

Operation Guide

Syrinx DVL



QSG-OG-8275-B1
02/2021
910-0012

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Before any activity is carried out on the equipment, it is recommended that the included Sonardyne Safety Manual and all warnings and cautions in this and the equipment manual(s) are read and fully understood.

It is recommended the operator complies with the Health and Safety Regulations applicable to the vessel and the region before operating this equipment.

Operators and service personnel must be familiar with the normal operating and safety procedures for subsea equipment.

Documentation must be consulted whenever a  or  warning symbol is found on the equipment, in order to determine the nature of the potential hazard and any actions which must be taken.

If any additional equipment is used, any warnings and cautions in the equipment user manual must be read and fully understood and the equipment must only be used as specified by the manufacturer.

The safety of any system incorporating this equipment is the responsibility of the assembler of the system.

PRODUCT SUPPORT: Email: support@sonardyne.com Telephone: +44 1252 872288

24 Hour Emergency Helpline: +44 1252 877600

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To view open source software licenses used by Syrinx DVL, refer to: *UM-8275 "User Manual for the Type 8275 Syrinx DVL"*.

Contents

This QSG describes the basic installation, connection, configuration and troubleshooting of the Syrinx DVL described in the following steps:

- *Technical Description*
- *Configuring the Connection*
- *Configuring Syrinx DVL*
- *Configuring Syrinx DVL ADCP*
- *Downloading ADCP Data*
- *Data Viewer*
- *Troubleshooting*

Related Publications

For more information on the Syrinx DVL refer to the following publications:

- *UM-8275 "User Manual for the Type 8275 Syrinx DVL"*
(click Support button in DVL Manager)
- *UM-8300-099 "User Manual for 6G Terminal Lite"*

Introduction to Syrinx DVL

Syrinx DVL is a navigation grade Doppler Velocity Log (DVL) designed for use on subsea or surface vehicles as a standalone navigation sensor or as an aiding sensor for a navigation system such as an Inertial Navigation System (INS).

Syrinx DVL is a 4-beam Janus-style array DVL available with a titanium non-corrosive housing (4,000 m and 6,000 m housings only).

Syrinx DVL provides self-optimising bottom lock to provide the highest accuracy positioning at all altitudes. Syrinx DVL is available in two frequencies: 600 kHz or 400 kHz for higher altitude tracking up to 230 m.

Syrinx DVL switches between Doppler velocity measurements and a different velocity measurement principle based on temporal correlation which allows the DVL to maintain velocity estimation precision at very low altitude.

Syrinx DVL can optionally capture Acoustic Doppler Current Profile (ADCP) data to measure water currents as a function of distance from the device.

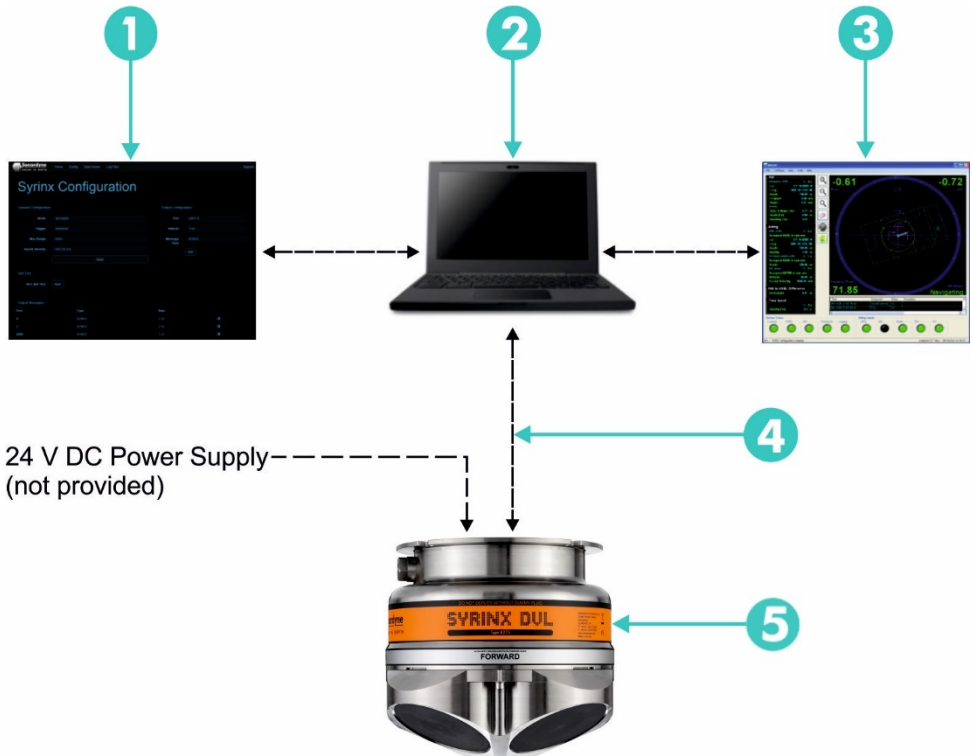
Syrinx DVL can be configured either by Ethernet connection or serial connection. Ethernet connectivity allows the user to configure the device without the requirement for software, due to the embedded DVL manager software. Alternatively, Syrinx DVL can also be configured through a terminal package when utilising the serial connection

Product Support Videos

Visit the Sonardyne YouTube channel for additional advice on using Syrinx DVL.

Typical Syrinx DVL Navigation System

A typical Syrinx DVL integrated into a navigation system includes the following components:



1 Syrinx Embedded DVL Manager (available through Ethernet connection only)

2 PC (not supplied)

3 Navigation software e.g. SPRINT (not provided)

4 Ethernet vehicle cabling to topside. Ethernet test box can be used for surface testing (CPN 641-0629)

5 Syrinx DVL

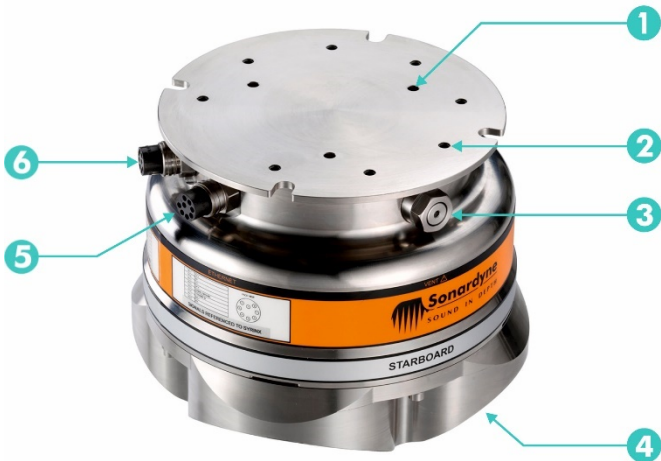
Mechanical

Syrinx DVL Variants

The Type 8275 Syrinx DVL variants are described below.

Type	Variant	Description
8275-000-4531	600 kHz 4 k	4,000 m rated with titanium housing, Subconn connectors, no sensors
8275-000-4561	400 kHz 4 k	4,000 m rated with titanium housing, Subconn connectors, no sensors
8275-000-6531	600 kHz 6 k	6,000 m rated deep water titanium housing, Subconn connectors, no sensors
8275-000-4530	600 kHz 4 k	4,000 m rated with titanium housing, Teledyne Impulse connectors, no sensors (superseded by 8275-000-4531)
8275-000-6530	600 kHz 6 k	6,000 m rated with titanium housing, Teledyne Impulse connectors, no sensors (superseded by 8275-000-6531)

Mechanical Description

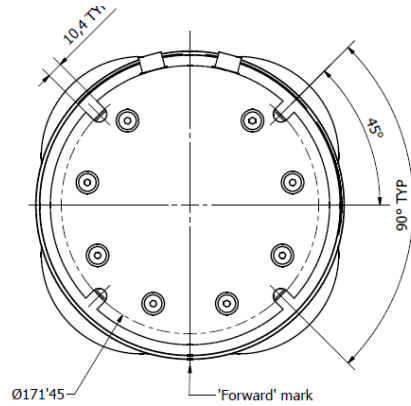
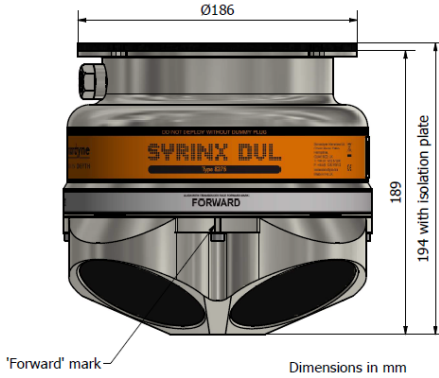


- | | | | |
|---|--------------------------------------|---|---------------------|
| 1 | Lodestar Mounting Dowel Holes x3 | 4 | Transducer Array x4 |
| 2 | Interface Plate Mounting Holes M6 x8 | 5 | Ethernet Connector |
| 3 | Pressure Release Vent Valve | 6 | Serial Connector |

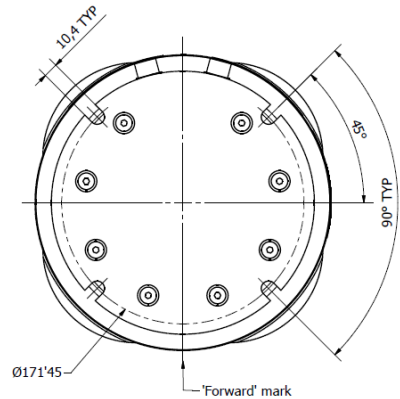
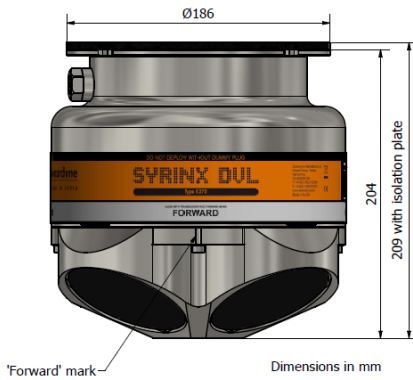
Technical Description

Isolation and mounting Plates

8275-4531/4561



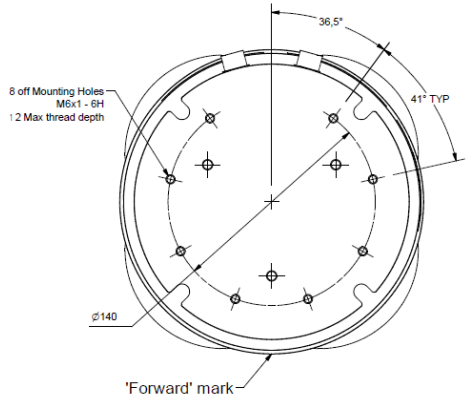
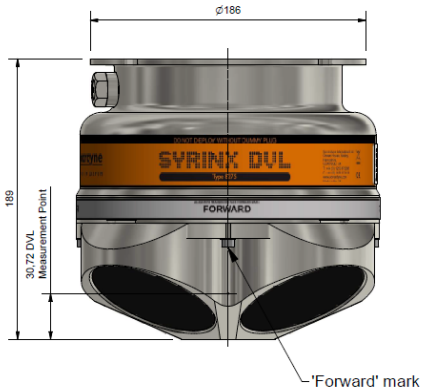
8275-6531



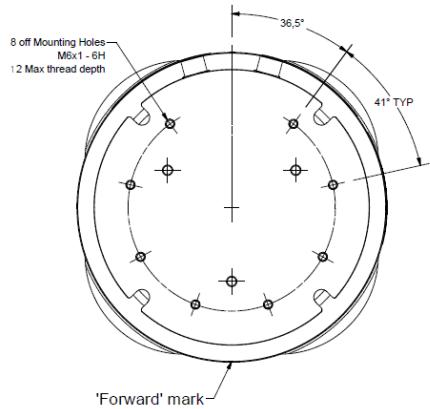
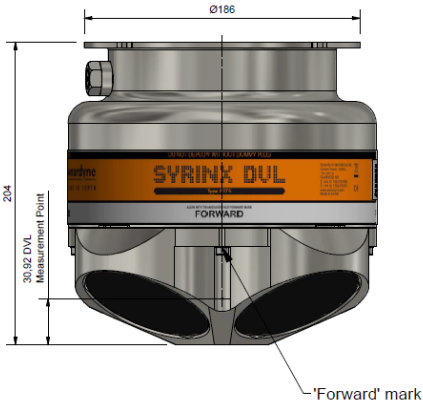
Technical Description

Central Measurement Point

8275-4531/4561



8275-6531

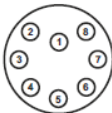


Refer to UM-8275 "User Manual for Syrinx DVL" for mounting details.

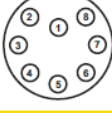
DVL Connectors

Syrinx DVL uses two 8-pin female wet mate connectors, one providing two serial RS232 communication lines, the other providing Ethernet connectivity. Power & trigger inputs can be provided on either port.

Serial Connector Wiring Details

Female Pin No	Function (Rx/Tx With Relation To Syrinx)																	
1	RS232 Rx Primary	FACE VIEW  <table><tr><td>Pin 1</td><td>RS232 RX</td></tr><tr><td>Pin 2</td><td>0V</td></tr><tr><td>Pin 3</td><td>RS232 TX</td></tr><tr><td>Pin 4</td><td>24V</td></tr><tr><td>Pin 5</td><td>SIGNAL GROUND</td></tr><tr><td>Pin 6</td><td>TRIGGER IN</td></tr><tr><td>Pin 7</td><td>AUX RS232 RX</td></tr><tr><td>Pin 8</td><td>AUX RS232 TX</td></tr></table> SIGNALS REFERENCED TO SYRINX	Pin 1	RS232 RX	Pin 2	0V	Pin 3	RS232 TX	Pin 4	24V	Pin 5	SIGNAL GROUND	Pin 6	TRIGGER IN	Pin 7	AUX RS232 RX	Pin 8	AUX RS232 TX
Pin 1	RS232 RX																	
Pin 2	0V																	
Pin 3	RS232 TX																	
Pin 4	24V																	
Pin 5	SIGNAL GROUND																	
Pin 6	TRIGGER IN																	
Pin 7	AUX RS232 RX																	
Pin 8	AUX RS232 TX																	
2	Power in 0 V																	
3	RS232 Tx Primary																	
4	Power in 24 V																	
5	Signal Ground																	
6	Trigger In																	
7	AUX RS232 Rx																	
8	AUX RS232 Tx																	

Ethernet Connector Wiring Details

Female Pin Number	Function (Rx/Tx With Relation To Syrinx)																	
1	Ethernet Tx Data +	<table><tr><td>Pin 1</td><td>TX +</td></tr><tr><td>Pin 2</td><td>0V</td></tr><tr><td>Pin 3</td><td>TX -</td></tr><tr><td>Pin 4</td><td>24V</td></tr><tr><td>Pin 5</td><td>SIGNAL GROUND</td></tr><tr><td>Pin 6</td><td>TRIGGER IN</td></tr><tr><td>Pin 7</td><td>RX +</td></tr><tr><td>Pin 8</td><td>RX -</td></tr></table> FACE VIEW 	Pin 1	TX +	Pin 2	0V	Pin 3	TX -	Pin 4	24V	Pin 5	SIGNAL GROUND	Pin 6	TRIGGER IN	Pin 7	RX +	Pin 8	RX -
Pin 1	TX +																	
Pin 2	0V																	
Pin 3	TX -																	
Pin 4	24V																	
Pin 5	SIGNAL GROUND																	
Pin 6	TRIGGER IN																	
Pin 7	RX +																	
Pin 8	RX -																	
2	Power in 0 V																	
3	Ethernet Tx Data -																	
4	Power in 24 V																	
5	Signal Ground																	
6	Trigger In																	
7	Ethernet Rx Data +																	
8	Ethernet Rx Data -																	

SIGNALS REFERENCED TO SYRINX

Configuring the Connection

Web Browser

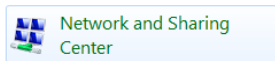
Syrinx DVL has been tested on the Windows® 7 operating system using the following web browsers:

- Google Chrome (75.0.3770.90)
- Microsoft Edge (42.17134.1098.0)
- Internet Explorer (11.1304.17134.0)

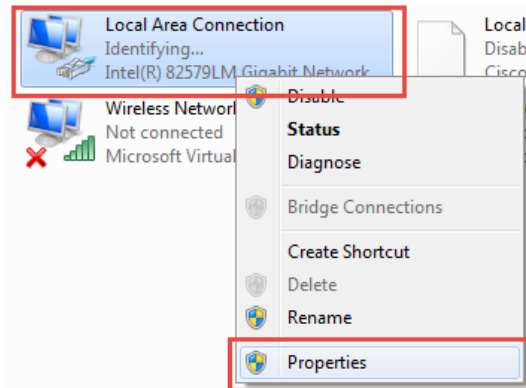
Refer to *UM-8275 "Syrinx DVL User Manual"* for more information on connecting to and communicating with the Syrinx DVL.

Configuring the Connection

1. Connect the Ethernet cable from the PC to the Syrinx DVL (If test PC is already configured to communicate with Syrinx DVL via Ethernet, skip to step 9 below).
2. To configure the network settings, click **Start > Control Panel**.
3. Click **Network and Sharing Center**.

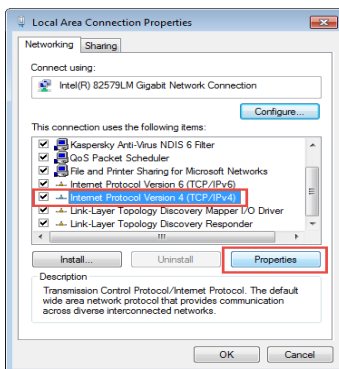


4. On the left pane, click **Change adapter settings**, right-click the **Local Area Connection** and then select **Properties**.

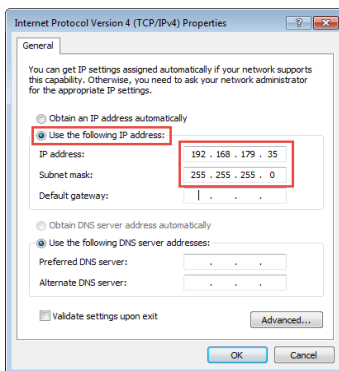


Configuring the Connection

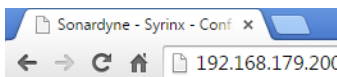
- On the **Networking** tab, click **Internet Protocol Version 4 (TCP/IPv4)** and then click **Properties**.



- Select **Use the following IP address** and then enter an IP address with the following values: **192.168.179.xxx** (where xxx is any value between **1–254** other than **1, 50, 51, 100, 150 & 200** as these are used by other Sonardyne instruments).



- Enter the Subnet mask of **255.255.255.0**.
- Click **OK** and then click **Close**.
- In the web browser, enter the IP address of the Syrinx DVL (**192.168.179.200**) and press enter:



- The Embedded DVL Manager will open.

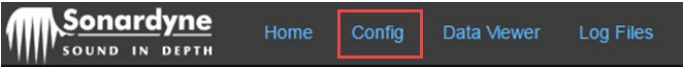
Note



On the first connection to DVL Manager, the **Home** page will be displayed. This page displays the Syrninx DVL details including serial number and internal hardware. On subsequent connections, DVL Manager will automatically display the **DVL Config** page.

Syrninx DVL Configuration

1. If DVL Manager opens on the Home page, click **Config**.



2. The DVL Manager Configuration page is shown below:

Syrninx Configuration

General Configuration

Mode: Bottom Track
Velocity Calculation: Automatic (Default)
Trigger: Automatic
Max Range: 150m
Sound Velocity: 1500.00 m/s
Apply

Self Test

Run Self Test: Start

Output Configuration

Port: RS232
Interval: 1 Hz
Message Type: ASONDV
Add

Output Messages

Port	Type	Rate
------	------	------

Time Configuration

Current Time: 19:39:40 21/09/14 Set Instrument Time: 000002 774342

Offset Configuration

YAW(deg): 0.00 PITCH(deg): 0.00 ROLL(deg): 0.00 Apply

Port Configuration

Port	Type	Baud Rate
RS232	RS232	9600
AUX RS232	RS232	9600
4090	TCP	N/A
4091	TCP	N/A
4092	TCP	N/A
4093	TCP	N/A
4094	TCP	N/A
30010	UDP	N/A
30011	UDP	N/A
30012	UDP	N/A

Configuring Syrinx DVL

The following example shows the steps required to configure Syrinx DVL for:

- Free running operation in bottom track mode (no external trigger input)
- Maximum range of 30 m
- Sound velocity of 1500 m/s
- PD4 telegram output @ 5 Hz on Ethernet TCP port 4001

Refer to the DVL Manager Configuration page image on the previous page:

1. **General Configuration > Mode** drop-down list, select **Bottom Track**.
2. **General Configuration > Trigger** drop-down list, select **Automatic**.
3. **General Configuration > Max BT Range**, enter **30 m**.
4. **General Configuration > Sound Velocity** value default is **1500 m/s**, this value can be left as it is.
5. Click **Apply**.
6. **Output Configuration > Port** drop-down list, select **TCP 4001**.
7. **Output Configuration > Interval** drop-down list, select **5 Hz**.
8. **Output Configuration > Message Type** drop-down list, select **PD4**.
9. Click **Add**.
10. The telegram output will now appear in the **Output Messages** list.

Note



Syrinx is configured as a TCP server for the purpose of transmitting data via TCP Ethernet communications. Other TCP server devices will not be able to receive data from Syrinx. Please configure other devices to TCP client to ensure successful TCP communication with Syrinx.

Syrnix DVL ADCP Configuration

If ADCP functionality is enabled on your Syrnix DVL, two additional modes are available: ADCP and DVL+ADCP.

Note



To confirm if ADCP functionality is enabled on your Syrnix DVL, either:

- 1 Click **Support** on the menu bar and check the functionality level, or
- 2 Click **Config** on the menu bar; if ADCP functionality is enabled, the modes "ADCP" and "DVL+ADCP" will be present in the drop-down list.

In ADCP mode, water profile data is captured as PD0-format data packets, written to disk and (optionally) exported live.

In DVL+ADCP mode, the standard bottom tracking pings used in Bottom Track mode are alternated with ADCP pings. The Bottom Track and ADCP pings are merged into a PD0 ensemble, written to disk, and (optionally) exported live.

In either mode, additional configuration options are available on the **Config** page in the ADCP Configuration panel.

The following example shows how to configure the ADCP profile data to use 125 bins, each of vertical width 0.25 m, for a profile depth of 31.25 m. The Syrnix transducers are at depth 1.5 m, so the actual depth of water profiled is from 1.5 m to 32.75 m.

In the following example, four pings are averaged per PD0 ensemble to increase the accuracy of the velocity data:

1. **ADCP Configuration > Bins**, enter **125**.
2. **ADCP Configuration > Depth Cell Width (cm)**, enter **25**.
3. **ADCP Configuration > Pings To Average**, enter **4**.

Configuring Syrinx DVL ADCP

- 4. **ADCP Configuration > Transducer Depth (cm)**, enter **150**.
- 5. Click **Apply**.

ADCP Configuration

Bins	50
Depth Cell Width(cm)	100
Pings To Average	1
Transducer Depth(cm)	0
Apply	
Depth Range(m)	50
Velocity Limit(m/s)	1.40
Velocity Error(cm/s)	0.71

After clicking **Apply**, ADCP data is logged to the device as PD0 files (these are identified on the Log Files page by having the .pd0 extension). File sizes are limited to 16 MB; a new file is created when this limit is exceeded.

Notes

- Each time the ADCP configuration is changed (e.g. by changing the bin width) the current .pd0 file is closed and a new .pd0 file will be opened.
- The Depth Range, Velocity Limit and Velocity Error are not modifiable, but are all updated after clicking Apply.

To stream ADCP data from the device, configure an output port to use PD0 messages via the **Output Configuration > Message Type** drop-down list. In the example below, PD0 data is streamed by a TCP server listening on port 4001:

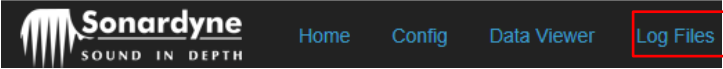
Output Messages			
Port	Type	Rate	
4001	PD0	2 Hz	

Downloading ADCP Data

Downloading ADCP Data

To download ADCP data from Syrninx using the Syrninx File Manager:

1. Click **Log Files**.



2. Download files by either:
 - a. Clicking **Access FTP** to open an FTP session with Syrninx, or
 - b. Clicking the **Download**  icon next to the file you want to download.

Note



ADCP data filenames always end with SNADCP.pd0

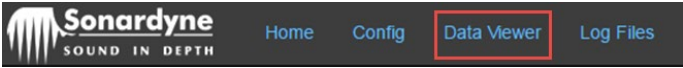
A screenshot of the Syrninx File Manager web interface. At the top, there's a navigation bar with 'Home', 'Config', 'Data Viewer', and 'Log Files'. The main heading is 'Syrninx File Manager'. Below this, there's a section with an 'Access FTP' button (highlighted with a red rectangle), a 'Download Diagnostics' button, and a 'Delete All' button. To the right of these buttons, there's explanatory text. Below this section is a table with four columns: 'Log', 'Size', 'Download', and 'Delete'. The table lists several log files. The 'Download' button for the file '317065_019_20200304174511_03459_SNADCP.pd0' is highlighted with a red rectangle.

Log	Size	Download	Delete
317065_019_20200304180509_03459_IN0000.log	692.0 B		
317065_019_20200304174511_03459_SNADCP.pd0	8.9 MiB		
317065_019_20200304174511_03459_P04001.bin	8.9 MiB		
317065_019_20200304170905_03458_SNADCP.pd0	16.0 MiB		
317065_019_20200304170905_03458_P04001.bin	16.0 MiB		
317065_019_20200304163257_03457_SNADCP.pd0	16.0 MiB		

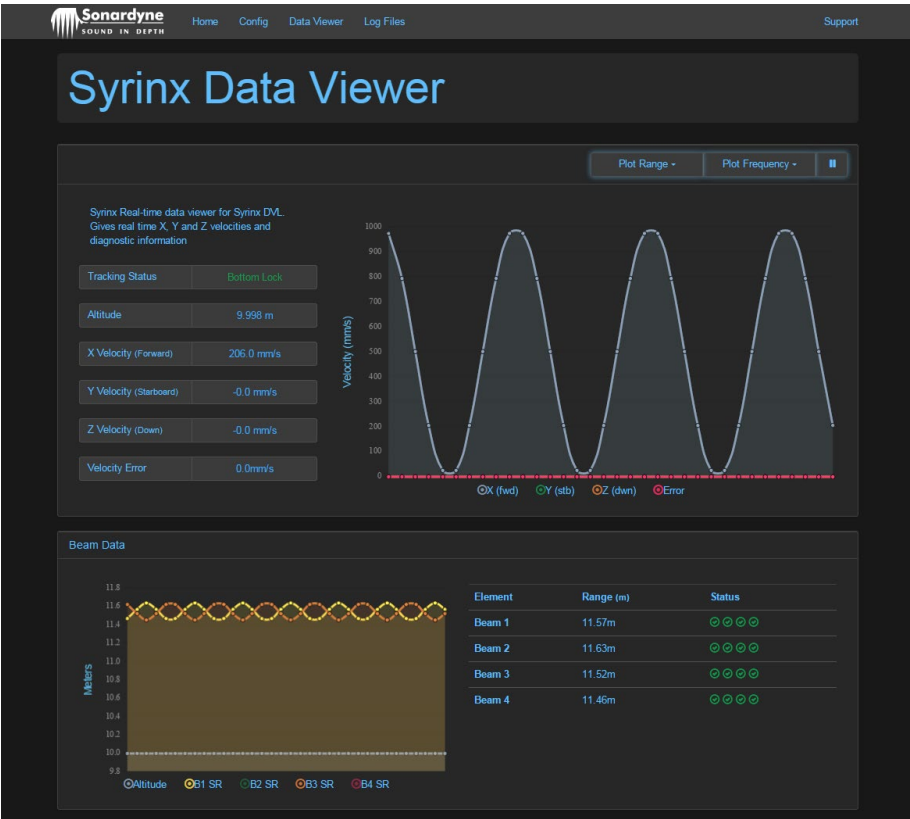
Syrinx Data Viewer

To open the live Syrxinx Data Viewer:

- 1. Click **Data Viewer**.



- 2. The DVL Manager Data Viewer page is shown below:



The Data Viewer will automatically start displaying data if the unit is in free running mode (and able to collect valid data in water, or is configured to simulate mode), or if configured for trigger input and a trigger is being provided. Controls for the graph are located in the upper right corner of the graph.

Plot Range changes the number of data points being displayed on the chart.

Plot Frequency changes the update rate of the chart data display.

Play/Pause button pauses the display. This will not stop the data stream to the chart, and when play is pressed, previous data will no longer be displayed on the chart as the chart will update to show the most recent data.

Beam Data contains slant range and diagnostic information for each of the beams. For each of the beams, the following information is available.



- Slant range (direct distance from transducer to reflector)
- Altitude – on graph
- Status indicators for:
 - Used status (whether the beam is used in the velocity solution)
 - Error status (whether the error value on the beam exceeds the threshold for quality)
 - Correlation score (quality of returned signal)
 - Signal strength (strength of returned signal)

Each status indicator will show a green tick, or an orange cross depending on the data returned from Syrinx DVL.

Symbol	Used Status	Error Status	Correlation Score	Signal Strength
	Beam used in velocity calculation	Error value low – data is reliable	Correlation score high – signal return is as expected	Signal strength is high – external noise is not affecting operations
	Beam not used in velocity calculation	Error value high – data is less reliable	Correlation score low – signal return is sub-optimal	Signal strength is low – external noise is affecting operations

Manual Syrinx DVL Configuration

The Syrinx DVL can also be configured manually either via serial connection or through a TCP or UDP Ethernet connection when using a terminal package to view and transmit communications.

Note



Serial commands must be appended with a Character Return Line Feed (CRLF) at the end of each message.

CFG Command

The CFG command is used to set the operating mode of the DVL, i.e. auto/water track/ADCP/DVL+ADCP, trig/free-running.

Command:	<CFG:{ AUTO , WT , WBT , SIM , ADCP , DVLADCP },{ FREE , TRIG+ , TRIG- }, WLS },{ AUTO , 3BEAM , JANUS , DISx },{ Rxx , SVxx , WTSRxx , WTBWxx , TDxx.xx , VRF },{ BEAM , INST , VESSEL , EARTH }	
	<CFG Requests the set operating mode	
Reply:	>CFG:AUTO,TRIG+,WLS;AUTO,R150,SV1500.00,WTSR31,WTBW52,TD1.174,VRF;INST,VEL:STD	
Parameter:	Configuration mode	How the DVL will be configured: AUTO The DVL will automatically adjust its power/gain/signal WT The DVL will operate in Water-track mode (i.e. not bottom-lock, the user can adjust settings via the CONFIG command WBT Sets the unit to flip flop mode between AUTO and WT with a 50:50 duty cycle. SIM The DVL will operate in simulate mode and bottom-track (N.b if required functionality level is set) ADCP The DVL will operate in ADCP mode (i.e. no bottom-tracking) if ADCP functionality level is set. DVLADCP The DVL will operate in interleaved DVL+ADCP mode (i.e. alternate between bottom-tracking pings and profiling pings) if ADCP functionality level is set.
	Trigger mode	Sets the unit's trigger mode: TRIGx Sets the unit into externally triggered mode: + sets the DVL to trigger on a positive edge - sets the DVL to trigger on a negative edge FREE Sets the unit into free-running mode. The OUT command will set the rate, if no outputs set then the DVL will default to 1 second updates (internal diagnostic only as no actual output configured)

Manual Configuration

WLS	Weighted Least Squares Mode sets the internal mode for the velocity solution. Options are: AUTO Use 4 or 3 beams automatically depending on acoustic data 3BEAM only use 3 Beam solution, i.e. exclude worst beam JANUS Only use 4 Beam solution DISx Do not use an element (i.e. if one is known to be faulty) pass in 1–4 for the element number
Rxx	This field specifies the bottom track maximum search range of the unit in meters.
SVxx	Sound Velocity in m/s
WTSR	Water Track Start Range. This sets the start range for the water track measurement. The unit will adjust the value and report the actual value used based on what is acoustically possible. This is in deci-meters.
WTBW	Water Track Bin Width. This parameter sets the bin width for the bottom track measurement. The unit will adjust the value and report the actual value used based on what is acoustically possible. This is in deci-meters.
TDxx.xx	The minimum delay between triggering the unit and acoustic transmission in milliseconds. Depending on mode there is up to a 512 μs variance in transmit time starting from the minimum value. Tigger Delay has a minimum value of 1.174 ms and can be set in whole milliseconds only. NOTE: The actual minimum delay may differ to the requested value by up to +255 μs due to system limitations.
VRF (Vehicle Reference Frame)	Sets the Vehicle Reference Frame mode of the unit. BEAM Where applicable use beam velocities in output messages. INST Output velocities in the instrument reference frame, ignoring offsets. VESSEL (default) Output velocities in the Vessel reference frame (Forward, Starboard, Down), taking into account offsets. EARTH Output velocities in the Earth reference frame (North, East, Down), taking in to account offsets, Heading, Pitch and Roll.
VEL (velocity range mode)	STD Normal mode of operation. HIGH If performing water track or profiling in 13 m or less water depth, this configuration can be set to allow measurements of very fast currents.

CFG command example:

<CFG:AUTO,TRIG+

Set the DVL to configure its own power/gain/signal. Set the DVL to be triggered externally by a positive going TTL pulse.

>CFG:AUTO,TRIG+,WLS;AUTO,R150,SV1500.00,WTSR139,WTBW28,TD1.174,VR F;VESSEL,VEL:STD

OFS – Offset command

This command is used to set the DVL offsets as follows.

To add security to the command the UID will be needed to program the offsets to avoid unintentional overwriting of the values.

Command:	<<OFS:Uxxxxxx,	
	<OFS	
Reply:	>OFS:Uxxxxxx,YAW0,PITCH0,ROLL0	
Parameter :	YAW	Yaw angle in degrees, Starboard positive
	PITCH	Pitch angle in degrees, Bow up positive
	ROLL	Roll angle in degrees, Starboard down positive

OFS command example:

<OFS:U123456,YAW45

>OFS:U123456,YAW45.0,PITCH0.0,ROLL0.0

PORT - Port command

The PORT command is used to set the baud rate of any serial ports on the instrument.

Command:	<PORT: Px;BRdddddd,TCPeeeee Sets the serial port(s) of the unit		
	<PORT Requests Baud Rate information		
Reply:	>PORT:PIDx,Px;BRdddddd,Px;{TCP,UDP},Px;{TCP,UDP};CFGx		
Parameter:	PIDx	Port ID of the current port.	Baud
	Px	Port number: 0. See above for details of ports	2400
	TCP or UDP	Identifies the port type if not a serial port	4800
	TCPx or UDPx	Used to configure the configurable TCP and UDP ports where x is the new port number.	9600
	CFGx	Indicates a configurable Ethernet port, where x indicates which config port is being referred to (currently always 1 as there is only one TCP configurable port and one UDP configurable port).	19200
	BRx	Baud Rate - 9600 default	38400 57600 115200

Port command example:

Set Port 0 to a Baud Rate of 57600

<PORT:P0;BR57600

Reply:

>PORT:PID0,P0;BR57600,P1;BR9600,P4000;TCP,P4001;TCP,P4002;TCP,P4003;TCP,P30010;UDP,P30011;UDP,P5555;TCP;CFG1,P30013;UDP;CFG1

Set configurable TCP port to 5005:

<PORT:TCP5005

Reply:

>PORT:PID0,P0;BR57600,P1;BR9600,P4000;TCP,P4001;TCP,P4002;TCP,P4003;TCP,P30010;UDP,P30011;UDP,P5005;TCP;CFG1,P30013;UDP;CFG1

The Baud rate must be specified exactly as shown in the table above otherwise no change will be made to this field.

Notes



The PORT command response is sent out of the primary port at 9600 Baud following a hard reset.



Serial port baud rates are monitored to maintain output integrity. If a requested command would cause the bandwidth of a port to be less than its current total output, the error ERR[BAUDRATE] is returned e.g.
>PORT:ERR[BAUDRATE].



It is recommended to use the highest possible baud rate when operating the Syrinx DVL at high update rates (>5 Hz) to ensure data communication is not lost/delayed through bitrate limitation.

OUT – Output command

The OUT command is used to set the different output types on certain ports. Multiple outputs can be produced on the same port.

Supported Ports are:

P0: RS232 Port 0

P1: AUX RS232 Port 1

P4000: Ethernet TCP Port 4000

P4001: Ethernet TCP Port 4001

P4002: Ethernet TCP Port 4002

P4003: Ethernet TCP Port 4003

P30010: Ethernet UDP Port 30010

P30011: Ethernet UDP Port 30011

Manual Configuration

Outputs can be configured to the configurable TCP and UDP ports by specifying the port number chosen, for example for port 5432, the port can be specified as **P5432**.

Command:	<OUT:Px;MSG@x.x;MSG@y.y,Pz;MSG@z.z <OUT:Px;MSG@NONE <OUT:Px;NONE <OUT:NONE <OUT:NONE;ALL	
	<OUT Requests information	
Reply:	> OUT:Px;SONDV@z.z;MSG@z.z	
Parameter:	Px	Port number: 0. See above for details of ports, examples are 0,1,4000,4001,4002,4003
	MSG	This is the identifier; MSG itself is not a valid mnemonic. SONDV – Sonardyne basic Syrinx DVL output (ASCII) ASDNDV – Sonardyne advanced output (BINARY) TIME – Sonardyne TIME message (BINARY) SNS – Sonardyne SNS message (BINARY) PD0 – RDI PD0 message output PD3 – RDI PD3 message output PD4 – RDI PD4 message output PD5 – RDI PD5 message output PD6 – RDI PD6 message output PD13 – RDI PD13 message output APD0 – Hexadecimal ASCII representation of RDI PD0 APD3 – Hexadecimal ASCII representation of RDI PD3 APD4 – Hexadecimal ASCII representation of RDI PD4 APD5 – Hexadecimal ASCII representation of RDI PD5 DBT – NMEA Depth Below Transducer message
	x.x y.y z.z	Interval between outputs in fractional seconds. Note this may not be valid for the message selected, if not the value is ignored. i.e. debug messages will come out when they occur rather than at a set rate.
	None	Depending on where in the message chain this is placed it will remove message outputs. OUT:NONE Removes all output messages on the port that the message was sent in on. OUT:Px;NONE Removes all output messages on port x. OUT:Px;MSG@NONE Removes message type MSG from port x. OUT:NONE;ALL Removes all output messages on all ports, excluding webserver and Lodestar ports 8000, 8010 and 8011.

OUT command example:

<OUT:P0;SONDV@0.5,P4001;PD04

Output basic DVL output and debug messages on port 0, PD04 message on port 4001.

>OUT:P0;MSG0@1.0;MSG2@0.5,P4002;PD04@INT1

Default interval for this message is 1 second

Sending NONE disables messages on the respective level it is used at:

<OUT:NONE;ALL

<OUT:NONE

All messages on all ports removed.

Notes



Serial port baud rates are monitored to maintain output integrity.



The APD0, APD3, and APD4 messages use the standard ASCII codes for 0 through F to represent their respective binary message as hexadecimal digits.

ADCP – ADCP Configuration command

This command is used to configure the device to measure water profiles with a specified range and resolution.

Command:	<<ADCP:BINSxxx,WDTHxxx,STRTRxxx,AVGxx,TRDPxxx Sets the ADCP parameters of the unit	
	<ADCP Requests ADCP parameter information	
Reply:	>OFS:BINS50,WDTH50,STRTR250,AVG5,TRDP125,VL1.40,SD4.52	
Parameter:	BINS	Number of bins
	WDTH	Width of each bin in centimetres
	STRTR	Start range of profile in centimetres
	AVG	Number of pings to average per output PD0 ensemble
	TRDP	Depth of transducer below water surface in centimetres
	VL	Beam-frame velocity limit in m/s (response only; cannot be set)
	SD	Beam-frame depth cell velocity standard deviation in cm/s (response only; cannot be set)

TroubleShooting

If the Syrinx DVL fails to operate, refer to the following fault diagnosis tables to determine the possible cause and action to take. If the Syrinx DVL still fails to operate, contact Sonardyne Support.

No Communication from the Syrinx DVL

Fault	Action
Connection to the Syrinx DVL has been lost.	Remove the power supply for five seconds and then reapply power to the Syrinx DVL.
If resetting the Syrinx DVL does not restore the connection and the error shown below is displayed in your web browser. Web Server Communications Error The Web Browser has lost communications with the Syrinx Web Server, check network connections Refresh	Check the PC IP address and subnet mask; see <i>Section Configuring the Connection</i> on page 9.
If the IP address and subnet mask is correct but there is still no connection.	Check the cable and all connections. Verify power supplied to Syrinx DVL is 24 V +- 10% and allows current draw of up to 600 mA. If using a custom cable, verify that pins are wired up correctly; see <i>Section Configuring the Connection</i> on page 9. Check the firewall settings or anti-virus software is not blocking the connection. If using a custom network, connect to the Syrinx DVL directly through the Ethernet test cable provided with Syrinx to determine if the fault lies with the unit or the network.
No communication with DVL via serial connection.	Verify that the serial port settings are correct. Connect to the serial port on 9600 Baud rate and power cycle the Syrinx DVL. The Syrinx DVL will output a PORT message @ 9600 Baud Rate including the Baud rate the port is set to. The serial port will then be configured to this Baud rate.
To remove all data output form a port.	Send an OUT:NONE <CR><LF> command on the port.

Acoustic Data Analysis

The **Data Viewer** page displays status indicators: a green tick, or an orange cross depending on the data returned from Syrnix.

A likely explanation for the orange cross symbol is shown below.

Symbol	Used Status	Error Status	Correlation Score	Signal Strength
	Beam used in velocity calculation	Error value low – data is reliable	Correlation score high – signal return is as expected	Signal strength is high – external noise is not affecting operations
	Beam not used in velocity calculation	Error value high – data is less reliable	Correlation score low – signal return is sub-optimal	Signal strength is low – external noise is affecting operations
Explanation	Beam not used due to poor quality signal. See other diagnostic information for details	Error may be high if data from a single beam does not fit with the results from the other 3 beams. May be due to a partial reflection, or a reflection from an object in the water column (such as marine life)	Low correlation score may be due to multipath replies, scattered reflections from an uneven seabed, reflections from other matter in the water column (including marine life) or external noise.	Signal strength may be low due to operation at very high altitudes, poor reflections from certain seabed types, or other devices causing noise around the operating frequency band of the Syrnix DVL.

Self-Test

A Self-Test can be formed on the Syrnix DVL. Before testing, provide 24 V power to the test box 4 mm sockets and connect the Ethernet cable to the test box and test PC.

1. Connect to the DVL Manager.
2. On the **Config** page, click **Run Self-Test** to start the Syrnix DVL built in self-test.
3. The results will be displayed once complete.

Note

 If the Self-Test fails for any reason, contact Sonardyne Support.



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Global Headquarters, UK
T +44 1252 872288
sales@sonardyne.com

Aberdeen, UK
T +44 1224 707875
sales@sonardyne.com

Houston, USA
T +1 281 890 2120
usa.sales@sonardyne.com

Rio das Ostras, Brasil
T +55 22 2123 4950
brasil.sales@sonardyne.com

Singapore, Asia
T +65 6542 1911
asia.sales@sonardyne.com

24/7 Emergency Helpline
T +44 01252 877600
support@sonardyne.com

sonardyne.com

