LEICA ICON ICS50 · INDUSTRY WORKBOOK

# Marine Workbook

Six hands-on lessons, from first setup to a full boat. Pass the final project and earn SPEEDtemplate Certified iCS50 Technician.




SPEEDtemplate

MARINE WORKBOOK

EDITION 1.0 · OCTOBER 2026

START HERE

# Learn it by doing it.

This workbook is a class you take on your own time, with the real iCS50, on real work. Each lesson takes about an hour. Work through them in order, write your answers in the book, and tick every box. Then send your final project to SPEEDtemplate for review.

**1 to 5**
**Lessons**
Read, practice, write it down, check yourself.

**6**
**Final project**
Template a full deck or a full canvas job on your own.

**Review**
**SPEEDtemplate checks it**
Support reviews your files and photos.

**Pass**
**Certified**
SPEEDtemplate Certified iCS50 Technician.

## Every lesson works the same way

READ
### Read first
The General Guide sections listed at the top of the lesson.

DO
### Do the exercise
With the iCS50, step by step. Tick each box as you go.

WRITE
### Write it down
Record what you saw. Numbers, lights, what went wrong.

CHECK
### Check yourself
Answer the questions. Answers are at the back.

SIGN
### Sign it off
Initial and date the lesson, then move on.

## What you need

- The iCS50 kit, charged, with the tripod and V-Targets
- The iCS50 General Guide and the Marine Guide
- A boat on a trailer or on the hard, with a deck area and a console or dash
- A pen, and painter's tape
- For Lessons 4 to 6: what the cut team needs back, and in which DXF format

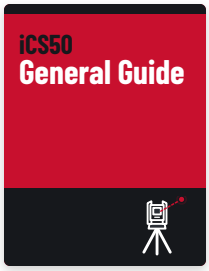
## Tips for getting through it

- Go in order. Each lesson builds on the last.
- Mistakes are part of the exercise. Several steps make you hit a problem on purpose so you know it when it happens on a real job.
- Stuck for more than ten minutes? Call SPEEDtemplate support at 919-676-2244.
- Keep this book. The answers you write become your own notes.

HOW THE BOOKS WORK

# Three books. Each has one job.

The **General Guide** says how. The **Industry Guide** says what. The **Industry Workbook** makes it stick.

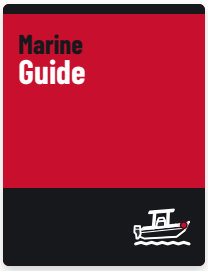



## How the iCS50 works

For every crew in every trade: setup, measuring, planes, moving the iCS50, editing, layers and export.

**USE IT**
Read Sections 1 and 3 before onboarding. After that, look things up when you need them.

**KEEP IT**
In the iCS50 case. One per shop.



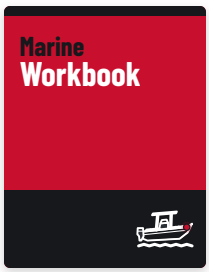

## What to capture in the industry

What changes on a kitchen, a cabinet room, a millwork floor, a stair or a boat: what to capture, where to set up, the exact taps, the checks and the hand-off.

**USE IT**
Before the first job, then on every job, next to the General Guide.

**KEEP IT**
In the case, with the General Guide. One per shop, per industry.

THIS BOOK




## Learn it by doing it

A self-paced course in the industry: six lessons with the real iCS50, three real jobs, a final project and SPEEDtemplate certification.

**USE IT**
After onboarding. Once, in order. Write in it.

**KEEP IT**
With the operator. One per operator.

## Which book do I open?

| THE QUESTION | OPEN |
|---|---|
| **How do I set up, measure, move the iCS50 or export a DXF?** | General Guide |
| **What do I capture on this job, and what does the shop need back?** | Industry Guide |
| **I am new, or I want to get certified.** | Industry Workbook |
| **Something is not working.** | General Guide, Troubleshooting. Then call 919-676-2244. |

**NOTE** When the General Guide and an Industry Guide say different things, the Industry Guide wins for that industry. The website always has the latest version of every book.

START HERE

# Your progress

Fill in your details, then track each lesson here.

**Operator name** _____ **Company** _____

**Phone / email** _____ **In-house iCS50 lead** _____

**iCS50 serial number** _____ **Date started** _____

| LESSON | TOPIC | DATE STARTED | DATE DONE | INITIALS |
|---|---|---|---|---|
| 1 | Setup and the basics | | | |
| 2 | Measuring a panel | | | |
| 3 | A whole boat | | | |
| 4 | Clean up and deliver | | | |
| 5 | Curves, camber and canvas | | | |
| 6 | Final project | | | |
| | Sent to SPEEDtemplate for review | | | |
| | Certified | | | |

**TIP** Plan the lessons a few days apart if you can. Practicing on a real job between lessons makes the next one easier.

# Setup and the basics

**GOAL** Set up the iCS50 correctly, read its lights, and take two good start points.



## You'll be able to

- Set up the tripod and iCS50 the right way, every time
- Connect the tablet and read the status lights
- Pick the right job type
- Take start points that don't cause problems later

## Before you start

### READ IN THE GENERAL GUIDE

- Set up the iCS50
- iCS50 status lights
- The remote
- 1. Key concepts: 2D planes vs. 3D
- 3. Starting a job

### YOU NEED

- iCS50 kit and tripod
- A room with at least one clear wall

## Exercise: set up and start a job

| # | DO THIS | DONE |
|---|---|---|
| 1 | Open the tripod legs and **extend every leg section fully**. Lock each one. | ☐ |
| 2 | Mount the iCS50. Close the quick-mount latch and give the iCS50 a gentle tug. | ☐ |
| 3 | Turn on the iCS50 and the remote. | ☐ |
| 4 | Open iCON trades. Connect in **Device Manager**, over Wi-Fi. Watch the connection light turn solid blue. | ☐ |
| 5 | Tap **Quick Start / New Job**. Name the job "Lesson 1" and choose **2D Horizontal**. | ☐ |
| 6 | Let the iCS50 level. Watch the level light go from flashing green to solid green. | ☐ |
| 7 | Skip the panorama. | ☐ |
| 8 | Check that the light under **Point** on the remote is green. Take the two start points on a wall. | ☐ |
| 9 | Gently bump the tripod. Watch the level light. Then re-level: **Instrument › Repeat leveling**. | ☐ |
| 10 | Now make the common mistake on purpose: press **Polyline** on the remote, start a new job, and take the two start points. Draw one more point and see what happens. | ☐ |
| 11 | Delete the joined points. Exit the job. | ☐ |

## Write it down

Connection light when connected _____

Level light after the bump _____

Remote battery: lights on (of 4) _____

What happened in step 10 _____

## Which job type would you start with?

Deck pads, bow to stern _____

A dash or console panel _____

A dodger or bimini _____

Not sure what's on the boat _____

## Run it again

Repeat the exercise without looking at the steps. Time both runs.

First run (minutes) _____

Second run (minutes) _____

## Sketch or notes

# Check yourself

**1** **Why fully extend every tripod leg section?**

- ○ It looks better on site
- ○ A partly extended tripod is a common cause of setup problems
- ○ iCON trades won't connect otherwise

**2** **The level light is flashing red. What happened?**

- ○ The battery is low
- ○ The iCS50 moved, so the level is no longer valid
- ○ A firmware update is running

**3** **A job started as 2D Horizontal needs a curved piece. What now?**

- ○ Start the job over in 3D
- ○ Tap Planes and switch to Unprojected 3D

**4** **Which mode should the remote be in for the two start points?**

- ○ Point
- ○ Line
- ○ Polyline

**5** **In your own words: why do the two start points matter?**

## What was hardest in this lesson?

## Lesson 1 complete

Initial and date when every box is ticked and the questions are answered.

**Operator initials** _____

**Date** _____

LESSON 2 · ABOUT 60 MINUTES

# Measuring a panel

**GOAL** Capture one deck area or console face with the VPen: edges, corners, fittings and the curve of the deck.



## You'll be able to

- Choose between VPen, Laser and Crosshair
- Use Point, Line and Polyline from the remote
- Trace a curved edge
- Recognize the dead zone

## Before you start

### READ IN THE GENERAL GUIDE

- 4. Choosing how you measure
- 5. Drawing tools
- Tracing with the VPen

### YOU NEED

- A boat on a trailer or on the hard
- One deck area or a console face with a fitting or two

## Exercise: measuring a panel

| # | DO THIS | DONE |
|---|---|---|
| 1 | New job "Lesson 2", **3D**. A **Sloped** plane from three points spread across the deck area. | ☐ |
| 2 | **Targets › VPen**. Hold **Measure** and trace the outside edge of the area, slowly. | ☐ |
| 3 | Corners: VPen tip in the corner, one Point each. | ☐ |
| 4 | Fittings: cleats, hatches and drains as Points or a short trace around each. | ☐ |
| 5 | Switch to **Polyline** for a straight edge along a hatch. Tap **Accept** to leave it open. | ☐ |
| 6 | Walk the VPen toward the iCS50 until you get "Measure failed: out of measuring range." Note how close you were. | ☐ |
| 7 | Tap the **2D** button to view it in 3D. Does the curve of the deck show? | ☐ |
| 8 | Bonus: the same area again from a new spot. Compare the two. | ☐ |

## Write it down

Dead zone started at about (ft) _____ Points on the traced edge _____

Fittings captured _____ Biggest rise across the area _____

## What would you do differently on a real boat?

_____

_____

_____

## Run it again

Repeat the exercise without looking at the steps. Time both runs.

First run (minutes) _____ Second run (minutes) _____

## Sketch or notes

# Check yourself

**1** **Best method for a curved deck edge?**

- ○ Trace with the VPen
- ○ Any Surface: Laser

**2** **A deck area is drawn on a Sloped plane from:**

- ○ One point
- ○ Three points spread far apart

**3** **To finish a polyline without joining it back to the start, tap:**

- ○ Accept
- ○ Close

**4** **The dead zone around the iCS50 is about:**

- ○ 6 in
- ○ 2 ft
- ○ 10 ft

**5** **Why trace slowly with the pen upright?**

## What was hardest in this lesson?

## Lesson 2 complete

Initial and date when every box is ticked and the questions are answered.

**Operator initials** _____

**Date** _____

LESSON 3 · ABOUT 75 MINUTES

# A whole boat

**GOAL** Template a boat from bow to stern in one drawing: every deck area on its own plane, with the iCS50 moved around the boat.

## You'll be able to

- Add a plane for each surface
- Place and measure V-Targets
- Move the iCS50 without losing the drawing
- Find your way between planes

## Before you start

### READ IN THE GENERAL GUIDE

- 7. Adding more planes
- 8. Moving the iCS50 with V-Targets
- Marine Guide: Job setup

### YOU NEED

- Three V-Targets, or control points on screw heads
- A boat on a trailer or on the hard, with room to walk around it



## Exercise: a whole boat

| # | DO THIS | DONE |
|---|---|---|
| 1 | New job "Lesson 3", **3D**. Control points: six screw heads spread around the boat, VPen tip in each, hold still, Measure. | ☐ |
| 2 | A layer for each part with its own color: Bow, Cockpit, Console top, Swim platform. | ☐ |
| 3 | A plane for each deck area, from three points spread far apart. | ☐ |
| 4 | Bow: trace the edge, corners and every fitting. | ☐ |
| 5 | Place V-Targets on stands around the boat, about the iCS50's height, or use the control points. | ☐ |
| 6 | Move the iCS50 to the other side. **New Setup › V-Targets**, or set up from the control points. Accept on green. | ☐ |
| 7 | Check the measuring method. Switch back to **VPen** if it changed. | ☐ |
| 8 | Cockpit and swim platform the same way: edges, corners, fittings. | ☐ |
| 9 | View the boat in 3D and rotate it. Every area where it really is? | ☐ |
| 10 | Bonus: photograph every fitting, as the cut team would want. | ☐ |

## Write it down

Deck areas captured _____ Setups used _____

Control points or targets _____ Time, bow to stern _____

## Sketch where you placed the iCS50 and the targets

LESSON 3

## Notes

## Run it again

Repeat the exercise without looking at the steps. Time both runs.

First run (minutes) _____ Second run (minutes) _____

# Check yourself

**1** **Why spread the three V-Targets around the job?**

- ○ So the iCS50 can find its position from different spots
- ○ So they don't get in the way

**2** **Same drawing, next area. Do you pick up the old targets and reuse them?**

- ○ Yes, move them
- ○ No, place new ones

**3** **For a job that runs over several days, use:**

- ○ Magnetic targets
- ○ Adhesive targets or control points

**4** **Something you drew earlier disappeared from the screen. Most likely:**

- ○ It was deleted
- ○ It's on another plane

**5** **After a new setup, the tool changed to crosshair. What do you do?**

## What was hardest in this lesson?

## Lesson 3 complete

Initial and date when every box is ticked and the questions are answered.

**Operator initials** _____

**Date** _____

LESSON 4 · ABOUT 60 MINUTES

# Clean up and deliver

**GOAL** Turn the Lesson 3 job into a clean DXF that the cut team can use, and save the job to SPEEDfolder.

## You'll be able to

- Close shapes and fix corners
- Build a job template with the layers the cut team uses
- Export a clean DXF in the right units
- Save photos and files to SPEEDfolder

## Before you start

### READ IN THE GENERAL GUIDE

- 9. Editing your drawing
- 10. Layers and job templates
- Starter layer plan (worksheet)
- 12. Exporting, and Point Labels off
- Save the job to SPEEDfolder

### YOU NEED

- The Lesson 3 job
- The layer names, colors and DXF format the cut team uses

## Exercise: from drawing to the cut team

| # | DO THIS | DONE |
|---|---|---|
| 1 | Fill in the Starter layer plan in the General Guide with the cut team. | ☐ |
| 2 | **Menu › Job Templates**. Create a template with at least four layers. Set it as the default. | ☐ |
| 3 | Open the Lesson 3 job. Use **Intersect** to close every corner. Delete chamfer segments. Try **Hidden Corner** on one diagonal. | ☐ |
| 4 | Delete stray start points, or move them to their own layer. | ☐ |
| 5 | Put openings, fittings and utilities on layers. | ☐ |
| 6 | Check **Menu › Settings › Units** matches what the cut team uses. | ☐ |
| 7 | Export a **2D DXF** and a **3D DXF**. Under CAD options, turn all point labels **off**. Set Export Points the way the cut team wants. | ☐ |
| 8 | Share › Gmail. Send both files to the cut team. | ☐ |
| 9 | In SPEEDfolder, create a job "Lesson 4". Take at least 5 photos in the app, annotate one, and tag them. Upload the DXF to the job. | ☐ |
| 10 | Ask the cut team to open the DXF and say what should change. | ☐ |

## Write it down

Units set to _____ Template name _____

Layers in the template _____ Verdict on the file _____

## What did the cut team ask you to change?

_____

_____

_____

## Run it again

Repeat the exercise without looking at the steps. Time both runs.

First run (minutes) _____ Second run (minutes) _____

## Sketch or notes

LESSON 4

# Check yourself

**1** **Why turn Point Labels off before export?**

- ○ To make the file smaller
- ○ With labels on, every point shows with its tag and the drawing can't be read

**2** **A job template applies to:**

- ○ Every job, including ones already open
- ○ Only jobs created after the template

**3** **Which DXF lays every plane out flat, side by side?**

- ○ 2D DXF
- ○ 3D DXF

**4** **"1 file out of 10 was not exported." What do you do?**

- ○ Start over
- ○ Usually nothing; tap OK

**5** **Where should job photos live, and why not the camera roll?**

## What was hardest in this lesson?

## Lesson 4 complete

Initial and date when every box is ticked and the questions are answered.

**Operator initials** _____

**Date** _____

LESSON 5 · ABOUT 90 MINUTES

# Curves, camber and canvas

**GOAL** Capture the hard parts of a boat: a curved edge, the camber of a deck, and a canvas frame.

## You'll be able to

- Trace a curved edge cleanly
- Read the camber of a deck
- Capture frame tubing and snaps
- Pick the right plane

## Before you start

### READ IN THE GENERAL GUIDE

- Tracing with the VPen
- 11. Capturing curved and 3D pieces
- Marine Guide: Biminis, T-top canvas and enclosures

### YOU NEED

- A boat with a curved deck edge
- A dodger, bimini or T-top frame, if you can find one

**NOTE** On the water, the iCS50 skips leveling in Moving Platform Mode. Trailer and hard jobs level as normal.

## Exercise: curves, camber and canvas

| # | DO THIS | DONE |
|---|---|---|
| 1 | New job "Lesson 5", **3D**. A Sloped plane on a curved deck area. | ☐ |
| 2 | Trace the curved edge slowly, pen upright. Restart at each change in direction. | ☐ |
| 3 | **Measure › High/Low Points** across the deck. How much does it crown? | ☐ |
| 4 | Canvas frame: points along each tube, with every bend and joint. | ☐ |
| 5 | Snaps, zippers and where the canvas meets the boat, as Points on their own layer. | ☐ |
| 6 | Windshield or rail line where the canvas closes. | ☐ |
| 7 | View in 3D. Is the frame where it really is above the deck? | ☐ |
| 8 | Bonus: trace the same edge fast and slow, and compare. | ☐ |

## Write it down

Deck crown, edge to center _____ Points on the frame _____

Snaps captured _____ Fast vs. slow trace _____

WATCH: CANVAS ON A BOAT

Watch it done first, then run the exercise.

## What would mylar or a tape have missed here?

_____

_____

_____

## Run it again

Repeat the exercise without looking at the steps. Time both runs.

First run (minutes) _____ Second run (minutes) _____

## Sketch or notes

LESSON 5

# Check yourself

**1** **A curved deck area is drawn on:**

- ○ A Sloped plane from three points
- ○ A Horizontal plane from one point

**2** **Tracing a curve, you restart:**

- ○ Never
- ○ At each change in direction

**3** **Control points on screw heads are for:**

- ○ Finding the iCS50's place again, on another day too
- ○ Decoration

**4** **On the water, the iCS50:**

- ○ Skips leveling in Moving Platform Mode
- ○ Can't be used

**5** **Why put snaps and fittings on their own layer?**

## What was hardest in this lesson?

## Lesson 5 complete

Initial and date when every box is ticked and the questions are answered.

**Operator initials** _____

**Date** _____

BETWEEN LESSON 5 AND THE FINAL PROJECT

# Real-job log

Before the final project, template at least three real jobs. Log each one here. Watch your time drop and the fixes get smaller.

| # | DATE | JOB / ROOM | TIME ON SITE | WHAT WENT WELL | WHAT TO FIX NEXT TIME |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

**TIP** Send your first real export to SPEEDtemplate support for a quick look before the cut team builds from it. Small fixes caught early save a remake.

LESSON 6 · ABOUT 2 TO 3 HOURS

# Final project

**THE BRIEF** Template a full deck job or a full canvas job on your own, from start to finish, ready to design and cut. Then send the files to SPEEDtemplate for review. Pass, and you're a **SPEEDtemplate Certified iCS50 Technician**.

## Your project must include

| # | DO THIS | DONE |
|---|---|---|
| 1 | Tripod legs fully extended and locked; iCS50 leveled | ☐ |
| 2 | A 3D job, every area on its own plane and layer | ☐ |
| 3 | Start points taken in Point mode | ☐ |
| 4 | Edges traced, corners and every fitting captured | ☐ |
| 5 | At least one iCS50 move using V-Targets and New Setup | ☐ |
| 6 | Control points or V-Targets, and at least one move | ☐ |
| 7 | Fittings, snaps or frame on their own layer | ☐ |
| 8 | Clean geometry: closed shapes, no chamfer segments, no stray points | ☐ |
| 9 | Layers from your job template, and units that match what the cut team uses | ☐ |
| 10 | 2D DXF and 3D DXF, all point labels off | ☐ |
| 11 | A SPEEDfolder job with at least 10 tagged photos and the DXF files | ☐ |

## Plan your project

**Boat and job** _____ **Planned date** _____

**Areas or canvas parts** _____ **Where the iCS50 will start** _____

## What do you expect to be hardest?

_____

_____

FINAL

LESSON 6

# Send it for review

Email your project to **support@fifthgeartech.com** with the subject line **Certification: your name, your company**. Attach both DXF files, a photo of this page filled in, and a photo of your progress page. Add the SPEEDfolder job link.

**Operator name** _____ **Company** _____

**Date templated** _____ **Time on site** _____

**Job templated** _____ **Job type used** _____

**Number of planes** _____ **Number of iCS50 setups** _____

## What was the hardest part of this job?

## What would you tell a new operator?

FINAL

## Sent for review

SPEEDtemplate support reviews every project and replies with a result.

**Date sent** _____

**Operator initials** _____

FOR SPEEDTEMPLATE

# SPEEDtemplate review

Completed by SPEEDtemplate support. Every item must pass for certification.

| WHAT WE CHECK | PASS | NEEDS WORK | NOTES |
|---|---|---|---|
| Setup: leveled, single clean set of start points | ☐ | ☐ | |
| Every area on its own plane and layer | ☐ | ☐ | |
| Edges, corners and fittings complete | ☐ | ☐ | |
| iCS50 move with V-Targets, no drift between setups | ☐ | ☐ | |
| Control points or targets, clean move | ☐ | ☐ | |
| Fittings, snaps or frame on their layer | ☐ | ☐ | |
| Clean geometry: closed, no chamfers, no stray points | ☐ | ☐ | |
| Layers and units match | ☐ | ☐ | |
| DXF opens clean, labels off | ☐ | ☐ | |
| SPEEDfolder job: tagged photos and files | ☐ | ☐ | |

Result

○ Certified ○ Resubmit **Reviewed by** _____ **Date** _____ **Certificate number** ____

## Feedback for the operator

FINAL

CHECK YOUR WORK

# Answers

Try every question before you look. Written answers don't need to match word for word.

## Lesson 1

1. A partly extended tripod is a common cause of setup problems.
2. The iCS50 moved, so the level is no longer valid. Re-level and run New Setup › V-Targets.
3. Tap Planes and switch to Unprojected 3D. Any job can switch to 3D.
4. Point.
5. They work like a datum: the system uses them to know where it is, and to link each new plane to the drawing.

## Lesson 2

1. Trace with the VPen.
2. Three points spread far apart.
3. Accept.
4. 2 ft.
5. Every wobble shows up in the outline. Slow and upright gives a clean edge the cut team can use.

## Lesson 3

1. So the iCS50 can work out its position from different spots.
2. No. Place new ones. Reuse targets only on a separate job.
3. Adhesive targets or control points. A bump or vibration can shift magnetic ones.
4. It's on another plane. Tap Planes and select it, or switch to 3D.
5. Normal after a new setup. Go to Targets and choose VPen again.

## Lesson 4

1. With labels on, every point shows with its tag and the drawing can't be read.
2. Only jobs created after the template.
3. 2D DXF.
4. Usually nothing. It's often the labels you turned off. Tap OK.
5. On the job in SPEEDfolder, where the office sees them. Photos left in the camera roll get forgotten.

## Lesson 5

1. A Sloped plane from three points, spread far apart.
2. At each change in direction, pen upright.
3. Finding the iCS50's place again, on another day too.
4. Skips leveling in Moving Platform Mode.
5. So the cut team can turn them on and off and see them apart from the outline.

FINAL

SPEEDtemplate

CERTIFICATE OF COMPLETION

# SPEEDtemplate Certified iCS50 Technician

## MARINE

This certifies that

_____

has completed the iCS50 Marine Workbook and passed a final project reviewed by SPEEDtemplate: a full deck or canvas job templated on their own with the Leica iCON iCS50, delivered as a clean DXF.

| SPEEDtemplate reviewer | Date | Certificate number |
|---|---|---|
| | | |

FINAL

# Notes

# Notes

SPEEDtemplate

# MARINE WORKBOOK



Stuck on a lesson?

## 919-676-2244

support@fifthgeartech.com

**GENERAL GUIDE**
How the iCS50 works

**INDUSTRY GUIDE**
What to capture in the industry

**INDUSTRY WORKBOOK**
Learn it by doing it

Leica GEOSYSTEMS

The Leica iCON iCS50, sold, set up and supported by SPEEDtemplate.

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