500 DataMod Tool

User Guide





Publication No: 500-DM-UG v1.01 - 25 April 2017

500 DataMod Tool - User Guide

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The instructions given herein cover the general description, installation, operation and maintenance of the subject equipment/software. Contrec Limited reserves the right, without prior notice, to make engineering refinements that may not be reflected in this manual.

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Chapter 1 Introduction

Welcome to 500-Series DataMod Tool

This User Guide relates to the use of the 500-Series DataMod Tool. The DataMod program enables you to perform the following functions for a 500-Series based instrument:¹

- Collect logged data from 515-Series instruments via Modbus RTU protocol
- Customise data tag names and report header
- Display collected data
- Generate PDF report from default and custom templates
- Export data in CSV format

The tool is simple to use and data is easy to collect. The program allows multiple custom set-ups to be saved for easy re-use, automatically starts with the previous configuration and allows saved reports to be re-opened. All of this is achieved without the configuring a single Modbus register!

System Requirements

The 500-Series DataMod Tool has the following system requirements:²

- Windows based Personal Computer
- 256MB Memory (or higher)
- 10MB available Hard Disk space
- Display Resolution 800 x 600 minimum
- Serial communications port
- Microsoft Windows 7 (or higher), normal DPI setting
- Adobe Acrobat Reader V4.0 or higher (to view/print generated reports)
- Microsoft Internet Explorer V4.0 (or higher) or similar Web Browser to view online help (recommended)
- Internet access for periodic software verification

^{1.} The DataMod tool is compatible with 515 instruments with software versions starting from 2.9.080. See your distributor for support.

^{2.} It is not possible to have multiple 500 DataMod applications open on the same device.

User Licence

The 500 DataMod program is able to be installed as a time limited fully operational trial version.

An installation of the trial version of the 500 DataMod can be changed to a fully licenced installation with the entry of an activation code.

A single licence allows the 500 DataMod program to run on a single computer. Software licence will be validated, periodically requiring internet access.

Installation

Use the following procedure to install the software onto a computer:

- 1. Select and Run the 500-DM-x.x.xxx.exe file from appropriate local drive or internet link.
- 2. If necessary, provide authorisation to Run the InstallShield program.
- 3. The InstallShield Wizard will start with a typical welcome screen.

It is recommended to allow the default installation to take place (the default location for installation is C:\Contrec\500-DataMod\).

4. Follow the remainder of the instructions of the InstallShield Wizard on the screen to complete the installation.

Hardware Connection

The 500 DataMod Tool uses Modbus RTU protocol to collect logged data from a 515 Series instrument. To use the DataMod program there must be a transparent and robust serial communication connection between the instrument and the computer running DataMod.

515 Instrument Connection

The 515 instrument has RS232 and RS485 serial ports. Either port can have the Modbus RTU protocol assigned to it and both ports have the ability to set the baud rate, parity and stop bits as required. The 515 instrument can also have the Modbus address set as required. The default factory setting for a 515 instrument is for Modbus RTU protocol to be assigned to the RS485 port, where the default settings are 19200 baud rate, even parity and 1 stop bit.

The RS232 port can be used when there is only one 515 instrument to communicate with over a short distance and there is no need to use the RS232 port for another protocol or function, such as a local printer output.

The RS485 port is used when there are multiple instruments to communicate with on the same 'network' or when there is a significant distance between the 515 instrument and the computer collecting the data.

Computer Port Connection

It is common nowadays for Microsoft Windows based computers not to have a RS232 or RS485 serial port. Most computers have wireless, USB or Ethernet ports and rely on serial communication converters to connect to external RS232 or RS485 devices.

There are many such serial communication converters available, but the device used must be robust, have a reliable windows driver and operate as a transparent serial port.

The 500 DataMod tool allows the user to select the appropriate serial port on the computer. It also provides access to set all the normal serial communication port settings, such as baud rate, parity and stop bits. These must be set to match the settings used in the 515 instrument.

DataMod Introduction

Starting DataMod

To start the 500 DataMod software, double click on the **500 DataMod** icon on the Windows desktop. The program starts with a typical welcome screen as shown in Figure 1.



Figure 1 500 DataMod Welcome Screen

The main screen of the 500 DataMod tool is shown in Figure 2. The main Toolbar is found on the right hand side and the tabs (*Report Items* and *Report Data*) switch between the two main viewing screens.

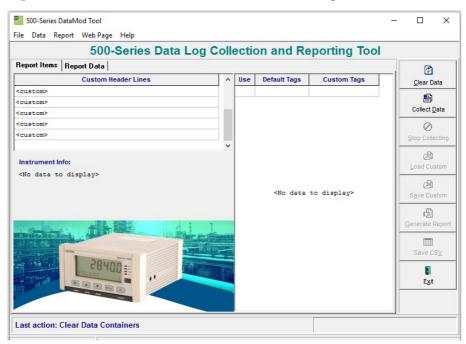


Figure 2 500 DataMod Main Screen

The *Report Items* and the *Report Data* screens will become populated after some initial data has been collected from a 500-Series instrument.

Report Items Screen

The *Report Items* tab displays a screen with the following key features:

- **Default and Custom Tags** This section displays the list of the instrument variables with their default tags (names) and provides the ability to enter *Custom Tags* and to choose the variables to be included in the reports. *Custom Tags* and variable selections can only be made after the initial data has been collected.
- **Custom Header Lines** This section allows the user to enter up to 5 lines of custom header information that will be included in the reports.
- **Instrument Info** This section is populated with information collected from the instrument including:
 - Hardware model information
 - Application pack and input usage
 - Program Manager software version used to create application
 - Custom version number
 - Instrument name and serial number.
- **Information and Progress Bar** This section provides feedback regarding the current program status or the previous action carried out.

Report Data Screen

The *Report Data* tab displays a screen with the tabulated data collected from the instrument. There are horizontal and vertical scroll bars to allow all fields of data to be viewed.

Only the items selected in the variables list on the *Report Items* screen will be shown in the table of data.

The default variable tags and units of measure (as extracted from the instrument) are listed along the top of the table. The *Custom Tags* (names) are shown in the top yellow shaded row and are repeated as a fixed row at the bottom of the table area.

The quotation symbol (") is used to indicate that no custom tag has been entered for that variable.

Menu & Toolbar

Menu Bar

The menus and sub items as listed in Table 1 are found in the menu bar along the top of the screen. Some functions are also found in the side toolbar. Please refer to the Toolbar functions below for full description.

Menu	Sub Item	Function
File	Load Custom	Open a previously saved DataMod custom text file.
	Save Custom	Save DataMod custom text and item selection file.
	Exit	Exit program.
Data	Clear Data	Clear any custom text and any data previously collected.
	Collect Data	Open the dialog box to start the data collection process.
	Stop Collecting	Stop the data collection process.
Report	Open Report	Open a previously saved report in the Preview screen.
	Load Template	Load a custom report template created and supplied by Contrec (contact your distributor for details).
	Save CSV	Save collected data report to a CSV file.
	Generate Report	Generate and open report in a Preview window with the ability to print, save or export as PDF.
Web Page		If internet connection is available, the Contrec website is opened using the computer default browser.
Help	User Guide	Open the 500 DataMod User Guide (this document) in Adobe PDF Reader.
	About	Display the version details of the 500 DataMod program.

Table 1 500 DataMod Menu

DataMod Toolbar

The 500 DataMod toolbar buttons (found on the right hand side) provide the functions as described in Table 2.

Option	Toolbar Button	Description
Clear Data	Clear Data	Clear any previous data that has been collected. Also clears any custom text and any custom variable selections.
Collect Data	Collect Data	Open the Data Collection Options dialog box to start the data collection process.
Stop Collecting	Stop Collecting	Allow the data collection process to be stopped. The data collected prior to stopping the process is retained.
Load Custom	Load Custom	After data has been collected, a previously saved custom configuration can be loaded to apply preferred variable selections and custom text.
Save Custom	Save Custom	Custom settings that have been applied to collected data can be saved for convenient re-use in the future.
Generate Report	Generate Report	After data has been collected (and any relevant custom settings have been applied), a report can be generated from the <i>Report Data</i> . The report will be opened in a Preview window with the ability to print, save or export as PDF.
Save CSV	Save CS <u>V</u>	After data has been collected (and any relevant custom settings have been applied), the <i>Report Data</i> can be saved in CSV format for future use with other applications.
Exit	E <u>x</u> it	Exit the 500 DataMod program.

Table 2 500 DataMod Toolbar Buttons

Chapter 2 Operation

DataMod Operation

This section of the 500 DataMod Tool User Guide describes how data can be collected from a 515 instrument with compatible application software.¹

The 500 DataMod software is used to collect data from an instrument and allows custom tags, custom header text and the selected variables to be displayed as a table of *Report Data*. The prepared data can then be used to generate a structured report that can be saved, printed or exported in PDF or CSV format.

Figure 3 below shows a typical *Report Items* screen after data has been collected and some custom header, tags and selections have been made.

500-Series Data Log C	olle	ecti	on and Re	eporting Too	bl	
Report Items Report Data						্য
Custom Header Lines	^	Use	Default Tags	Custom Tags	^	Clear Data
IOR ENERGY FTY LTD.			Log	<custom></custom>		
CRUDE OIL UNLOAD STATION 01			Delivery	<custom></custom>		1
<pre>custom></pre>			Record	<custom></custom>		Collect Data
<custom></custom>			Compartments	<custom></custom>		0
<custom></custom>			Exception	<custom></custom>		Stop Collectine
	~		Date	<custom></custom>		
Instrument Info:			Time	<custom></custom>		
		✓	NET-V L	NET CRUDE		Load Custom
515 MODEL 1-1F- LP01 INPUT F-TDP- 500-LP VERS 2_9_088 CUITOM VERS 000003		✓	GRS-V L	GRS CRUDE		
			MASS KG	<custom></custom>		Save Custom
		☑	T-AVE DEG C	<custom></custom>		Save Custom
BAY-1 S/N 123456		1	D-AVE KG/m3	<custom></custom>		ß
			P-AVE KPAA	<custom></custom>		Generate Repo
interesting and a second se			PRESET QTY	<custom></custom>		
	، وبليد. محمد	◄	ACCESS CODE	<custom></custom>		
Annes 500		✓	JOB NUM	<custom></custom>		Save CSV
28400 ::	Th	◄	SOURCE FIELD	SOURCE FIELD		
		☑	TRANSP CODE	<custom></custom>		Exit
		☑	TRUCK REGO	<custom></custom>		
			SUPPLY NUM	<custom></custom>		

Figure 3 Example 500 DataMod Report Items screen

The instructions and information provided below will describe how the functions and features of the 500 DataMod program are used to collect and present important field data as required.

^{1.} The DataMod tool is compatible with 515 instruments with software versions starting from 2.9.080. See your distributor for support.

Logging Types

The 500 DataMod program uses industry standard Modbus RTU communications protocol to access the logged data held in the instruments. The 515 instrument can be a Flow type application (with time based logging) or a Batch/Load type application (with delivery or transactions based logging).

When viewing the logged data on the 515 instrument (or retrieving via serial communication), it is important to understand how the logs are numbered, i.e. log indexing/numbering always starts from the most recent log and continues towards the older logs in chronological order, so once the new logging occurs it becomes available as the Log Number 1 and so on.¹

Time based logging

When an instrument uses time based logging, a log is taken at the rollover of the time base (i.e. on the hour for hourly logs, etc.).

The most recent log of any particular time base is numbered as Log 001 with older logs having increasing numbers. For example, a log that was stored 5 time bases ago (if hourly logs, 5 hours ago) will be numbered as Log 005, etc.

Delivery based logging

When an instrument uses delivery or transaction based logging, a log of the relevant batch or load information is taken at the end of a delivery.

The most recent delivery log is numbered as Log 00001 with older logs having increasing numbers. For example, a log that was stored 5 deliveries ago will be numbered as Log 00005, etc.

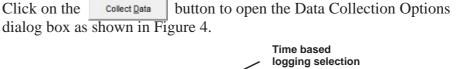
A unique delivery number is also assigned to each batch or load and is stored as part of the logged data. The delivery number increments with each batch or load made and it is only reset when the instrument logs are cleared.

Typically the logs are collected starting from the most recent one (Starting Number set to 1), but users can change the logs retrieval *Starting Number* and *Number of Logs* to suit their needs. For example, if the most recent delivery number is 000124, but the desired delivery numbers to be collected are from 000101 to 000120 (20 records), then the *Starting Number* can be set to 5 and the *Number of Logs* to 20 (refer to Figure 4).

^{1.} Logged data includes snapshot of application's relevant main menu variables together with the time/date stamp. In addition, logs of Batch/Load applications also include unique (sequentially incremented) delivery number.

Setup to Collect Data

The 500 DataMod program uses industry standard Modbus RTU protocol to access the logged data held in the instruments. The 515 instrument can be a Flow type application (with time based logging) or a Batch/Load type application (with delivery or transactions based logging). Both types of instruments hold their log data as records indexed with Log Numbers starting from the most recent log, i.e. log number 1 is the most recent log.



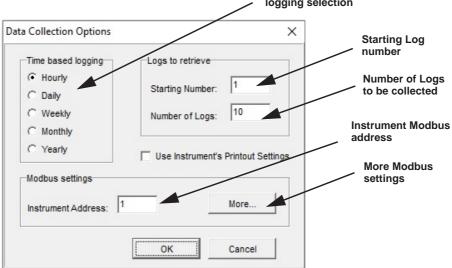


Figure 4 Data Collection Options dialog box

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A number of options and selections are available to allow the data of interest to be collected from the instrument. The functions of these selections are described below.

- **Time Based Logging** When collecting data from a 515 Flow Computer or Controller with time based logs, the type of time base of interest should be selected.¹
- Logs to Retrieve Enter the log *Starting Number* and *Number of Logs* to be collected. See Logging Types on page 10 for full description and examples.
- **Instrument Address** Enter the Modbus RTU address of the instrument (range 1-247).

^{1.} Time based selection is not applicable to 515 Batch or Load applications.

- Use Instrument's Printout Settings This option can be selected so that the instrument's printout settings are used to determine the items to be included in the *Report Data*. Alternatively, there is the ability to select or deselect the variables to be included in the *Report Data* by using the check boxes in the Custom Text and Tag section of the *Report Items* screen.
- **Modbus Settings > More...** This button is used to gain access to additional Modbus and computer serial port settings as shown below.

Modbus and Communication Settings

The Modbus Connection Settings window is used to provide full control over the serial communication port and Modbus transaction management settings. However, it is important to note that the DataMod program default settings should suit most 515 applications.

Note, as most current computers do not have direct RS232 or RS485 ports, USB converters are often used. It must be known what COM port is used by the driver for the USB converter.

Serial <u>P</u> ort:	Baud Rate [bps]:
COM1	Custom
Echo Query Before Reply	9600
Data Bits: C 7 bits C 8 bits	Elow Control:
P <u>a</u> rity: Ĉ None	C RTS/CTS C DTR/DSR
C Odd€ Even	RTS <u>H</u> old Delay [ms]:
Stop Bits:	Enabled Lines:
	DTR RTS
Transmission Mode:	Silent Interval [character times]:
C RTU C ASCII	100

The available *Serial Communication* settings are shown in Figure 5.

Figure 5 Modbus Connection Settings - Serial Communications

The DataMod program's Modbus transaction management default settings should suit most 515 instrument applications. However, the settings can be changed if required.

The available *Modbus Transaction Management* settings are shown in Figure 6.

Serial Communication Mod	bus Transaction Mar	nagement	
Connection Mode:			
Client	C Server	C Monitor	
Refetch Delay [ms]:	300		
Send Timeout [ms]:	10		
Receive Timeout [ms]:	2000		
Maximum Retries:	2		
Turnaround Delay [ms]:	10		
Thread Priority:			
C Idle	Сн	igher	
C Lowest	Сн	ighest	
C Lower	СТ	ime Critical	
Normal			

Figure 6 Modbus Connection Settings - Transaction Management

To return to the Data Collection Options dialog box, click OK to apply the settings on return, or click Cancel to return without applying any changes.

Automatic Saving of DataMod Settings

Any changes to Modbus settings or Serial Communication settings are automatically saved to be re-used the next time the DataMod program is started. The DataMod program upon restart will also automatically re-use any Custom Text and Tags file and any Custom Report Template that was previously in-use. These features greatly simplify the start-up process and access to data in instruments of a fixed system.

Start Data Collection

Click OK on the Data Collections Option dialog box to start the data collection once the hardware connection is in place with the appropriate matching communications setting on the instrument and computer.

Collecting Data

In the first stage of collecting data from the 515 instrument, the 500 DataMod program collects the instrument tags that include the variable names and the units of measure. An example of this initial stage is shown in Figure 7.

题 500-Series DataMod Tool							×
File Data Report Web Page Help							
500-Series Data Log C	oll	ectio	on and R	eporting Too	ol		
Report Items Report Data							
Custom Header Lines	^	Use	Default Tags	Custom Tags	^	<u>C</u> lear D	ata
<custom></custom>						緍	2
<custom></custom>						Collect [lata
<custom></custom>						Collect	Zata
<custom></custom>						0	
<custom></custom>						Stop Colle	ecting
Instrument Info:	~					Load Cu	stom
515 MODEL 1-1F- LP01 INPUT F-TDF- 500-LP VERS 2_9_088 CUSTOM VERS 000003			<no data="" t<="" th=""><th>o display></th><th></th><th>A S<u>a</u>ve Cu</th><th>stom</th></no>	o display>		A S <u>a</u> ve Cu	stom
BAY-1 S/N 123456						Generate F	Report
						Save C	s <u>∨</u>
						E <u>x</u> it	0
					~		
Modbus: Collecting instrument tags							
Revision: 1.0.043							1

Figure 7 500 DataMod - Collecting Instrument Tags

In the second stage, after displaying a list of instrument variables, the DataMod program collects the instrument data and displays the progress as shown in Figure 8 (note that the Stop Collecting button becomes available).

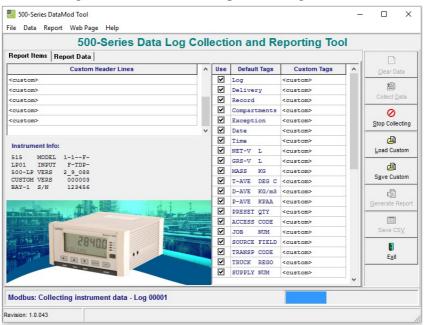


Figure 8 500 DataMod - Collecting Instrument Data

Data Collection Finished

Once the number of requested logs have been collected, the progress bar will indicate that collection has finished, the variables will be selected by default and the majority of the toolbar buttons will become available, as shown in Figure 9 (the example data has been collected from a Load application).

500-Series Data Log Co	DIIE	ecu	on and Re	eporting loo	N	
Report Items Report Data						()
Custom Header Lines	^	Use	Default Tags	Custom Tags	^	Clear Data
<pre>custom></pre>			Log	<custom></custom>		-
custom>			Delivery	<custom></custom>		
custom>		4	Record	<custom></custom>		Collect Data
custom>		1	Compartments	<custom></custom>		0
<custom></custom>			Exception	<custom></custom>		Stop Collecting
	~		Date	<custom></custom>		
Instrument Info:		4	Time	<custom></custom>		<u>i</u>
		1	NET-V L	<custom></custom>		Load Custom
515 MODEL 1-1F- LP01 INPUT F-TDP-			GRS-V L	<custom></custom>		A
500-LP VERS 2_9_088			MASS KG	<custom></custom>		Save Custom
CUSTOM VERS 000003 BAY-1 S/N 123456			T-AVE DEG C	<custom></custom>		Save Custom
BAY-1 S/N 123456			D-AVE KG/m3	<custom></custom>		ß
			P-AVE KPAA	<custom></custom>		Generate Repo
in the second of the second			PRESET QTY	<custom></custom>		
		4	ACCESS CODE	<custom></custom>		iiiii
			JOB NUM	<custom></custom>		Save CSV
28400 =			SOURCE FIELD	<custom></custom>		
			TRANSP CODE	<custom></custom>		Exit
			TRUCK REGO	<custom></custom>		C <u>X</u> II
			SUPPLY NUM	<custom></custom>		
					~	

Figure 9 Report Item - Finished Data Collection (Raw Data)

The raw data can be viewed in the *Report Data* screen as shown in Figure 10.

		Data Log	Collection	and Reporti	ng lool	
	Delivery	Record	Compartments	Exception	D.A	٢
Log	Delivery	Record	compartments	Exception		Clear Dat
00001	000010	00000200	Used: 05	Status: Good	2017/02/	1
		00000201	01	00	2017/02/	Collect Da
		00000202	02	00	2017/02/	-
		00000203	03	00	2017/02/	0
-		00000204	04	00	2017/02/	Stop Collect
		00000205	05	00	2017/02/	<u>A</u>
						Load Cust
00002	000009	00000180	Used: 07	Status: Good	2017/02/	
		00000181	01	00	2017/02/	
		00000182	02	00	2017/02/	Save Cust
		00000183	03	00	2017/02/	ß
		00000184	04	00	2017/02/	Generate Re
		00000185	05	00	2017/02/	
	"	00000186	06	00	2017/02/	
	"	00000187	07	00	2017/02/	Save CS
00003	000008	00000160	Used: 04	Status: Good	2017/02/	
00000	000000	0000100	osed. ou	bounds. bood	2017/02/	Exit
	"			"	~	
					>	

Figure 10 Report Data - Finished Data Collection (Raw Data)

Custom Text and Tags

Set Custom Text and Tags

Custom text can be entered into the *Custom Header Lines* and the *Custom Tags* as shown in Figure 9. Instrument items that are not required in the report data can be deselected using the tick boxes in the 'Use' column.

500-Series Data Log C	Coll	ecti	on and Re	eporting Too	bl	
Report Items Report Data						Ø
Custom Header Lines	^	Use	Default Tags	Custom Tags	^	Clear Data
IOR ENERGY PTY LTD.			Log	<custom></custom>		
CRUDE OIL UNLOAD STATION 01		V	Delivery	<custom></custom>		
<custom></custom>			Record	<custom></custom>		Collect Data
<pre>custom></pre>			Compartments	<custom></custom>		0
<custom></custom>			Exception	<custom></custom>		Stop Collecting
	~		Date	<custom></custom>		
Instrument Info:			Time	<custom></custom>		<u>d</u>
515 MODEL 1-1F- LP01 INPUT F-TDP-			NET-V L	NET CRUDE		Load Custom
			GRS-V L	GRS CRUDE		A
500-LP VERS 2_9_088			MASS KG	<custom></custom>		Save Custom
CUSTOM VERS 000003 BAY-1 S/N 123456			T-AVE DEG C	<custom></custom>	_	Save custom
DAT 1 DYN 120400			D-AVE KG/m3	<custom></custom>		r 🔂
			P-AVE KPAA	<custom></custom>	_	Generate Repo
transferration in the second			PRESET QTY	<custom></custom>	_	
			ACCESS CODE	<custom></custom>	_	
Annu and A	-		JOB NUM	<custom></custom>	_	Save CSV
28400=			SOURCE FIELD	SOURCE FIELD		
			TRANSP CODE	<custom></custom>		Exit
			TRUCK REGO	<custom></custom>	_	
		4	SUPPLY NUM	<custom></custom>		

Figure 11 Report Item - Set Custom Text and Tags

The collected data can be viewed in the *Report Data* screen with the custom tags and selections applied as shown in Figure 12. The horizontal and vertical scroll bars can be used to view all data.

	500-Series	Data Log	Collection a	and Reporti	ng Tool	
port Items Report	Data					ଜ
NET-V L	GRS-V L	T-AVE DEG C	D-AVE KG/m3	ACCESS CODE	JOB NUI 🔨	Clear Data
NET CRUDE	GRS CRUDE	AVE TEMP	AVE DENSITY			
8253.682	8300.050			03	0010	1
1491.671	1500.050	21.6	845.252		-	Collect Data
1690.654	1700.150	21.6	845.252			0
1591.710	1600.650	21.6	845.253		-	Stop Collecting
1789.046	1799.100	21.6	845.250		-	
1690.599	1700.100	21.6	845.250			Load Custom
11435.815	11500.051			01	0010	
1591.413	1600.350	21.6	845.254		-	
1690.056	1699.550	21.6	845.251		-	Save Custom
1492.017	1500.400	21.6	845.251		-	ß
1690.359	1699.850	21.6	845.254			Generate Repo
1690.751	1700.250	21.6	845.251		-	
1690.255	1699.750	21.6	845.252		-	
1590.965	1599.900	21.6	845.253			Save CSV
5965.993	5999.500		1111	03	0010	E <u>x</u> it
NET CRUDE	GRS CRUDE	AVE TEMP	AVE DENSITY			

Figure 12 Report Data - View Custom Data

Save Custom Text and Tags

Saving a Custom Text and set-up file allows the same custom settings to be re-used in the future. This will save time and allow reports and saved CSV files to remain consistent.

Click on the Save Custom button to open the Save DataMod Custom Text dialog box as shown in Figure 13. Select the preferred destination folder, enter the file name and click Save to save the .dmt file.

🛃 Save DataMod Custom Text		×
Save in: Documents	- 🗈 💣 📰 🕈	
Name 515-LP01-IOR 1.dmt 515-LP01-IOR 2.dmt	Date modified 4/02/2017 3:50 PM 6/02/2017 9:35 PM	Type DMT File DMT File
<		>
File name: 515-LP01-IOR 3.dmt		Save
Save as type: DataMod Custom Text (*.dmt)	•	Cancel

Figure 13 Save DataMod Custom Text dialog box

Load Custom Text and Tags

After raw data has been collected, as shown in Figure 9, a previously saved Custom Text and selection file can be loaded to quickly achieve a consistent report format.

Click on the Load Custom button to open the Load DataMod Custom Text dialog box.

It is the users responsibility to only load a saved Custom Text .dmt file that matches the 515 application in the instrument. The user will not get the desired report if, for example, a .dmt file relating to 515 Gas Flow computer was loaded and applied to the data collected from a 515 Load computer. Therefore, it is a good practice to use a file name that reflects the 515 application that the Custom Text file relates to.

Select the required folder and file name and click Open to load the .dmt file to apply to the collected data as shown in Figure 14.

		O anian Data	1	- 12		an and D	an antin a Tar						
		0-Series Data	Log C	ollo	ecti	on and Re	eporting loc	Я					
	Report Items Report Data								Ø				
	Custon	n Header Lines		^	Use	Default Tags	Custom Tags	^	Clear Data				
	<custom></custom>				V	Log	<custom></custom>		45				
	<custom></custom>				4	Delivery	<custom></custom>		1				
	<custom></custom>				4	Record	<custom></custom>		Collect Data				
	<custom></custom>					Compartments	<custom></custom>		0				
	<custom></custom>					Exception	<custom></custom>		Stop Collectin				
				¥	4	Date	<custom></custom>						
Load Data	aMod Custom Text			X		Time	<custom></custom>		<u>i</u>				
_					1	NET-V L	<custom></custom>		Load Custom				
ook in:	Documents	• 🗕 🖻 🖛				GRS-V L	<custom></custom>						
Vame	^	Date modified	Type			MASS KG	<custom></custom>	- 11	Save Custom				
_		OR 1.dmt 4/02/201	4/02/2017 3:50 PM 6/02/2017 9:35 PM		1.dmt 4/02/2017 3:50 PM	1.dmt 4/02/2017 3:50 PM DMT File				T-AVE DEG C	<custom></custom>		
	-IOR 2.dmt			DMT File			D-AVE KG/m3	<custom></custom>	- 11				
	-IOR 3.dmt	25/02/2017 1:21 PM	DMT File		V	P-AVE KPAA	<custom></custom>	- 1	Generate Repo				
	lon sidini	23/02/2011 1211101	Divitine			PRESET QTY	<custom></custom>	-					
						ACCESS CODE	<custom></custom>	- 1	Save CSV				
						JOB NUM	<custom></custom>	- 1	Save CSV				
:				>		SOURCE FIELD	<custom></custom>	-					
						TRANSP CODE	<custom></custom>	-	Exit				
le name:	515-LP01-IOR 3.dmt		Open		V	TRUCK REGO	<custom></custom>	-					
les of type:	DataMod Custom Text (*.dmt)	•	Cancel	1		SUPPLY NUM	<custom></custom>						
is or type.	Joaramod Custom Text (.unit)	<u> </u>	Cuncer										

Figure 14 Load DataMod Custom Text dialog box

When the custom text file is loaded, the settings are applied to the collected data as shown in the example in Figure 15.

		oou	on unu nu	eporting Too	
Report Items Report Data					
Custom Header Lines	^	Use	Default Tags	Custom Tags	 Clear Data
FOR ENERGY PTY LTD.			Log	<custom></custom>	403
CRUDE OIL UNLOAD STATION 01			Delivery	<custom></custom>	19
custom>			Record	<custom></custom>	Collect Data
custom>			Compartments	<custom></custom>	0
custom>			Exception	<custom></custom>	Stop Collectin
	¥		Date	<custom></custom>	
Instrument Info:			Time	<custom></custom>	
			NET-V L	NET CRUDE	Load Custon
515 MODEL 1-1F- LP01 INPUT F-TDP-			GRS-V L	GRS CRUDE	A
500-LP VERS 2_9_088			MASS KG	<custom></custom>	Save Custon
CUSTOM VERS 000003			T-AVE DEG C	<custom></custom>	Save Custon
BAY-1 S/N 123456			D-AVE KG/m3	<custom></custom>	ß
			P-AVE KPAA	<custom></custom>	Generate Repo
in the local state of the second state of the	aine		PRESET QTY	<custom></custom>	
	- 14167. A 4	4	ACCESS CODE	<custom></custom>	
And		4	JOB NUM	<custom></custom>	Save CSV
28400 -	-		SOURCE FIELD	SOURCE FIELD	
	T	V	TRANSP CODE	<custom></custom>	Exit
		V	TRUCK REGO	<custom></custom>	C <u>X</u> II
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		V	SUPPLY NUM	<custom></custom>	

Figure 15 Report Item - Custom Text and Tags Loaded

Note: Any custom settings (entered by the user or loaded from a .dmt file) will remain until the Clear Data button is used. The DataMod program can be closed and re-opened and the data can be collected again from the instrument and the custom text and settings will still apply.

DataMod Reports

Generate Report

After data has been collected and any desired custom text and selections have been applied, a report can be generated.

Click on the Generate Report button to view the collected data in the report preview window as shown in Figure 16.

•••• •	4 🔍 829	/8 . 40			. ,		Close		
					Report				
	NERGY PTY I OIL UNLOAI		01				L 5 C	15 MDDEL P01 INPUT 00-LP VERS USTOM VERS AY-1 S/N	1-1 F-TD 2_9_0 0000 1234
Delivery	Compartments	Exception	Date	Time	NET-V L	GRS-V L	T-AVE DEG C	D-AVE KG/m3	
	-				NET CRUDE	GRS CRUDE	AVE TEMP	AVE DENSITY	
000010	Used: 05	Status: Good	2017/02/09	Start 18:22:25	8253.682	8300.050			
	01	00	2017/02/09	End: 16:23:52	1491.671	1500.050	21.6	845.252	
	02	00	2017/02/09	End: 16:25:41	1690.654	1700.150	21.6	845.252	
	03	00	2017/02/09	End: 16:27:38	1591.710	1600.650	21.6	845.253	
	04	00	2017/02/09	End: 16:29:31	1789.046	1799.100	21.6	845.250	
	05	00	2017/02/09	End: 16:31:23	1690.599	1700.100	21.6	845.250	
000009	Used: 07	Status: Good	2017/02/09	Start 16:02:38	11435.815	11500.051			
	01	00	2017/02/09	End: 16:04:09	1591.413	1600.350	21.6	845.254	
	02	00	2017/02/09	End: 16:06:03	1690.056	1699.550	21.6	845.251	
	03	00	2017/02/09	End: 16:07:57	1492.017	1500.400	21.6	845.251	
	04	00	2017/02/09	End: 16:09:52	1690.359	1699.850	21.6	845.254	
	05	00	2017/02/09	End: 16:11:44	1690.751	1700.250	21.6	845.251	

Figure 16 DataMod Report Preview - Single page

In the report Preview window the following options are available:

- **PRINT** Open the standard print dialog box.
- **OPEN** Open a previously saved .fp3 prepared report file.
- **SAVE** Save the report in .fp3 prepared report format for future use.
- **EXPORT AS PDF** Save the report in PDF format.
- **CHANGE VIEW** Zoom in or out or use forward/reverse arrows to view other pages.

The Report is generated in A4 portrait format. If the number of variables in the report do not fit across a single A4 page, the report will continue to become two (or more) pages wide, as shown in Figure 17.

a	Q 82	s + 🧠 🖬 A	3 I K K	1	н	Close										
				Report												
				Report												
	DIGY PTY I	D STATION 01				51.5 LP01	INPUT	1-1F- F-TDP-								
						CUST	LIP VEERS DM VEERS 1 S/N	2_9_000 0000003 123456								
Delvery C	organitetta	Exception Da	e Tre	NETV L	ORSV L	TALE DESC DA	E KGHA	ACCESS COD	JOB NUM	SOURCE FIELD	TRANSP CODE	TRUCK REDO	SUPPLY NUM	T-BASE DEG C	D-BASE KOING	
- 1		-			GRS CRUDE	AVE TEMP AVE	EDENSITY			SOURCE FIELD						
000010		Status Good 2017/020				-	-	01	00105	5 04	01	UWY30	12005	15.0	850.000	
- 1	01		0 Exe 1823.62			21.6	845.252				-			-	-	
- 1	02		09 ENE 102541			21.0	845.252		-							
-	03		0 EM 102738			21.6	845,253									
- 1	04		0 End 10:29:31			21.0	845,250			-	-			-	-	
	05	00 2011020	0 Ext 103123	1590.595	1700.100	21.6	845,250		-	-	-	-	-	-	-	
000009	Used 07	Sats Good 2017/020	9 Set 180230	11435.015	11000.001	-	-	01	00108	17	01	UVX301	120073	15.0	860.000	
	01	00 2017/020	0 End 1004.00	1001.413	1600.200	21.0	045,254			-	-	-	-	-	-	
	62	00 2017/020	0 End 1808:03	1690.056	1009.000	21.6	845,251			-	-	-	-	-	-	
	03	00 2017/020	9 End 1007.07	1492.017	1500.400	21.0	845,251				-	-		-	-	
	04	00 2017/020	0 ENE 18:09:52	1000.308	1099.800	21.0	845,254			-	-	-	-	-	-	
1	05	00 2017/020	0 End 1011.44	1000.751	1700.250	21.0	845,251				-	-		-	-	
-	05	00 2017/020	0 End 101330	1000.255	1099.750	21.0	045,252			-	-	-	-	-	-	
-	07	00 2017/02/	29 End 101529	1590.905	1599.900	21.6	845.253				-	-	-	-	-	
000008	Limit Of	Status Good 2017/020	9 Ret 155307	5905.903	5999.500	-	-	03	00100		00	HCONG	12009	15.0	850.000	
	01		0 End 155437			21.0	845,254									
	02		0 End 1555.35			21.0	845,252				-	-		-	_	
	03	00 2017/02/0	0 End 1558.19	1292.888	1300.150	21.0	845.252				-	-		-	-	
	04	00 2017/02/	9 ENI 1800.17	1690.056	1099.550	21.8	845.252				-			-	-	
000007	Used 00	Sate: Ged 2017/020	9 Start 15:37:30	9347.300	9399.850	-	-	01	00103	5 OF	03	XX2383	120090	15.0	850.000	
-	01	00 2017/020	0 End 153857	1401.525	1409.300	21.0	845,254				-	-	-	-	-	
	02	00 2017/020	9 End 154049	100.510	1700.000	21.6	845,255		-	-	-	-	-	-	-	
	03	00 2017/02/	9 End 154239	1590.720	1599.000	21.6	845,255									

Figure 17 DataMod Report Preview - Double page

Save Report as CSV

After data has been collected and any desired custom text and selections have been applied, a report can be saved in CSV format for future use.

Click on the save CSV button to open the Save Data in CSV Format dialog box as shown in Figure 18. Select the preferred destination folder, enter the file name and click Save to save the .csv file.

Save in: Documents	▼ ⇐ 🗈 💣 🎞 -	
Name IOR REPORT-1.csv	Date modified 4/02/2017 3:51 PM 6/02/2017 9:34 PM	Type Microsoft Exce Microsoft Exce
<		Save
Save as type: CSV File (*.csv)		Cancel

Figure 18 Save Data in CSV Format dialog box

A CSV file can be imported into many applications. It can also be opened and viewed in spreadsheet programs such as Excel where the data can be sorted and re-arranged as needed. An example of a DataMod CSV file opened in Excel is shown in Figure 19.

1	∃ * ™							IOR R	EPORT-3.csv -	Excel	
	ile Ho	ome Inser	t Page Lay	out Formu	ılas Data	Review Vi	ew ♀Te	l me what you	ı want to do		
D1	L	• : ×	$\checkmark f_x$								
	А	В	с	D	E	F	G	н	1	J	
1	IOR ENERG	GY PTY LTD.									
2	CRUDE OII	LUNLOAD S	TATION 01								
3											
4	Delivery	Compartme	Exception	Date	Time	NET-V L	GRS-V L	T-AVE DEG	D-AVE KG/m	ACCESS (co
5		п				NET CRUDE	GRS CRUDE	AVE TEMP	AVE DENSIT		
6	10	Used: 05	Status: Good	9/02/2017	Start: 16:22:25	8253.682	8300.05			03	
7	н	1	0	9/02/2017	End: 16:23:52	1491.671	1500.05	21.6	845.252		
8	n (2	0	9/02/2017	End: 16:25:41	1690.654	1700.15	21.6	845.252		
9		3	0	9/02/2017	End: 16:27:38	1591.71	1600.65	21.6	845.253		
10		4	0	9/02/2017	End: 16:29:31	1789.046	1799.1	21.6	845.25		
11	н	5	0	9/02/2017	End: 16:31:23	1690.599	1700.1	21.6	845.25		
12											
13	9	Used: 07	Status: Good	9/02/2017	Start: 16:02:38	11435.815	11500.051			01	
14		1	0	9/02/2017	End: 16:04:09	1591.413	1600.35	21.6	845.254		
15		2	0	9/02/2017	End: 16:06:03	1690.056	1699.55	21.6	845.251		
16		3	0	9/02/2017	End: 16:07:57	1492.017	1500.4	21.6	845.251		
17		4	0	9/02/2017	End: 16:09:52	1690.359	1699.85	21.6	845.254		
18		5	0	9/02/2017	End: 16:11:44	1690.751	1700.25	21.6	845.251		
19		6	0	9/02/2017	End: 16:13:39	1690.255	1699.75	21.6	845.252		
20		7	0	9/02/2017	End: 16:15:29	1590.965	1599.9	21.6	845.253		
21											
22	8	Used: 04	Status: Good	9/02/2017	Start: 15:53:07	5965.993	5999.5			03	
23		1	0	9/02/2017	End: 15:54:37	1590.471	1599.4	21.6	845.254		
24		2	0	9/02/2017	End: 15:56:36	1392.578	1400.4	21.6	845.252		
25		3	0	9/02/2017	End: 15:58:19	1292.888	1300.15	21.6	845.252		
26		4	0	9/02/2017	End: 16:00:17	1690.056	1699.55	21.6	845.252		
27											

Figure 19 Example of CSV file Opened in Excel

Load a Custom Report Template

Some users of the 500 DataMod tool may desire to go beyond the generic layout of the standard report in order to meet their specific requirements. In these situations, Contrec can be contacted to arrange for the purchase of a custom Report Template designed to suit such requirements.

After adequate details of the required report have been provided, a .fr3 Report Template will be supplied. Use the Report Menu to select the Load Template option as shown in Figure 20.

🛃 500-Seri	es DataM	lod Tool		
File Data	Report	Web Page Help		
	Op	en Report	Data Log Colle	ectio
Report Iter	Lo	ad Template		
	Sa	ve CSV		Use
IOR ENERG	Ge	nerate Report		
CRUDE OII	UNLOAD	D STATION 01		✓
<custom></custom>				
<custom></custom>				
<custom></custom>				
			¥ .	
Instrume	nt Info:			>

Figure 20 500 DataMod Report Menu - Load Template

The Load Report Template dialog box will open as shown in Figure 21. Select the appropriate folder and .fr3 report template file. This template will then be applied when the Generate Report function is used.

🖥 Load Report Ter	mplate				×
Look in: Docum	nents	-	+ 🗈 📸 🖬 -		
Name	^		Date modified	Туре	
515-LP01 IOR C	ustom.fr3		6/02/2017 9:31 PM	FR3 File	
<					>
File name: 515-L	P01 IOR Custom.fr3			Open	

Figure 21 Load Report Template dialog box

Samples of Custom Reports

Once a Custom Report Template has been opened, that template will be used each time the Generate Report button is used. A custom report can include a specific report heading, company logo and graphics, site or installation details and specific layout and content as required. Below are examples of a custom report created to suit a 515 LP01 Unload application. This custom report is suited to single or multi compartment transactions.

Single Compartment Transaction Report

ADING BAY AMARY "		515 MDDEL 1-1F LP01 INPUT F-TDP- 500-LP VERS 3 0 002 CUSTOM VERS 000000 BAY-01 S/N 161214
/MARY		500-LP VERS 3 0 002 CUSTOM VERS 000006
		CUSTOM VERS 000006
	00003	
	000005	100
	00000100	
	Used: 01	
	Status: Good	
	03	
		The second se
		Service and a
	-	and the second state in the
GRSCRUDE		
ATA		3
NY CARACTER DE	00000404	
	00000101	
	01	
	01 00	
	01	
	01 00 2017/04/24 End: 19:03:53	
	01 00 2017/04/24	
-	01 00 2017/04/24 End: 19:03:53 25:2	
-	01 00 2017/04/24 End: 19:03:53 25:2 768:769	
-	01 00 2017/04/24 End: 19:03:53 25:2 788.789 0.000	
	SOURCE FIELD	03

A custom single compartment transaction report is shown in Figure 22.

Figure 22 Single Compartment Transaction Report

Multiple Compartment Transaction Report

OR ENERGY PTY LTD.	VERY REPORT	(ION LAL	RGY PTY LTD)	MODEL 1-1F-		
ROMANGA CRUDE UNLOADING S&W: test done	BAY		LP01 500- CUST			
RANSACTION SUMMAR	Y					
Log	-	000	01			
Delivery Record	-	0000				
Compartments	-	Used:				
Exception	-	Status: Go				
Date		2017/04 Start: 09:07				
ACCESS CODE			-			
JOB NUM SOURCE FIELD	SOURCE FIELD	0017	42			
TRANSP CODE	SOURCE FIELD		02			
TRUCK REGO	-	TVR4				
SUPPLY NUM FLUID GROUP	-	0302	2			
T-BASE DEG C	-		5.0	1410 mar		
D-BASE KG/m3		781.6				
NET-V L GRS-V L	GRS CRUDE	29099.6 29436.6				
MASS KG	GIVE CIVEDE	22746.3				
OMPARTMENT DATA						
Record		000001	41 00000	142		
Compartments	-		01	03		
Exception	-		00	00		
Time						
T-AVE DEG C	23 2					10
D-AVE KG/m3 PRESET QTY	COMPART	MENT DATA (Continued)			
NET-V L		Record	-	00000143	00000144	100
GRS-V L MASS KG	Co	Exception	-	04	06	
MASS NO	-	Date		2017/04/25	2017/04/25	
	-	Time		End: 09:13:00	End: 09:16:07	
		AVE DEG C AVE KG/m3	-	25.3 775.800	28.1 773.129	
	PF	RESET QTY	-	0.000	0.000	
		NET-V L GR S-V L	NET CRUDE GRS CRUDE	4233.044 4276.700	4513.306 4564.100	
converted volumes corrected to leport generated by Contrec 500	H	MASS KG	-	3317.864	3528.636	89
5/04/2017 9:32:06 AM						
		00000145	00000146	00000147	00000148	
	-	07	09	10	12	
		00 2017/04/25	00 2017/04/25	2017/04/25	2017/04/25	
	Đ	nd: 09:17:45	End: 09:19:14	End: 09:21:14	End: 09:23:21	
		28.6 773.185	28.2 774.353	28.3 770.680	28.4 771.798	
		0.000	0.000	0.000	0.000	
		3644.576	2824.513	4190.314	3451.145 3491.100	
		3687.400 2851.042	2856.500 2211.939	4246.800 3272.922	2694.423	
	Converted w Report gener 25/04/2017 9	ated by Contrec 50	o reference conditions sh 00-DataMod software.	own.		Page 2

A custom multiple compartment transaction report is shown in Figure 23.

Figure 23 Multiple Compartment Transaction Report