SyncTide

User Manual

Operation Guide for Platform Users

Version 1.5.0 — July 2026

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1. Introduction

SyncTide is an industrial data monitoring and management platform. It collects data from field devices directly over Modbus TCP, OPC UA, IEC 60870-5-104, and MQTT/Sparkplug B, or via CSV file/FTP ingestion, displays real-time dashboards and maps, generates automated reports, and sends multi-channel alarm notifications (SMS, Email, Telegram, WhatsApp).

This manual covers the day-to-day operation of the platform from the perspective of Viewers, Operators, and Administrators.

1.1 User Roles

Role	Access Level	Description
Viewer	Read-only monitoring	Can view Dashboard, Explorer, Alarms, and Reports. Cannot modify any configuration.
Operator	Monitoring + Equipment + Messaging	Same as Viewer plus Equipment configuration (Tag Mapping, Monitoring & Alarms, Communication) and Messaging (contacts, escalation lists, alarm rules).
Admin	Full access	Full control over all platform features including Users management and Configuration/Settings.

1.2 Accessing the Platform

1. Open a web browser and navigate to the SyncTide URL: http://<server-host>/ (served by Caddy on port 80), or http://localhost:8000/ui directly on the server.
2. Enter your username and password on the login page.
3. Select your preferred language (English or Portuguese) from the language selector.
4. After login, the navigation bar shows links to all pages your role gives you access to.

Note: If this is your first login with a default password, you will be required to change it before proceeding.

2. Home Page

The Home page is the entry point of SyncTide. After logging in, you see:

- A welcome message with your username and role
- Quick-access cards linking to Dashboard, Reports, and Messaging Center
- The Asset Tree showing all monitored devices grouped by category
- An interactive map displaying device locations with real-time status colours

2.1 Asset Tree

The Asset Tree organises devices into a hierarchical category structure. Each device shows a colour-coded status indicator:

Colour	Status
Green	Online — device is sending data normally, no active alarms
Red	Alarm — one or more alarm conditions are active
Grey	Offline — device has not sent data within the configured timeout

Click on a device name to expand its alarm details. Open alarms are shown in a scrollable list (up to 5 visible at a time).

2.2 Alarm Acknowledgment

When alarms are active, you can acknowledge them to indicate you are aware of the situation:

- Per-alarm: Click the 'Ack' button next to a specific alarm event
- Per-device: Click 'Ack All' on a device's alarm section to acknowledge all its alarms
- Global: Click the 'Ack All' button at the top of the Asset Tree to acknowledge all alarms across all devices

Note: Acknowledging an alarm does not clear it. The alarm remains active until the condition returns to normal.

2.3 Interactive Map

The map shows device locations as coloured dots (green/red/grey). Hover over a marker to see device details. Devices without coordinates are listed below the map. The map uses free CARTO tiles by default; satellite imagery is available if a Mapbox API key is configured.

3. Dashboard

The Dashboard provides trend visualisation and data analysis for your monitored devices.

3.1 Summary Metrics

Four cards at the top show system-wide statistics:

- Total Devices — number of devices registered
- Total Measurements — total data points stored
- Source Files — number of CSV files ingested
- Tags — number of unique measurement tags

3.2 Filters

Use the filters to select what data to display:

5. Group: Select one or more equipment groups to filter devices
6. Devices: Select specific devices from the filtered groups
7. Tags: Select which measurement tags to plot (e.g., Flow, Pressure, Temperature)
8. Time Interval: Choose a preset (Today, 24h, 7 Days, 30 Days, etc.) or a custom date range

3.3 Trend Chart

The interactive chart plots measurement values over time. Each device + tag combination appears as a separate colour-coded line. Hover over data points to see exact values.

The Explorer page offers the same charts with finer control: a Raw mode that plots every sample, and selectable time buckets down to sub-minute resolution (1s, 5s, 10s, 30s) plus minute/hour/day buckets. An Auto bucket picks the smallest bucket that still covers the selected period, keeping the chart responsive while showing as much detail as possible.

3.4 Data Table & Export

Below the chart, a data table shows the raw measurements matching your filters. Click the download button to export the data as CSV for further analysis in Excel or other tools.

Note: The raw data table is limited to 150,000 rows for performance. Use a narrower time range if you need specific data.

3.5 Correcting Measurements — the Editor Module

The Editor is a licensed add-on module that lets administrators correct historical measurement data directly on the Explorer chart — a sensor glitch, a meter reset, a period distorted by calibration work. Edits are non-destructive: the original values are preserved, every change is audit-logged, and any edit can be reverted.

Enabling the Editor

- Your license must include the 'editor' module (an add-on available on any tier — contact your vendor).

- Only Administrators can edit values. Users of every role can see which points were edited.
- When both conditions are met, a pencil button appears in the Explorer's range bar. Click it to enter edit mode.

Editing Individual Points (Raw Mode)

Dragging individual points requires the bucket selector to be on Raw — in Raw mode one chart point corresponds to exactly one stored measurement, so what you drag is what gets corrected. In any aggregated bucket a point represents many underlying rows, so point dragging is disabled with a hint to switch to Raw.

- Drag a point up or down — a badge follows the cursor showing the new value and the original (e.g. '12.47 m3/h (was 10.20)')
- Double-click a point to type an exact value instead of dragging
- Until you press Save, the original series stays visible as a dashed ghost line and nothing is written
- Digital tags snap to 0/1; totalizer edits change the stored cumulative value (the UI shows the resulting per-bucket deltas)

Offsetting a Whole Period

The offset tool corrects every sample in a chosen time window and works at any bucket level (it always operates on the raw rows underneath). The offset form shows a dashed preview line and a summary before anything is applied. Semantics depend on the tag type:

Tag type	Offset modes	Typical use
Analog (instant)	Percent or absolute	Sensor drift, wrong scaling factor for a period
Totalizer	Absolute only	Meter reset or meter replacement — shift the counter by the jump
Digital	Force ON or OFF	A stuck contact reporting the wrong state

Note: Totalizers accept only an absolute offset because the stored value is a cumulative counter: a percentage would scale the whole counter and distort every consumption delta in the window, instead of shifting the reading by the fixed amount a meter reset or replacement introduces.

Virtual tags cannot be edited — they have no stored rows of their own. The editor explains this and names the input tags to correct instead; virtual values recompute automatically from the corrected inputs.

Edit History, Revert & Traceability

- The History panel lists every edit batch — who, when, what kind, how many rows — newest first

- Any batch can be reverted, newest-first: overlapping edits unwind in reverse order so layered corrections stay consistent
- Every edit and revert is recorded in the administrator audit log
- Edited points carry a marker on the chart; hovering shows the original and new value, who edited, and when

Note: Reports, dashboards and exports all reflect the corrected values. Past alarm events are deliberately NOT rewritten — they record what actually happened at the time.

4. Reports

SyncTide generates Excel and PDF reports from your measurement data.

4.1 Simple Reports

Generate an on-demand report by selecting:

- Report type: Excel Summary or Raw Data Export
- One or more devices
- One or more tags
- Period: Daily, Monthly, Yearly, or Custom date range

Click Generate to create the report. It will appear in the History & Jobs section for download.

4.2 Template Reports

Template-based reports use pre-designed Excel templates with charts and formatting. Select a device, tag, and template type (Daily, Monthly, Yearly). The system fills in the data, calculates min/avg/max, and generates a formatted report.

4.3 Scheduled Reports (Automatic Export)

Set up recurring reports that generate automatically:

9. Select a report template and device
10. Choose frequency: Daily, Monthly, or Yearly
11. Set the run time (HH:MM)
12. For monthly/yearly, specify the day of month
13. Enable the job — it will generate reports automatically

Scheduled jobs can be enabled/disabled, run immediately, or deleted from the History & Jobs section.

4.4 Viewing & Downloading Reports

All generated reports appear in the History & Jobs tab. Click to preview (PDF inline, Excel as data table) or download the file.

5. Messaging Center

The Messaging Center manages alarm notifications via SMS, Email, Telegram, and WhatsApp.

5.1 Dashboard

The overview tab shows:

- Active alarm rules count
- Messages sent in the last 24 hours and 7 days
- Delivery rate percentage
- Gateway status (online/offline)
- Recent failures with error details

5.2 Contacts

Manage the people who receive alarm notifications:

- Name, phone number, email, Telegram chat ID
- Active/inactive toggle — inactive contacts are skipped during notifications
- Click the pencil icon to edit, or use the Add Contact form to create new entries

5.3 Escalation Lists

Escalation lists define the order in which contacts are notified during an alarm event.

- Each list has one or more members with a priority level (1 = first to be notified)
- Members at the same priority level are notified simultaneously
- If no one at level N acknowledges within the timeout, the system escalates to level N+1
- Lists can have a parent list — after exhausting all members in the current list, the system continues escalating through the parent list's members

Example: Team A (3 members) with Parent = Supervisors (2 members) creates a 5-level escalation chain.

5.4 Alarm Rules

Alarm rules link device alarms to escalation lists and define notification behaviour:

- Scope: Specific device + tag, or entire alarm category
- Escalation list: Which list to use
- Channel: SMS, Email, Telegram, WhatsApp, Voice, or Any (uses default gateway)
- Cooldown: Minimum minutes between repeat notifications for the same alarm
- Max escalations: How many levels to process before stopping
- Response timeout: Seconds to wait for acknowledgment before escalating to the next level
- Message template: Customise the notification text using variables ($device_name, $tag_name, $value, $unit, $operator, $threshold, $timestamp)

5.5 Acknowledgment

When a message includes an ACK token (e.g., 'Reply ACK-abc123 to acknowledge'), the recipient can acknowledge via:

- SMS/WhatsApp reply with the ACK token
- Clicking an acknowledgment link (Email/Telegram)
- Acknowledging from the platform UI

Once acknowledged, escalation stops for that alarm event.

5.6 Message History

View all sent messages with filters for status (Pending, Sent, Delivered, Failed, Acknowledged) and date range.

6. User Profile

Access your profile settings from the Account page in the navigation bar:

- Update your full name
- Change your password (requires current password)

Note: Passwords must not match common default passwords (admin, password, 123456, etc.).

7. Troubleshooting

7.1 Common Issues

Issue	Possible Cause	Solution
Cannot log in	Wrong password or account inactive	Contact your administrator to verify credentials or reactivate account
No data on Dashboard	No devices selected or no data for selected period	Check filters — ensure devices, tags, and time range are correctly set
Device shows Grey on map	Device not sending data	Check the device's data connection and the configured timeout in Equipment Configuration
Alarm not triggering notifications	No alarm rule configured or gateway offline	Verify an active alarm rule exists for the device/tag and the gateway is online
Report generation fails	LibreOffice not installed (for PDF)	Contact administrator to install LibreOffice on the server

7.2 Getting Support

If you encounter issues not covered above, contact your system administrator with the following information:

- Your username and the page where the issue occurs
- The exact error message (if any)
- Steps to reproduce the issue