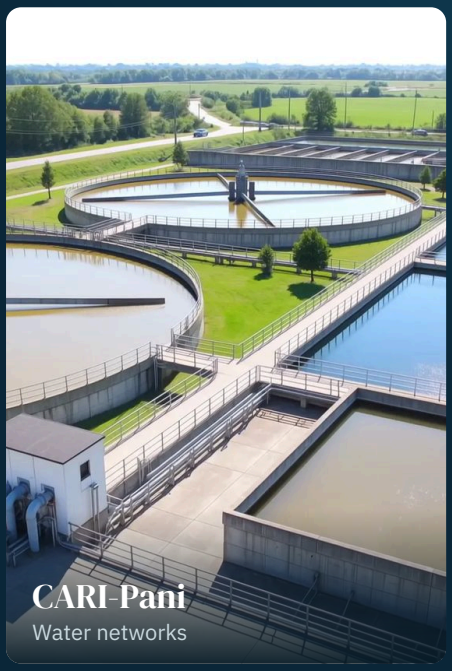
CAPMAC

PLANT HEALTH · BY CARIMO

ONE ENGINE. SIX EDITIONS. CHOOSE YOURS.

Your plant keeps the records. CAPMAC reads them.

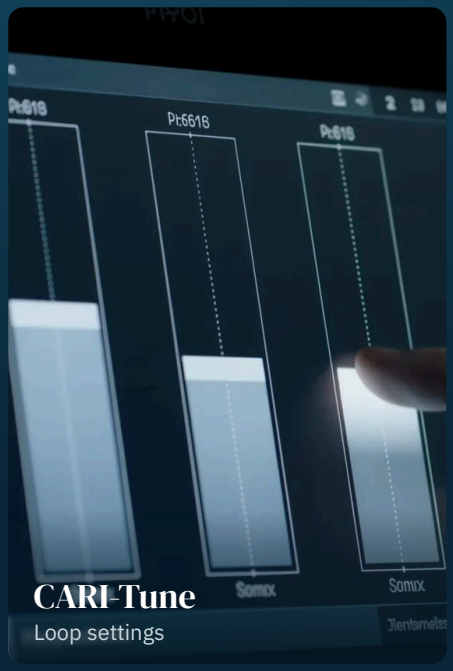
Leaks, sticking valves, drifting chillers and wearing machines leave their mark in the routine records your plant already keeps. CAPMAC reads those records and names what it finds, in plain words, with where to look first.



CARI-Pani
Water networks



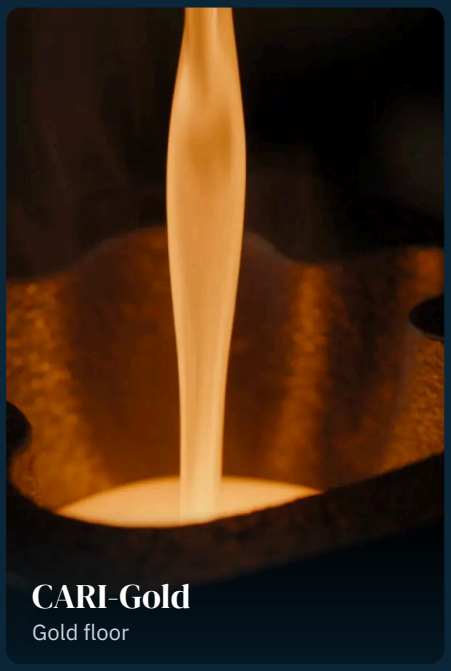
CARI-Loops
Control loops and valves



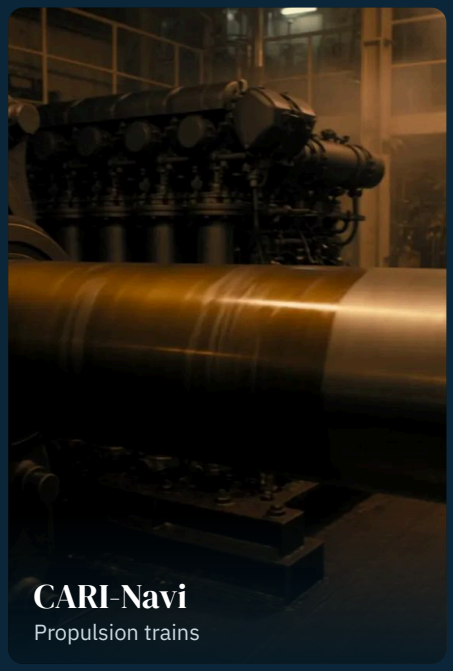
CARI-Tune
Loop settings



CARI-Chiller
Cooling plant



CARI-Gold
Gold floor



CARI-Navi
Propulsion trains

THE PROBLEM

The signs are in your records. Reading them takes hours.

Every plant writes things down: flows, levels, temperatures, positions, weighings, run logs. A leak, a sticking valve, a drifting chiller or a wearing machine leaves its mark there, week after week. Reading those records side by side is a job in itself.



A zone loses water quietly

The inflow record rises. Which zone to walk first is not obvious.



A valve sticks, a loop swings

The trend shows it every day. A routine round sees it only briefly.



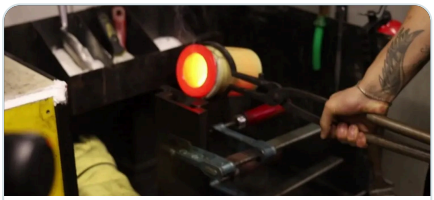
A controller is set too aggressively

The loop swings after each upset, and the trend records it every time.



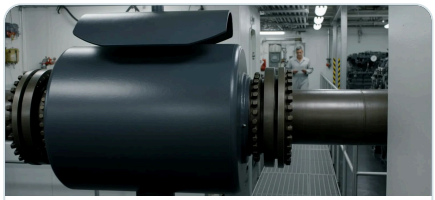
A chiller drifts

More power for the same cooling, week after week.



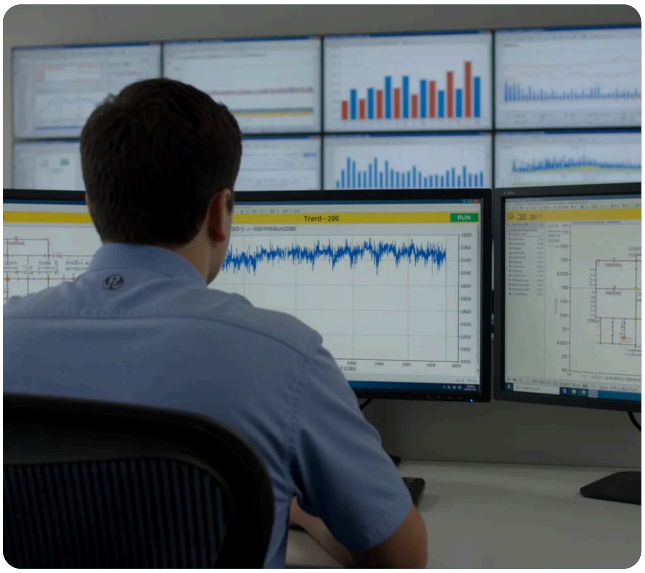
Grams go missing between weighings

A job total hides the step where they went.



A clutch wears a little at a time

Every engagement is logged. The change is too slow to see by eye.



WHAT THE PLANT TEAM NEEDS TO KNOW

Which machine, what was seen, and where to look first.

A round sees a machine for minutes. The records hold every logged hour. CAPMAC reads them and puts the answer in plain words your team can act on.

Start with the records you already have. A routine export from your control system, building management system, historian or log sheets. No new sensors.

WHAT CAPMAC IS

One engine. Six editions. Choose yours.

CAPMAC is a family of applications that turn routine records into findings your team can act on. The editions share one way of working, so a plant head who reads one can read them all. Each edition knows its own machines.

YOU LOAD

The routine records you already keep: trend exports, run logs, weighings, survey sheets.

→

CAPMAC

One engine

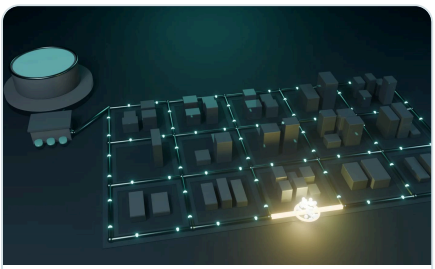
Six editions, each built for its own plant.

→

YOU READ

Named findings, or new settings, in plain words.

THE SIX EDITIONS



CARI-Pani

WATER NETWORKS

Which zone is losing water, which pump wastes power, which meter is wrong, which pipe to replace first. **Page 5**



CARI-Loops

CONTROL LOOPS AND VALVES

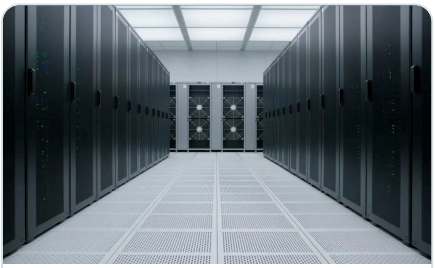
One ranked list of the loops and valves that need attention, with the next check on every line. **Page 6**



CARI-Tune

LOOP SETTINGS

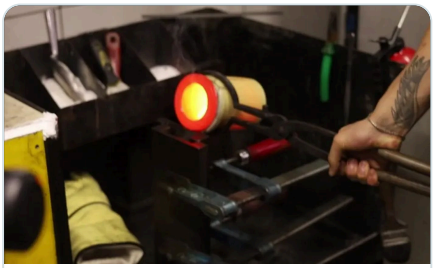
Three new settings, slow, normal and fast, for each loop that needs retuning. **Page 7**



CARI-Chiller

COOLING PLANT

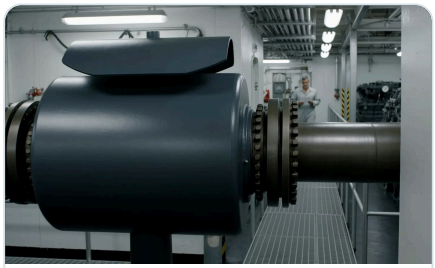
Chiller alerts with an urgency grade, and named findings with dates for every other plant unit. **Page 8**



CARI-Gold

GOLD FLOOR

The gram account of every cast job, and one floor page for fifteen kinds of machine. **Page 9**



CARI-Navi

PROPULSION TRAINS

A plain verdict for each machine of the propulsion train, one findings list and one printed report. **Page 10**

Choose the edition for your plant. They run the same way: load your records, confirm the names and units, read the findings, print the report or sheet for your edition.

WHAT IT DOES FOR YOUR TEAM

Plain words. Where to look first.

Whichever edition you choose, the records you already keep come back as work your team can plan.

Named findings
The machine, what was seen, and where to look or what to check, in plain words.

What needs attention first
A ranked list, an urgency grade or named faults first, edition by edition.

Your own limits and rates
Your limits, normal weeks, tariff or rates go in where the edition asks for them.

Alerts and work orders
Alerts, alert follow-up and work-order files, where the edition has them.

Pages to print
A report or sheet to print or save as PDF, edition by edition.

On your own PC
Opens in your browser. Your records stay with you.

Reads only
The apps read exported records and change nothing in your plant.

No new sensors
They work from the records and logs you provide.

A FINDING IS NEVER A CODE. IT READS LIKE THIS

CARI-Pani	**Zone Z-7: flow higher than on similar days** Likely cause: a new leak. Check first: the zone's mains and valves.
CARI-Loops	**FIC-103: the valve does not follow small changes of its signal** Check the linkage, positioner and actuator for play.
CARI-Tune	**TIC-302: needs retuning** Three settings, slow, normal and fast, each with its safety margin.
CARI-Chiller	**Cooling tower 2: tower cell weak, cell 2** Fill or spray nozzles to check; the dates it was seen are listed.
CARI-Gold	**Polisher 1: a reason to look** Voltage set low: the piece etches instead of polishing. Fix at next stop.
CARI-Navi	**Clutch: plates worn or glazed** Look first at the clutch plates; check the engagement oil pressure alongside.



THEN YOUR TEAM GOES TO THE MACHINE

The finding names the machine, unit or job and where to look. Your team does the rest.

Reads only. CAPMAC reads exported records. Nothing is written to your machines or controls. Where an edition gives new settings, your own engineer enters them through your change procedure.

EDITION 1 OF 6 · WATER NETWORKS

CARI-Pani. Find the water you are losing.

CARI-Pani reads the records your water network already keeps and tells you which zone is losing water, which pump is wasting power, which meter is wrong and which pipe to replace first.



WHAT IT WATCHES

- **Zones** ranked by new water lost, with the likely cause and what to check first, then whether the repair worked
- **Bursts on big mains** a plain alarm for a sudden, lasting rise in flow
- **Pumps** stopping early, running long or restarting too soon; the pump giving less water; the power it wastes
- **Reservoirs and tanks** water missing, fill by fill; when supply came and for how long
- **Water quality** breaches of your limits; the water changed, or a sensor to check
- **Meters and pipes** meters to visit, water not recorded, pipes in replacement order

WHAT GOES IN

Inflow to each zone
and pressure at its far point

Reservoir and tank levels
with inflow and outflow

Pump run state, power and flow
or the pump log

Customer and bulk meter totals
from an export or a reading sheet

Pipe list and water quality readings
year, material, length, breaks; analyser or lab

Typed log sheets work
any column names; we map them with you

WHAT COMES OUT

Zones ranked by new water lost
with the likely cause and what to check first

Burst alarms on mains
with what to check

Pump checks
energy wasted and its cost at your tariff

Tank balance and supply hours
by ward

Meters to visit and quality alerts
named in plain words

Pipes in replacement order
with a yearly plan; reports in English, Hindi, Marathi and Gujarati

CARI-Pani · alarm list and evidence card

Alarm list

High	Water leaving zone 4 unexplained at night Zone 4 Hill (tank fed) · zone leak check	day 58 · open
High	Water leaving zone 1 unexplained at night Zone 1 North · zone leak check	day 77 · open
Medium	Water leaving zone 3 unexplained at night Zone 3 Riverside · zone leak check	day 50 · open
Low	Large customer's use fell (not a leak) Zone 2 Market · customer-meter drop check	day 66 · open

Evidence card

Water leaving zone 4 unexplained at night

Raised by	zone leak check, day 58
Zone	Zone 4 Hill (tank fed)
Readings used	Zone 4 inlet flow, Zone 4 critical-point pressure, Tank level, Tank inlet flow
Size estimate	5.923 L/s

Recommended work order

Send the leak crew to zone 4; start with a step test on the inlet. Raise a work order for a find-and-fix visit.

Priority High: set from the size estimate. The alarm reports what the readings already show; it does not say when anything will fail.

Each alarm is graded High, Medium or Low. The card beside it names the readings used and what to send the crew to do first. Alerts also go by WhatsApp, SMS or e-mail.



Built for Water utilities, municipal networks and supply managers.

EDITION 2 OF 6 · CONTROL LOOPS AND VALVES

CARI-Loops. Know which loops and valves need you first.

CARI-Loops reads the trend history your control system already keeps and gives your team one list, ranked for review, with a likely cause, a next check and how sure for every finding.



WHAT IT WATCHES

- **Frozen measurements** the transmitter and wiring to check
- **Suspected valve sticking and valve dead band** named loop by loop, with the next check
- **Outputs at their limits** operating checks before any retune
- **Swinging loops** and loops that swing together
- **Loops running in manual** named, with the next step
- **Exports that need to be better** with the setting that fixes them

WHAT GOES IN

Trend export of the unit
measurement and controller output, as CSV or Excel

Loop mode, where logged
auto or manual

Valve position, where logged
from smart positioners

Your own tag names
you confirm the loops it finds

Your cost rates and stroke tests
optional

WHAT COMES OUT

One ranked list for the unit
finding, likely cause, next check, how sure

A page for each loop with a finding
its trend and the readings behind it

Loops needing a better export
with the export setting that fixes it

A cost ranking at your own rates
beside the health ranking

Findings as CSV and next month's comparison
loop by loop, what changed; print or PDF

CARI-Loops · result: what to look at first

12	7	1	4
loops checked	with a problem found	could not be judged	no problem found

What to look at first

#	Loop	What is wrong	What to do	How sure
1	LIC-301	The measurement stopped changing for a long stretch.	Check the transmitter and its wiring. Compare with a local gauge.	high
2	FIC-102	The loop swings up and down in the pattern a sticking valve makes.	Put the loop in manual and move the output in small steps (0.5 %, 1 %, 2 %). If the reading does not move until several steps add up, then jumps, the valve sticks. Then service the valve.	medium
3	FIC-103	The valve does not follow small changes of its signal; it waits, then moves.	Check the linkage, positioner and actuator for play; re-calibrate the positioner.	high
4	FIC-104	The controller output sits at its limit for a long time; the loop has no room left.	Check the valve size and the duty. Do not retune until this is fixed.	high

The ranked list for one unit: the loop, what is wrong, what to do and how sure.

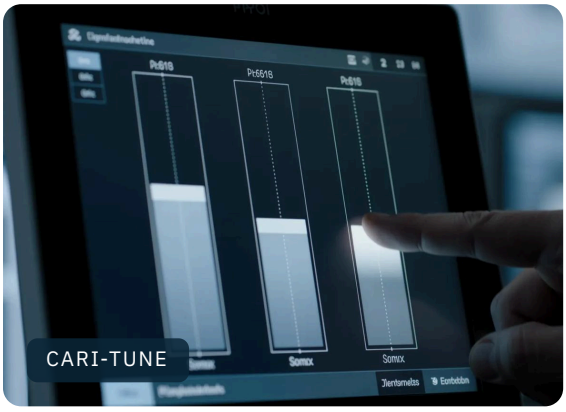


Built for Process plants: control engineers, instrument and maintenance teams.

EDITION 3 OF 6 · LOOP SETTINGS

CARI-Tune. Settings your loops can trust.

CARI-Tune finds the loops that need retuning, puts the valve check first, and gives your engineer three new settings for each: slow, normal and fast, with a sheet in your controller block's own field names and units.



WHAT IT WATCHES

- **Loops that need retuning** ranked, worst first, or costliest first with your cost of error
- **Valve first** a sticking valve gets a reason and a test, not new settings
- **Instrument first** a frozen or drifting measurement gets the transmitter to check
- **Three settings** each with its stated safety margin
- **Predicted responses** drawn beside today's setting
- **Monthly re-check** each loop against its own reference months

WHAT GOES IN

Trend export of the unit
time, measurement, set point, controller output, mode

Current gain, integral time and action
to compare with today

Valve stroke test result
run by your engineer

A short loop test file
recorded by your engineer

Your cost of error
optional

WHAT COMES OUT

One ranked table for the unit
every loop, its grade and the reason in words

Three settings for each loop to retune
slow, normal, fast, with safety margins

Two pictures for each
a set-point move and a load upset, beside today's

A settings sheet in your system's style
your block's field names and units; CSV and printable

A sealed change history
proposer and approver on every change

CARI-Tune · one loop, three settings

1. TIC-302 needs retuning

Health check: shared cycle (how sure: medium)

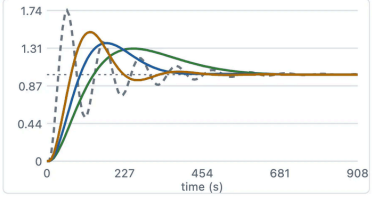
Setting	Gain	Integral time	Gain margin	
Slow	-2.567	227.0 s	**at least 3.50 on the loop model** model 15.60	Approve
Normal	-3.898	181.6 s	**at least 2.67 on the loop model** model 9.89	Approve
Fast	-6.017	136.2 s	**at least 2.00 on the loop model** model 5.98	Approve

Gains shown with the same sign as the current gain you typed.

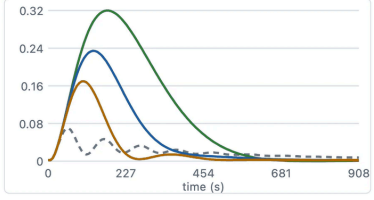
What each setting does, on the loop model

Current setting — Slow — Normal — Fast

When the set point moves one step



When a load pushes the process one step



One loop on screen: three settings with their safety margins, an Approve button for each, and both predicted responses drawn beside today's.



Built for Process plants: control engineers, who enter every approved setting.

EDITION 4 OF 6 · COOLING PLANT

CARI-Chiller. Your whole cooling plant, on one page.

CARI-Chiller reads the records your building management system already keeps and shows your team which chiller, tower, pump, air handler or data-hall unit needs attention.



WHAT IT WATCHES

- **Chillers** each against its own normal: graded alerts, cleaning time, extra energy
- **Cooling towers and condenser loop** weak cells, fan belt slip, fouled condensers
- **Loop and chilled-water pumps** deficit flow in the bypass, worn or inefficient pumps
- **Air handlers and their fans** heating fighting cooling, low duct pressure, wrong sensors
- **Data-hall cooling units** the unit out of step, valve hunting, hot rack rows
- **Free cooling** an economiser valve wrong for the weather

WHAT GOES IN

One export from your BMS or historian
a CSV: one row per time step, one column per point

The weeks your team calls normal
your engineer picks the dates

The plant units you want watched
added by name; checked when their points are in the file

Optional
your electricity price, your chiller maker's cleaning limit, a plant name

WHAT COMES OUT

A plant page and a printable report
every chiller and plant unit with its status

Chiller alerts with an urgency grade
Keep watching, or Fix at next stop

Days to the condenser cleaning limit
a band of days

Extra energy and its cost
in your currency

Named findings with dates
for every other plant unit

Work orders and alert history
one row per chiller alert

CARI-Chiller · plant page: the other plant units

Finding on: AHU Level 5, Cooling tower 2, Data hall B, Free cooling B, South loop, South pumps.

Cooling tower 1: Cooling tower and condenser-water loop. **No change found.**

Cooling tower 2: Cooling tower and condenser-water loop. **Finding.**

- **tower cell weak (fill or spray nozzles), cell 2**, from 2026-05-07 00:00 to 2026-05-13 00:00 (still showing)

North loop: Primary-secondary water loop. **No change found.**

The plant page. Each tower, loop, pump group, air handler, data-hall group or economiser carries its own line: no change found, or a named finding with its dates.



Built for Commercial buildings, malls, data centres, hospitals, hotels, airports, IT parks, pharma and district cooling.

EDITION 5 OF 6 · GOLD FLOOR

CARI-Gold. Where the grams went. What every machine is telling you.

CARI-Gold reads the weighings on your job cards and the machine records you load. For cast jobs it shows the grams not accounted for at each step; for fifteen kinds of machine it names a possible fault.



WHAT IT WATCHES

- **The gram account** grams not accounted for at each step of a cast job
- **Entries to check** weighings that do not add up, marked apart
- **Melting and stock** melter, continuous caster
- **Investment casting** mixer, burnout furnace, vacuum caster
- **Forming and marking** mill, annealing, kiln, engraving, lasers
- **Finishing and refining** polisher, mass finisher, plating bath, refining

WHAT GOES IN

Weighings, one line per cast job
charge, tree, pieces, sprues, finished pieces

Each machine's records
a good run and the run to review

Machine name and job date
to link faults to jobs and group by month

Your recipe and your gold rate
optional; typed by you

WHAT COMES OUT

The gram account
every cast job in three steps, against its usual range

Jobs to look at, flagged
a banner on every job above its usual range

The machine floor
one row and one plain answer for each machine

Faults named, urgency graded
Fix at next stop, or Keep watching

Fault next to grams
machine findings placed beside the grams

Pages to print and files for accounts
job and month totals

CARI-Gold · where the grams went: two jobs

Job A102 on Induction melter

melt and pour	inside its usual range: 11.0 g lost (usual range 2.9 to 12.4 g)
cutting	weighed: 1.5 g lost (no usual range for this step)
finishing	inside its usual range: 1.0 g lost (usual range 0.0 to 9.9 g) unrecovered metal

Job total: 13.5 g not accounted for.

Job A103 on Induction melter

Outside its usual range: melt and pour.

melt and pour	outside its usual range: 38.0 g lost (usual range 2.9 to 12.4 g)

Dot: grams not accounted for at the step. Band: the usual range. Green: inside. Red: above. Amber: below.

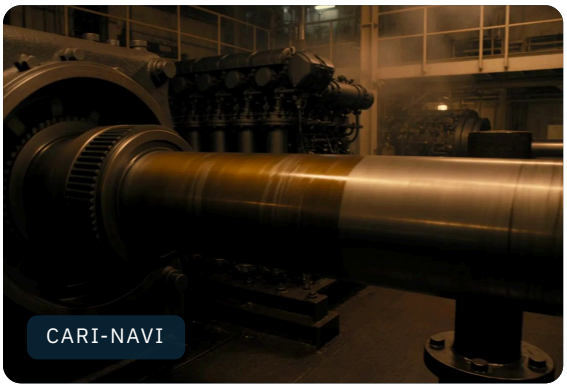


Built for Jewellery workshops and factories, casting houses, refineries, bullion and mints, chain makers.

EDITION 6 OF 6 · SHIP PROPULSION TRAINS

CARI-Navi. Clutch to shaft, in plain words. Know where to look first.

CARI-Navi reads your vessel's own logs and surveys and gives one list per vessel in plain words. Every finding says what was seen, how large it is and where to look first.



WHAT IT WATCHES

- **Clutch** worn or glazed plates, low pressure, slow fill; a heavier propeller named apart
- **Reversing gear** the ahead or astern pack, named with its fault
- **Gearbox sensors** a failed sensor named as a sensor problem
- **Hydraulics** servo, fin stabiliser, propeller pitch and the power unit
- **Engine coolers** will each cooler still cool at the planned stop
- **Shaft life** stern tube and coupling: years left, as a range

WHAT GOES IN

Your own logs and surveys
clutch, gear, gearbox sensors, hydraulics, power unit, coolers

The monitoring system's reversing-gear logs
no torque meter needed

Stern-tube and coupling surveys
your shaft line, entered once

The vessel's name and the date
each day is read against the vessel's own normal

WHAT COMES OUT

A verdict for each machine
what was seen, how large, where to look first

One list per vessel
named faults first; Nothing found where there is none

Years left, as a range
narrower with each survey

A printed report
one page per machine; print or save as PDF

CARI-Navi · clutch and reversing gear

Example vessel 3 — Fault named

Clutch plates worn or glazed: less torque per unit of pressure.

Grip (low is a fault)	0.70 of healthy
Oil pressure (low is a fault)	1.00 of healthy
Fill time (high is a fault)	0.93 times healthy
Creep in neutral (high is a fault)	0.02 rad/s
Slip after release (low is a fault)	9.0 rad/s
Propeller load (for information)	1.02 of healthy

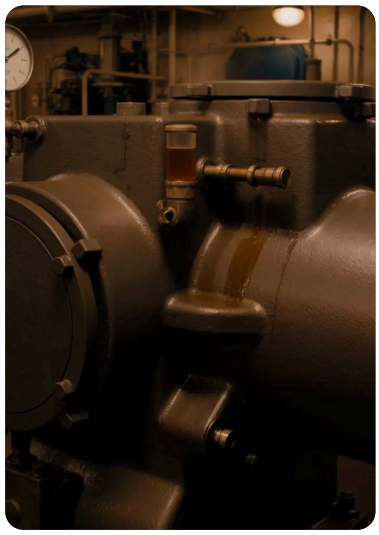
Day 4 (4 engagements) — Fault named

Astern pack: Plates worn or glazed.

Ahead pack — Nothing found

Astern pack — Fault named — Plates worn or glazed.

The clutch and the reversing gear on screen: the fault is named in words, and each clutch reading is drawn against healthy running.



Built for Ship operators and their engineers.

FAMILY MAP

Which edition covers which machines.

Find your machine, and the edition that reads its records. Choose CARI-Loops to review your loops and valves, and CARI-Tune for new settings your engineer can enter.



CARI-Pani

Water networks
Page 5

Zones · Mains · Pumps · Reservoirs and tanks · Meters · Water quality · Pipes

Reads Zone inflow and pressure, tank levels, pump logs, meter totals, the pipe list.

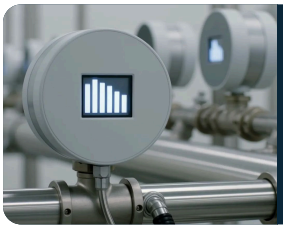


CARI-Loops

Control loops and valves
Page 6

Control loops · Control valves · Transmitters

Reads The trend export of the unit, as CSV or Excel.



CARI-Tune

Loop settings
Page 7

Controllers

Reads The trend export, today's settings and two tests run by your engineer.



CARI-Chiller

Cooling plant
Page 8

Chillers · Cooling towers · Condenser loop · Chilled-water pumps · Air handlers and fans · Data-hall units · Free cooling

Reads One export from your BMS or historian.

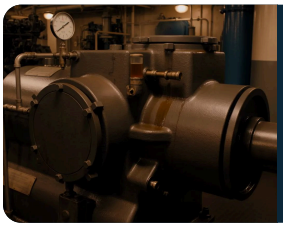


CARI-Gold

Gold floor
Page 9

Cast jobs · Melter · Continuous caster · Investment mixer · Burnout furnace · Vacuum caster · Rolling mill · Annealing furnace · Enamel kiln · Engraving · Laser marker · Diamond laser · Electro-polisher · Mass finisher · Plating bath · Gold refining

Reads Weighings, one line per cast job; each machine's records.



CARI-Navi

Propulsion trains
Page 10

Clutch · Reversing gear · Gearbox sensors · Servo · Hydraulic power unit · Engine coolers · Flexible coupling · Shaft bearing

Reads Your own logs and surveys.

One site, several editions. A site with a water network, a cooling plant and a process unit reads three editions the same way.

SECTORS SERVED

Wherever records pile up. Wherever machines wear.

Find your sector, and the people on your team who will read the findings.



Water utilities and networks

Water utilities, municipal networks and supply managers.

CARI-PANI



Process plants: loops and valves

Control engineers, instrument and maintenance teams.

CARI-LOOPS



Process plants: loop settings

Control engineers, who enter every approved setting.

CARI-TUNE



Buildings and cooling plants

Commercial buildings, malls, data centres, hospitals, hotels, airports, IT parks, pharma and district cooling.

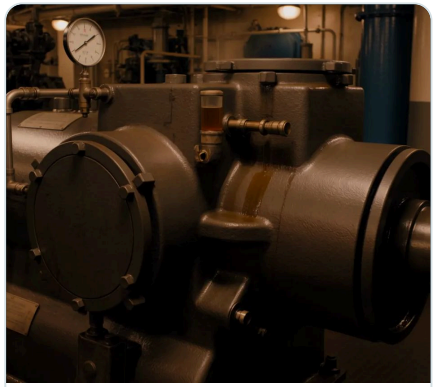
CARI-CHILLER



Gold and jewellery

Workshops and factories, casting houses, refineries, bullion and mints, chain makers.

CARI-GOLD



Propulsion trains

The engineers who keep the clutch, reversing gear, hydraulics, coolers and shaft bearings.

CARI-NAVI

Several kinds of plant at one site? Start with one edition. Add another when it covers other equipment at your site: they all work the same way.

HOW IT WORKS

What we need from you. What you get.

Nothing to install in your plant and nothing to connect. You load files on your own PC.

1

Load your records

A routine export from your control system, BMS, historian or log sheets: files you already keep.

2

Check names and units

Your engineer confirms them on screen.

3

Read the findings

Named findings or settings in plain words, with where to look first.

4

Print and plan

Print the pages and use the files your edition gives: alerts, work orders, settings sheets or accounts files.

WHAT WE NEED FROM YOU

A routine export
From your control system, building management system, historian or log sheets.

Your names for things
Your tag names, machine names and units. Your engineer confirms.

The normal period, or two tests
The weeks your team calls normal, or two short tests by your engineer for CARI-Tune, where the edition asks.

A first plant or unit
One is enough to start.

→

WHAT YOU GET

Named findings or settings
In plain words, with where to look first.

What needs attention first
A ranked list, an urgency grade or named faults first.

Pages to print
A report or sheet, to print or save as PDF.

Files for your team
Alerts, work orders, settings sheets and accounts files, where the edition has them.

Your records stay with you
It runs on your own PC.



On your own PC

Opens in your browser. Nothing to install in the plant.

Reads only

Exported records in; findings out.

Set up with your team

We read the first findings together.

Plain words, no codes to look up. A finding names the machine, unit or job, what was seen and where to look.

READY TODAY

Ready machines. Ready today.

Each reads records your plant already keeps and gives a clear answer.

PROCESS AND UTILITIES

Control loop health
Sticking valves, cycling loops and bad data

Plant balance and meters
Meters reading wrong, balances that do not add up

Compressed-air leaks
Sudden large air leaks

Boiler and turbine
Expected pressure, steam flow and load values

Water quality events
Sudden changes in online readings

Tank-fed supply hours
Hours of supply from tank and flow records

Leak noise correlator
Leak position from two pipe sensors

Pipe break forecast
Expected breaks per year from the pipe register

Zone flow leak watch
Leaks from district inflow records

ROTATING MACHINES

Gearbox
Tooth damage and bearing trouble, from vibration

Rolling bearing
Outer and inner race damage, from vibration

Induction motor
Broken rotor bars, from motor current

Pump cavitation
Cavitation, from sound or vibration

Centrifugal pump
Expected power and head from speed, flow and pressure

Screw and piston compressors
Expected flow, power and discharge temperature

Heat-pump compressor
Expected refrigerant flow

HEAT AND COOLING

Water chiller
Expected evaporator temperature and related readings

Cooling tower
Expected cold-water temperature from weather, load and fans

Gas cooler
Expected outlet temperatures

150+ more machine models available for pilots, fitted to your plant's own records.

GETTING STARTED

Start with one plant. See your findings.

Choose the edition that fits your plant and one unit, plant or site to begin with. We set CAPMAC up on your PC with your team, confirm the records together and read the first findings with you. Your records stay with you.













1
You choose

The edition for your plant, and the routine records you already keep.

2
We set up together

Names and units confirmed with your engineer, on your own PC.

3
Your team reads

Named findings, where to look first, and the pages to print.

BOOK A WALKTHROUGH ON YOUR OWN PC

contact@carimo.tech

WEB

carimotech.com

THE FAMILY

CARI-Pani · CARI-Loops · CARI-Tune
CARI-Chiller · CARI-Gold · CARI-Navi