IMPULSE®•Link 5

Viewer and Professional
User Manual

MAGNETEK
By Columbus McKinnon

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Preface and Safety

Product Safety Information

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 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 these requirements. It is the responsibility of the employer to make its employees aware of all 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

For information on Magnetek's product warranties by product type, please visit the Magnetek website at www.cmco.com/magnetek.

DANGER, WARNING, CAUTION, and NOTE Statements

Read and understand this manual before installing, operating, or servicing this product.

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 indicates an imminently hazardous situation that, 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 that, if not avoided, could result in death or serious injury.

⚠**CAUTION**

CAUTION indicates a potentially hazardous situation that, 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 people of installation, operation, programming, or maintenance information that is important, but not hazard-related.

⚠**WARNING**

Failure to observe these and other precautions indicated in this manual will expose the user to high voltages, resulting in serious injury or death. Damage to equipment may also occur.
• Read this user manual in its entirety before installing IMPULSE•Link 5 software.
• DO NOT connect or disconnect wiring or perform signal checks while the electrical power is ON.
• Improper programming of a drive with this software can lead to unexpected, undesirable, or unsafe operation or performance of the drive.

DISCLAIMERS: No patent liability is assumed with respect to the use of the information contained herein. Moreover, Magnetek is constantly improving its high-quality product; therefore, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this document. Nevertheless, Magnetek assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication.

Disposal Requirements for Waste and Electronic Equipment

NOTICE:
Electrical and electronic equipment can contain harmful substances that can affect the environment and human health.

WEEE (Waste of Electrical and Electronic Equipment): The symbol for the separated disposal of electrical and electronic equipment is a crossed-out waste bin on wheels (Directive 2002/96/EC waste and Electrical Equipment).

You must not dispose any electrical and electronic equipment marked with this symbol (battery-operated electrical appliances, measurement equipment, light bulbs, etc.) in the domestic waste but dispose of those separately. Always use the waste return and collection systems locally available and contribute to the reuse, recycling, and all other forms of use for waste electrical and electronic equipment.

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1. Introduction

1.1   Overview

IMPULSE•Link 5 (IL5) is a Windows® based software package to assist users in the setup and maintenance of Magnetek AC and DC drives. The software is available for free in a read-only mode called "Viewer.". Advanced features can be unlocked in the Professional version by purchasing a USB software licensing dongle.

The free **Viewer** version of IMPULSE•Link 5 interacts with the DataLogger Series 4 (DLS4) keypad.
Through a USB connection from a DLS4 to a host computer, a user can:

- View stored drive parameters.
- See Run, Alarm, and Fault history.
- View recorded trend data.
- Open legacy Impulse Link 4.1 parameter files of type .par and IL5 Parameter file of type .parx.

The **Professional** version offers the above and much more:

- Find drives over hardwired serial **COM ports**, industrial **Ethernet network** or **Wireless Diagnostics System** (WDS)
- Read and write drive parameters.
- Monitor real-time Run status, Alarms, and Faults on multiple drives at the same time.
- Automatically discover connected drives and generate communication profiles using the Find Drives feature.

IMPULSE•Link 5 Version Differences

Feature	IL5 Viewer	IL5 Professional
Wired Serial COM ports		✕
Industrial Ethernet Connectivity		✕
Wireless Diagnostics System (WDS) Connectivity		✕
Drive Discovery		✕
Create & Modify Parameters		✕
Live Monitoring & Datalogging		✕
View Parameter Files	✕	✕
Save Parameters	✕	✕
Compare Parameters	✕	✕
View Event Files	✕	✕
View Trend Files	✕	✕

1.2   Professional Kit Contents

IMPULSE•Link 5 Professional Kit (IL5-PRO-KIT)	Part Number
IL5 Software Installer USB Flash Drive	IL5-SOFTWARE-USB
Unikey USB Software Licensing Key	IL5-PRO-KEY
Series 4/Series 3/G+ Mini: RJ45-to-Serial Adapter	CABLE-RJ45-DB9F
Series 4/Series 3/G+ Mini: Serial-to-USB Adapter	ADAPTER-DB9M-USBA
Series 5: USB Cable	CABLE-USBA-USBMINIB
DDC-S2 / DMC-S2: USB Cable	CABLE-USBA-USBMICROB
DSD: RJ12-to-RJ12 Cable	CABLE-RJ12-RJ12
DSD: RJ12-to-DB9F Adapter	ADAPTER-RJ12-DB9F

1.3   Wireless Diagnostic System (WDS) Option

An optional WDS hardware system is available to connect drives wirelessly, but not required. WDS allows up to 31 drives to connect to a single Remote Unit. Multiple Remote Units can connect to a single Base Unit.

Wireless Diagnostics System (WDS)	Part Number
Base Unit	WDS-BASE
Remote Unit (AC Input)	WDS-REMOTE

1.4   Industrial Communication Options

IL5 Professional can connect with IMPULSE•Series 5, Series 4, and G+ Mini communication option cards.

Industrial Communication Option Cards	Part Number
EtherNet/IP	SI-EN3
EtherNet/IP (Dual-Port)	SI-EN3D
Modbus TCP/IP	SI-EM3
Modbus TCP/IP (Dual-Port)	SI-EM3D
PROFINET	SI-EP3
PROFIBUS	SI-P3

1.5   System Requirements

- 1.5 GHz processor or better
- 2 GB RAM (minimum); 4 GB (recommended)
- Windows 10, Windows 11 Operating System
- Available USB port

1.6   Supported Drives

IMPULSE•Link 5 supports these Magnetek drives:

- IMPULSE®•G+/VG+ Series 3
- IMPULSE®•G+/VG+ Series 4
- IMPULSE®•G+/VG+ Series 5
- IMPULSE®•G+ Mini
- IMPULSE®•D+ HHP
- OmniPulse® DDC Series 1
- OmniPulse® DDC Series 2 (includes built-in *Ethernet port)
- OmniPulse® DSD
- MagnePulse® DMC Series 1
- MagnePulse® DMC Series 2

*DDC-S2 Ethernet compatibility requires firmware 44301 or above.

Notes:
- Use the included adapter for serial connections to drives over a USB COM port.
- "Scan Ethernet network" communication method requires installation of a separate EtherNet/IP option card on IMPULSE drives. Refer to Section 1.4

2. Installation Notes

The IMPULSE•Link 5 installer is located on the USB flash drive that comes with the DataLogger Series 4 kit and with the IL5 Professional kit. It is also available for download on the CMCO website: https://www.cmco.com/en-us/software-downloads/.

NOTE: ***Administrative privileges are required to install and/or update the software****. Please make sure to log onto an administrator account before installation.*

To install IMPULSE•Link 5 on a PC:

1. Insert the IL5 installer flash drive into a USB port on a PC and run *ImpulseLink5_Install.exe*.
2. When complete, IMPULSE•Link 5 will automatically launch.
3. To enable IL5 Professional, insert the **Unikey dongle** into a USB port on the PC.
4. Connect the drive to your PC using the proper cable(s) provided (refer to the **Appendix C**).

A Windows Security warning may pop up during the initial installation, with the message that IMPULSE•Link 5 would like to install device drivers.
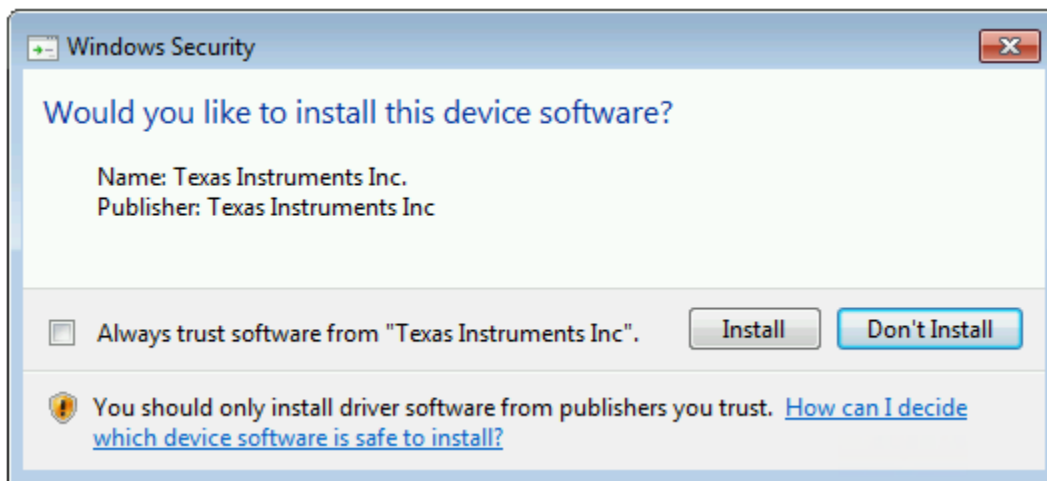

Figure 1: Windows Security Warning

The driver software is for the DataLogger Series 4. It is not required for installing or running IMPULSE•Link 5 Viewer or Professional; however, failure to install the driver will result in not being able to update the DataLogger.

NOTE: To ensure full functionality, select "Install" and proceed with the installation.

3. Quick Start

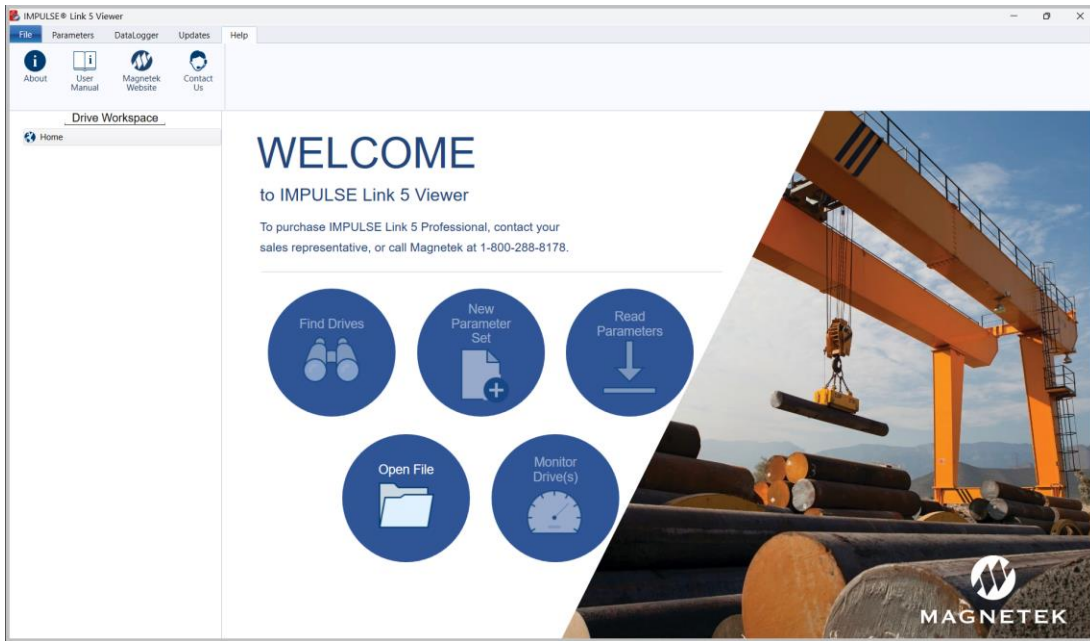## 3.1   Using Viewer Version

Figure 2: IMPULSE•Link 5 Viewer – Start Screen

3.1.1   File Tab

There are several ways to open a .parx file that is saved by a DataLogger Series 4.
- Press the "Open File" button from WELCOME page.
- From the File tab
- From the Parameter tab
- From the DataLogger tab

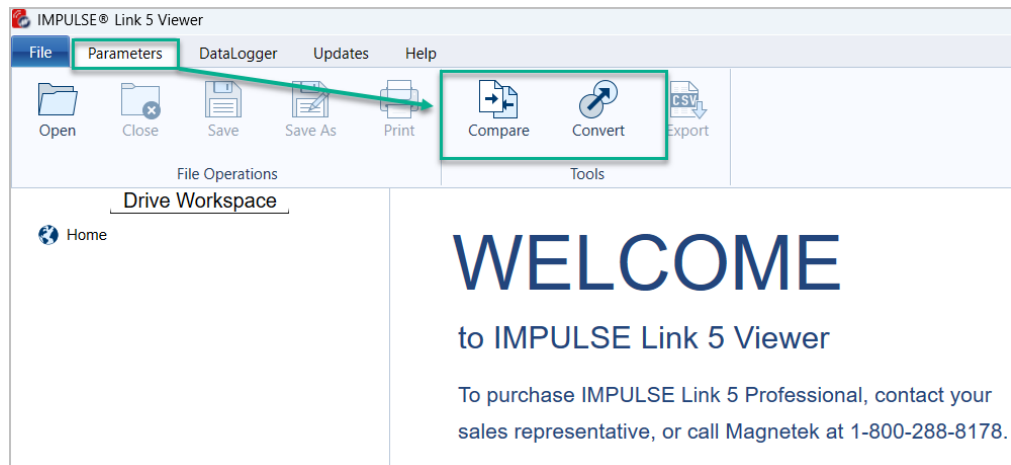### 3.1.2   Parameter Tab

- Compare
- Convert

Figure 3: IMPULSE•Link 5 Viewer – Parameters Screen
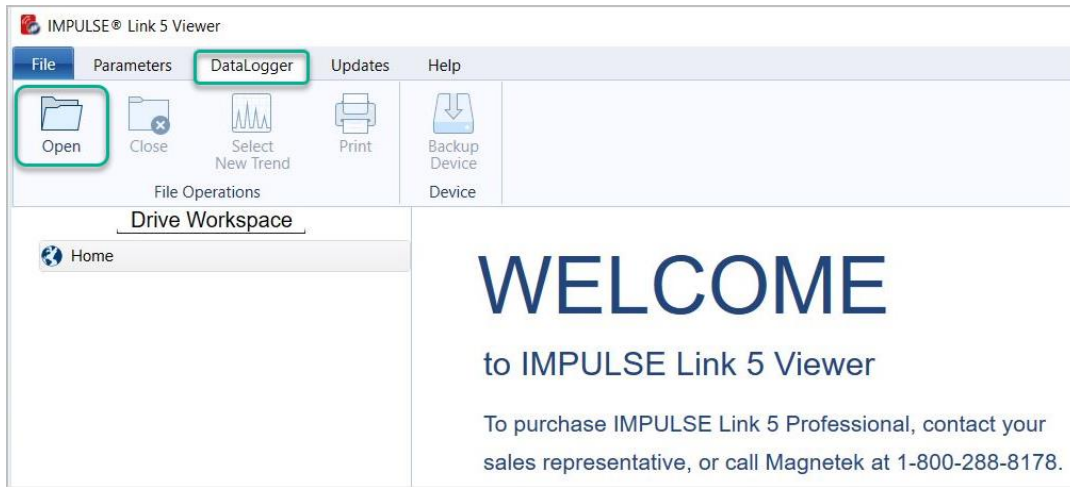
3.1.3 Datalogger Tab

Figure 4: IMPULSE•Link 5 Viewer – DataLogger Screen

3.1.4. Updates Tab

- Check for IL5 Software Updates
- IL5 Upgrade Information
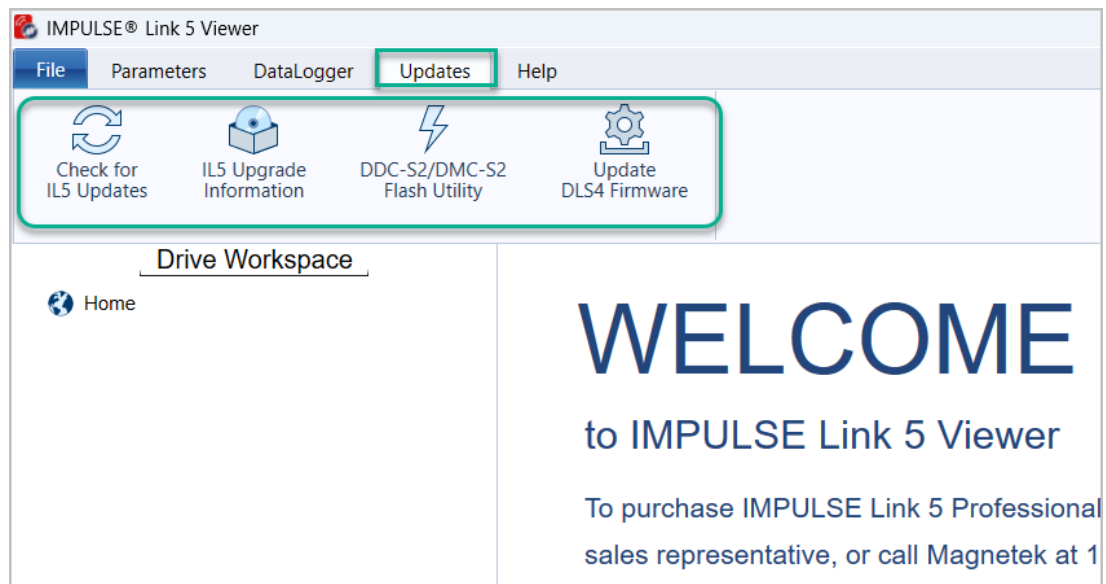- DDC-S2/DMC-S2 Firmware Flash Utility
- DLS4 Firmware Flash Utility

Figure 5: IMPULSE•Link 5 Viewer – Updates Screen

3.2   Using Professional Version

The IMPULSE•Link 5 Welcome screen appears on start-up to allow quick access to key features and functions through single-click buttons. Clicking the Home button returns to the Welcome screen. From this screen, users can automatically discover drives (Find Drives), create new Communication Profiles (New File), read parameters, open a Parameter file, or monitor drives.
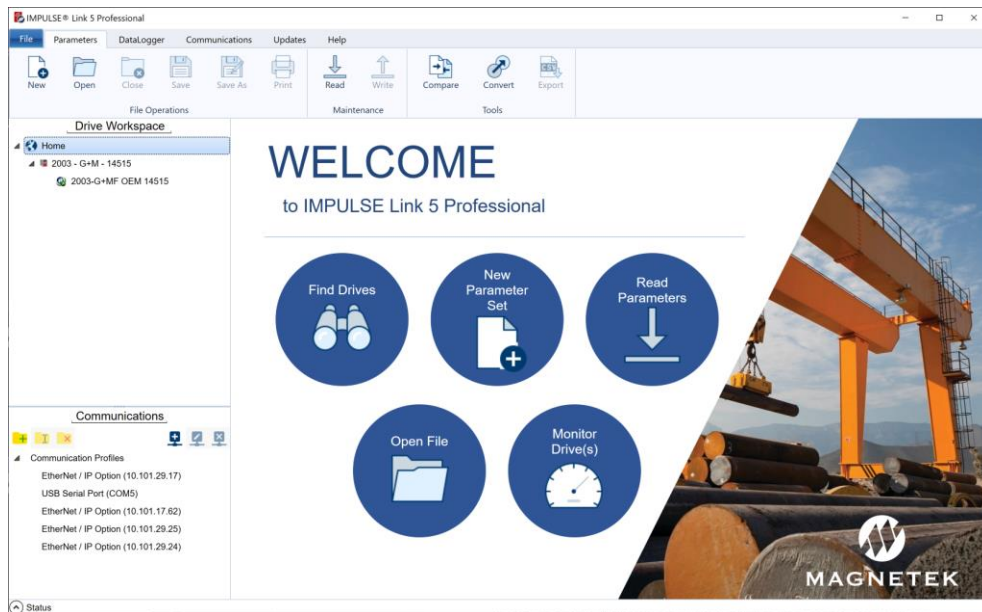

Figure 6: **IMPULSE•Link 5 Professional – Start Screen with USB Dongle Inserted**

3.2.1   Find Drives

Step 1: Press the "*Find Drives"* button on WELCOME page.

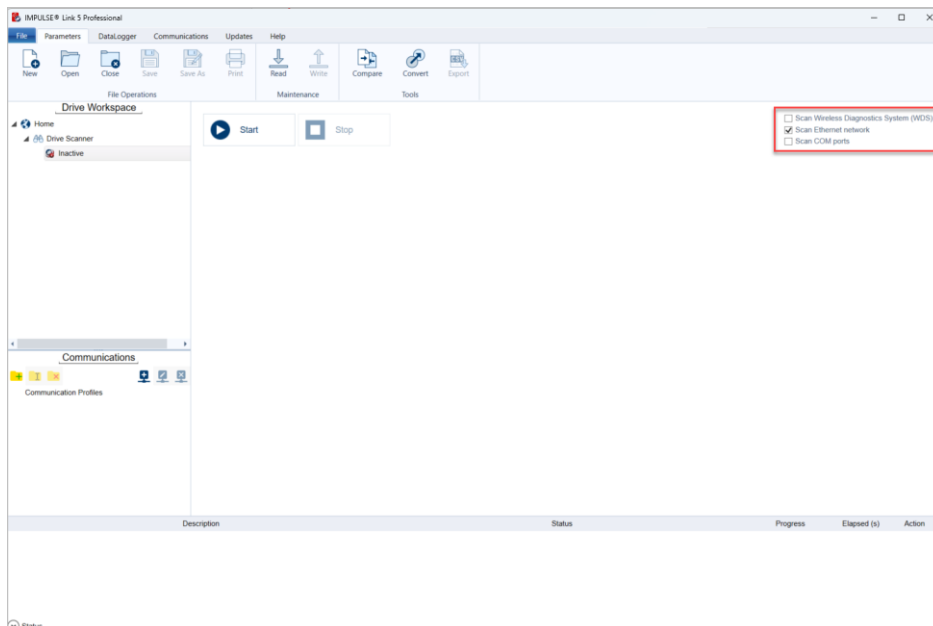Step 2: Check desired scan type boxes located on the top-right side of your screen, e.g., *Scan Ethernet network*

Figure 7: **IMPULSE•Link 5 Professional – Find Drives**

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Select WDS, Ethernet, or COM port checkboxes to scan for the desired drives. One or more choices may be selected before clicking the Start button.

Step 3: Click the "*Start*" button.

NOTE: The *Start scanner will continue to run a maximum of 15 minutes for Scan COM ports and Scan WDS, or until a user clicks the Stop button. The Find Drives scanner must be stopped before monitoring.*

Ethernet scans finish more rapidly, and automatically complete within a few seconds.

WDS displays a moving circle containing the hexadecimal drive address of each scan attempt. Up to 31 drives may be connected to a single WDS Remote Unit (01-1F).
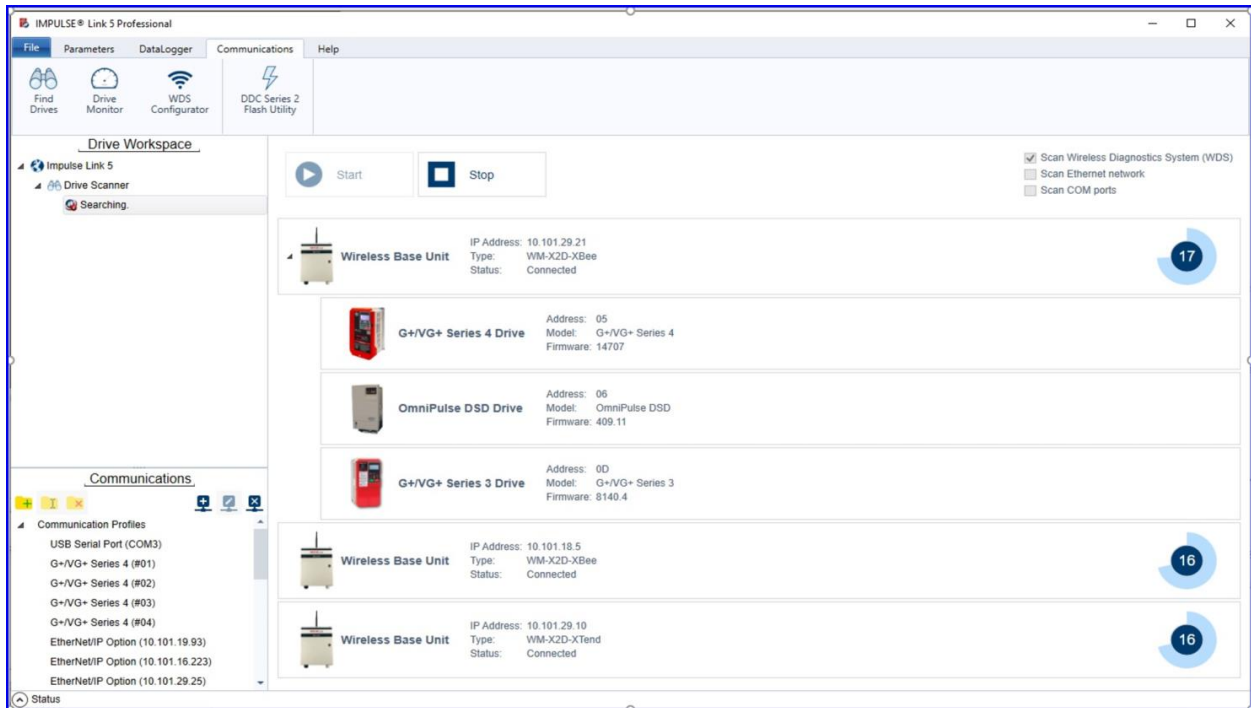
Figure 8: **IMPULSE•Link 5 Professional – WDS Scan**

Communication Profiles are automatically created for each discovered drive, and they appear beneath the Communications section.

Step 4: The *"Stop"* button is automatically grayed out after the scan is complete.
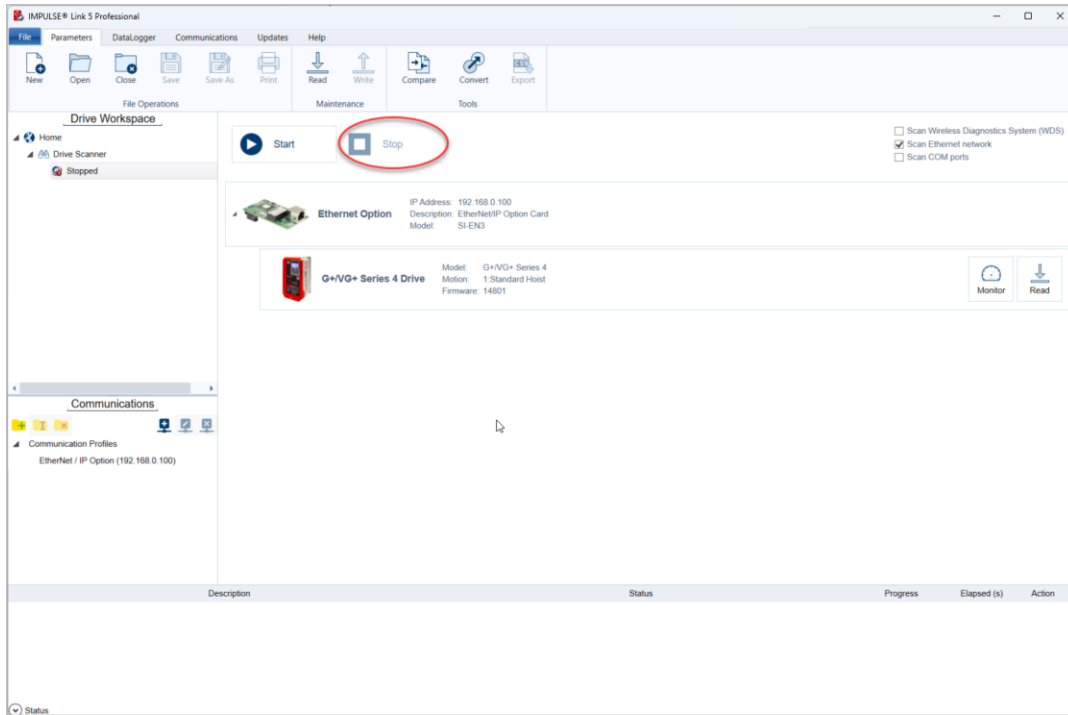
Figure 9: IMPULSE•Link 5 Professional – Stop Button

<u>Step 5</u>: Click the *"Monitor"* button on the desired drive.
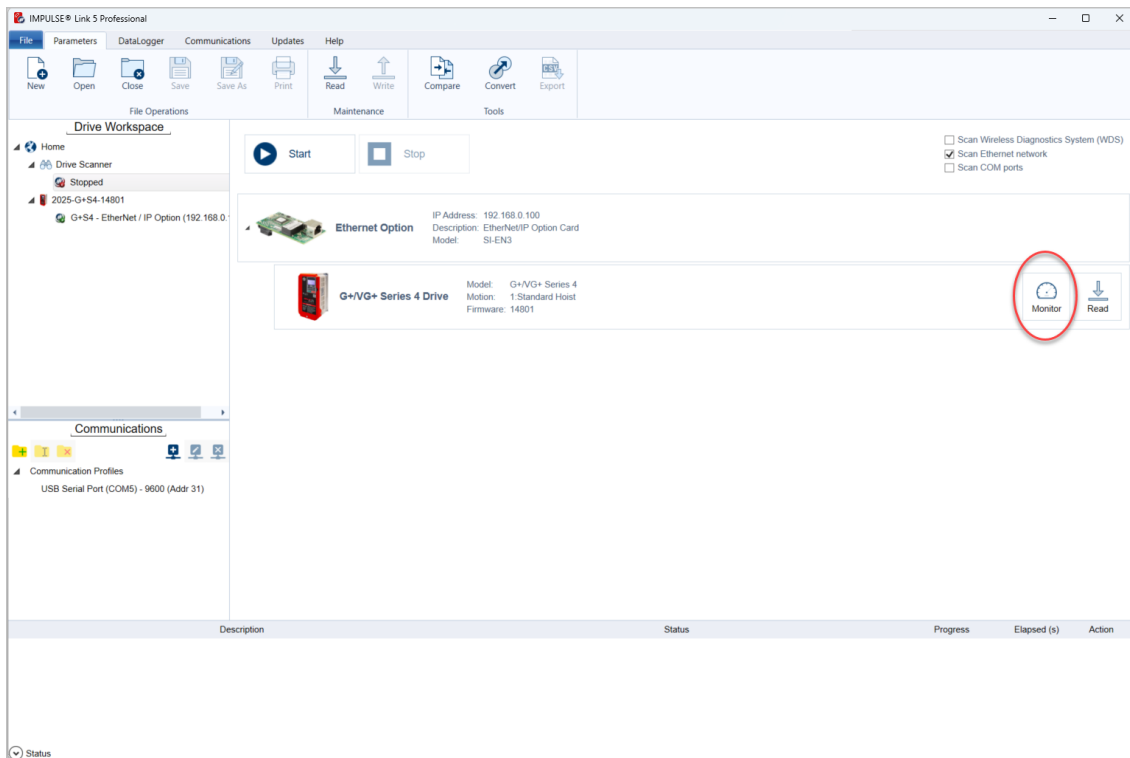
Figure 10: IMPULSE•Link 5 Professional – Monitor Screen

3.2.2 Monitor Drive(s)

3.2.2.1 Dashboard Tab

The Monitor *Dashboard* tab is displayed after the *Monitor* button is pressed.
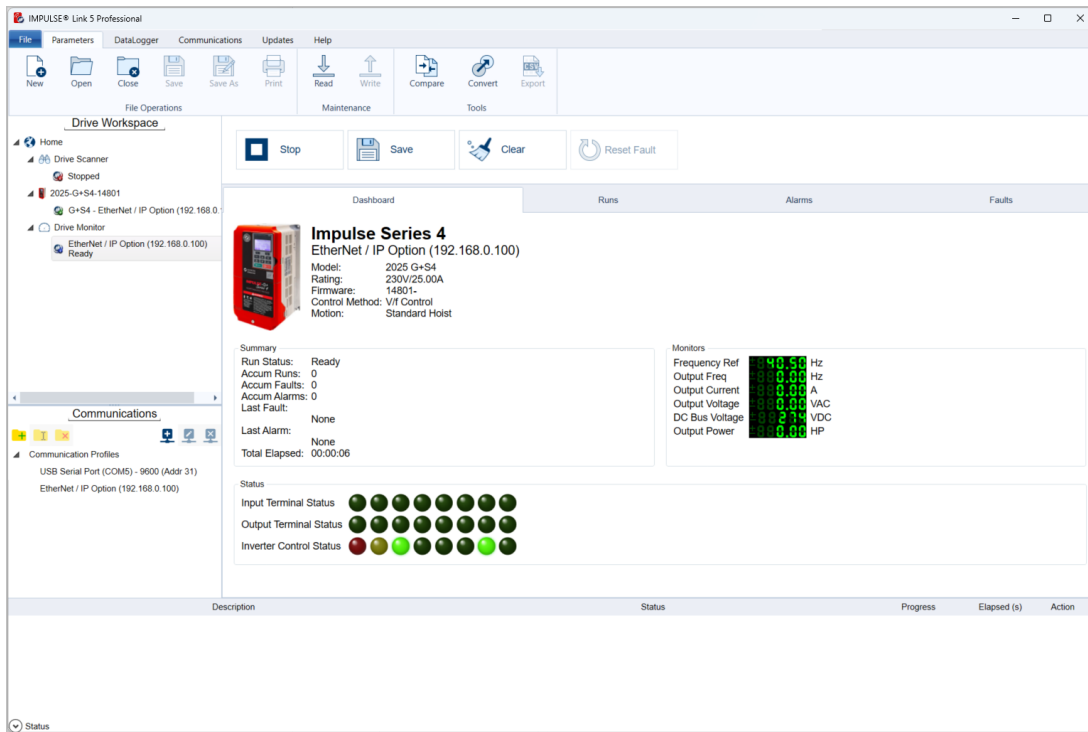
Figure 11: IMPULSE•Link 5 Professional – Monitor Dashboard Screen

3.2.2.2 Run Log Tab
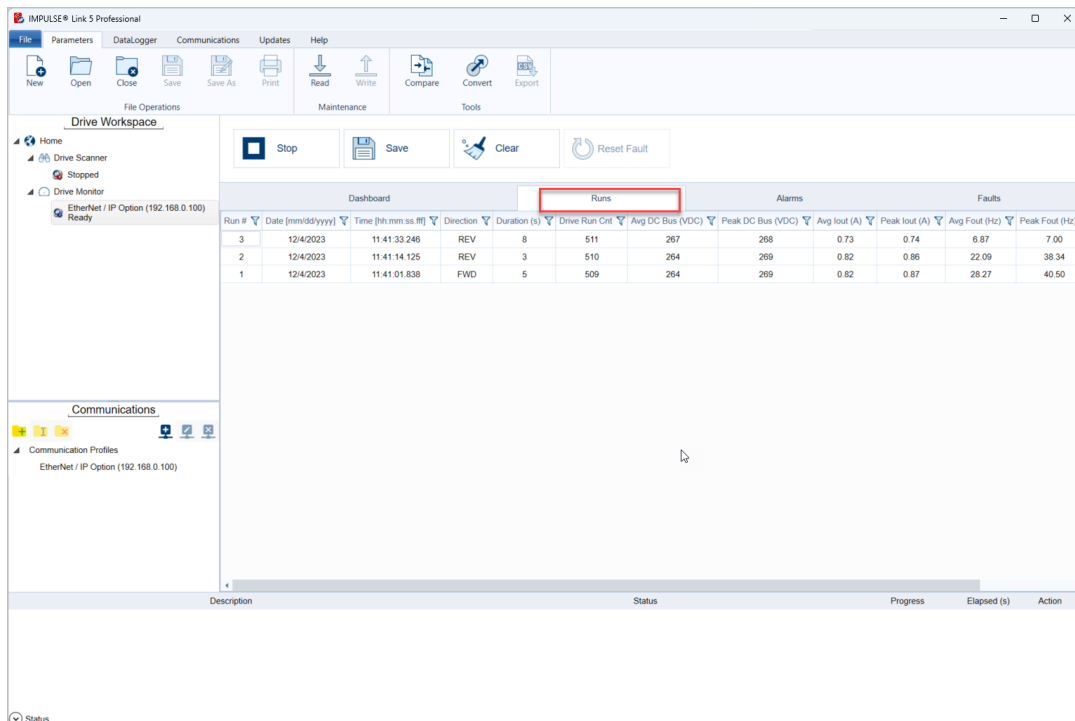
Figure 12: IMPULSE•Link 5 Professional – Run Log

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3.2.2.3 Alarm Log Tab
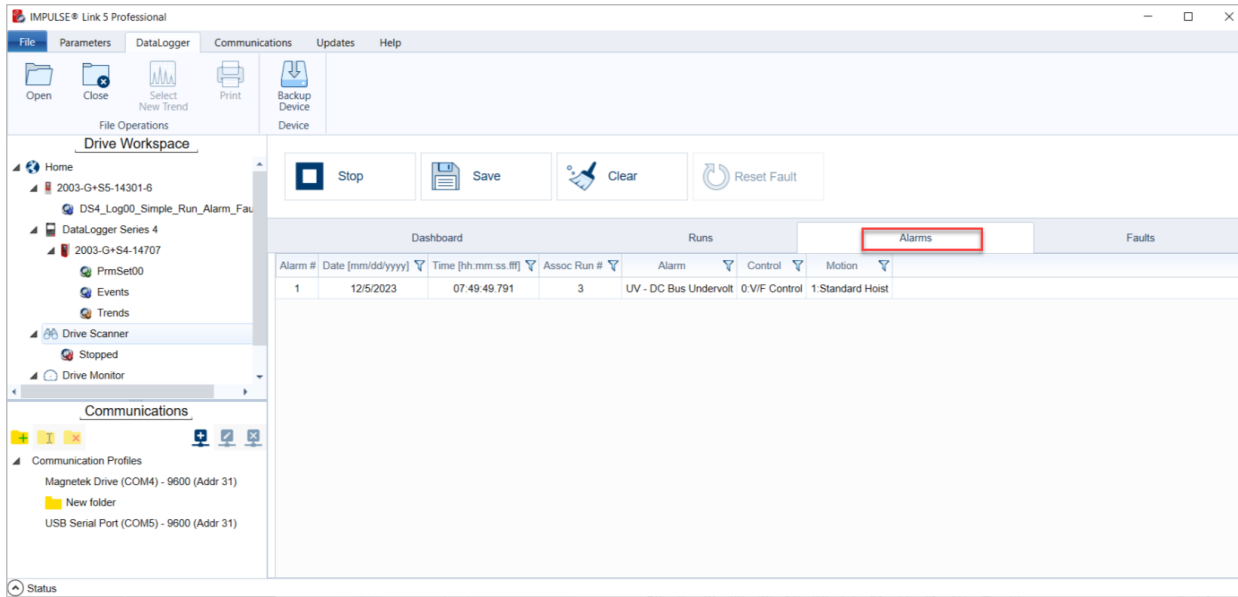
Figure 13: IMPULSE•Link 5 Professional – Alarms Log

3.2.2.4 Fault Log Tab
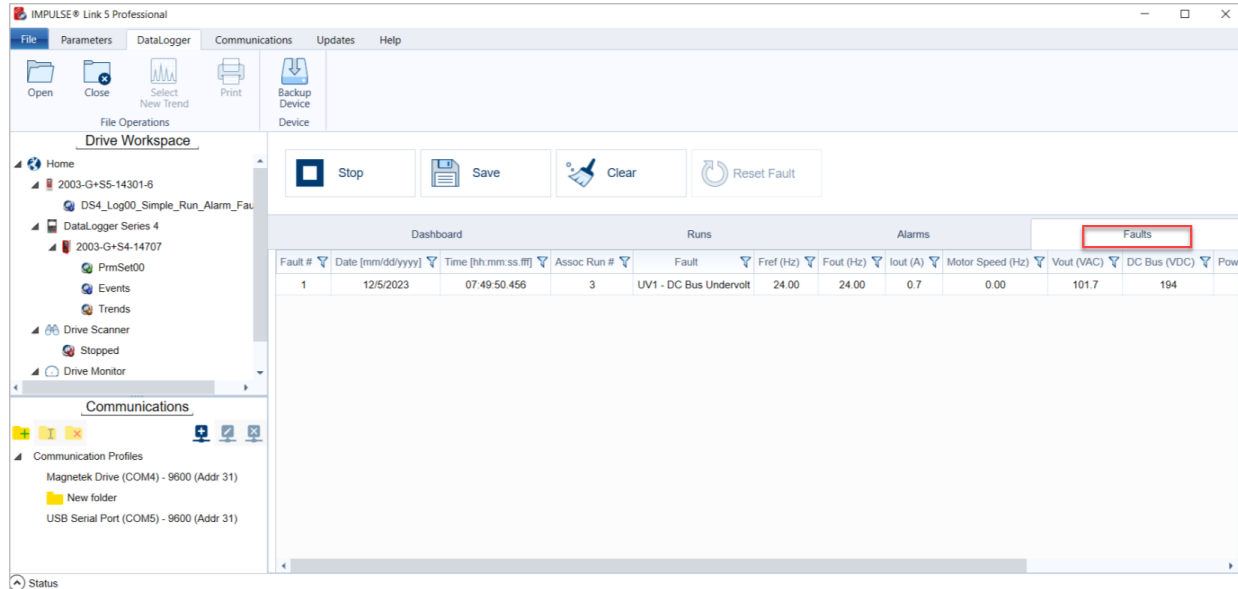
Figure 14: IMPULSE•Link 5 Professional – Fault Log

3.2.2.5 Save to DataLogger Format

Press the *"Save"* button, to create a DS4_Log00.ds4 file and save it to the local drive on the PC.

Note: Make sure to press the *Save* button before you press the *Stop* button or switch to other screens. Otherwise, Runs/Alarms/Faults events will be closed without saving to a file.
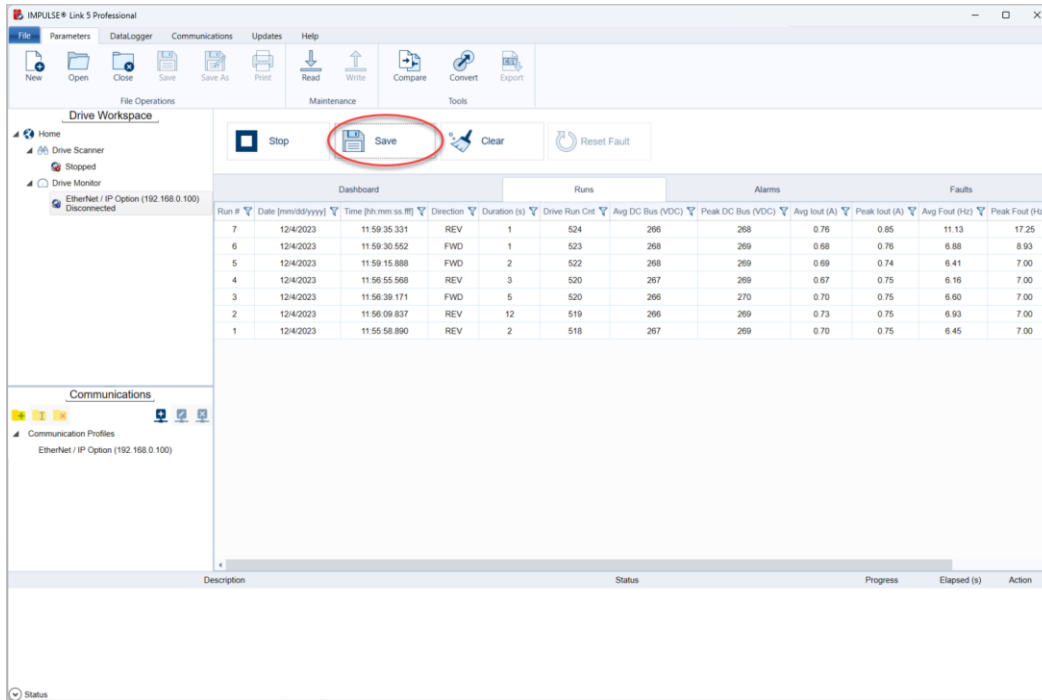
Figure 15: IMPULSE•Link 5 Professional – Save Button

3.2.3 Read Parameters

There are two methods to read parameters.

<u>Method 1</u>
Press the *"Read"* button on the *Find Drives* screen.
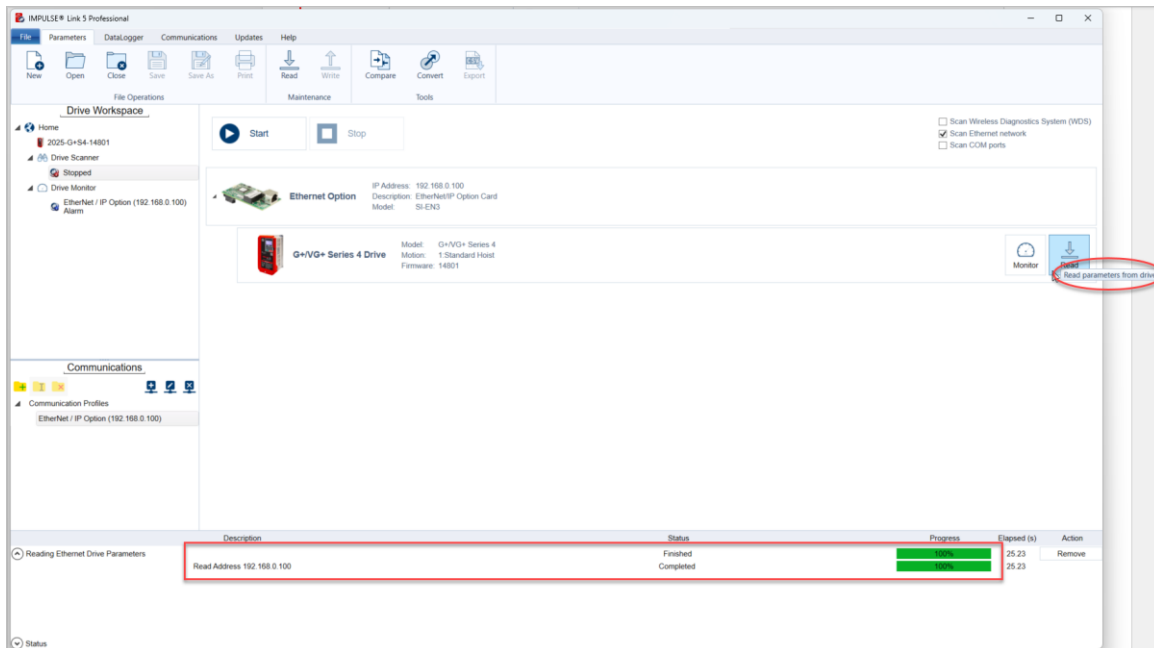
Figure 16: IMPULSE•Link 5 Professional – Read Parameters

Method 2

Press the *"Read"* button on the *Parameters* tab.
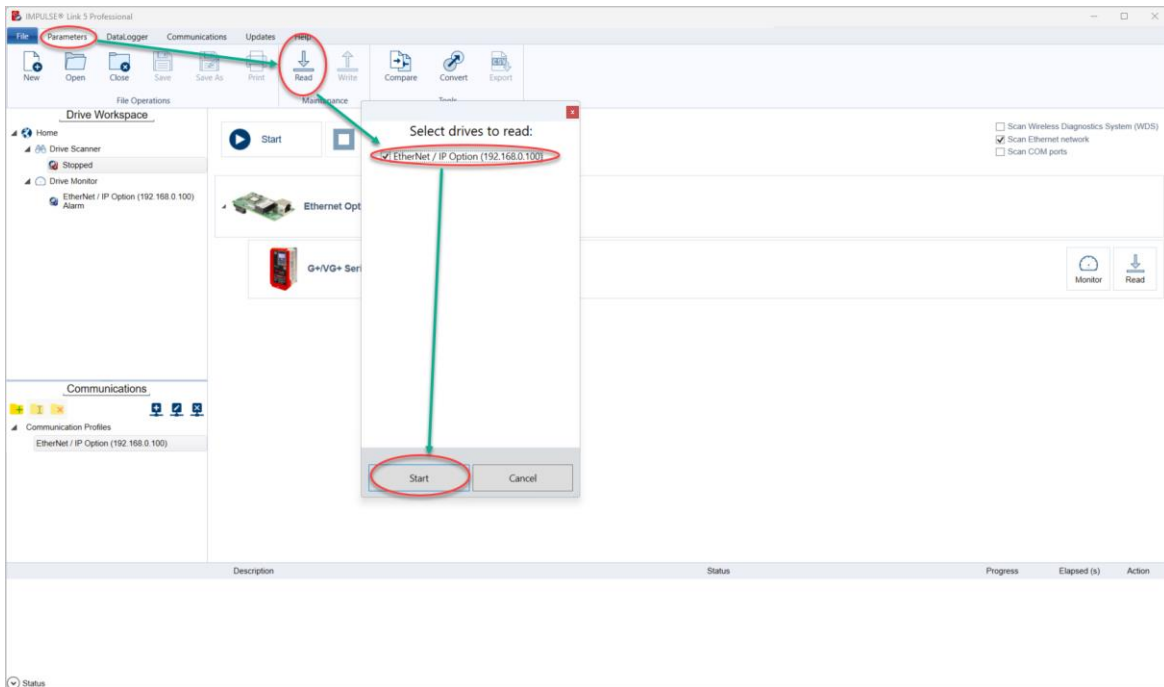
Figure 17: IMPULSE•Link 5 Professional – Read Parameters

3.2.4 New Parameter Set

Press the *"New"* button or press the *New+* icon of the *File* tab.
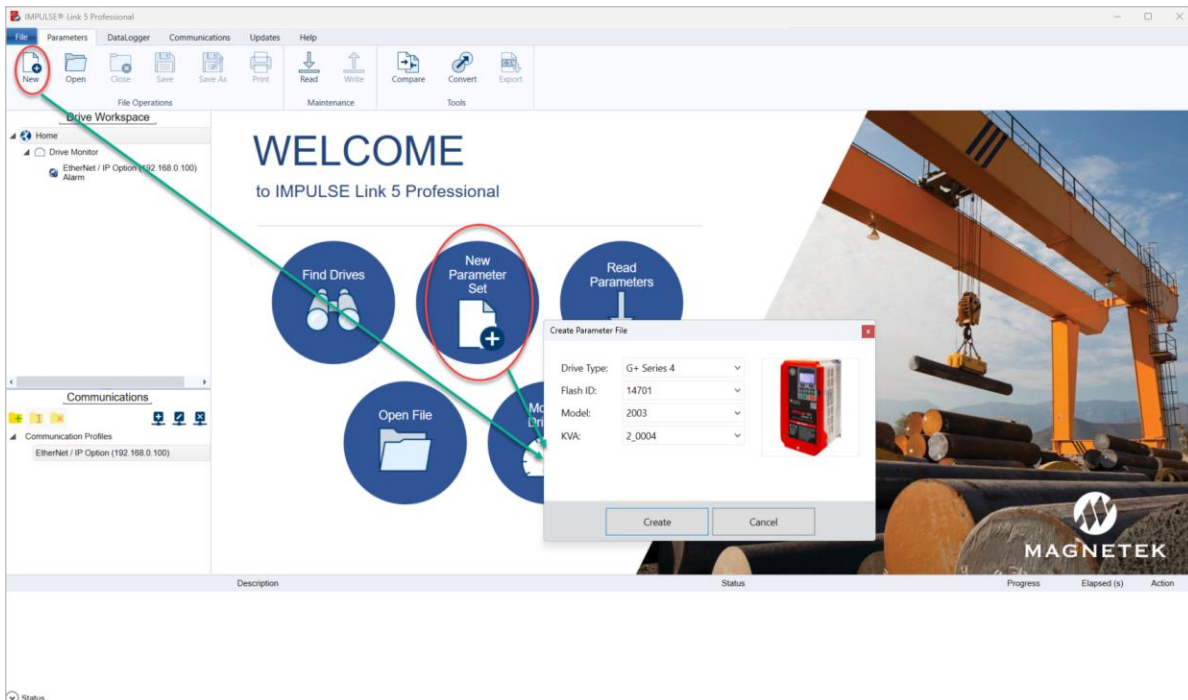
Figure 18: IMPULSE•Link 5 Professional – Create Parameters

3.2.5 Datalogger Series 4

When connected to a PC running IMPULSE•Link, the Datalogger Series 4 will be automatically detected and show up in the Drive Workspace.

Step 1:
Connect DataLogger (DLS4) to a PC using a micro-USB cable.

Its part number is **CABLE-USBA-USBMICROB**
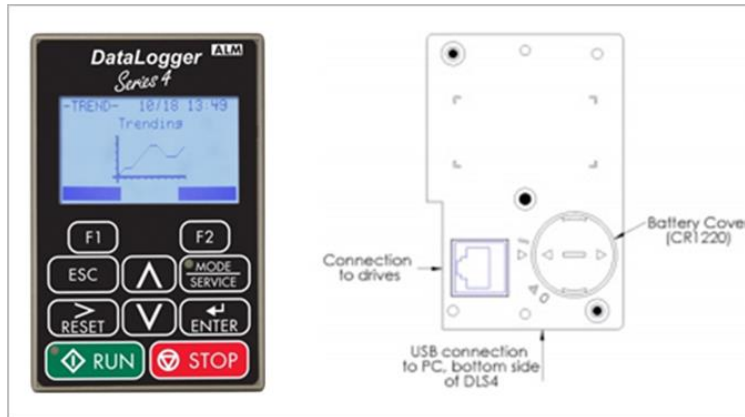
Figure 19: IMPULSE•Link 5 Professional – DataLogger

Step 2:
Select a file under Drive Workspace to view parameters, events, and trends.

4. Viewer and Professional Common Navigation

Both IL5 Viewer and Professional provide functions for viewing Parameter files, Drive Events, and Trend data. The following is a summary of the functions that can be accessed from the navigation toolbar using either version.

NOTE: IMPULSE•Link 5 will default to the Parameters tab on startup if a DataLogger is not connected to the PC. Once a DataLogger is connected, it will automatically switch to the DataLogger tab, and the Workspace will populate with the files currently loaded on the DLS4.

4.1   File Tab

Figure 20: IMPULSE•Link 5 – File Tab

Open – Opens parameter, DataLogger, or Trend files (Alt-F-O)

Recent – Displays files that have been recently accessed (Alt-F-R)

Print – There are two files that can be printed, .ds4 file or parx file.
ds4 file is saved by the Professional version Monitor/Save feature. That includes Runs, Alarms or Faults.

Faults

WOP20_Log_iOS_HeatSink21.ds4

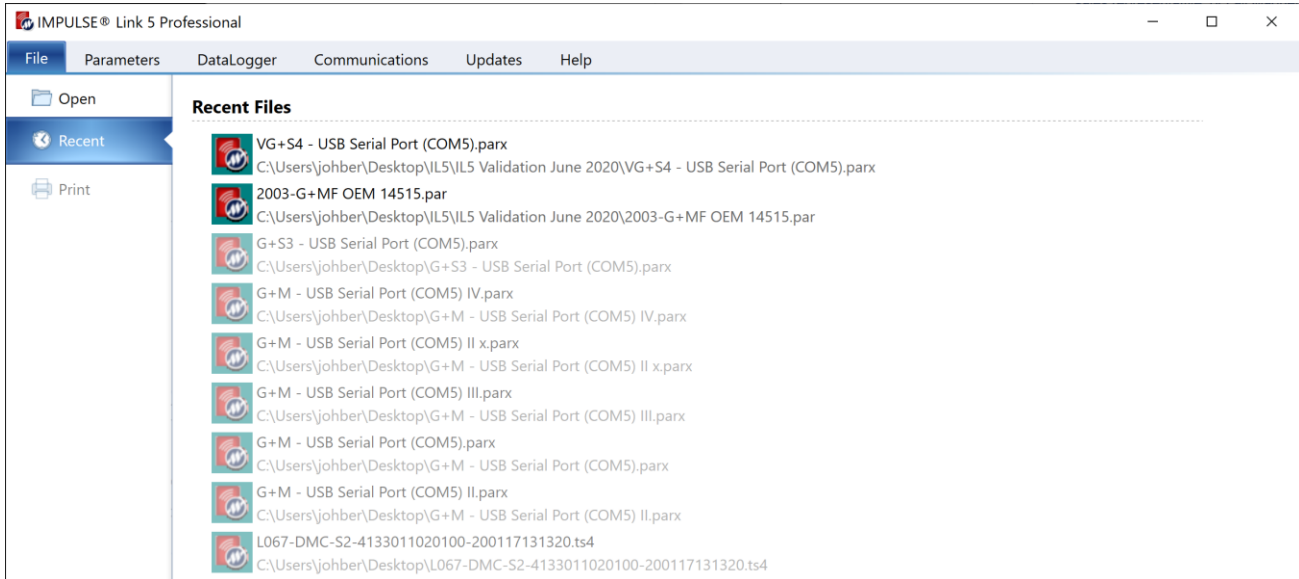| Fault #	Date [mm/dd/yyyy]	Time	Fault	Fref (Hz)	Fout (Hz)	Iout (A)	Motor Speed (Hz)	Vout (VAC)	DC Bus (VDC)	Power Out (HP/Kw)	T-ref (%)	Input Terminal Status	Output Terminal Status	Elapsed Time (H)	Heatsink Temp (°C)
15	1/1/80	19:37:45	EF6 - External Fault 6	7.05	0.00	0.0	0.00	0.0	353	0.0	0.0	00010000	00000000	104	2.6
14	1/1/80	18:57:03	PGO-1-S - PG Hardware	120.00	-7.09	2.5	-6.66	32.8	349	0.0	-26.6	01010110	00000111	103	2.8
13	1/1/80	06:53:28	BE2 - No Current	60.00	-0.54	0.0	-0.54	0.0	354	0.0	0.0	00010010	00000000	103	2.1
12	1/1/80	06:53:26	BE2 - No Current	60.00	0.54	0.0	0.54	0.0	354	0.0	0.0	00010001	00000000	103	2.1
11	1/1/80	06:52:53	BE2 - No Current	60.00	0.00	0.0	0.00	0.0	354	0.0	0.0	00010001	00000000	103	2.1
10	1/1/80	06:52:49	BE2 - No Current	60.00	0.54	0.0	0.54	0.0	355	0.0	0.0	00010001	00000000	103	2.1
9	1/1/80	06:51:32	BE2 - No Current	60.00	-0.54	0.0	-0.54	0.0	354	0.0	0.0	00010010	00000000	103	2.0
8	1/1/80	06:51:30	BE2 - No Current	60.00	0.54	0.0	0.54	0.0	354	0.0	0.0	00010001	00000000	103	2.0
7	1/1/80	06:51:25	BE2 - No Current	60.00	0.54	0.0	0.54	0.0	354	0.0	0.0	00010001	00000000	103	2.0
6	1/1/80	06:51:20	BE2 - No Current	60.00	0.54	0.0	0.54	0.0	355	0.0	0.0	00010001	00000000	103	2.0
5	1/1/80	06:47:05	BE2 - No Current	21.88	0.54	0.0	0.54	0.0	354	0.0	0.0	00010001	00000000	103	2.6
4	1/1/80	06:47:02	BE2 - No Current	21.88	0.54	0.0	0.54	0.0	354	0.0	0.0	00010001	00000000	103	2.6
3	1/1/80	06:46:58	BE2 - No Current	21.88	0.54	0.0	0.54	0.0	354	0.0	0.0	00010001	00000000	103	2.6
2	1/1/80	06:46:56	BE2 - No Current	21.88	0.54	0.0	0.54	0.0	354	0.0	0.0	00010001	00000000	103	2.6

Date Created: 2/22/2023 6:44:55 PM
Date Printed: 10/16/2023 11:23:05 AM

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A parx file is saved by a DataLogger. A parx file include all active parameter (Alt-F-P).

Parameters

Jake 14707 G+S4 - USB Serial Port (COM7) - 9600 (Addr 31).parx

Parameter	Description	Setting	Unit	Range	Modified
A1-00	Select Language	0:English		0 ~ 7	
A1-01	Access Level	2:Advanced Level		0 ~ 3	
A1-02	Control Method	0:V/f Control		0 ~ 3	
A1-03	Motion	0:Traverse		0 ~ 4	*
A1-04	Speed Reference	1:3-Spd Multi-Step		0 ~ 8	
A1-05	Init Parameters	0:No Initialize		-	
A1-06	Enter Password 1	Unlocked		0 ~ 9999	
A1-07	Set Password 1	0		0 ~ 9999	
A1-08	Enter Password 2	Factory		0 ~ 9999	*
A2-01	User Param 1	B1-02		B1-01 ~ O4-10	
A2-02	User Param 2	B1-03		B1-01 ~ O4-10	
A2-03	User Param 3	B1-04		B1-01 ~ O4-10	
A2-04	User Param 4	B1-05		B1-01 ~ O4-10	
A2-05	User Param 5	B3-04		B1-01 ~ O4-10	
A2-06	User Param 6	B5-01		B1-01 ~ O4-10	
A2-07	User Param 7	B5-02		B1-01 ~ O4-10	
A2-08	User Param 8	C1-03		B1-01 ~ O4-10	
A2-09	User Param 9	C1-04		B1-01 ~ O4-10	
A2-10	User Param 10	C1-05		B1-01 ~ O4-10	
A2-11	User Param 11	C2-01		B1-01 ~ O4-10	
A2-12	User Param 12	E1-03		B1-01 ~ O4-10	
A2-13	User Param 13	E2-01		B1-01 ~ O4-10	
A2-14	User Param 14	H1-06		B1-01 ~ O4-10	
A2-15	User Param 15	H1-07		B1-01 ~ O4-10	
A2-16	User Param 16	H1-08		B1-01 ~ O4-10	
A2-17	User Param 17	H2-03		B1-01 ~ O4-10	
A2-18	User Param 18	H3-02		B1-01 ~ O4-10	
A2-19	User Param 19	H4-02		B1-01 ~ O4-10	
A2-20	User Param 20	No User Data		B1-01 ~ O4-10	
A2-21	User Param 21	No User Data		B1-01 ~ O4-10	
A2-22	User Param 22	No User Data		B1-01 ~ O4-10	
A2-23	User Param 23	No User Data		B1-01 ~ O4-10	
A2-24	User Param 24	No User Data		B1-01 ~ O4-10	
A2-25	User Param 25	No User Data		B1-01 ~ O4-10	
A2-26	User Param 26	No User Data		B1-01 ~ O4-10	
A2-27	User Param 27	No User Data		B1-01 ~ O4-10	
A2-28	User Param 28	No User Data		B1-01 ~ O4-10	
A2-29	User Param 29	No User Data		B1-01 ~ O4-10	
A2-30	User Param 30	No User Data		B1-01 ~ O4-10	
A2-31	User Param 31	No User Data		B1-01 ~ O4-10	
A2-32	User Param 32	No User Data		B1-01 ~ O4-10	
A2-33	User Params Sel	0:Disabled		0 ~ 1	
B1-01	Reference 1	7.45	Hz	0.00 ~ 60.00	*
B1-02	Reference 2	32.00	Hz	0.00 ~ 60.00	*
B1-03	Reference 3	49.50	Hz	0.00 ~ 60.00	*
B1-04	Reference 4	60.00	Hz	0.00 ~ 60.00	*
B1-05	Reference 5	60.00	Hz	0.00 ~ 60.00	*
B1-06	Reference 6	0.00	Hz	0.00 ~ 60.00	
B1-07	Reference 7	0.00	Hz	0.00 ~ 60.00	

Date Created: 10/13/2023 1:46:14 PM
Date Printed: 10/16/2023 10:50:04 AM

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"*" Indicates a modified parameter

|◀ ◀ 1 of 23 ▶ ▶|

4.2 Parameter Tab

The Parameters tab allows the opening, closing, and printing of parameters, DataLogger files, or Trend files.
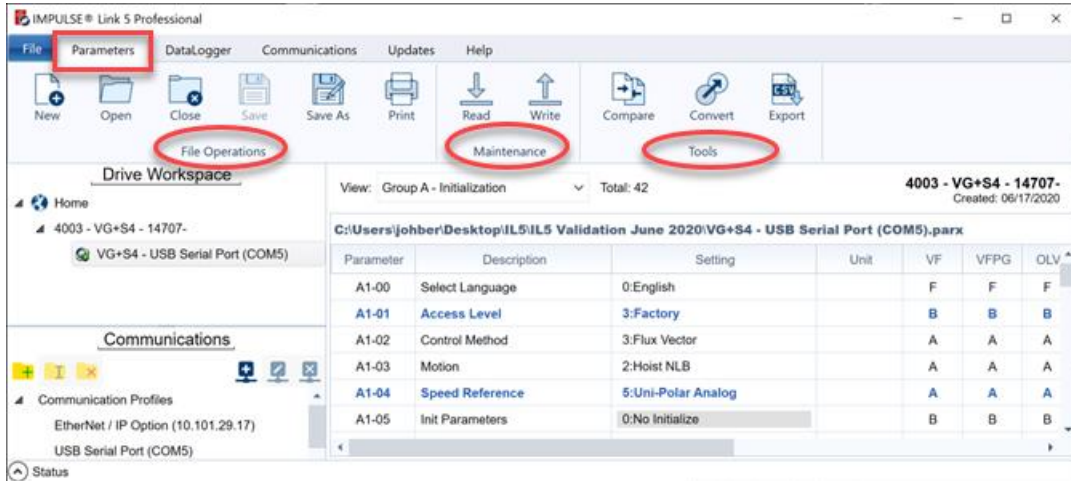

Figure 21: Parameters Tab

4.2.1 File Operations

- New – Create a Parameter file.
- Open – Open a Parameter, DataLogger, or Trend file.
- Close – Close an active Parameter, DataLogger, or Trend file.
- Print – Print the active view (Ctrl-P)
- Save and Save As – Save parameters, events, or trends to a file.

  The Save As button is context sensitive depending on which item is selected while viewing a dls4. If a user selects Trends, the Save As will default to saving .ts4 files, for example. If a user selects Events, the Save As button will default to saving .ds4 files. The Parameters tab Save and Save As buttons are greyed out if a Monitor is selected. The monitor dashboard contains a non-greyed out Save button in that situation.

4.2.2 Maintenance

- Read – Read parameters from a drive.
- Write – Write parameters to a drive.

4.2.3 Tools

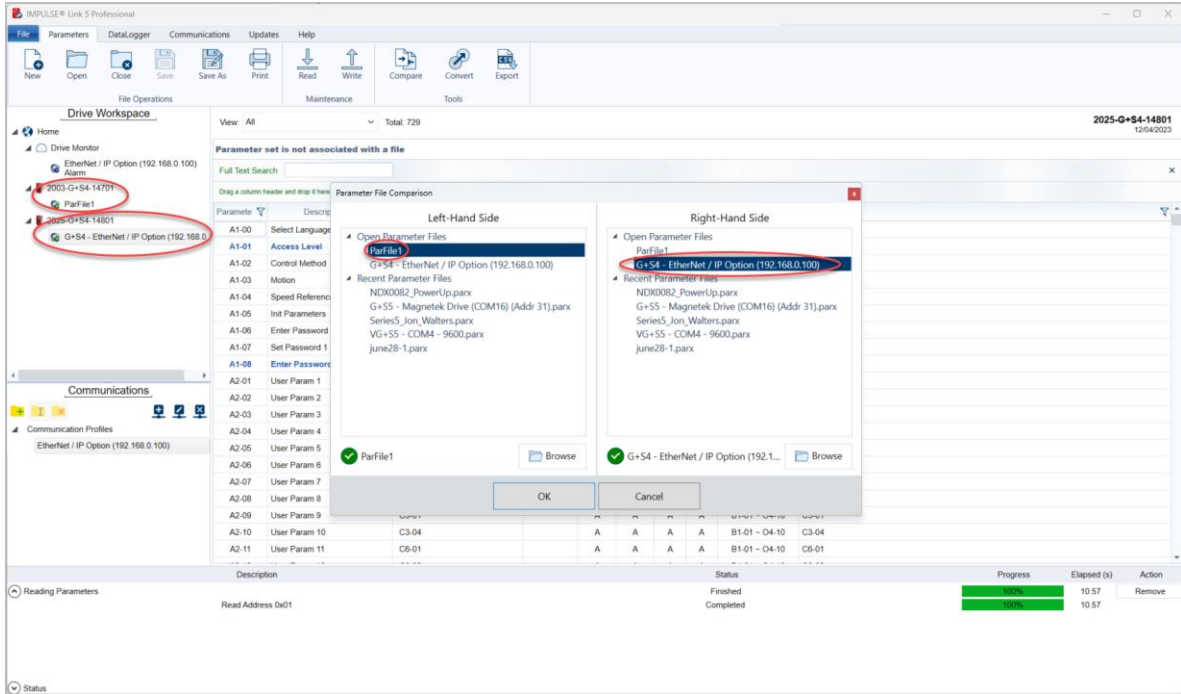- *Compare* – Allows comparison between two different Parameter files.

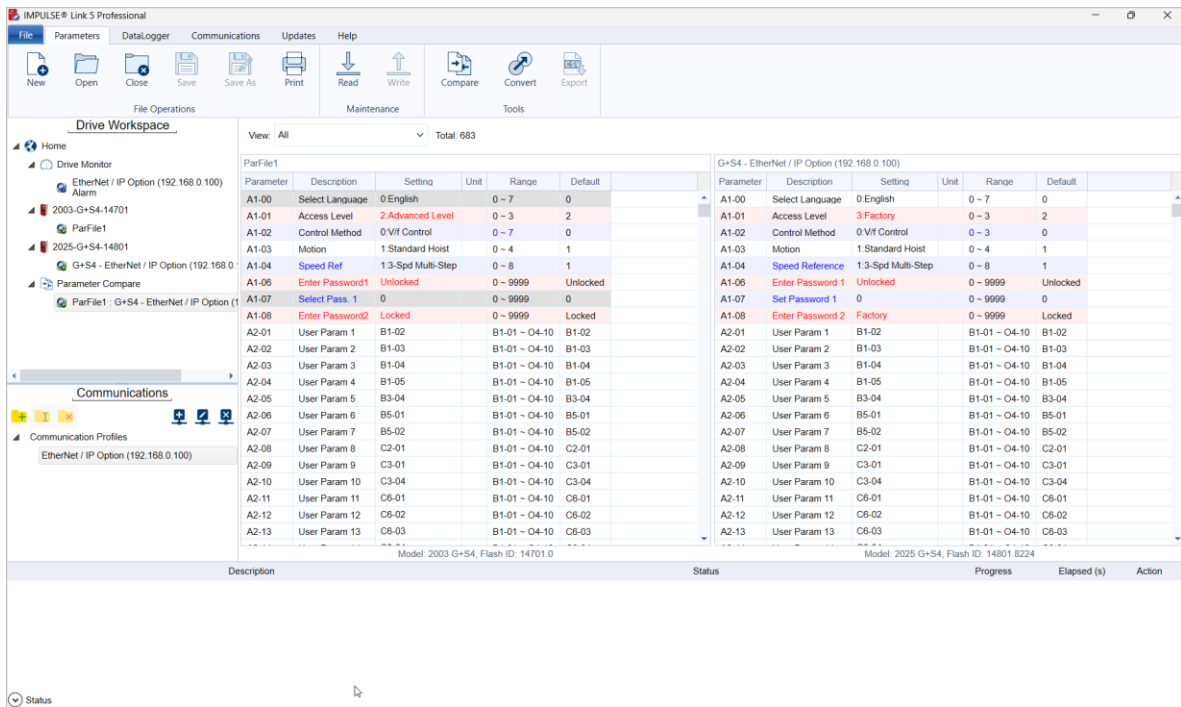**Figure 22: Tools Tab – Compare Parameters**

Figure 23: Tools Tab – Comparation Difference

When there are differences between two files, see color scheme section in this document.

- *Convert* – Parameter file conversion from one firmware version to another (must be same drive series).
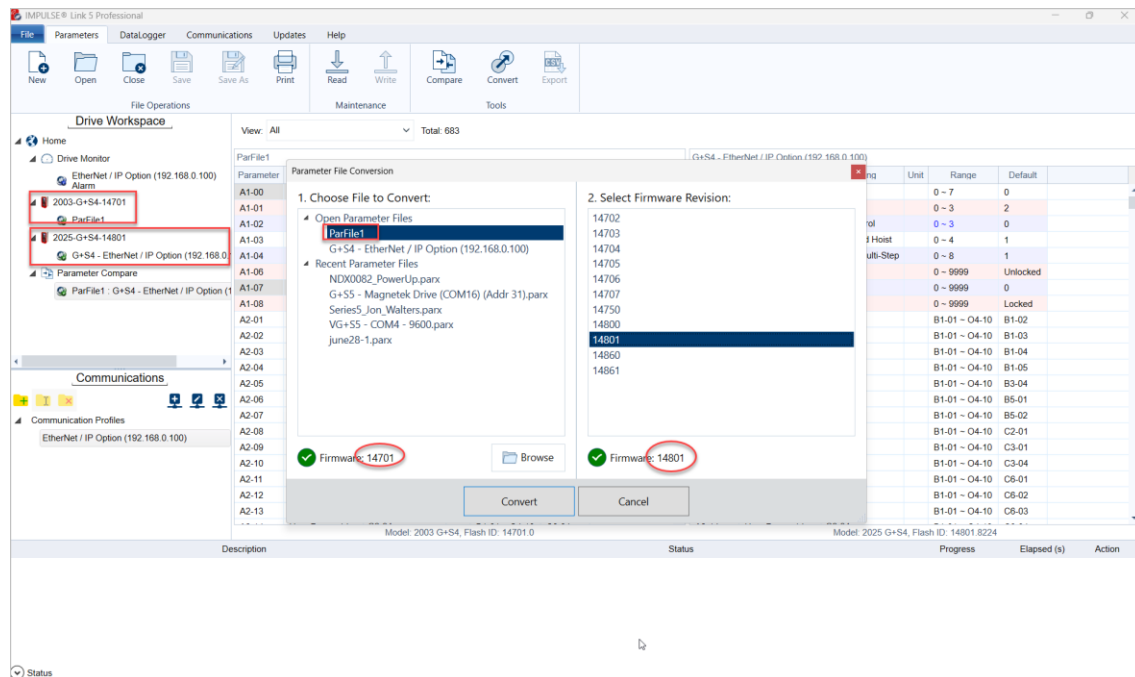

Figure 24: Tools Tab – Convert Parameters

- *Export* – Export an open Parameter file to a CSV file. Make sure to choose the correct parameters you would like to export.
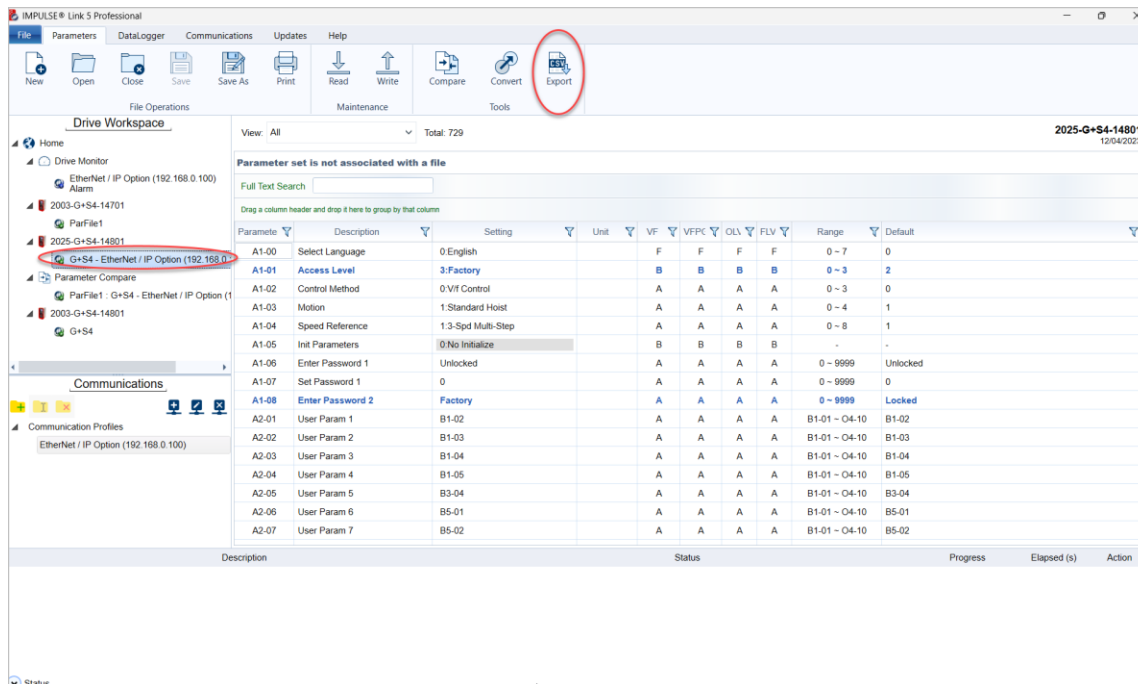

Figure 25: Tools Tab – Export

4.3   DataLogger Tab

The DataLogger tab is used to manage DataLogger Drive Events and Trend files as well as update DataLogger firmware. These events and trends can be viewed when the Parameters or DataLogger tab is selected.
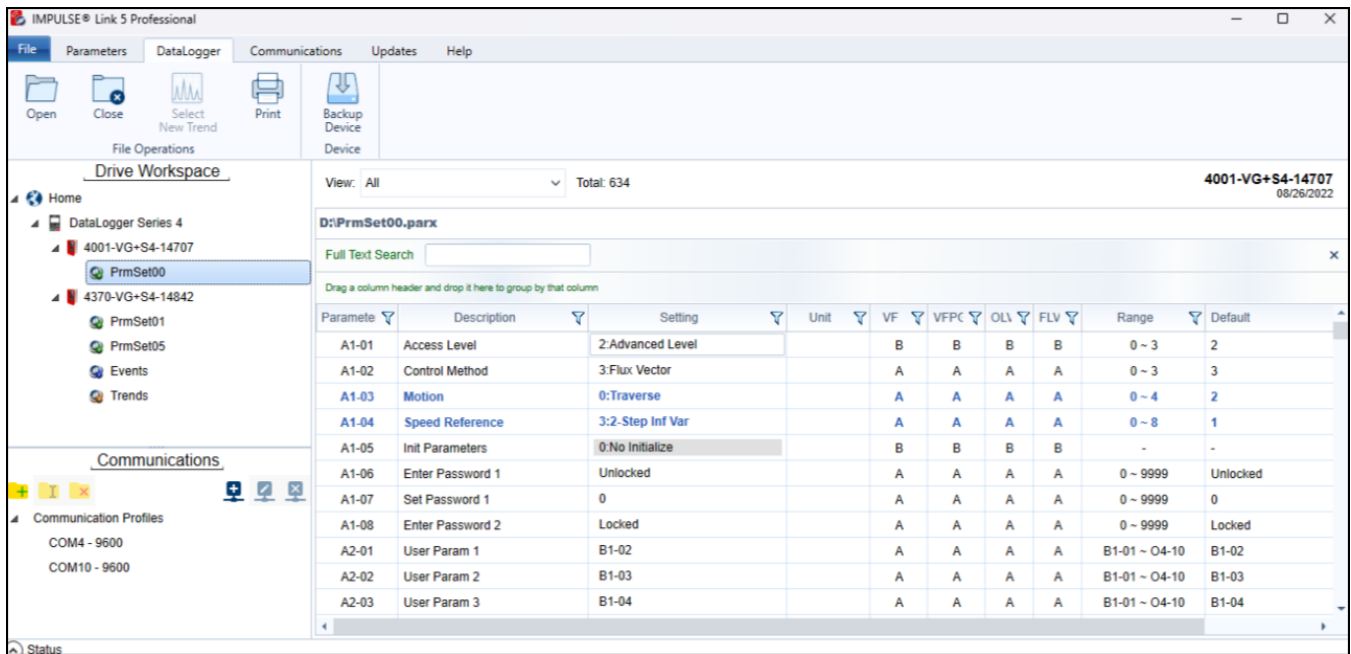

Figure 26: DataLogger Tab and Workspace

Open – Opens a Parameter, Drive Event, or Trend file.

Close – Closes an active Parameter, Drive Events, or Trend file.

Select New Trend – Opens window to select a different Trend file.

Print – Print the active data shown in the View Window when a trend is selected.

Backup Device – Back up data from the DLS4 to a PC location (determined by the user).

Update Firmware – Used to update the DataLogger Series 4 firmware.

Drive Workspace – Displays data loaded when the DataLogger is connected to the PC's USB port.

View Window – Displays a list of parameters (shown), Drive Events, or Trend files.

4.4 Parameter File Display

Parameter files can be viewed by choosing a file from the workspace tree or browsing for a Parameter file stored on a PC.

4.4.1 Parameter Value Text Color

Parameters may be displayed with color coding. Various colors are used to identify a condition that may require further action. The table below displays the colors used, their meanings, and their descriptions.

Color	Meaning	Description
Blue	*Modified Constant*	A parameter with **blue** text indicates the value is different than its default setting.
Gray	*Read-Only*	A parameter that is grayed-out is a parameter that cannot be modified, or the access level of the current Parameter set is lower than what is needed for that specific parameter (i.e., changing the parameter from the drive keypad would not be allowed with the current access level).

Table 1: Parameter Value Text Color

4.5 Workspace

4.5.1 DataLogger Parameter File Sets

The DataLogger Series 4 can store up to 11 Parameter sets. These sets are stored in "slots" numbered from 0 to 10 and located in the internal memory with the file's names PrmSet00.parx to PrmSet10.parx.

When the DLS4 is connected to the PC, the software will associate these Parameter files with the model of drive in the Workspace. Parameter set 00 contains the Parameter file from the most recent drive the DataLogger was connected to. The name of these files can be changed in the DLS4 (see **Rename Parameter Data** section in the *DataLogger Series 4 Instruction Manual*) and will appear in the Workspace shown in **Figure 27.**
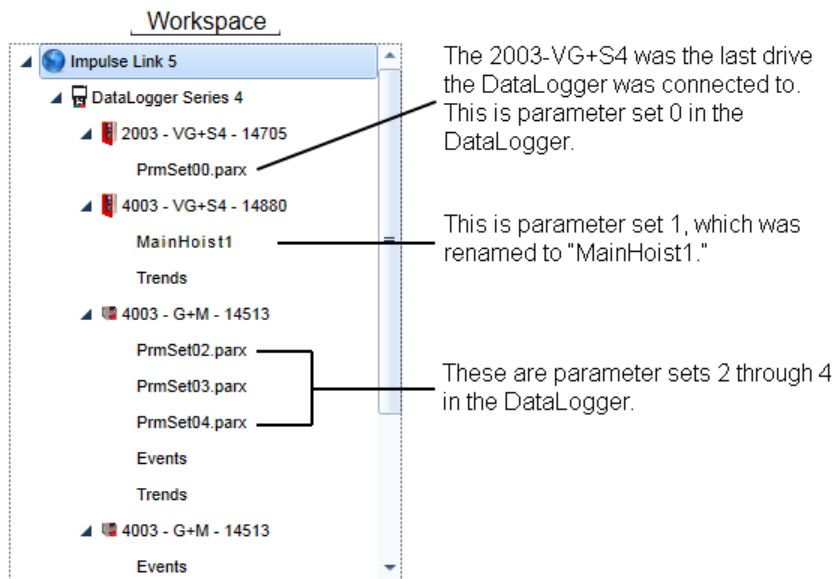

Figure 27: DataLogger Parameter File Sets

4.5.2 Events

Events are used to view Run history, Fault history, and Alarm history of a drive. When an event is recorded, the DLS4 will gather detailed information about the state of the drive.

The DataLogger Series 4 can log:

- 5000 Run events
- 400 Alarm events
- 400 Fault events
- Approximately 300 hours of monitor data (U01-01 – U01-12, plus up to 10 selectable monitors)
- 11 Parameter sets

The information for Runs, Alarms, and Faults can be viewed by selecting Events under the drive in the Workspace tree.

Figure 28: Events

4.5.3 Trends

Drive status information is collected by a DataLogger Series 4 and can be charted and viewed in the Trends section of IMPULSE•Link 5. This data can be used to analyze drive issues during operation such as motor overload.

Trend files are automatically generated on power-up of the DLS4, and at the start of every hour. To view a trend, click on "Trends" under the desired drive. A Date Dialog Box will appear.
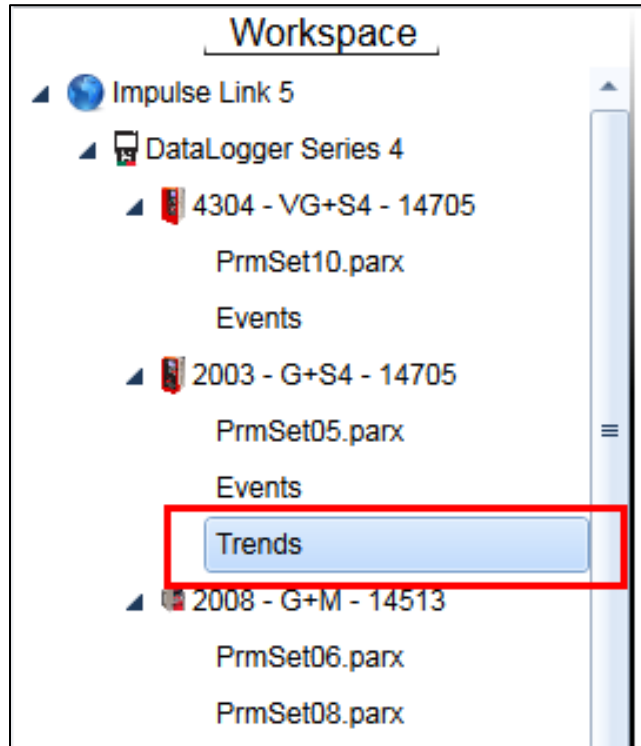
Figure 29: Trends
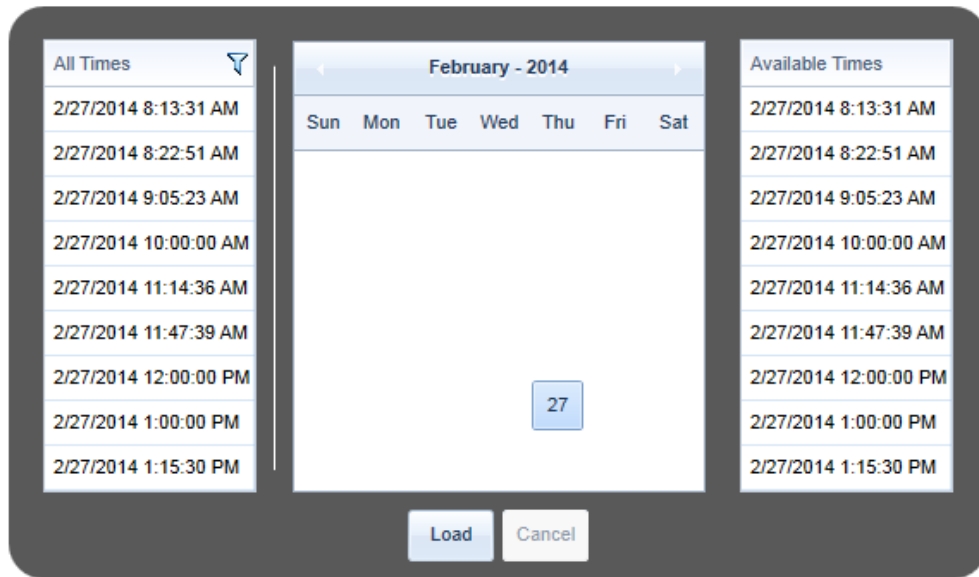
Figure 30: Date Dialog Box

The Date Dialog Box is used to navigate to the time of the trend. Click on a date to show all trends for that day.
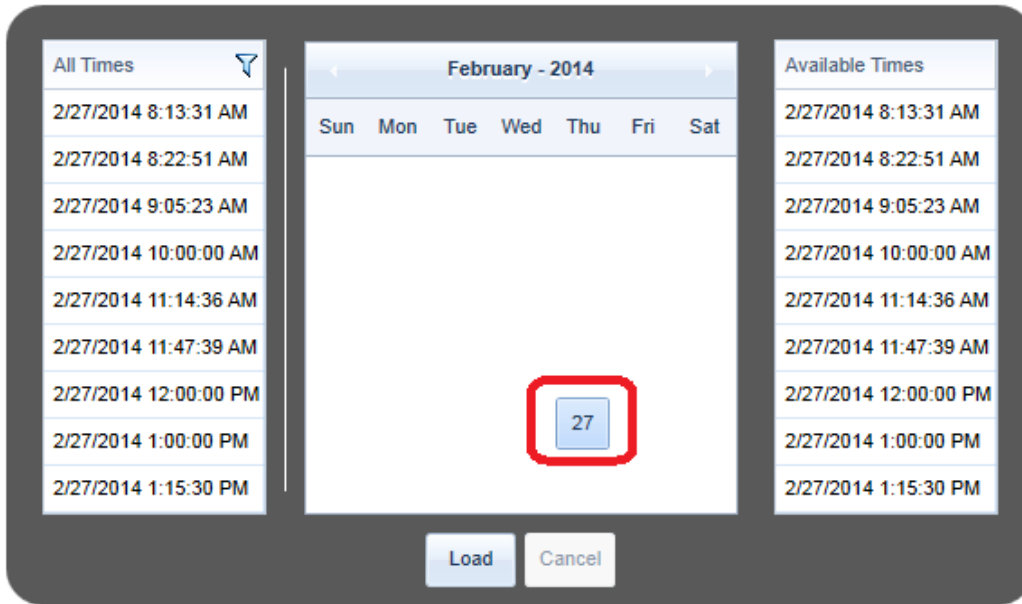
Figure 31: Selecting the Date

All the trends for this date will be shown under "Available Times" on the right. Click on the date/time to highlight the trend to view and then choose "Load."
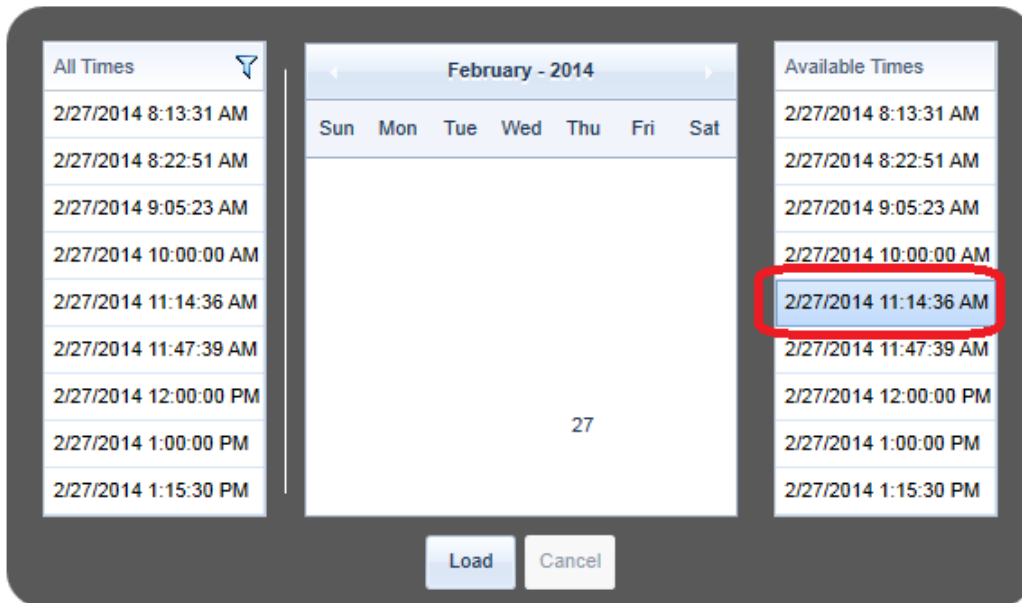
Figure 32: Selecting the Desired Trend

NOTE: This may take several seconds to open depending on the trend length.
NOTE: Trends can also be found in the "Trend" folder in the DataLogger Series 4 internal memory. See the DataLogger Series 4 manual for more information.

4.5.4 Runs

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 run. A reference to the last alarm (if any) that occurred during the run is also stored. The DLS4 records

numerous pieces of data at the end of the run event. Each of these can be turned ON or OFF for viewing purposes. For example, when "Model" is deselected, it will not be displayed in the Events window.

Table 2 shows the various data that is collected.

Name	Description
Run #	Number of Runs recorded by the DLS4.
Date	Date the Run event ended [Day/Month/Year].
Time	Time the Run event ended [Hour:Minute:Second].
Direction	"FWD" or "REV".
Duration [sec]	Amount of time the Run command was active.
Avg DC Bus [VDC]	Average DC Bus Voltage during the Run.
Peak DC Bus [VDC]	Peak DC Bus Voltage during the run.
Avg Iout [A]	Average output current to the motor.
Peak Iout [A]	Peak output current to the motor.
Avg Fout [Hz]	Average output frequency of the drive.
Peak Fout [Hz]	Peak output frequency of the drive.
Avg Mtr Speed [Hz] [1]	Average speed of the motor.
Peak Mtr Speed [Hz] [1]	Peak speed of the motor.
Avg Mtr Torque [%] [1]	Average torque applied to the motor during the Run.
Peak Mtr Torque [%] [1]	Peak torque in the motor.
Heatsink [°C]	Heatsink temperature when the Run event ended.
Last Alarm	Last Alarm recorded.
Last Fault	Last Fault recorded.
Control	Control method of the drive.
Motion	Motion of the drive.

[1] Only valid when the control method is Open Loop Vector or Flux Vector.

Table 2: Run Data – AC Drive

4.5.5 Alarms

If an Alarm is detected during a Run, it will be logged under the Alarms tab. Each data point can be turned ON or OFF for viewing purposes. For example, when "Model" is deselected, it will not be displayed in the Events window.

Table 3 shows the various data that is collected.

Name	Description
Alarm #	Alarm number in the DLS4.
Alarm	Name of the Alarm posted at the end of the Run event.
Date	Date the Alarm occurred [Day/Month/Year].
Time	Time the Alarm occurred [Hour:Minute:Second].
Assoc. Run #	Associated Run number that the Alarm occurred in.
Control	Control method of the drive.
Motion	Motion of the drive.

Table 3: Alarm Data

4.5.6 Faults

If a Fault is detected during a Run, it will be logged under the Faults tab. Each data point can be turned ON or OFF for viewing purposes. For example, when "Model" is deselected, it will not be displayed in the Events window.

Table 4 shows the various data that is collected.

Name	Description
Fault #	Number of the Fault stored in the DLS4.
Date	Date the Fault occurred [Day/Month/Year].
Time	Time the Fault occurred [Hour:Minute:Second].
Assoc. Run #	Associated Run number that the Fault occurred in.
Fault	Name of the Fault.
Fref [Hz]	Frequency reference at the time of the Fault.
Fout [Hz]	Output frequency at the time of the Fault.
Iout [A]	Output current at the time of the Fault.
Motor Speed [Hz]	Motor speed at the time of the Fault.
Vout [VAC]	Output voltage at the time of the Fault.
DC Bus [VDC]	Voltage on the DC Bus at the time of the Fault.
Power Out [HP] [1]	Output power at the time of the Fault.
T-ref [%] [1]	Torque reference at the time of the Fault.
Input Terminal Status	Status of the input terminals at the time of the Fault.
Output Terminal Status	Status of the output terminals at the time of the Fault.
Inverter Status	Status of the drive at the time of the Fault.
Elapsed Time [Hr]	Time since the last Fault was recorded.
Heatsink [°C]	Heatsink temperature at the time of the Fault.
Control	Control method of the drive.
Motion	Motion of the drive.

[1] Only valid when the control method is Open Loop Vector or Flux Vector.

Table 4: Fault Data – AC Drive

4.6   Trend Analysis

4.6.1 Trend Navigation

Trend view will display both analog and digital signals from the drive as well as signal names and ranges. These signals can be selected in the Signal Selection pane.
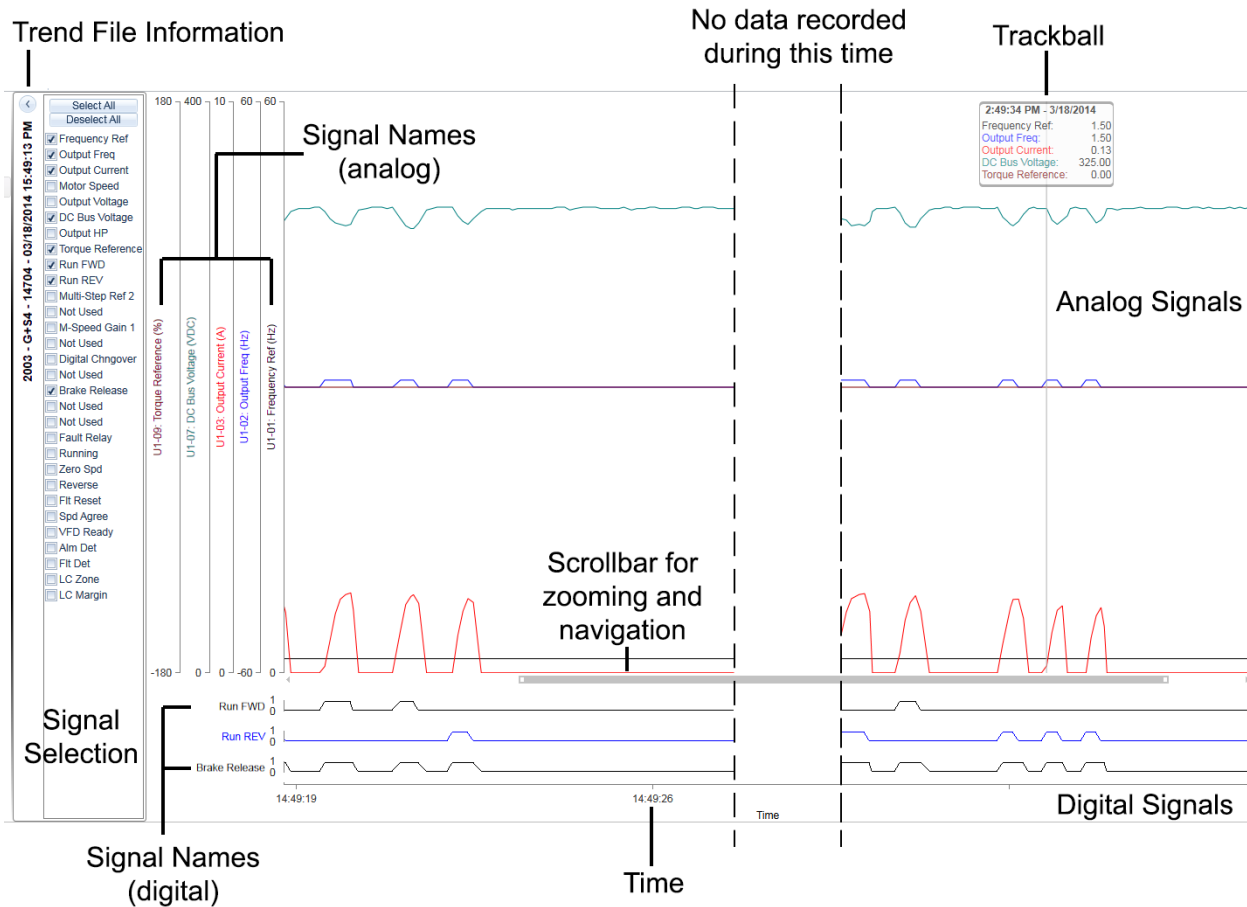
Figure 33: Trend Navigation Overview

4.6.2 Trend File Information

The Trend file data displays information about the Trend file being viewed.
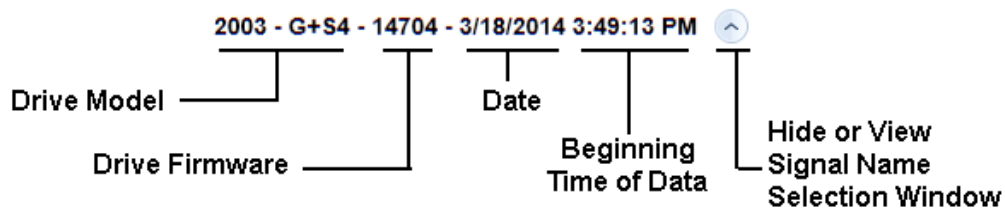

Figure 34: Trend File Information

NOTE: The "Date" format is based on the PC's settings.

4.6.3 Signal Name Select

Analog and digital signals can be selected or deselected from the Signal Name Select pane. The following shows the default selections when a trend is first viewed.
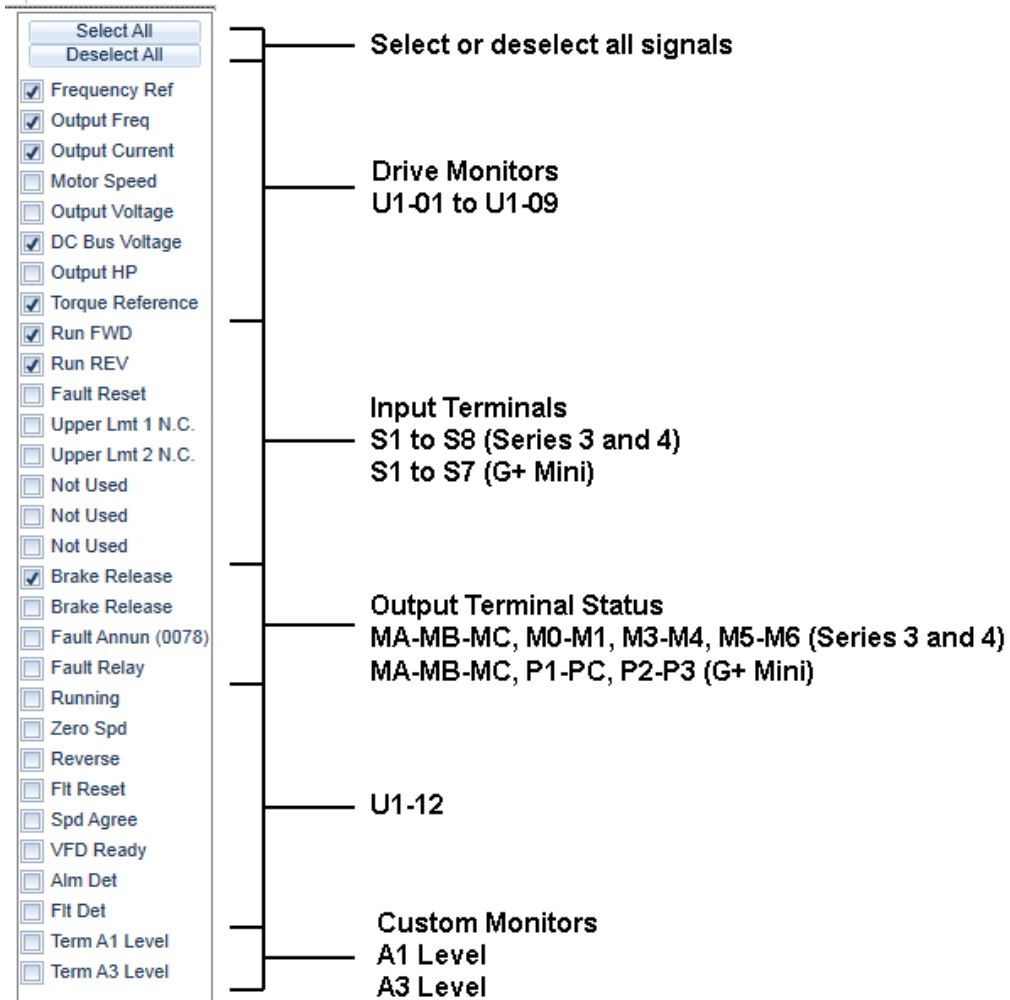
Figure 35: Signal Name Select Pane

4.6.4 Mouse Tooltips

Hovering the mouse pointer over a signal in the Signal Name Select pane will display additional information about that signal, such as the monitor name or meaning, terminal number, and programmed parameter value.
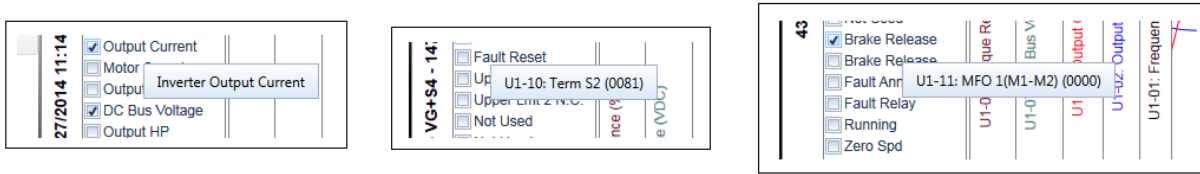

Figure 36: Mouse Tooltip Examples

4.6.5 Signal Names – Analog

When an analog signal is selected, the trend will populate the graph with this data and display the signal name with the upper and lower limits for that monitor. The color of the name is the same as the color of the data graphed.
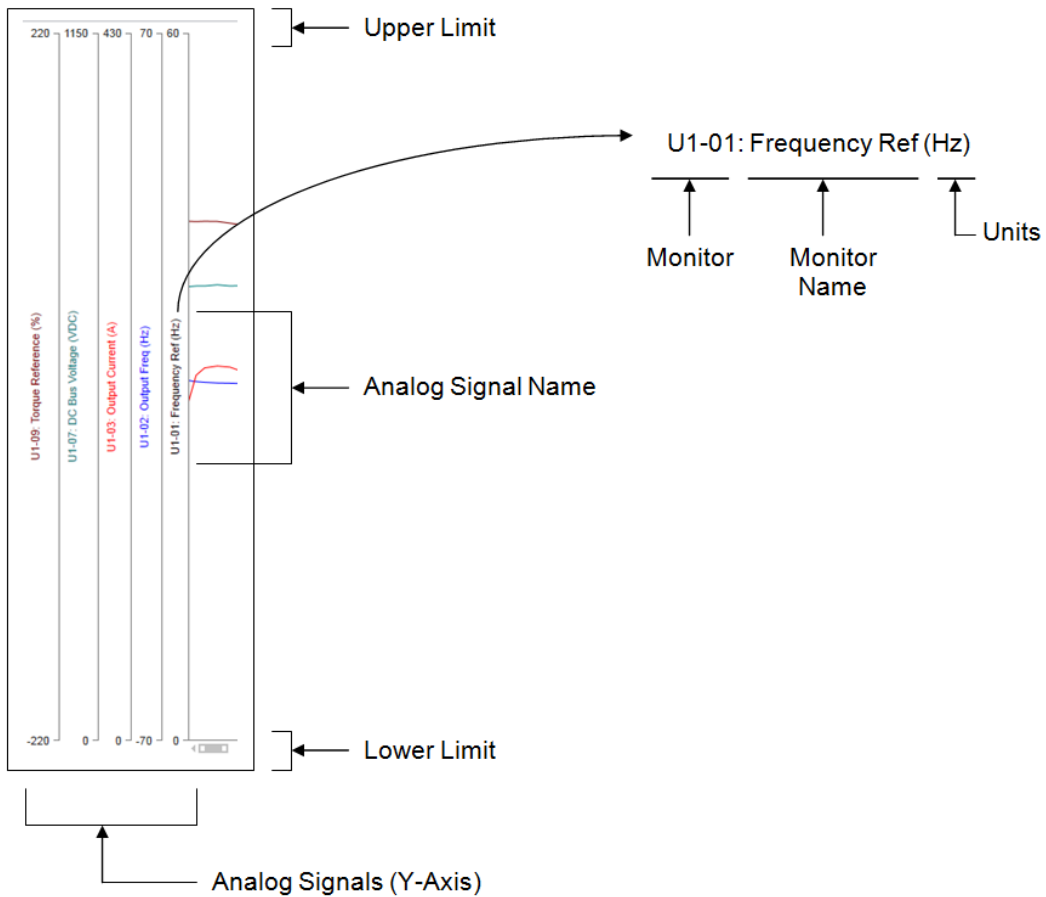

Figure 37: Analog Signal Names

4.6.6 Signal Names – Digital

When a Multi-Function Digital Input (MFDI) or Multi-Function Digital Output (MFDO) signal is selected, the trend will populate the graph and display the signal name. A one (1) or a zero (0) is used to identify whether the input/output is on (closed) or off (open). The color of the name is the same as the color of the data graphed.
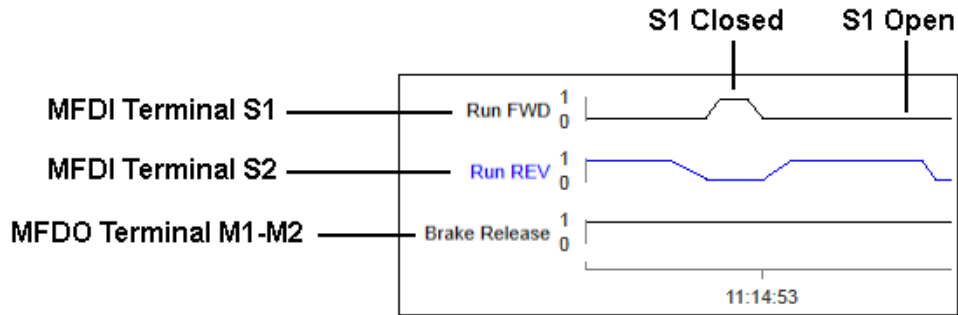
Figure 38: Digital Signal Names

4.6.7 Time

Time is displayed on the bottom in HH:MM:SS using 24-hour format.

4.6.8 Trackball

The trackball displays values for each of the analog signals when the mouse pointer is hovered over the area where the analog signals are shown. The details shown are the values recorded by the DLS4 for each signal. The colors of the names are the same as the color of the signal in the graph.
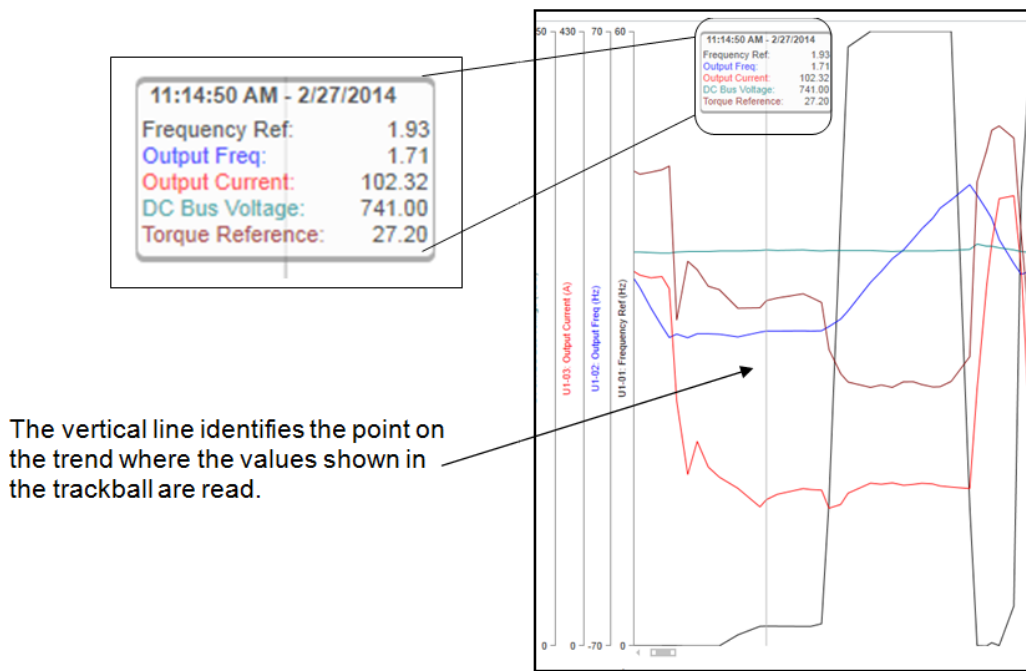
Figure 39: Trackball Details

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4.6.9 Scrollbar Navigation

IMPULSE•Link 5 provides a proportional scrollbar to navigate through a Trend file. The scrollbar is used to zoom in/out or move from the beginning/end of the Trend file.

4.6.10 Sliding the Scrollbar

Navigation from the beginning to the end of a Trend file is done by left-clicking on the scrollbar and sliding the scrollbar left or right.
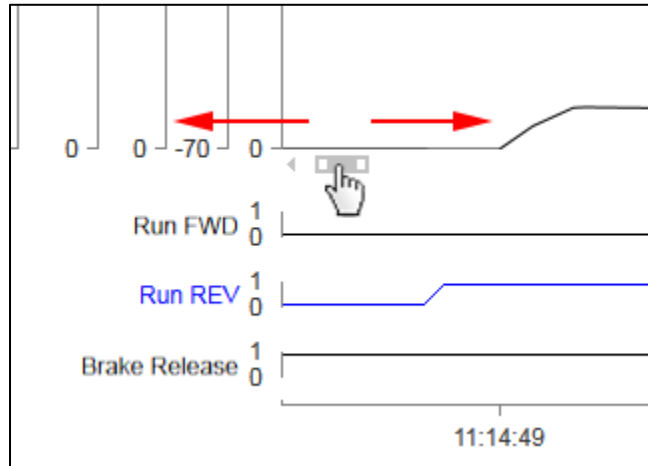
Figure 40: Sliding the Scrollbar

4.6.11 Zoom

Zooming in or out on a trend can be done with the scrollbar, mouse, or mouse wheel.

1. Scrollbar: Left-click on the outside edge of the scrollbar, then drag to expand or contract view. Below is an example of zooming out. The cursor turns into a double-sided arrow.
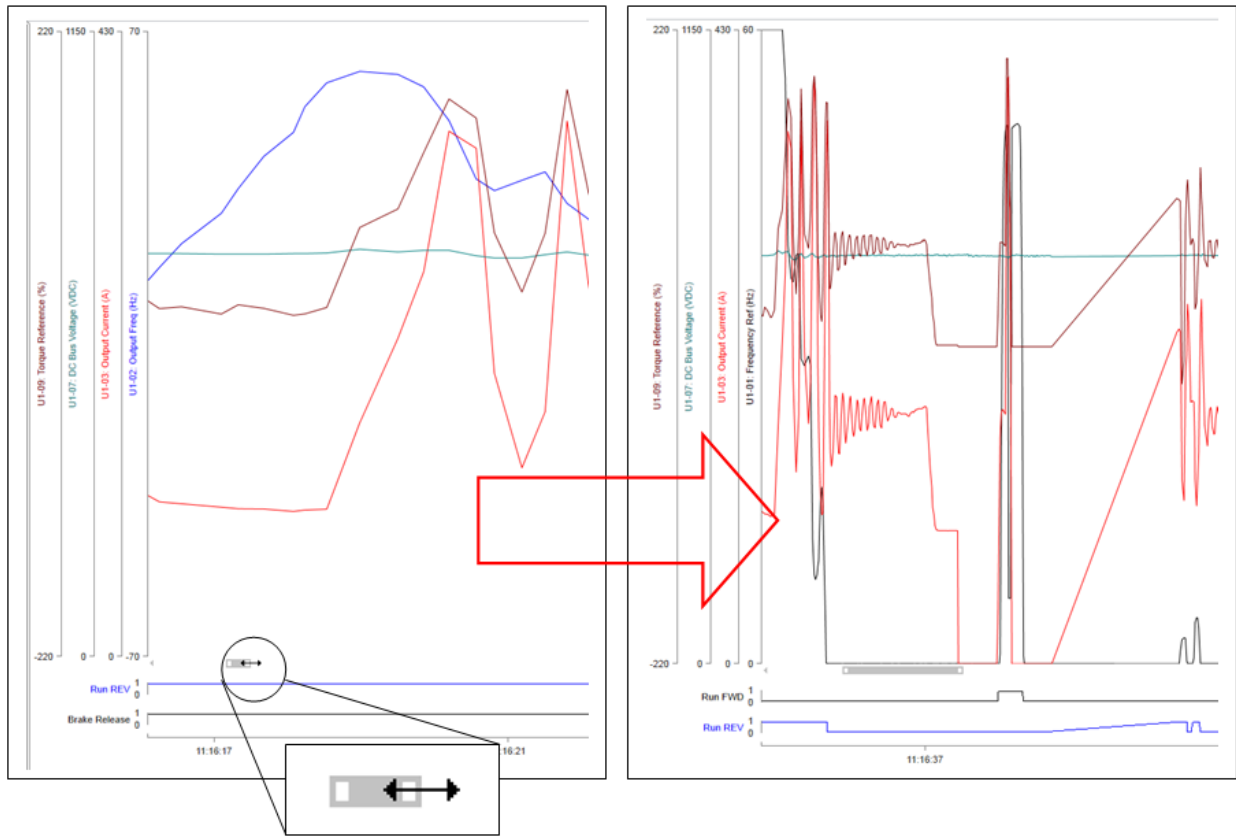
Figure 41: Using the Scrollbar

2. Mouse wheel: Position the mouse over the desired area on the trend to zoom in/out from. Use the mouse wheel to zoom in or out on the trend at that position on the graph.
3. Mouse: With the mouse, left-click and hold on the desired area of the graph and then drag the mouse to zoom in.

4.7   Printing

IMPULSE•Link 5 can print Parameter sets, Event information, and Trending data.

4.7.1 Parameter Data

To print parameter data, go to the Parameters tab and select the Parameter set from the Workspace.
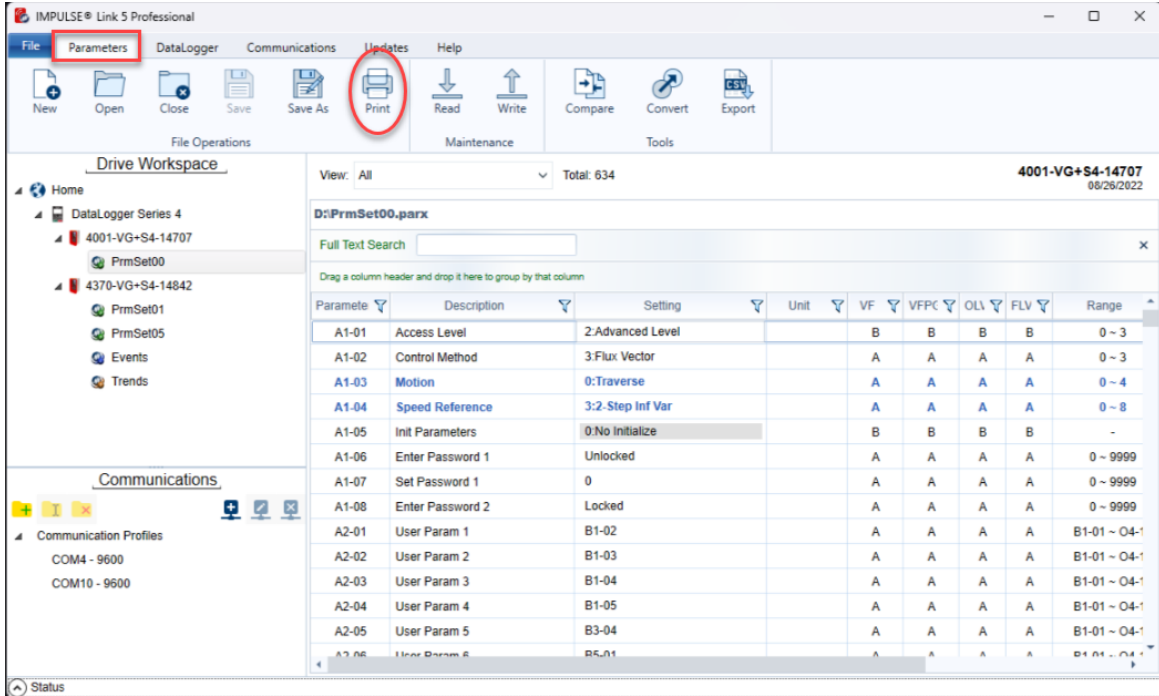
Figure 42: Selecting the Parameter Set

Click the Print icon, which will bring up the IMPULSE•Link 5 Print dialog.
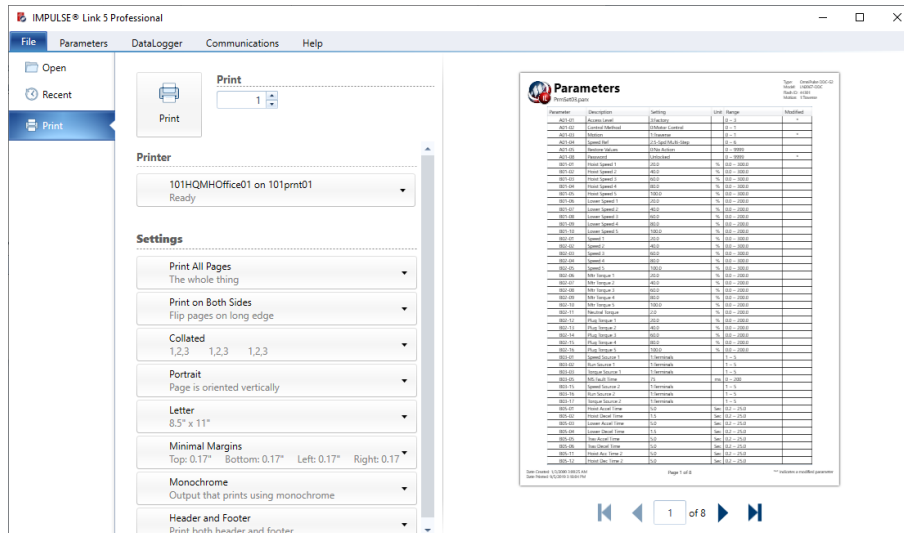
Figure 43: Print Preview of the Parameter Set

The initial "Print" data is controlled by the Parameter view. Changing the view in the Parameter tab from "All" to the desired view (parameter groups, modified parameters, etc.) will change the data available for printing.
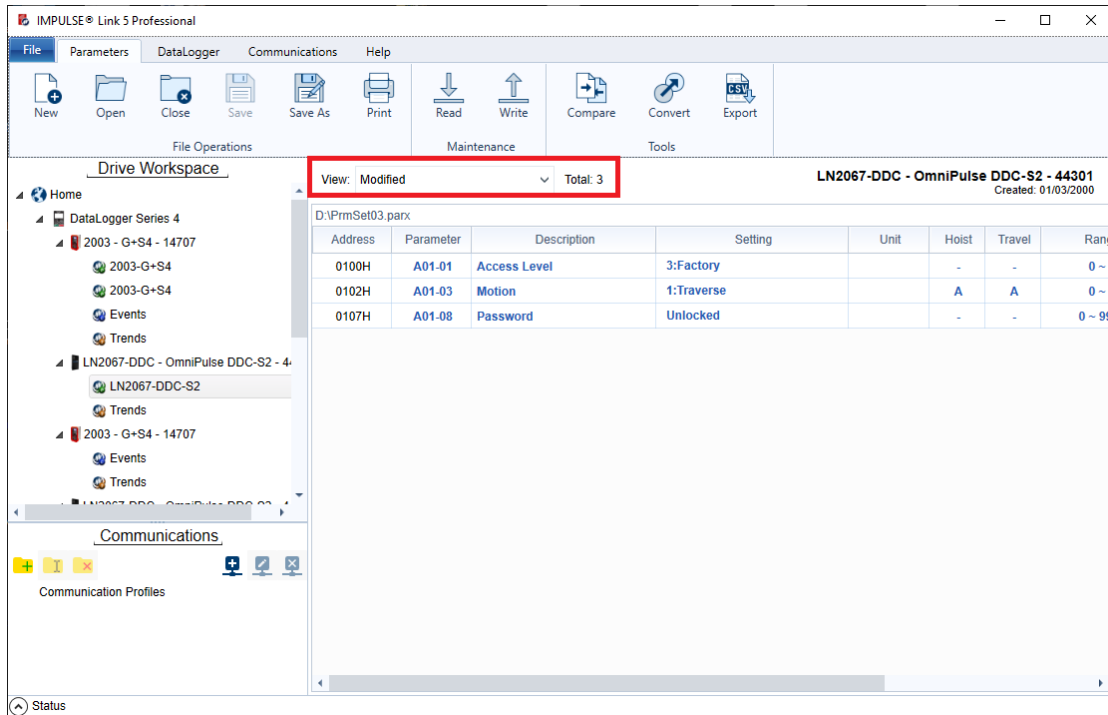
Figure 44: Selecting a Specific Parameter Group

To print select parameters, shift-click the desired block of rows to print, or ctrl-click to select non-contiguous rows. If a parameter was selected in error, simply ctrl-click that parameter to remove it from the selected parameters (it should no longer be highlighted). Then click on the Print icon to open the Print dialog and click the "Selected" option before printing.
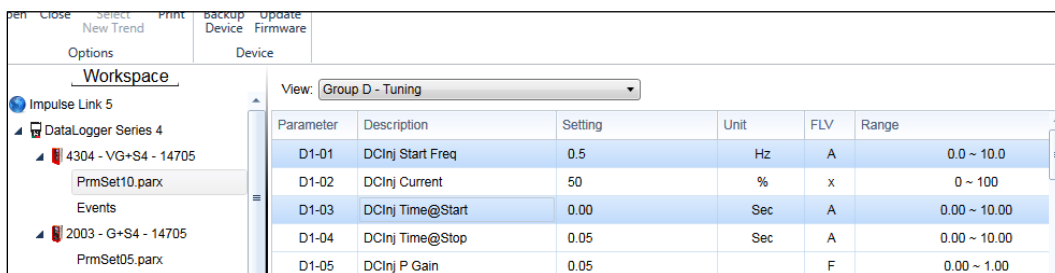
Figure 45: Highlighting Select Parameters

4.7.2 Events

To print Event data, go to the DataLogger tab and select the Event set to be printed from the workspace.
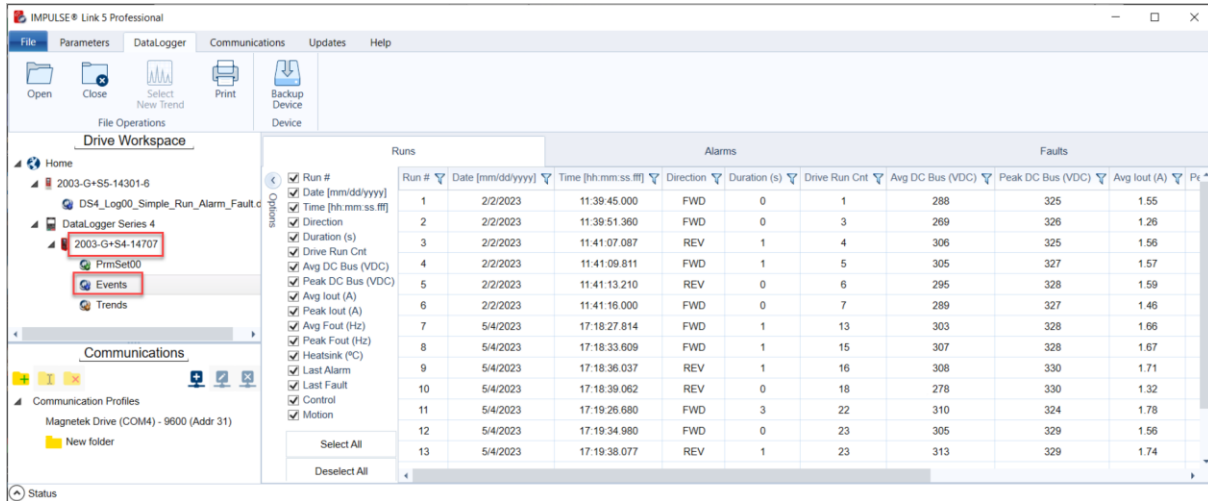
Figure 46: Selecting an Event

Click the Print icon, which will bring up the IMPULSE•Link 5 Print dialog.

Figure 47: Print Preview of the Event

Use the scroll arrows in the Print preview to see Runs, Alarms, and/or Faults.

Alarms

DLS4_Log.ds4

Type: G+S4
Model: 2003
Flash ID: 14707
Control: 2:Open Loop Vector
Motion: 0:Inverse

Alarm #	Alarm	Date (MM/DD/YYYY)	Time	Associated Run #
2	EF - External Fault	09/04/2019	08:42:42	3
1	EF - External Fault	09/04/2019	08:42:17	1

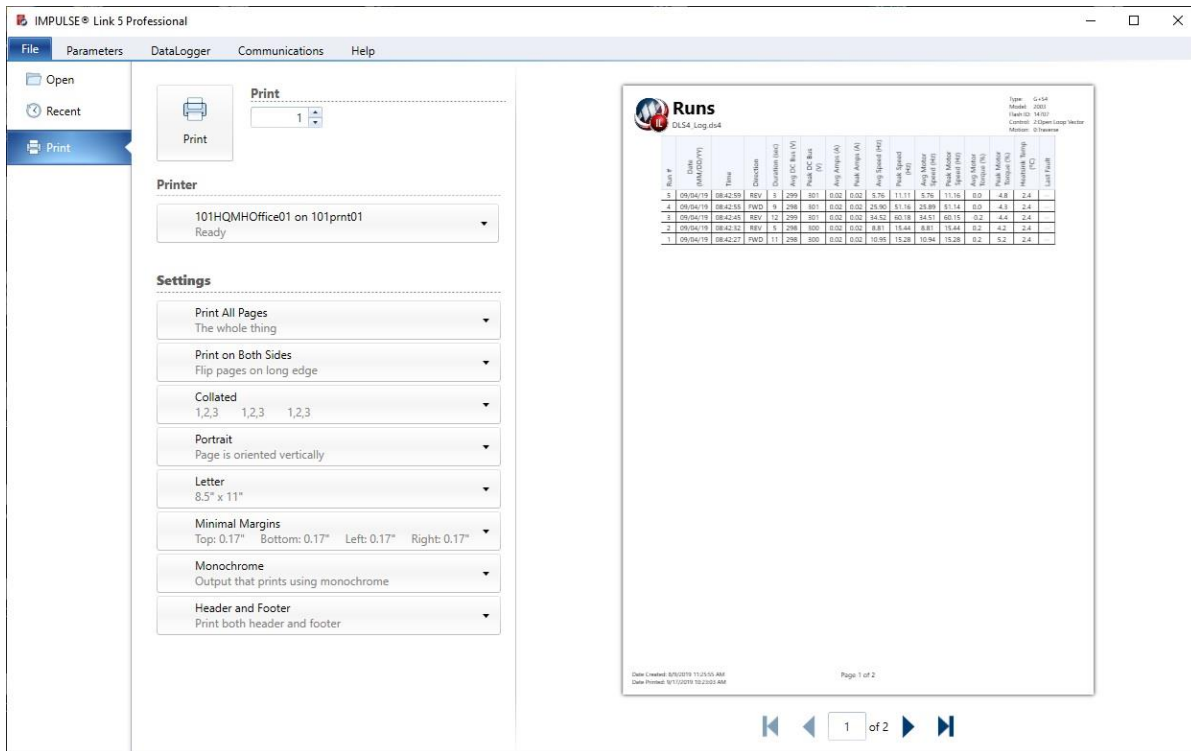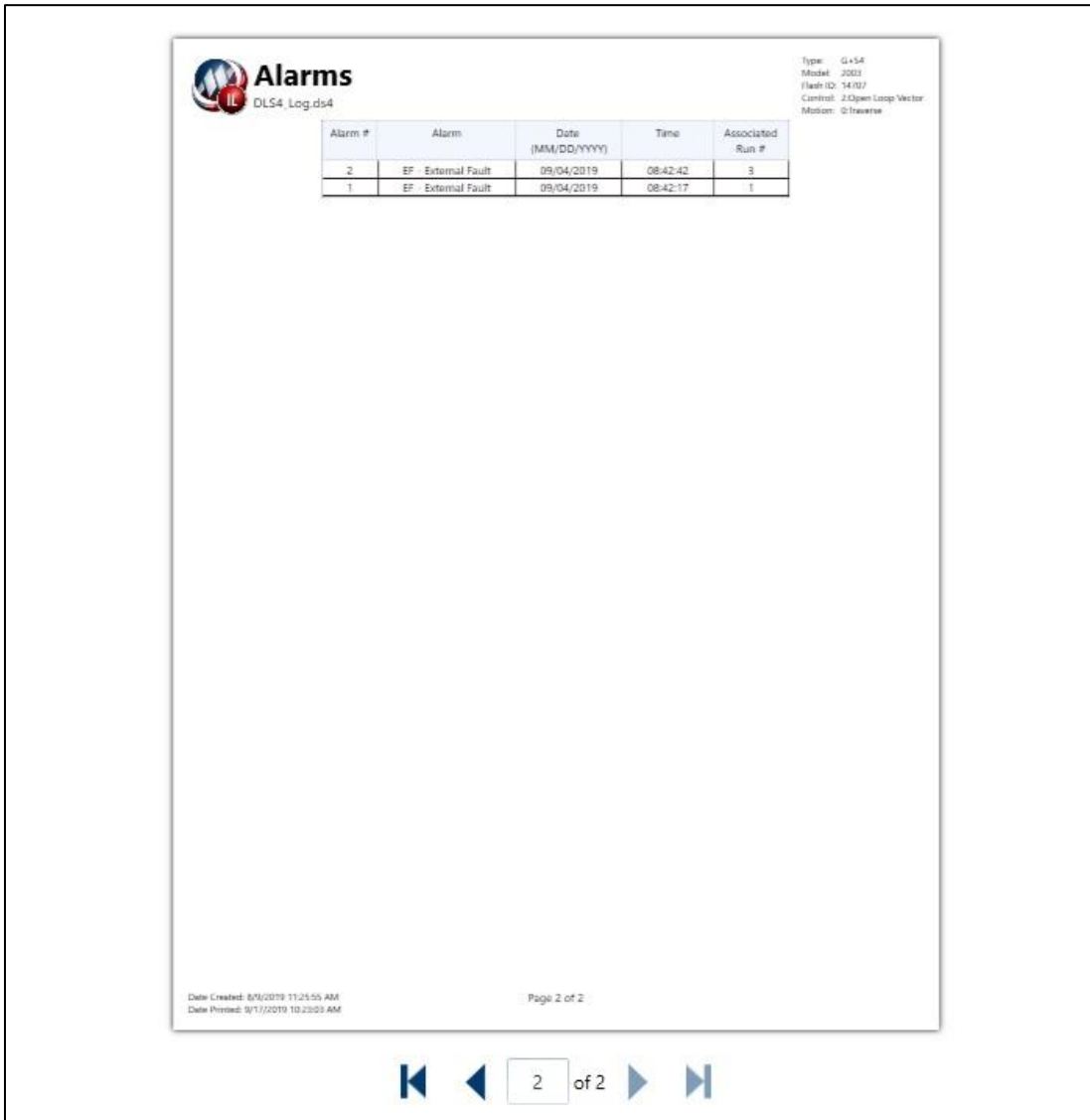Date Created: 8/6/2019 11:25:55 AM
Date Printed: 9/17/2019 10:23:03 AM

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Figure 48: Print Alarms

Options	Device

Workspace

- Impulse Link 5
- DataLogger Series 4
  - 4304 - VG+S4 - 14705
    - PrmSet10.parx
    - Events
  - 2003 - G+S4 - 14705
    - PrmSet05.parx
    - Events
    - Trends
  - 2008 - G+M - 14513
    - Bridge 1
    - PrmSet08.parx
    - Events

Runs	Alarms	Faults

Options

Select All
Deselect All

- ☑ Run #
- ☑ Date
- ☑ Time
- ☑ Direction
- ☑ Duration
- ☑ Avg VDC
- ☑ Peak VDC
- ☑ Avg Amps
- ☑ Peak Amps
- ☑ Avg Speed
- ☑ Peak Speed
- ☑ Avg Mtr Speed
- ☑ Peak Mtr Speed

Run #	Date	Time	Direction	Duration	Avg VDC	Peak VDC	Avg Am
548	2/27/2014	11:41:02	REV	0	740	742	11.
547	2/27/2014	11:41:01	REV	9	740	752	15.
546	2/27/2014	11:40:24	REV	3	742	744	17.
545	2/27/2014	11:39:46	FWD	1	740	742	20.
544	2/27/2014	11:39:25	FWD	1	740	742	13.
543	2/27/2014	11:39:24	REV	3	741	746	15.
542	2/27/2014	11:39:19	REV	1	742	743	15.
541	2/27/2014	11:39:11	REV	1	741	746	17.
540	2/27/2014	11:39:05	FWD	3	741	751	16.
539	2/27/2014	11:39:02	REV	5	741	759	18.

Figure 49: Selecting Specific Runs, Alarms, and/or Faults
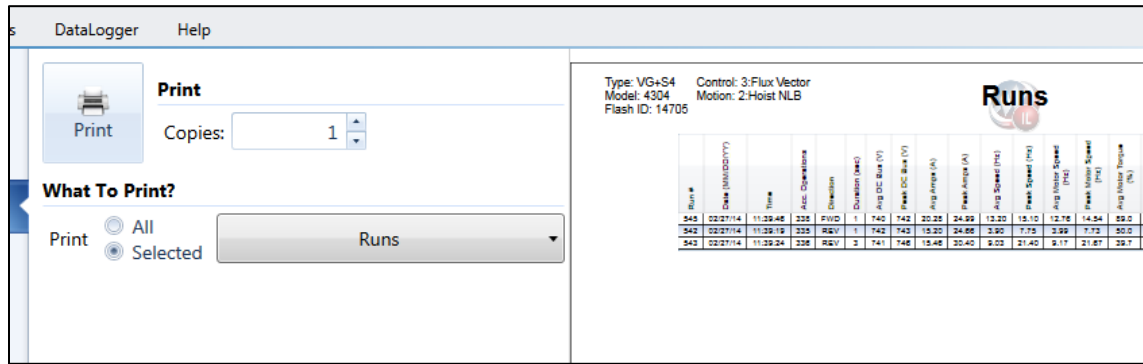
Figure 50: Print Preview of Selected Data

NOTE: The selection options for the events under the DataLogger tab do not control what will print.

4.7.3 Trends

To print Trend data, go to the DataLogger tab and select the trend to be printed from the workspace.
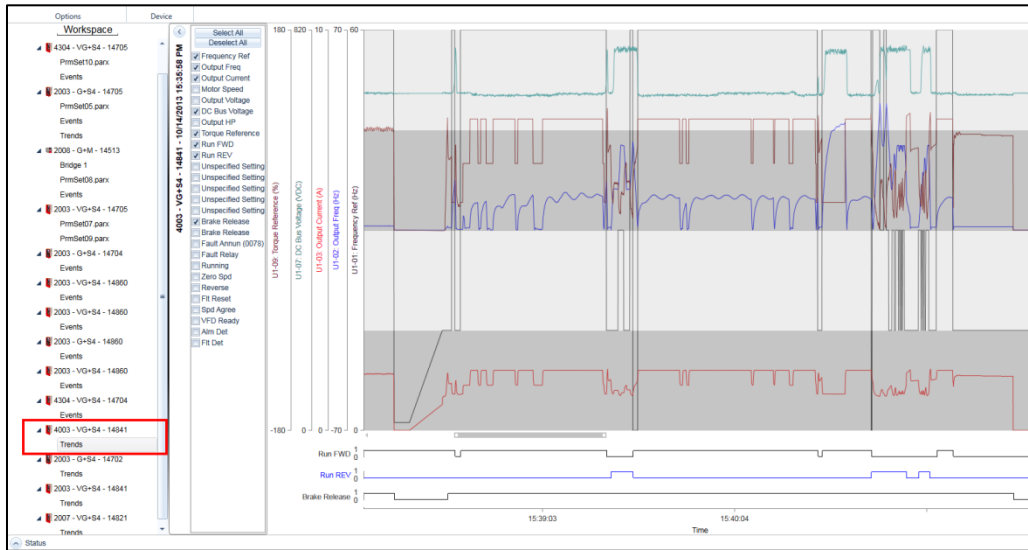
Figure 51: Selecting the Trend

Click the Print icon, which will bring up the IMPULSE•Link 5 Print dialog.
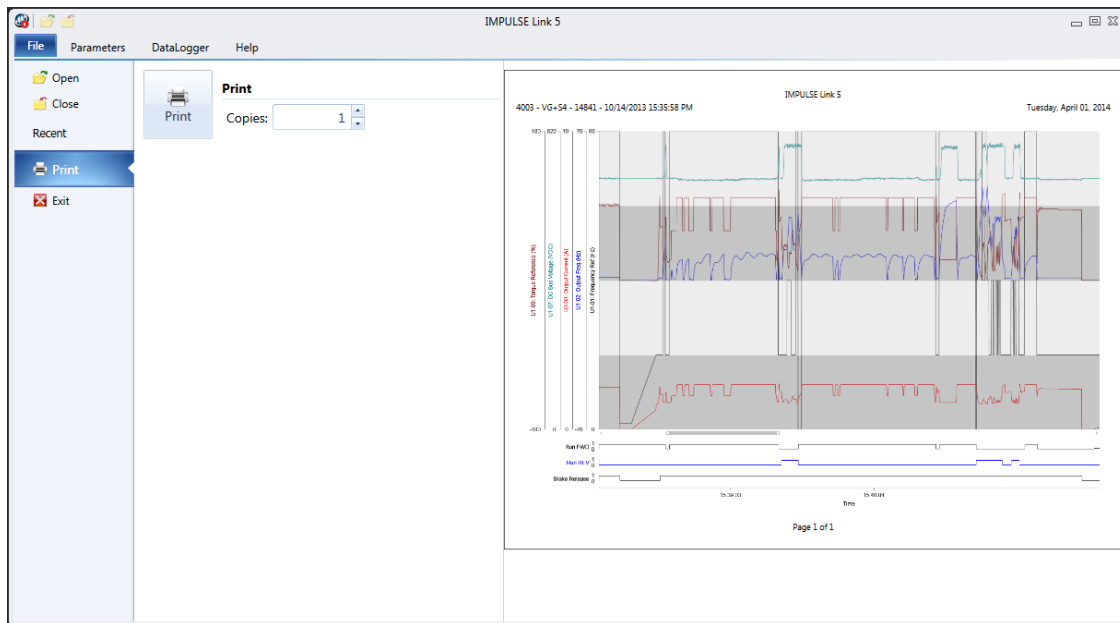
Figure 52: Printing the Trend

The printed data is based on the view in the main window, so be sure to adjust the view as necessary before printing (zooming on the desired data, adding, and removing signals as necessary, etc.).

4.8 Updates Tab

Viewer Update Tab
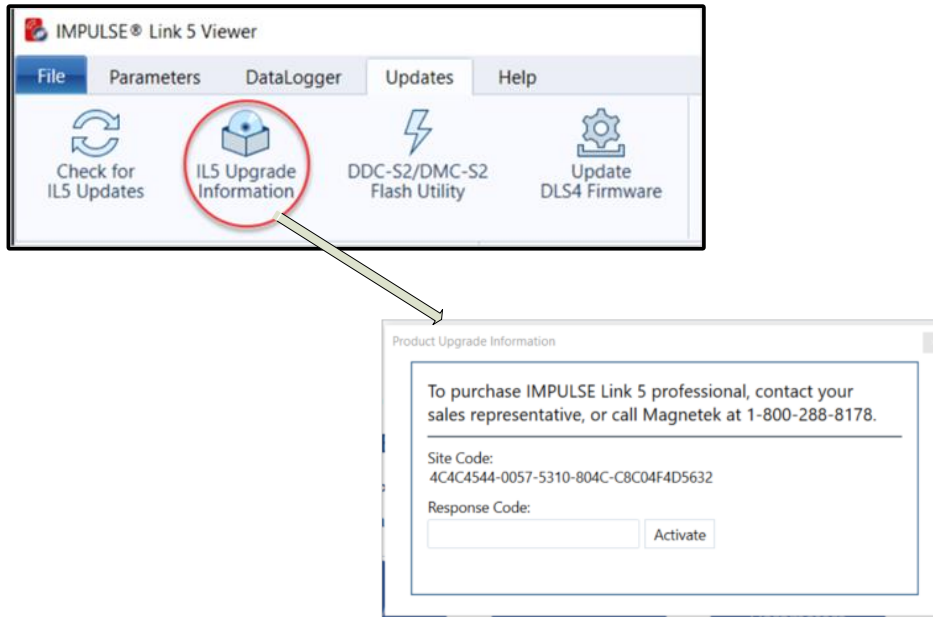
Figure 53: IMPULSE•Link 5 Viewer – Updates Tab

Professional Update Tab
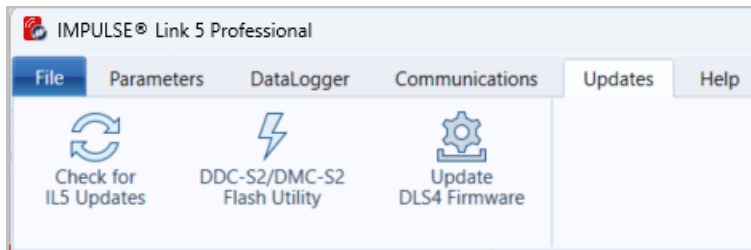
Figure 54: IMPULSE•Link 5 Professional – Updates Tab

4.8.1 Check for IL5 Software Updates

Additional features and enhancements may be released without notice.

The software can be downloaded from the CMCO website at https://www.cmco.com/en-us/software-downloads/

To check for updates after IMPULSE•Link 5 software has been installed:

      1. Click the **Check for Updates** button under the *Updates* tab.
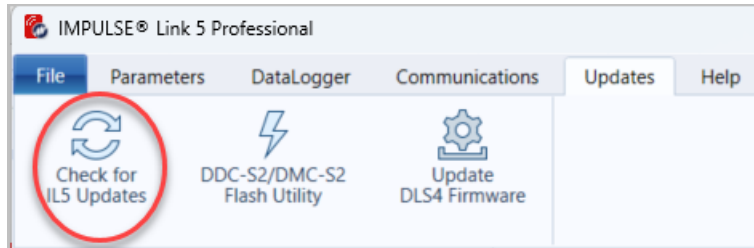
If an update is available, it will prompt the user to install the update. The computer must have internet access.
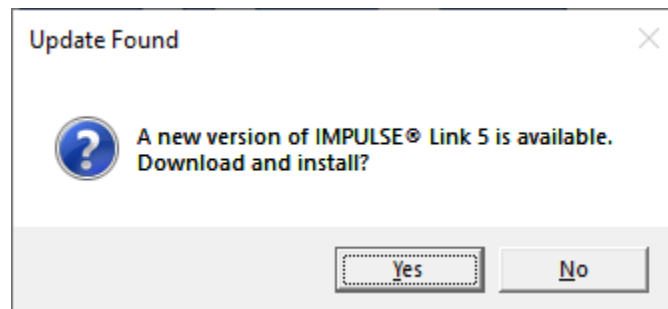
If the user chooses to install the update immediately, the Web Update Check Client will launch.
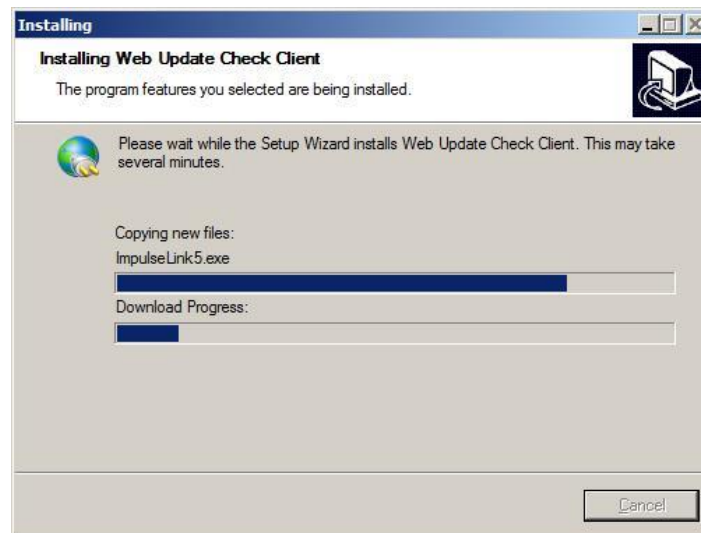
The installer may request a core prerequisite.

Install Core PreRequisite?   ✕

? This application requires .NET Framework 4.7 to run. Would
you like to install it now?

Yes   No

Welcome   —   □   ✕

Update Wizard

An old version of IMPULSE Link 5 Viewer 5.1.1 has been
detected on your computer. This wizard will upgrade IMPULSE
Link 5 Viewer 5.1.1 to version 5.1.1.

It is strongly recommended that you exit all Windows programs
before running this Setup program.

Click Cancel to quit Setup and then close any programs you have
running. Click Next to continue with the Setup program.

WARNING: This program is protected by copyright law and
international treaties.

Next >   Cancel

Once IMPULSE•Link 5 is done installing the update, it will automatically relaunch.

4.8.2 DDC-S2/DMC-S2 Firmware Flash Utility

The OmniPulse DDC Series 2 (DDC-S2) and MagnePulse DMC Series 2 (DMC-S2) Flash Utility allows a user to update DDC-S2 or DMC-S2 Control Board firmware using the provided cables (P/N: CABLE-RJ45-DB9F and ADAPTER-DB9M-USBA).

The firmware can be downloaded from the CMCO website at https://www.cmco.com/en-us/software-downloads/

To update the firmware, do the following:

1. Click "Load FW" button.
2. Select firmware file.
3. Click "Open" button.
4. Select Com port.
5. Click "Update Firmware" button.
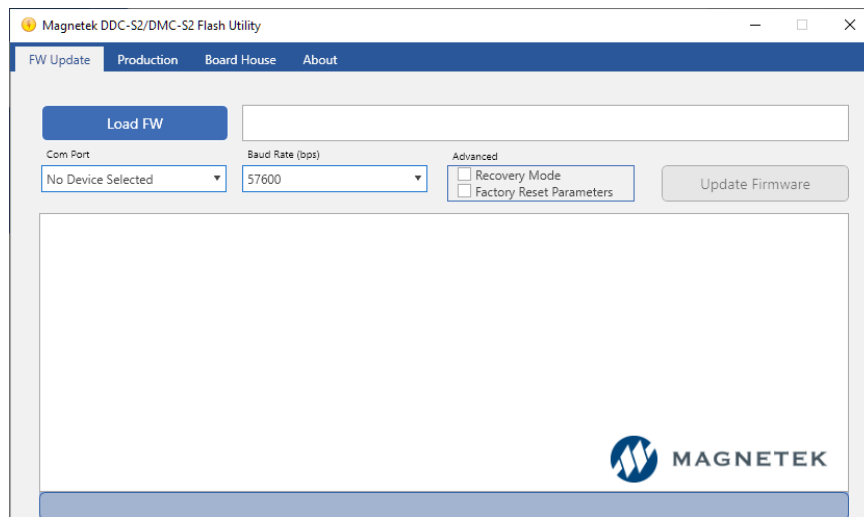
Figure 55: OmniPulse DDC-S2 & MagnePulse DMC-S2 Flash Utility

4.8.3 Update DLS4 Firmware

IMPULSE•Link 5 can update the firmware in the DataLogger Series 4 (DLS4) to incorporate any new features and enhancements to the DLS4. If the PC has internet, the newest version of firmware for the DLS4 will be automatically installed on the PC using the Check for Updates button.

The firmware can be downloaded from the CMCO website at https://www.cmco.com/en-us/software-downloads/

Once the firmware is saved to the PC, do the following:

1. Connect the DataLogger Series 4 to the PC using a USB cable. Press the DLS4 keypad's F1 and F2 keys simultaneously until the "READY FOR UPDATE" message appears.

Figure 56: DataLogger Series 4 Screen – Ready for Update

2. Go to the DataLogger tab.

3. Click on the "Update DLS4 Firmware" icon in IMPULSE•Link 5.
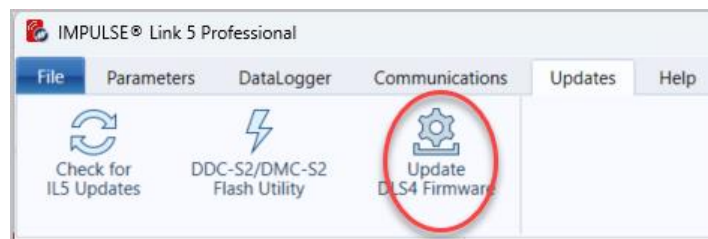
Figure 57: The Update Firmware Icon

4. After the firmware is updated, the version will be displayed on the main screen of the DLS4.
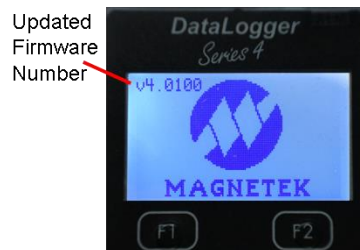
Figure 58: DataLogger Series 4 Main Screen

4.9   Help Tab

The Help tab contains information about IMPULSE•Link 5 Viewer and Professional, as well as user resources.
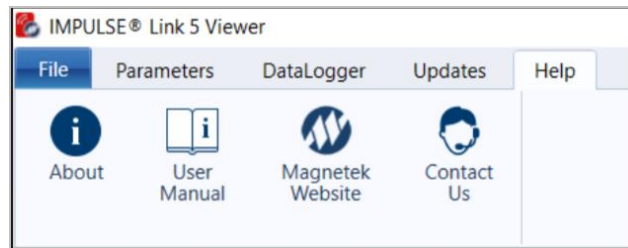
Figure 59: The Help Tab

About – Opens a window which includes displays the software version, build, and the copyright date.

Figure 60: About IMPULSE•Link 5

User Manual – Downloads the IMPULSE•Link 5 User Manual from the internet, provided the PC is connected.

Magnetek Website – Opens Magnetek's main website (http://www.cmco.com/magnetek).

Contact Us – Opens a window containing the Technical Support number and a link to the Field Service email.

Appendices

Appendix A: Wiring for Wireless Diagnostic System (WDS) Base Unit
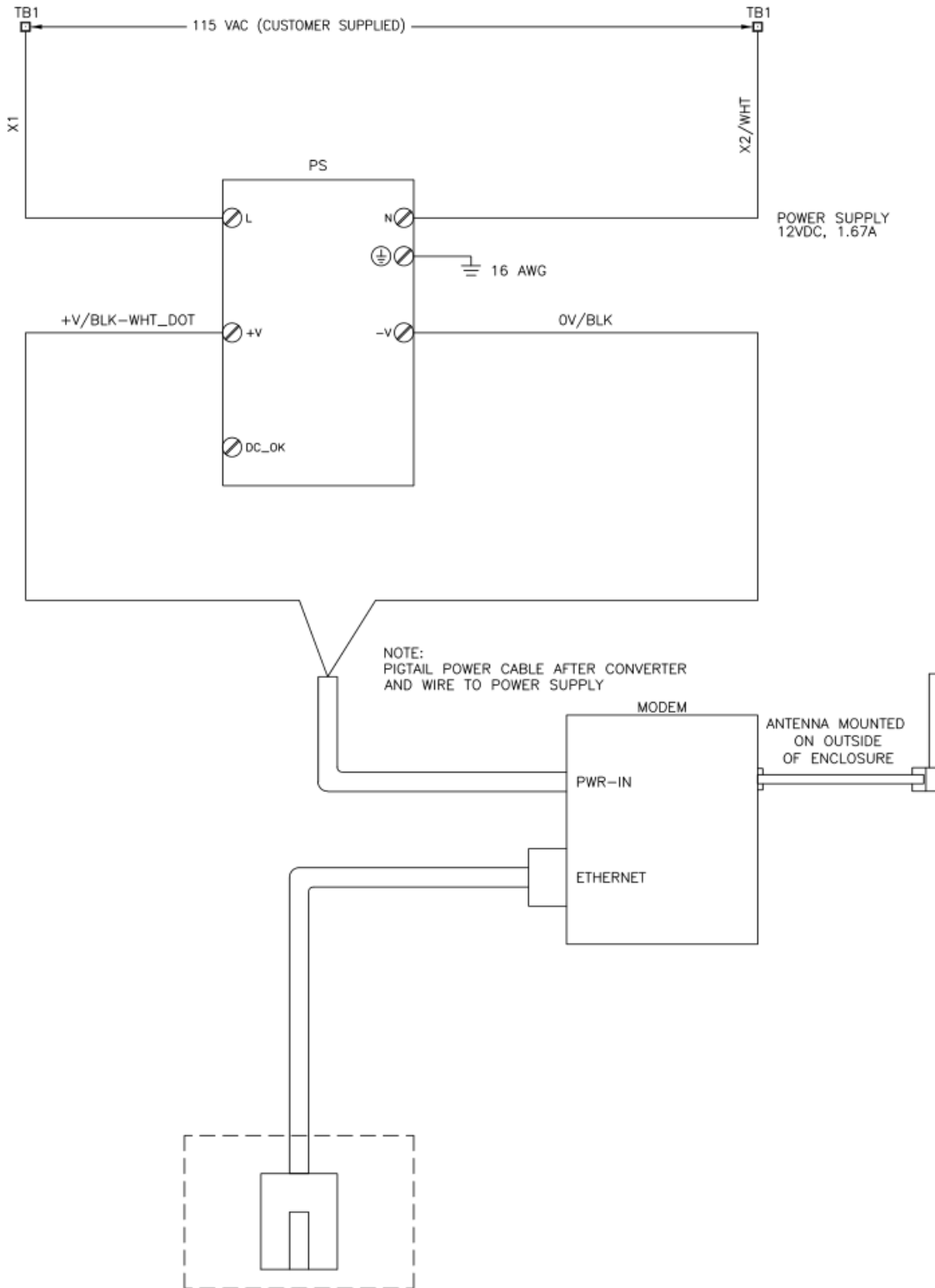
Appendix B: Wiring for Wireless Diagnostic System (WDS) Remote Unit

IMPULSE G+/VG+ Series 3, 4, 5 and G+ Mini
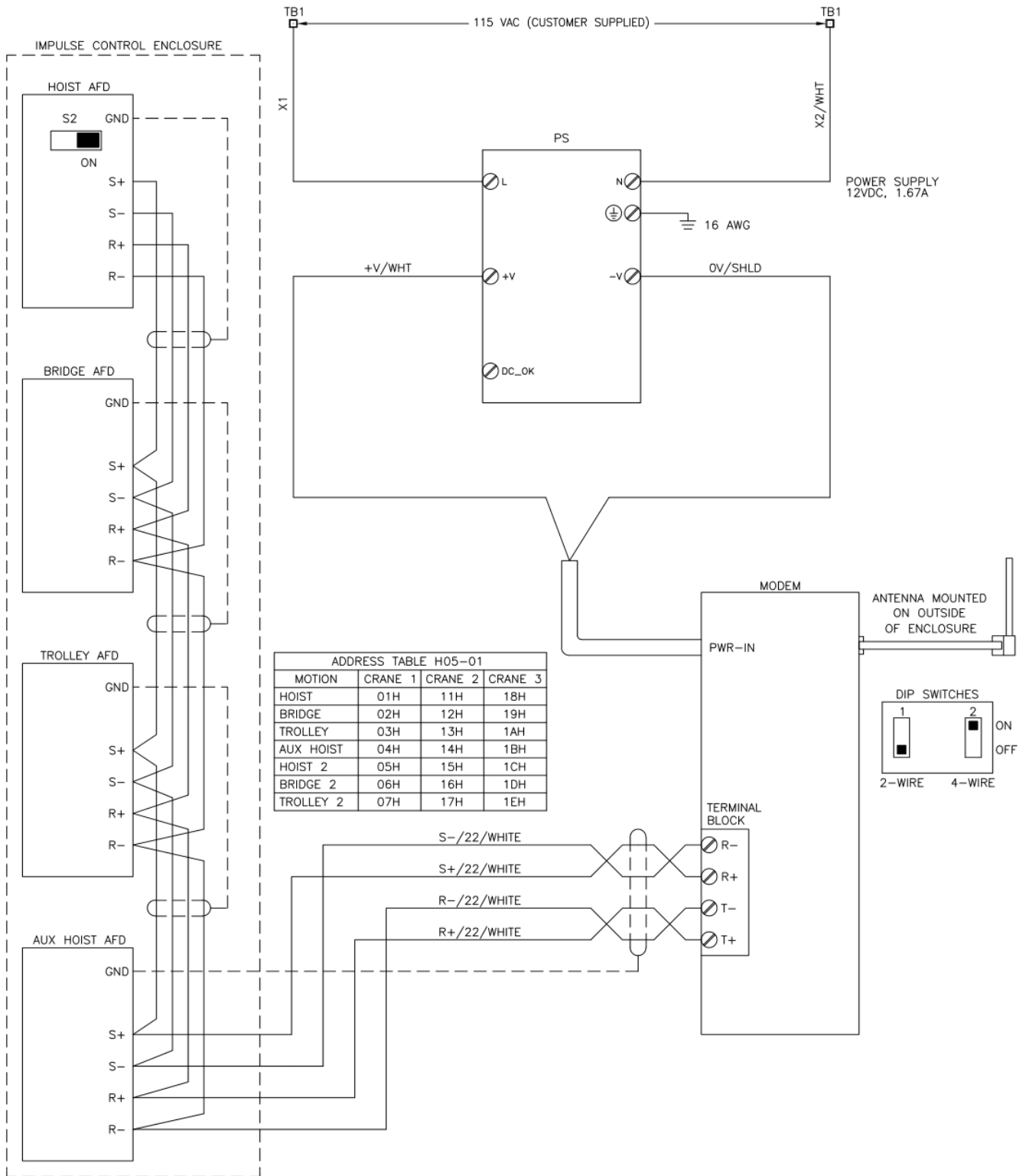
NOTE: The IMPULSE Series 5 terminal board contains D+ and D- terminals for 2-wire RS-485 communication. Connect D+ to T+ of the Remote Unit and D- to T-. Change the Remote Unit DIP Switchs to 2-Wire.

OmniPulse DDC Series 2 & MagnePulse DMC Series 2

OMNIPULSE DDC/DMC CONTROL ENCLOSURE

HOIST

LK2 JUMPER
—SET TO PIN 1 & 2
FOR 120 OHM
TERMINATION
RESISTOR

B
A

BRIDGE

B
A

TROLLEY

B
A

AUX HOIST

B
A

TB1

115 VAC (CUSTOMER SUPPLIED)

TB1

X1

X2

PS

L

N

POWER SUPPLY
12VDC, 1.67A

16 AWG

+V/WHT

+V

−V

0V/SHLD

DC_OK

MODEM

ANTENNA MOUNTED
ON OUTSIDE
OF ENCLOSURE

PWR—IN

DIP SWITCHES

	1		2	
				ON
				OFF

2—WIRE   4—WIRE

ADDRESS TABLE (H05-01)			
MOTION	CRANE 1	CRANE 2	CRANE 3
HOIST	1 (01H)	17 (11H)	24 (18H)
BRIDGE	2 (02H)	18 (12H)	25 (19H)
TROLLEY	3 (03H)	19 (13H)	26 (1AH)
AUX HOIST	4 (04H)	20 (14H)	27 (1BH)
HOIST 2	5 (05H)	21 (15H)	28 (1CH)
BRIDGE 2	6 (06H)	22 (16H)	29 (1DH)
TROLLEY 2	7 (07H)	23 (17H)	30 (1EH)

TERMINAL
BLOCK

T/R− /22/WHITE/ORANGE

T/R+ /22/ORANGE/WHITE

T−

T+

OmniPulse DDC Series 1 & MagnePulse DMC Series 1

OMNIPULSE DDC/DMC CONTROL ENCLOSURE

HOIST

LK2 JUMPER
—SET TO PIN 1 & 2
FOR 120 OHM
TERMINATION
RESISTOR

X1-9 (T/R+)
RS484B

X1-8 (T/R-)
RS484A

BRIDGE

X1-9 (T/R+)
RS484B

X1-8 (T/R-)
RS484A

TROLLEY

X1-9 (T/R+)
RS484B

X1-8 (T/R-)
RS484A

AUX HOIST

X1-9 (T/R+)
RS484B

X1-8 (T/R-)
RS484A

TB1 — 115 VAC (CUSTOMER SUPPLIED) — TB1

X1   X2

PS

L   N

POWER SUPPLY
12VDC, 1.67A

16 AWG

+V/WHT   +V   -V   0V/SHLD

DC_OK

G17 = RS485
G17 = 8N1

ADDRESS TABLE G19			
MOTION	CRANE 1	CRANE 2	CRANE 3
HOIST	1 (01H)	17 (11H)	24 (18H)
BRIDGE	2 (02H)	18 (12H)	25 (19H)
TROLLEY	3 (03H)	19 (13H)	26 (1AH)
AUX HOIST	4 (04H)	20 (14H)	27 (1BH)
HOIST 2	5 (05H)	21 (15H)	28 (1CH)
BRIDGE 2	6 (06H)	22 (16H)	29 (1DH)
TROLLEY 2	7 (07H)	23 (17H)	30 (1EH)

MODEM

ANTENNA MOUNTED
ON OUTSIDE
OF ENCLOSURE

PWR-IN

DIP SWITCHES

1   2   ON

OFF

2-WIRE   4-WIRE

TERMINAL BLOCK

T/R- /22/WHITE/ORANGE   T-

T/R+ /22/ORANGE/WHITE   T+

OmniPulse DSD