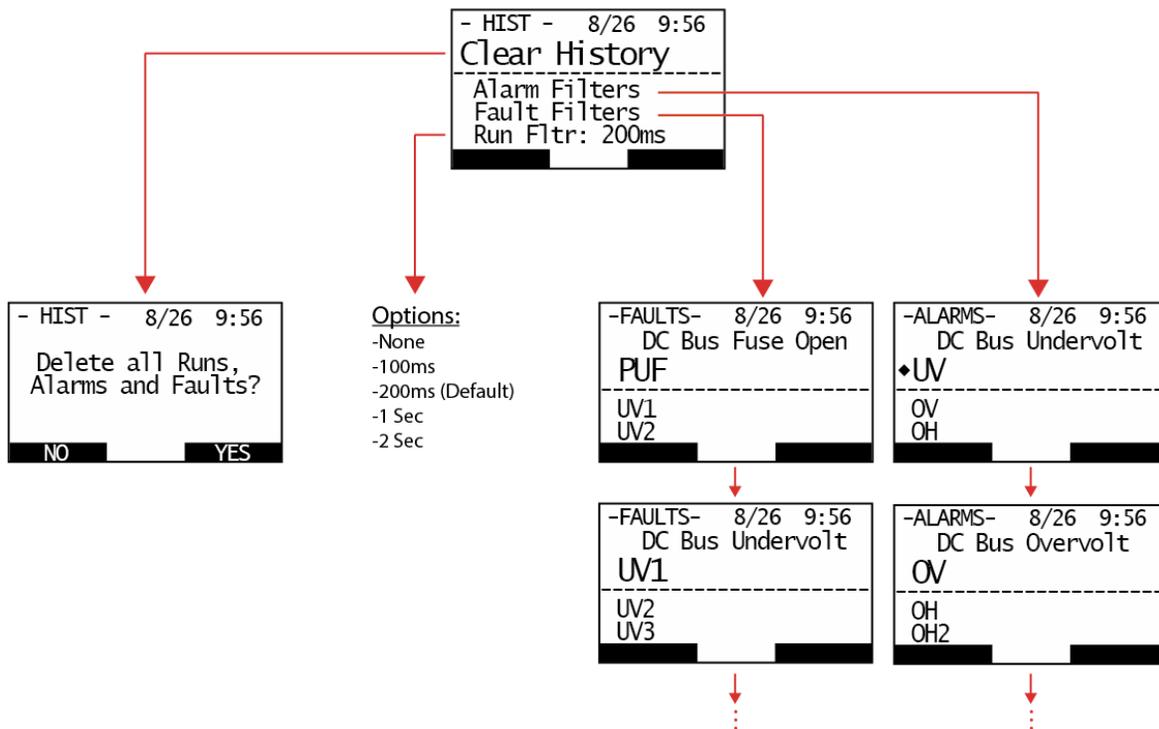


Figure 7: Clear History Menu and Fault/Alarm Filters

8.5 Run Filter

The Run Filter setting specifies the amount of time the motor must be stopped to be considered the end of a run. This can allow a series of very short runs to be combined into one longer run. Changing this option to “None” will allow every run to get logged. There are five time options to choose from: None, 100ms, 200ms, 1 second, or 2 seconds.

9. Trending Menu

The Trending feature of the DataLogger Series 4 autonomously logs real-time drive information, such as current or torque changes over time. This trending data is viewable by connecting the DLS4 to a PC and opening the trending files in the IMPULSE®•Link 5 Viewer software. A new trend data file is created every hour and is labeled by drive model and time-stamp. The data is presented in a graphical form with the X-axis being Time and the Y-axis being the various trending measurements.

The following are the monitors that are logged in the trend files:

- Frequency Reference
- Output Frequency
- Output Current
- Control Method
- Motor Speed
- Output Voltage
- DC Bus Voltage
- Output Horsepower
- Torque Reference
- Input Terminal Status
- Output Terminal Status
- Run Time
- Firmware
- Terminal A1 Level (Series 3 and G+ Mini only)
- Terminal A2 Level (Series 3 and G+ Mini only)

The “Custom Monitors” provides the user with the ability to select from a variety of additional monitors to get logged with the trending data.

The “Trend in BB” option allows the user to enable the DLS4 to log trending data when the drive is Base Blocked (not running). By default, this option is disabled.

The “Clear Trends” option allows the user to delete all the trending data from the DLS4.

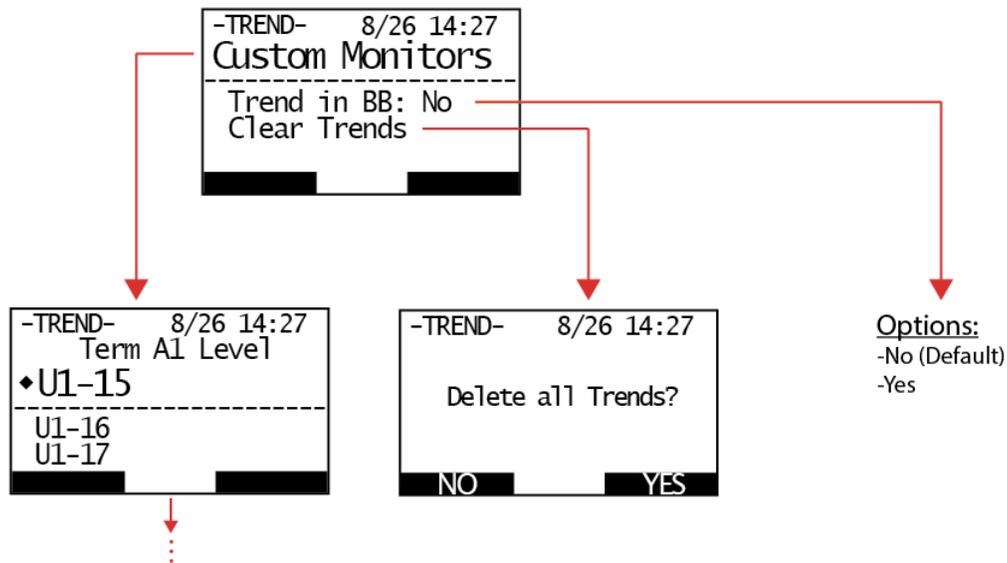


Figure 8: Custom Monitors Menu Navigation

9.1 Custom Monitors

The Custom Monitors allow the user to indicate specific monitors that should get logged in the Trending data. A maximum of 10 monitors may be selected. If the user attempts to select more than 10 monitors, a "Max of 10 Monitors" message will appear on the display. This menu is the first option located within the "Trending" section. A dot indicates that the corresponding monitor will get logged in the trending data. Pressing the Enter key while the desired monitor is highlighted will enable or disable the dot. When finished, pressing the ESC key will save the settings and exit the menu.

9.2 Custom Monitor Options

Series 4

- U01-15 (Term A1 Level)
- U01-16 (Term A2 Level)
- U01-17 (Term A3 Level)
- U01-20 (SFS Output)
- U01-25 (Opt In Low)
- U01-26 (Opt In High)
- U01-29 (Load Weight)
- U01-30 (SS Delta Speed)
- U01-44 (ASR Out w/o Fltr)
- U01-50 (Hook Height)
- U01-54 (Input Pulse Mon)
- U01-68 (LC Zone)
- U01-69 (LC Margin)
- U01-85 (NLB Rel Trq)
- U01-86 (Brk Test Trq)
- U04-08 (Heatsink Temp)
- U04-16 (Motor OL1 Level)
- U04-17 (Drive OL2 Level)
- U06-01 (Mot SEC Current)
- U06-02 (Mot EXC Current)
- U06-11 (Iq Reference)
- U06-12 (Id Reference)
- U07-03 (Bckt Delta Revs)

Series 3

- U01-17 (Term A3 Level)
- U01-18 (Mot SEC Current)
- U01-19 (Mot EXC Current)
- U01-20 (SFS Output)
- U01-29 (Load Weight)
- U01-30 (SS Delta Speed)
- U01-41 (Actual Fin Temp)
- U01-50 (Hook Height)

G+ Mini

- U01.20 (SFS Output)
- U01.54 (Input Pulse Mon)
- U04.08 (Heatsink Temp)
- U04.16 (Motor OL1 Level)
- U04.17 (Drive OL2 Level)

9.3 Trend in BB (Base Block)

The Trend in BB option allows the user to enable the DLS4 to log trending data when the drive is Base Blocked (not running). By default, this option is disabled. By enabling this option, the Trend's circular buffer will fill up faster, causing old Trend data to be overwritten sooner.

9.4 Clear Trends

The Trending data logs can be cleared with this option. With "Clear Trends" on the top line, press the ENTER key and a confirmation dialog will appear on the screen. To cancel this action, choose the "No" option by pressing the F1 key or the ESC key. To confirm this action and clear the trending logs, choose the "Yes" option by pressing the F2 key. A "Clearing Trends" message will appear on the display, and a number indicating how many trend files have been erased. There may be hundreds of trend files, so this step may take a while.

10. Parameter Backup Menu

The Parameter Backup menu allows the user to store (read) up to 11 parameter sets to the DataLogger Series 4, which can then be transferred (written) to any drive with the same software version, model, control method (Flux Vector, Open Loop Vector, or V/f), and motion. If any of these four conditions is not met, a message will indicate which condition does not match.

When the DLS4 is connected to an active drive, it will automatically upload the drive's parameter data and store it in Slot 0 in the Parameter Backup section. Slot 0 serves as a snapshot of the drive settings when the DataLogger was powered on, which the user may elect to write back to the drive. This slot cannot be overwritten by the user. The user may only Write these parameters to the drive.

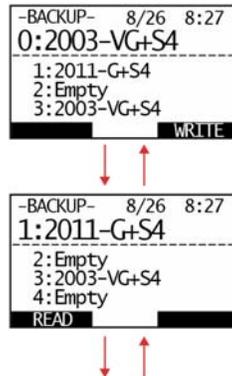


Figure 9: Parameter Backup Menu

10.1 Read Parameter Data

The user may store (read) up to 11 parameter sets to the DataLogger Series 4.

To read a parameter set from a drive, scroll to the desired slot (1 – 10) and then press the F1 key to initiate the read function. A confirmation message will be displayed which lists basic information about the connected drive. To cancel this action, choose the “No” option by pressing the F1 key or the ESC key. To confirm this action and read from the drive, choose the “Yes” option by pressing the F2 key. A “Reading Pars” message will appear on the display for around 20 seconds while the parameters are being read.

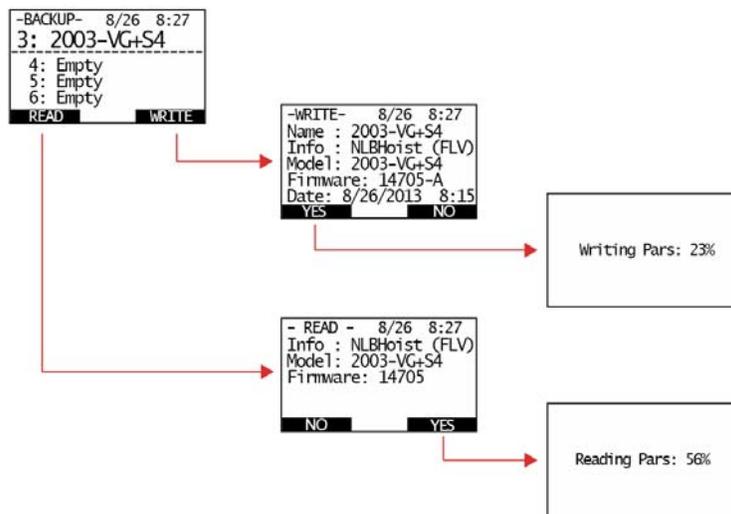


Figure 10: Read Parameter Data

10.2 Write Parameter Data

The user may write any of the stored parameter sets to a drive with the same firmware version, model (KVA), control method (Flux Vector, Open Loop Vector, or V/f), and motion (Traverse, Standard Hoist, etc.). If any of these four conditions isn't met, a message will be displayed which indicates which condition isn't met. The parameters will not be allowed to be written until these conditions are met.

To write a parameter set to a drive, scroll to the desired slot (1 – 10) and then press the F1 key to initiate the write function. A confirmation message will be displayed which lists basic information about the connected drive and a date from when the parameters were stored to the DLS4. To cancel this action, choose the "No" option by pressing the F2 key or the ESC key. To confirm this action and write the parameters to the drive, choose the "Yes" option by pressing the F1 key. A "Writing Pars" message will appear on the display for around 10 to 20 seconds while the parameters are being written.

10.3 Clear Parameter Data

The parameter data in slots 1 through 10 can be individually cleared. This is accomplished by pressing the ENTER key when the desired slot is highlighted. Press the DOWN arrow key to highlight the "Clear Slot" option. Press the ENTER key and a confirmation screen will be displayed which lists specific information about the parameters stored in that particular slot. To cancel this action, choose the "No" option by pressing the F2 key or the ESC key. To confirm this action and clear the parameter data from this slot, choose the "Yes" option by pressing the F1 key.

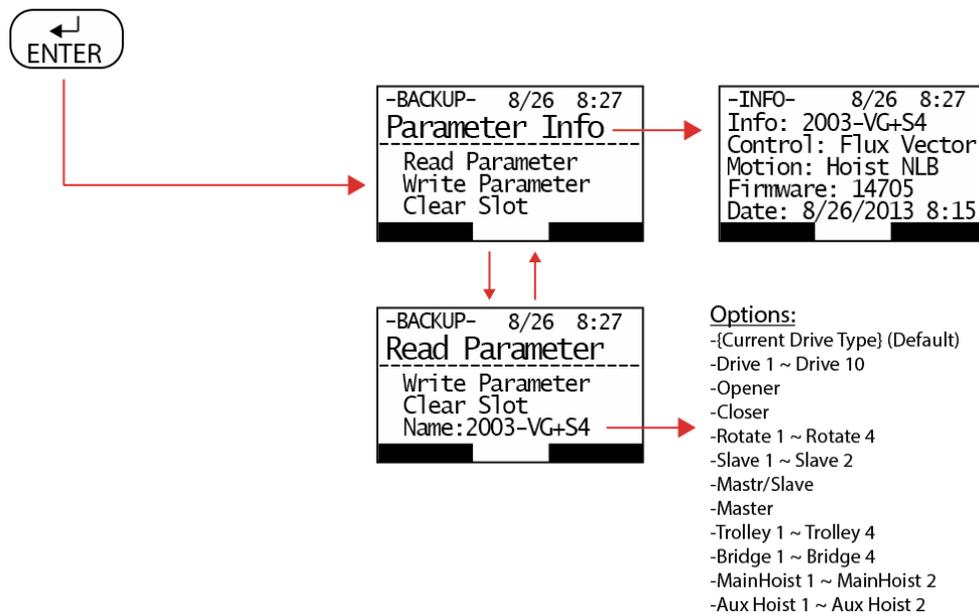


Figure 11: Clearing Parameter Data

10.4 Rename Parameter Data

By default, parameter sets are named according to the drive type and model. Parameter sets can be assigned a name from a predefined list. To accomplish this, scroll to the "Name:" line and press the ENTER key. The text to the right will start to blink and then the name can be changed by pressing the UP and DOWN arrows followed by the ENTER key.

11. DataLogger Settings Menu

The DataLogger Settings menu contains the options for setting the date and time, viewing the firmware version of the DLS4, setting the baud rate, testing the keypad buttons, and viewing various diagnostics screens, which monitors the hardware components in the DLS4 in real-time.

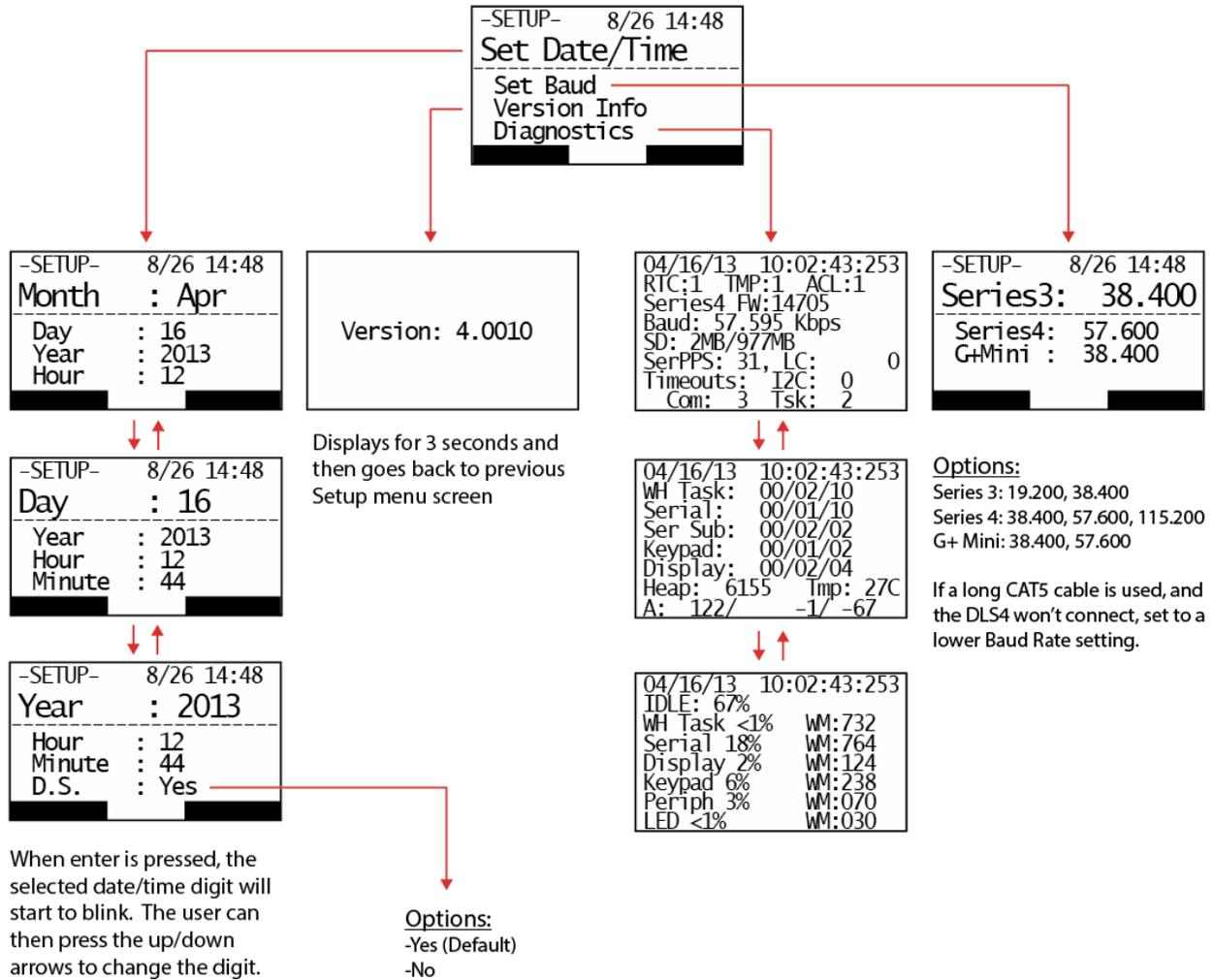


Figure 12: DataLogger Settings Menu

11.1 Set Date/Time

The month, day, year, hour, and minute can be adjusted individually in this menu. For example, to make an adjustment to the day, press the DOWN or UP arrow to navigate the “Day” text to the top line of the display and then press the ENTER. The current “Day” number will start to blink; use the UP or DOWN arrows to scroll to the desired number and press the ENTER key to set it. All adjustments in this menu are made using this same method. There is also an option to adjust the time for Daylight Savings (D.S.) that can be turned on or off; it is set to “Yes” (on) by default.

11.2 Version (Firmware) Information

The Version Info screen will display the current version of the firmware on the DataLogger. This screen will display for 3 seconds and then automatically transfer back to the previous Setup menu screen. The user may occasionally want to compare the version displayed in this menu to the current firmware version available on the Downloads section on the Magnetek Material Handling website (<http://www.magnetekmh.com/en/Material%20Handling/Downloads.aspx>) to ensure the firmware is up-to-date. Updates are always free and may be released on the website without notice.

11.3 Diagnostics

The Diagnostics screen presents low-level status information, and is mainly for troubleshooting the DataLogger hardware. The most notable items are the first line which lists a 1 (functional) or 0 (non-functional) for the Real Time Clock (RTC), Temperature Sensor (TMP), and Accelerometer (ACL). The currently-connected drive, its firmware version, and connection speed are listed on the next three lines. Other notable items are the consumed space of the internal memory, communication timeouts and the temperature reading (in Celsius) of the temperature sensor.

11.4 Set Baud

The Set Baud menu allows the user to adjust the Baud Rate for each drive type. Adjusting to a higher baud rate may increase transfer speeds, depending on the length of the serial (CAT5) cable used. If the serial cable exceeds 50 feet, it is possible the DataLogger will not power up. If this is the case, adjust the Baud Rate to a lower value.

11.5 Test Screen

The hardware components in the DataLogger Series 4 are monitored in real-time, and the function of the display, LEDs, sensors, flash memory, and keypad keys can be tested in this menu. Upon entering this menu, the ALM (red), Mode/Service (green), and RUN (green) LEDs will start to blink. This tests if any of the three LEDs have failed.

Next, there are five icons on the top row that correspond to internal components including the Internal Memory (SD), Serial RJ45 connection (SER), Real Time Clock (RTC), Temperature Sensor (TMP), and Accelerometer (ACCEL). All five of these icons will be shaded as dark boxes if they test out as functioning properly. If any of these boxes are not dark, it may indicate a failed or malfunctioning component.

The icons in the lower four rows (F1, ESC, etc.) correspond to their respective keypad keys. Pressing any individual key will convert its icon to a dark box, which indicates that particular key is functioning correctly. If the ENTER key is pressed, the entire display will become dark. This is to test if any pixels on the display have failed. To go back, press the ESC key once. If the ESC key is pressed while on the Test Screen, its box will turn dark, and the Test Screen will be exited within three seconds.

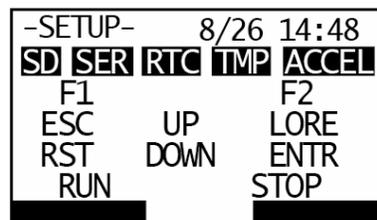


Figure 13: Test Screen

12. Remote Mounting Bracket

The part number for the typical panel mount is 144-27094.

There is the option to use the existing panel mount from the DataLogger Series 3 with an adapter. The part number for the adapter is 144-27096.

13. Connecting to a PC

The DataLogger Series 4 is compatible with the IMPULSE®•Link 5 (IL5) Viewer software. Viewing the Trending, Parameter, and Run/Fault/Alarm data on a PC is possible with the IL5 software.

For detailed information about how to navigate IMPULSE®•Link 5 Viewer and analyze data from the DataLogger Series 4, please reference the IMPULSE®•Link 5 manual.

<http://www.magnetekmh.com/en/Material%20Handling/Product%20Manuals/>

14. Maintenance

14.1 Replacing the Battery

The DataLogger Series 4 has a battery that is used to maintain power to a real time clock when it is not connected to external power. This ensures the date and time are retained when it is not powered on. The battery is user-replaceable by simply removing the round battery hatch located on the back. A flathead screwdriver or a thin, flat device less than 0.25" wide is required to open the hatch. Twist it in a counter-clockwise direction for about 1/8 of a turn to release the latch. When replacing the battery, ensure the new battery is seated with the text visible (facing upward). After replacing the battery, it will likely be necessary to reprogram the date and time.

The DLS4 will detect if the battery charge is getting low or is already dead. A "REPLACE BATT" message will appear on the top left corner of the screen when the battery should be replaced.

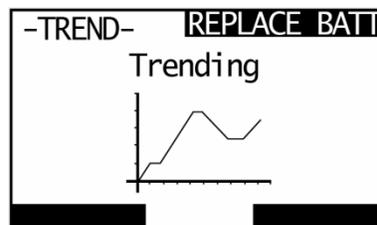


Figure 14: Replace Battery Message

Battery Type: Lithium Coin Cell, 3V, 12.5mm, CR1220

Suggested Brands: Panasonic, Energizer, or Duracell

14.2 Firmware Updates

See the IMPULSE®•Link 5 (IL5) manual for the DLS4 firmware update procedure.