THE OFFSET MANAGER

VESSEL · ROV · TUG OFFSETS

User Manual

Sensor offsets for the vessel, ROVs and other vehicles,
with drawings, change history and PDF offset reports

Version 1.0

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1 Introduction

The Offset Manager keeps the sensor offsets of every vehicle on a job in one place: the vessel, the ROVs, tugs, barges, AUVs, towfish and tools. Each vehicle is shown on a simple graphic in plan, side and end view with every offset marked, and the offsets can be exported or printed in a PDF offset report. Every change is recorded in a change history.

1.1 The convention

Every vehicle has its own **CRP** (common reference point) at 0, 0, 0, and all its offsets are measured from it, in metres:

Axis	Positive towards	Negative towards
X	Starboard	Port
Y	Forward (bow)	Aft (stern)
Z	Up	Down

The convention sign is shown on every drawing and on the report, so whoever reads it knows which way the offsets go.

1.2 The graphic and the table

The graphic of each vehicle is a generic picture of its type, sized roughly to the vehicle. It is there to show where things are; it doesn't need to be exact. The **offsets table is the record**: the numbers in it are what you type, and they are never changed by the drawing.

Vehicle type	Drawn as
Vessel	A construction or survey vessel with superstructure forward, mast, crane and helideck.
ROV	A work-class ROV frame with buoyancy, thrusters, skids and manipulator arms.
Tug	A tug with a round stern, high bow, wheelhouse and tow winch.
Barge	A flat-topped barge with raked ends and deck cargo.
AUV / Towfish	A torpedo-shaped body with fins.
Frame / Tool	A braced frame, for subsea tools, frames, spreader bars and anything else.

2 Getting started

2.1 What you need

- A Windows PC.
- The program file, **OffsetManager.exe**. Nothing else needs to be installed.

2.2 Installing and starting

Copy **OffsetManager.exe** into a folder of your choice and double-click it. There is no installer. The file you were working on last opens again when the program starts.

> **Tip**
> For quick access, right-click OffsetManager.exe and choose **Send to > Desktop (create shortcut)**, or pin it to the Start menu or taskbar.

> **Note**

> The first time you start the program, Windows may show a **Windows protected your PC** message. Click **More info**, then **Run anyway**.

2.3 The main window

The main window: vehicles on the left, the drawing at the top, the offsets table below.

Part	What it is for
Title banner	The compass rose, the program name and, top right, the project from the job details.
Top buttons	**New**, **Open…**, **Save** and **Save as…** for files; **Job details…** for the report; **Export CSV…** and **Create PDF report…**.
Vehicles	The list of vehicles, with the number of offsets of each. Click one to show it.
Vehicle	The selected vehicle's type, graphic size, where its CRP is and its notes.
Drawing	Side, end and plan views of the vehicle with its offsets, the view and label choices, **Add offset…**, **Place CRP** and **Save picture…**.
Offsets / Change history	The offsets table with its buttons, and every change made to the vehicle.

> **Tip**
> Drag the bars between the parts of the window to give the drawing or the table more room.

3 Quick start

1. Click **Add…** under Vehicles. Type the name, choose the type, and set the rough length, beam and height and where the CRP is on the vehicle. Click **OK**.
2. Click **Add offset…**. Type the name of the sensor and its X, Y and Z from the CRP. Click **OK**. Repeat for each sensor, or copy a whole table from Excel or Word and click **Paste from Excel…**.
3. Add the other vehicles (the ROVs, tugs and so on) in the same way.
4. Click **Job details…** and fill in the project, client and revision.
5. Click **Save** to keep the file, and **Create PDF report…** for the offset report.

4 Vehicles

4.1 Adding and editing a vehicle

Click **Add…** under the Vehicles list, or select a vehicle and click **Edit…** (or double-click it). The preview on the right updates as you type.

The vehicle window, with the preview of the graphic.

Box	What to type
Name	The vehicle's name, as it should appear in the report.
Type	Vessel, ROV, Tug, Barge, AUV / Towfish or Frame / Tool. Choosing a type for a new vehicle fills in typical sizes.
Length, Beam, Height	The rough overall size of the vehicle in metres, for the graphic.
CRP from the aft end, from the centreline (+ stbd), above the bottom / keel	Where the CRP is on the vehicle: for example 4.6 m from the stern at keel level is 4.6, 0, 0. Only the graphic uses these.
CRP description	How the CRP is defined, in words. It is shown in the offsets table and the report.
Notes	Anything else about the vehicle.

Type defaults puts back the typical sizes and CRP position for the type.

4.2 Placing the CRP on the drawing

Instead of typing where the CRP is, click **Place CRP** above the drawing and then click on the drawing where the CRP is on the vehicle: in the side view for the distance from the aft end and the height, in the plan view for the distance from the aft end and the centreline, or in the end view for the centreline and the height. The graphic moves under the CRP; the offsets don't change.

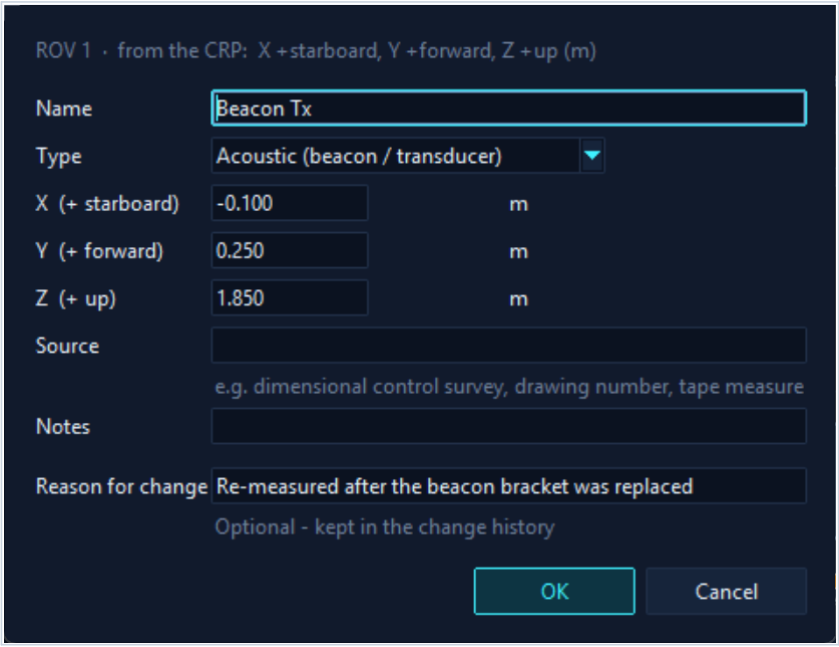
4.3 Duplicate, delete and order

- **Duplicate** makes a copy of the selected vehicle and its offsets, useful for a second ROV of the same kind.
- **Delete** removes the vehicle and its offsets (after asking).
- **Move up** and **Move down** change the order of the list, which is also the order in the report.

5 Offsets

5.1 Adding an offset

Select the vehicle, then click **Add offset…** above the drawing or **Add…** above the offsets table. To change an offset, double-click its row or click **Edit…**.



The offset window, editing an offset with a reason for the change.

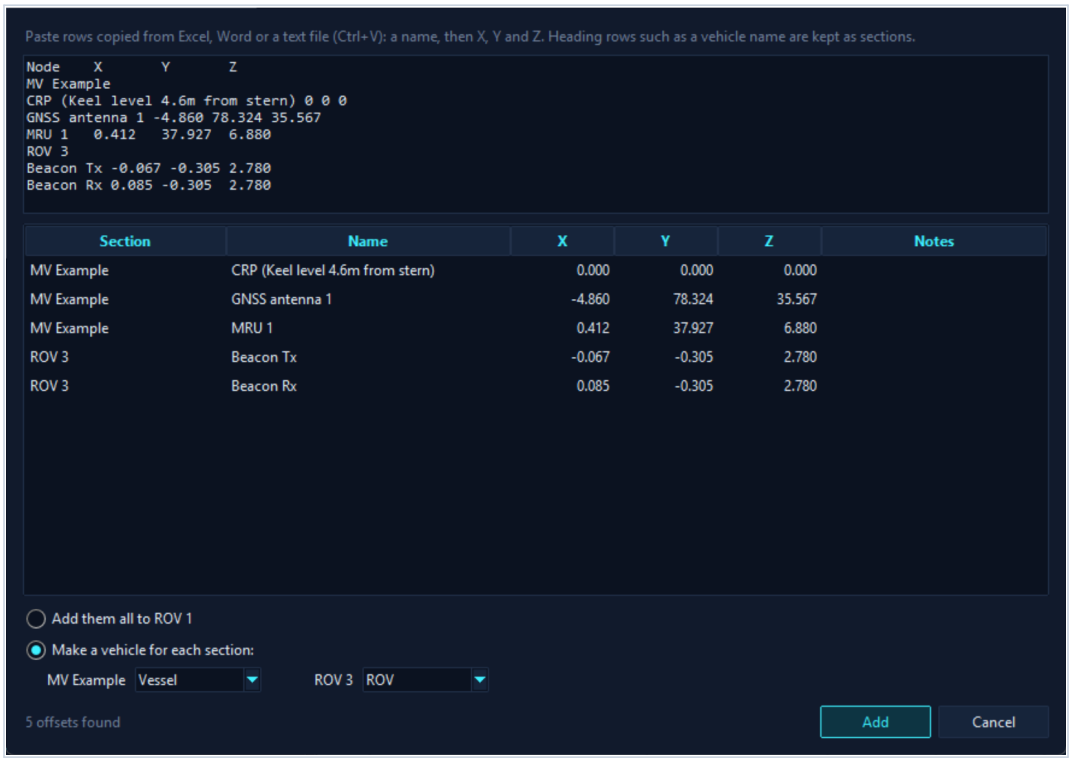
Box	What to type
Name	The name of the sensor or point, e.g. Beacon Tx, GNSS antenna 1, MRU 1.
Type	What it is. It is chosen for you from the name and can be changed. It sets the colour and symbol on the drawing (section 5.2).
X, Y, Z	The offset from the CRP in metres: X + starboard, Y + forward, Z + up. A comma decimal (1,25) is also accepted.
Source	Where the offset came from, e.g. a dimensional control survey or a drawing number.
Notes	Anything else.
Reason for change	When editing, why it was changed. This goes into the change history.

5.2 Types of offset

Type	Drawn as
GNSS antenna	Red circle
Acoustic (beacon / transducer)	Pink circle
Motion / heading (MRU, gyro)	Orange square
Sonar / MBES	Purple diamond
Altimeter / depth	Teal triangle pointing down
DVL	Blue triangle pointing up
Camera / laser	Brown pentagon
Reference / survey point	Green plus
Other	Grey circle

5.3 Pasting offsets from Excel or Word

If the offsets are already in a spreadsheet or a document, select the rows (with the name, X, Y and Z columns), copy them (Ctrl+C), and click **Paste from Excel…**. The window shows what it found before anything is added.



Pasting a table with two vehicles in it.

- Each row with a name followed by three numbers becomes an offset. Extra text after the numbers goes into the notes. Heading rows such as Node, X, Y, Z are skipped.
- A row with only text, such as a vessel or ROV name, starts a section. Choose **Make a vehicle for each section** and set each one's type, and every section becomes a vehicle with its offsets.
- A CRP row at 0, 0, 0 isn't added as an offset; the words in its brackets (e.g. Keel level 4.6m from stern) become the vehicle's CRP description.

> **Tip**
>
> After pasting new vehicles, use **Edit…** to set each one's size and CRP so the graphic fits.

5.4 Moving, deleting and copying

- **Move up** / **Move down** change the order of the offsets, which is also their number on the drawing and in the report.
- **Delete** (or the Delete key) removes the selected offsets, after asking.
- **Copy table** puts the vehicle's offsets on the clipboard to paste into Excel or Word.

5.5 Distances

Select an offset in the table (or click it on the drawing) and the distance from the CRP is shown next to the buttons. Select two (hold Ctrl) to see ΔX, ΔY and ΔZ from the first to the second, and the horizontal and slant distances between them.

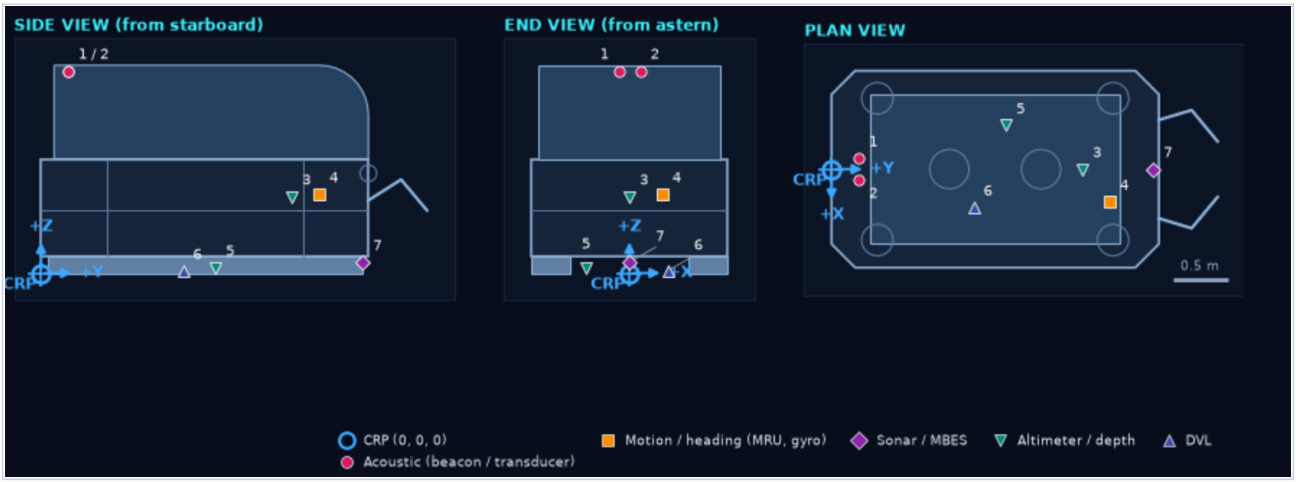
6 The drawing

An ROV with its offsets. Two offsets are selected and the distance between them is shown above the table.

- **Side view** is seen from starboard with the bow to the right; **end view** is seen from astern, with starboard to the right; **plan view** is seen from above with the bow to the right and starboard at the bottom. All three are at the same scale, with a scale bar.
- The CRP is the blue circle with the +X, +Y and +Z arrows. Each offset is a coloured symbol (section 5.2) with its name; the key is under the drawing.
- Click an offset on the drawing to select it in the table. The selected offsets are ringed.
- Point at the drawing to see the position under the pointer.

6.1 View and labels

Choice	Options
View	All views, or one of Plan view, Side view or End view drawn larger.
Labels	Names (where a name doesn't fit, its number from the table is shown instead), Numbers (as in the table, tidiest when there are many offsets) or None.



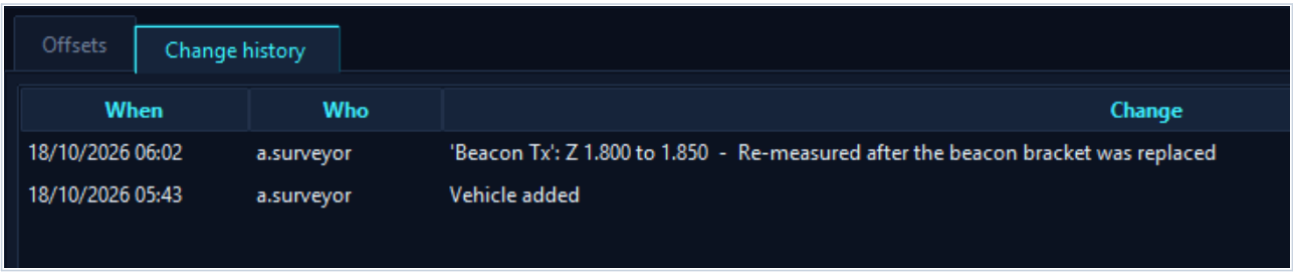
Labels as numbers, which match the No. column of the table.

6.2 Saving a picture

Save picture… saves the drawing, as shown, on a white background as a PNG picture or a PDF, for a procedure, a toolbox talk or an email.

7 Change history

Every change is recorded automatically with the date and time and the Windows user name: vehicles added, offsets added, changed (with the old and new values) or deleted, offsets pasted, and the CRP moved on the graphic. A reason typed when editing an offset is added to the entry. The **Change history** tab shows the selected vehicle's history, latest first.



The Change history tab.

> **Note**
> The history is kept in the file. To keep the history of a job, keep its file; don't start each revision from a new file.

8 Files

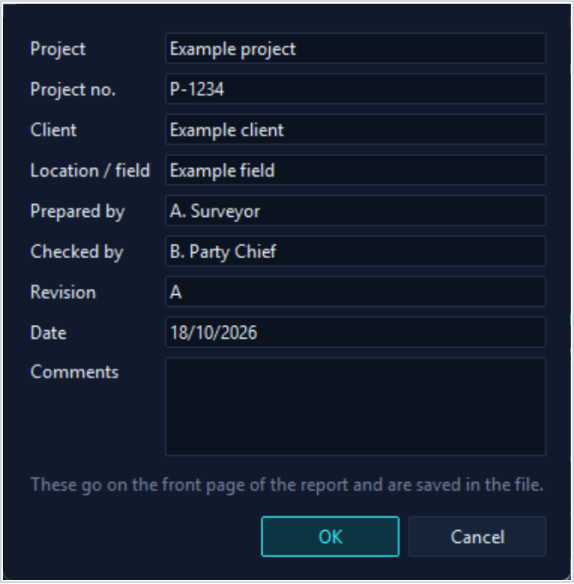
- **Save** (Ctrl+S) and **Save as…** keep everything (vehicles, offsets, job details and history) in one **.offsets** file. The window title shows * when there are unsaved changes, and the program asks before closing or opening another file.
- **Open…** (Ctrl+O) opens a file. Double-clicking a .offsets file in Windows also opens it in the program (after the program has been run once).
- **New** starts an empty file.
- **Export CSV…** saves every vehicle's offsets in one CSV file for Excel, with the vehicle, number, name, type, X, Y, Z, source and notes.

> **Tip**
> Keep one file for each vessel or spread, and copy it for a new job.

9 The PDF offset report

9.1 Job details

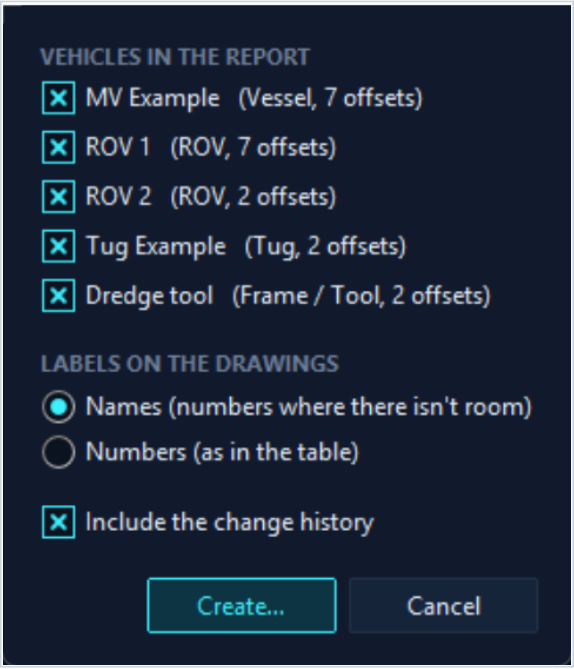
Click **Job details…** to fill in the project, project number, client, location, prepared by, checked by, revision, date and comments. They go on the front page of the report and are saved in the file.



The Job details window.

9.2 Creating the report

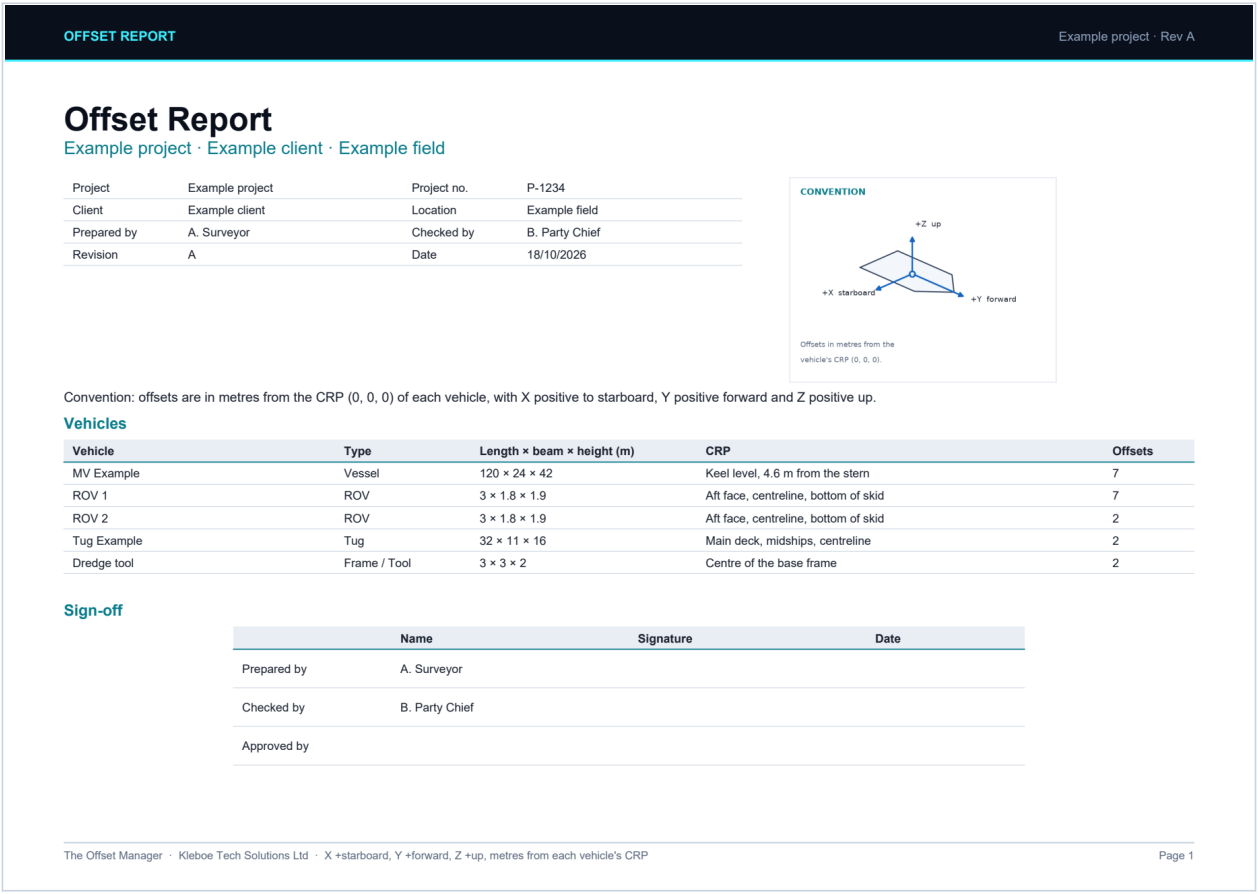
Click **Create PDF report…**, tick the vehicles to include, choose names or numbers for the labels and whether to include the change history, then click **Create…** and choose where to save it. The program offers to open it.



The report choices.

The report is A4 landscape:

- **Front page**: the job details, the convention sign, the list of vehicles with their size, CRP and number of offsets, any comments and a sign-off table.
- **A page for each vehicle**: the side, end and plan views, the offsets table (starting with the CRP and its description), the vehicle's notes and its change history.



OFFSET REPORT Example project · Rev A

Offset Report

Example project · Example client · Example field

Project	Example project	Project no.	P-1234
Client	Example client	Location	Example field
Prepared by	A. Surveyor	Checked by	B. Party Chief
Revision	A	Date	18/10/2026

CONVENTION

Offsets in metres from the vehicle's CRP (0, 0, 0).

Convention: offsets are in metres from the CRP (0, 0, 0) of each vehicle, with X positive to starboard, Y positive forward and Z positive up.

Vehicles

Vehicle	Type	Length × beam × height (m)	CRP	Offsets
MV Example	Vessel	120 × 24 × 42	Keel level, 4.6 m from the stern	7
ROV 1	ROV	3 × 1.8 × 1.9	Aft face, centreline, bottom of skid	7
ROV 2	ROV	3 × 1.8 × 1.9	Aft face, centreline, bottom of skid	2
Tug Example	Tug	32 × 11 × 16	Main deck, midships, centreline	2
Dredge tool	Frame / Tool	3 × 3 × 2	Centre of the base frame	2

Sign-off

	Name	Signature	Date
Prepared by	A. Surveyor		
Checked by	B. Party Chief		
Approved by			

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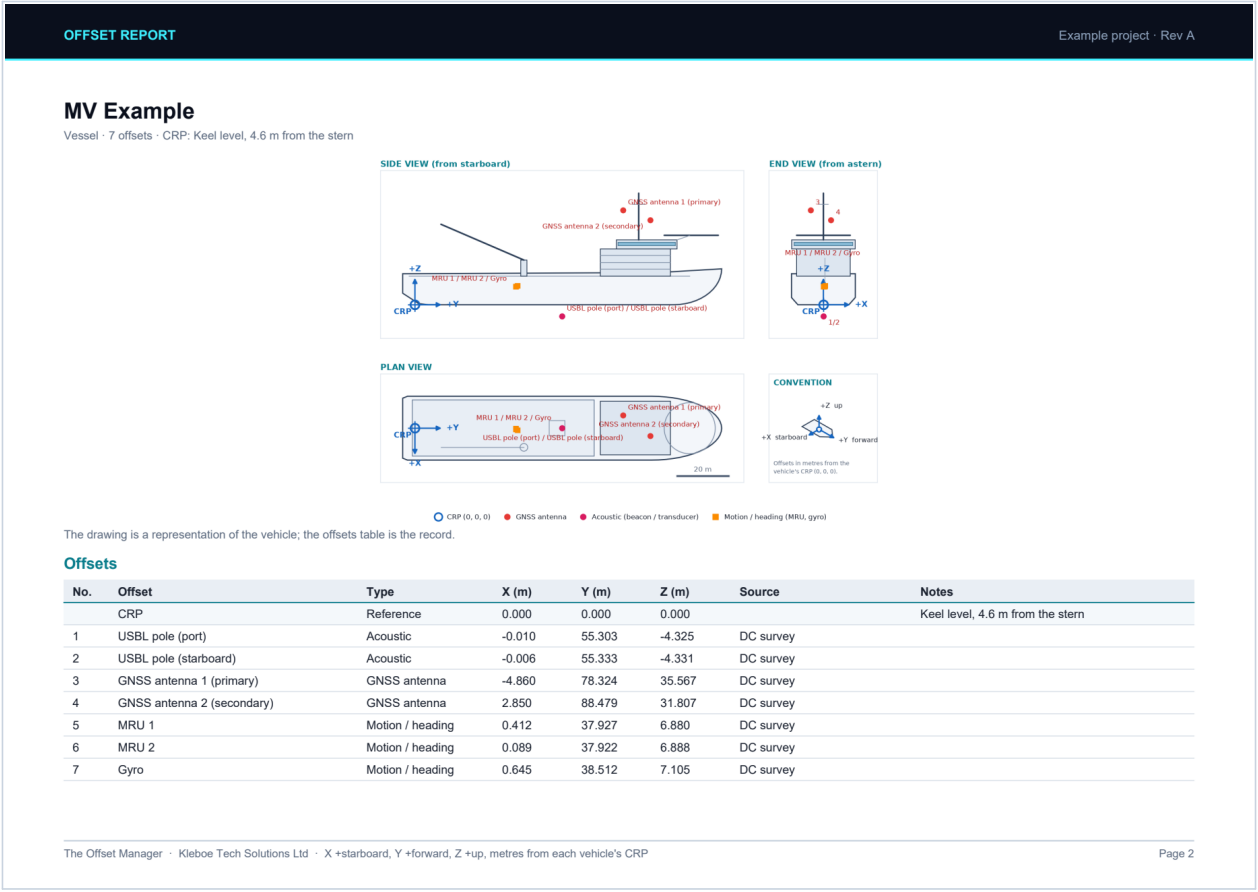
The front page of the example's report.



OFFSET REPORT Example project · Rev A

MV Example

Vessel · 7 offsets · CRP: Keel level, 4.6 m from the stern

SIDE VIEW (from starboard) END VIEW (from astern) PLAN VIEW CONVENTION

CRP (0, 0, 0) GNSS antenna Acoustic (beacon / transducer) Motion / heading (MRU, gyro)

The drawing is a representation of the vehicle; the offsets table is the record.

Offsets

No.	Offset	Type	X (m)	Y (m)	Z (m)	Source	Notes
	CRP	Reference	0.000	0.000	0.000		Keel level, 4.6 m from the stern
1	USBL pole (port)	Acoustic	-0.010	55.303	-4.325	DC survey	
2	USBL pole (starboard)	Acoustic	-0.006	55.333	-4.331	DC survey	
3	GNSS antenna 1 (primary)	GNSS antenna	-4.860	78.324	35.567	DC survey	
4	GNSS antenna 2 (secondary)	GNSS antenna	2.850	88.479	31.807	DC survey	
5	MRU 1	Motion / heading	0.412	37.927	6.880	DC survey	
6	MRU 2	Motion / heading	0.089	37.922	6.888	DC survey	
7	Gyro	Motion / heading	0.645	38.512	7.105	DC survey	

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A vehicle page.

10 Trial and licence

The program runs as a free 48-hour trial with everything working. The bar under the title shows how long is left:

The trial bar.

After that it needs a Survey Software Utilities licence key: click **Enter licence key…**, paste the key from the email and click **Activate**. One key unlocks every Survey Software Utilities program on the PC, on up to 4 PCs. With a licence the bar goes, and the window title shows **Licensed until** and the date. The licence is checked online now and then and works for up to 30 days at a time without internet.

11 Troubleshooting

Problem	What to check
An offset is on the wrong side	Check the sign: X + is starboard, Y + is forward, Z + is up, all from that vehicle's CRP.
The graphic doesn't line up with the offsets	Edit the vehicle and set its size and where the CRP is on it, or use Place CRP. The offsets themselves are right.
Labels overlap	Choose Labels: Numbers, or a single view, or make the window bigger.
Paste finds nothing	Each row needs a name and then three numbers (X, Y, Z) next to each other.
Pasted rows all went into one vehicle	Choose Make a vehicle for each section in the paste window.
The report won't save	Close it in the PDF viewer, or save with another name.
Double-clicking a .offsets file doesn't open it	Run OffsetManager.exe once from its folder, then try again.