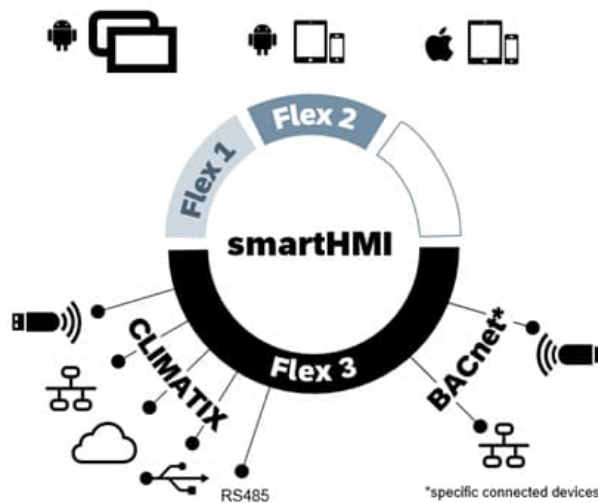


Climatix™

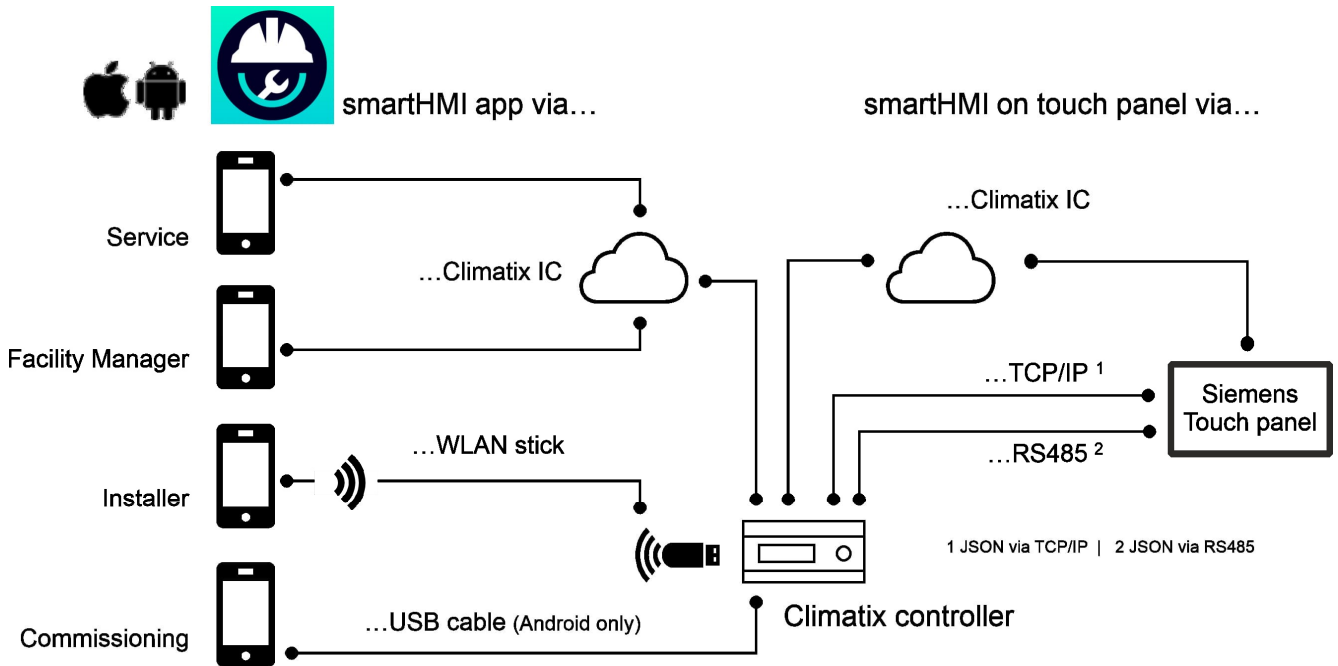
Climatix™ smartHMI

Siemens HMI for commissioning and service



Climatix smartHMI, a modern HMI solution is available for different platforms, operating systems and different UI options. Extensive connectivity options provide local as well as remote access.

- Basic functionality (menu and data point access) of conventional HMI, based on the Watch Pages in the Climatix controller.
- Standard Climatix HMI functions, such as monitoring, alarm management, plant configuration, trending and scheduler.
- Allows deployment of application specific dashboards and plant views.
- On-site (local adapters) and remote access (via Cloud, needs subscription). Enables 24/7 cloud-based access.
- Can be deployed to specific Siemens touchpanels, iOS and Android smart devices.
- Flexibility with regard to UI options: Siemens labeled (Flex1), OEM labeled (Flex2) or free design with API (Flex3).
- smartHMI runs with Climatix controllers (e.g. C400 and C600).
- smartHMI API is also compatible with specific BACnet devices (e.g. Intelligent Valve, DXR1, T24).
- smartHMI API provides access to compatible Siemens controllers for smart consumer devices using HTTP queries (GET, WRITE and LIST).



The topology shows:

- Extensive connectivity options:
 - On-site: TCP/IP, RS485 (Touch HMI), USB (Android) or Siemens WLAN stick.
 - Remote access: via Climatix IC cloud (subscription required)
- The variety of devices the smartHMI app can be deployed on.

Terms and concepts

Mobile devices

All kinds of smart commercial devices (mobiles, tablet, etc.) with operating systems iOS (\geq version 10) or Android (\geq version 9).

Watch pages

In Climatix HVAC applications HMI structures (menus with datapoints) are built with Watch pages. Watch pages are engineered by controller application engineers.

Watch pages are also the interface to interactive visualizations such as dashboards and plant views.

Climatix IC

Climatix IC is the cloud solution for Climatix controllers. Various bundle products are available for different use cases and needs. For more information on Climatix IC, see section "Product documentation".

Controller licenses concept

smartHMI is a feature under license in the Climatix POL firmware and requires the appropriate license for one of the flexibility levels.

The licensed feature for flexibility level 1, 2 and 3 can be enabled on controller level during production or in the field at any time during the life cycle of the controller.

For more technical details on controller licenses, see section "Product documentation".

smartHMI in general

1. smartHMI, the digitalized HMI for HVAC is an alternative or extension to traditional push and roll HMIs. It allows to utilize smart consumer devices and reduce the amount of hardware required. Where appropriate smartHMI can be used on Siemens touch panels.
2. smartHMI is built on a consistent architecture based on Watch pages used in Climatix applications. This creates synergies when working on different platforms.
3. Application specific plant view diagrams and dashboards can be integrated (no method or toolbox included for API solution). Once implemented the plant specific graphics can be updated remotely and under runtime.
4. smartHMI provides a controllable log-file generation for troubleshooting.

smartHMIapi

1. smartHMI api, as a layer between the app user interface and the controller provides various communication possibilities: TCP/IP, via Climatix IC and USB (Android devices). If a combination of smartHMI api and Siemens touchpanels (POL8Tx.70) is chosen also RS485 connection can be used.
2. smartHMI api offers also TCP/IP connection to SystemOne controllers/devices.
3. Similar to the Siemens/OEM labeled versions (Flex1, 2), the API offers secure login methods:
 - Local: PIN per Climatix HMI concept
 - Remote: Cloud login.
4. smartHMI api can backup and restore application sets from and to a OEM developed UI.

Prerequisites

The following pre-requisites are required for using Climatix smartHMI:

| Condition | Description |
|-----------------------------------|--|
| Controller devices | <ul style="list-style-type: none">• smartHMI is compatible with the Siemens Climatix POL range of controllers• smartHMI api communication stack is compatible with Siemens SystemOne devices, such as Intelligent Valve, DXR1 and Title 24 Economizer |
| Valid version set (VVS) | <ul style="list-style-type: none">• smartHMI mobile requires VVS11.64 (September 22) or higher on the controller.• smartHMI api requires VVS11.54 or higher on the controller. |
| Smart customer devices | Recommended devices for use with the smartHMI are devices with iOS 10 or higher and Android 9 or higher. |
| Siemens Touch panels | smartHMI touch runs on POL8T5.70/STD and POL8T2.70/STD with Android 7. |
| Watch page technology | smartHMI needs a watch page structure in the application running on the Climatix controller. |
| Internet connection | Remote connection through Climatix IC requires an Internet connection. The bandwidth of the customer's Internet connection determines the performance of the remote connection. |
| IC bundle | Remote connection through Climatix IC requires also an appropriate Climatix IC cloud bundle. A savvy cloud administrator is required to manage some administrative tasks in the Cloud. |
| Licenses for Climatix controllers | Use of smartHMI is a feature under license in the Climatix POL firmware and requires the appropriate license for one of the flexibility levels. |

Configuring the product

smartHMI, the Siemens HMI for commissioning and service, offers flexible solution packages. Below, the various options are detailed.

Flexibility levels

Flexibility levels define your smartHMI user interface. (for details see below).

A higher flex level means a higher level of customizability. The highest level, flexibility 3, is the smartHMI api solution.

Available price plans

Pricing plans vary with the selected flexibility levels. Technically you pay for a controller license (see "Concept and terms").

Controller licenses are available as SaaS ("software as a product") so that they incur cost once (per controller). Your controller license is available over its complete lifetime.

Offering for smartHMI for Siemens touch panels with Flex level 1

The license costs for Flex level 1 are included in the price of the touch panel hardware (POL8T2.70 and POL8T5.70).

Step1: Main product selection

The use of smartHMI is a feature under license in the Climatix POL firmware and requires the appropriate license for one of the flexibility levels detailed below.

| Flexibility Level | Designation | Description |
|-------------------|--------------------|---|
| Level 1 | Siemens-labeled UI | Flexibility Level 1 is a complete app consisting of Siemens labeled UI and communication stack which supports Climatix controllers. |
| Level 2 | OEM-labeled UI | Flexibility Level 2 is a complete app consisting of OEM-labeled UI and communication stack which supports Climatix controllers. |
| Level 3 | API only | Flexibility Level 3 is a communication stack without UI for OEM developed apps which supports Siemens Climatix and Siemens SystemOne controllers. |

Details and requirements of the Flex levels

| Article Number | Description | Active license on controller | Required VVS | Device members activated |
|----------------|--------------------------|------------------------------|--------------|--------------------------|
| POL0M5.00 | Climatix smartHMI, Flex1 | POL6x8, POL46x | VVS11.64 | clxMiddleLayer, Flex1 |
| POL0M5.10 | Climatix smartHMI, Flex2 | POL6x8, POL46x | VVS11.64 | clxMiddleLayer, Flex2 |
| POL0M5.20 | Climatix smartHMI, Flex3 | POL6x8, POL46x | VVS11.54 | clxMiddleLayer |

Step2: Customizing your OEM labeled solution (Flex2)

For the OEM-labeled solution (Flex 2), the grade of customization can be selected. Please contact your Siemens sales representative for an offer. See below two examples of customization:

| Examples | Description |
|--------------------|---|
| A minimal labeling | <ul style="list-style-type: none"> Standard Siemens color token, font and icons are used. Only app icon, app name, logo, bundle ID and splash screen change. The graphic setup for dashboard and plant view are not part of the labeling. Overview (SVG), Plant view (SVG) and app icon (png) are provided by the customer. Siemens provides unsigned binaries (.ipa and .aab files). Deployment is the customer's responsibility. |
| A major labeling | <ul style="list-style-type: none"> Color tokens, font, font sizes, font colors and icons can be changed. App icon, app name, logo, bundle ID and splash screen change. The graphic setup for dashboard and plant view are not part of the labeling. OEM provides required fonts, icons (SVG), Overview (SVG), Plant view (SVG) and app icon (png) and specifies color token from available color token list provided by Siemens. Siemens provides unsigned binaries (.ipa and .aab files). Deployment is the customer's responsibility. |

Siemens and customer contributions:

The table below outlines the technical backgrounds and customer contributions in principle.

| Element | Implementation Siemens | Customer contribution |
|------------------------------|--|--|
| Login | <ul style="list-style-type: none"> On-site: via mechanisms of the Climatix Scope project: PIN + Access Level. Remote/Cloud: Cloud user name + password (administered by Tenant and Application admins). | |
| | NOTE: 3 rd party login (LinkedIn, Office365, etc.) is not supported. | |
| Overview/ dashboard | <ul style="list-style-type: none"> The most important features at a glance in an SVG graphic package. Setpoint/actual values and dynamic diagrams. | Customers supplies their version an 'SVG package' as described in manual "A6V12543494". |
| Plant view | <ul style="list-style-type: none"> The most important live data as an easy-to-read plant view. SVG graphic with dynamic data (mapped to data points). | Customer supplies their version in an 'SVG package' as described in manual "A6V12543494". |
| | NOTE on Creating an 'overview/dashboard' and plant view: Engineering document " A6V12543494" describes the steps for generating 'overview/dashboard' and plant views. You will save your files and send them to Siemens for integration. | |
| Operations | <ul style="list-style-type: none"> Menu and data point structure as per Climatix project. Read and write data points. Configure the plant. Assign data points to trends. | <ul style="list-style-type: none"> Using Siemens standard solutions (e.g. AHU V4.0), no engineering. Engineering of modifications and in-house solutions is required as per the applicable documentation. |
| Alarms page | <ul style="list-style-type: none"> Access to pending and confirmed alarms. No extra engineering for app level. | No customer modifications required. |
| Trend page | <ul style="list-style-type: none"> Live-Trend, i.e. diagram depiction. | No customer modifications required. Users select the corresponding data points while using the smartHMI. |
| Time scheduler | <ul style="list-style-type: none"> As per Climatix project. | No customer modifications required. |
| Internal: Preferences | | |
| Light/dark mode | <ul style="list-style-type: none"> Selection, e.g. for daytime or nighttime use. | No customer modifications. |
| Language selection | <ul style="list-style-type: none"> Select one of 18 UI languages (cs, en, se, da, de, es, et, fi, fr, lv, no, pl, ru, sk, tr, nl, zh, uk). Change project language. | The number of app languages can be extended or reduced to meet your requirements. NOTE: Climatix application might not support all languages, because application translations are in responsibility of the customer. Default is then English. |
| Internal: About | | |
| Copyright | Siemens | No customer modifications. |
| Corporate Information | Imprint: Siemens | No customer modifications. |
| Privacy policy | Flex 1: supplied by Siemens. | Flex 2: supplied by customer. |
| Terms of use | EULA: Siemens | No customer modifications. |
| Cyber Security Disclaimer | Siemens | No customer modifications. |
| Open Source Licenses | Siemens | No customer modifications. |
| Help | Siemens Online help | With/without Siemens help or file based customer help |
| | | |

| Element | Implementation Siemens | Customer contribution |
|-------------------------------|------------------------|---|
| Icons, colors, fonts | | |
| Logo | | OEM logo as SVG |
| Startup icon | | Customer |
| Name and bundle ID | | Customer |
| Color code of screen elements | | For example, background, header, tiles. RGB color code defined per element. NOTE: as colors are represented by tokens they cannot change from page to page. |
| Font type | | If needed customer provides font library and license to import |
| Font size | | For example header, tiles and menus. |
| Menu icons | | If non-Siemens library icons, customer provides library (SVG) |

Conditions and availability for the OEM-labeled (Flex2) solution

The first prototype of the labeled version will be available within sixty (60) working days after receipt of payment unless agreed otherwise in at least electronic form in advance.

This is only valid if customers have delivered the required fonts, icons (SVG), overview (SVG), plant view (SVG) and icon (png) in due time and in accordance with our instructions.

Please note, however, that even major labeling adaption must display Siemens copyright notices, third-party software licenses as well as the applicable user privacy policy!

To order OEM labeling (Flex2) of the app, customers need to request a quote from their Siemens sales representative. See also section "Ordering".

Ordering the product (license keys)

To order the required license key needed to enable the respective feature in the controller, the customer needs to request a quote from their Siemens sales representative.

NOTE: for the combination Siemens touch panel with Flex level 1, see 'Configuring the product', section 'price plans'.

1. Select your Flex level

| Type | Order number | Designation |
|---------------|------------------|--|
| POL0M5.00/STD | P55693-L250-A100 | Flexibility Level 1 is a complete app consisting of Siemens labeled UI and communication stack which supports Climatix controllers. |
| POL0M5.10/STD | P55693-L251-A100 | Flexibility Level 2 is a complete app consisting of an OEM-labeled UI and communication stack which supports Climatix controllers. |
| POL0M5.20/STD | P55693-L252-A100 | Flexibility Level 3 is a communication stack without UI for OEM developed apps which supports Siemens Climatix and Siemens SystemOne controllers. |

2. For the OEM-labeled solution (Flex 2), the grade of customization can be selected.

- For the list of features, see section 'Configuring the product'.
- The scope of the labeling project is defined by the customer with the support of Siemens. Siemens provides an offer based on the effort. Request a quote from your regional contact.

The process is as follows:

1. OEM and Siemens determine the features that need to be changed in the labeling of the app.
2. Siemens (RC) submits a quote to OEM, based on the scale of the required changes.
3. OEM initiates the labeling with an order to Siemens.
4. Siemens implements and delivers the labeled app and invoices OEM.
5. OEM deploys the labeled app to store.

smartHMI Feature Matrix

smartHMI is a feature under license in the Climatix POL firmware and requires the appropriate license for one of the flexibility levels.

Symbols in the tables:

| | |
|------------|---|
| X | included |
| + | only available with appropriate Climatix IC bundle. Not available if controller is not connected and/ or not online! |
| y | For your implementation, see list of API calls below |
| - | no method or toolbox included |
| n/a | not applicable |

Terms in tables:

| | |
|---------------|--|
| mobile | Flex1 or Flex2 license on 3rd party mobile device (iOS or Android). |
| touch | Flex1 or Flex2 license on Siemens touch panels. |
| API | Flex3 license, implementation with API calls; deployed on mobile device or Siemens touch panel. Availability can depend on target device (mobile or touch). |

| smarthMI Connections | | mobile | touch | API |
|---|--|---------------|--------------|------------|
| TCP/IP (JSON via TCP/IP); mobile: WLAN, touch: Ethernet | | X | X | X |
| RS485 (JSON via RS485) | | n/a | X | X |
| USB (only Android) | | X | n/a | X |
| Siemens WLAN stick | | X | n/a | X |
| via Climatix IC | | + | + | + |
| User authentication | | | | |
| all non-Cloud | Username, password, PIN | X | X | X |
| via Cloud | Username and password (no PIN: via Cloud role) NOTE: Authentication via a third party is not supported. | + | + | + |

| smarthMI Overview | | mobile | touch | API |
|--|--|---------------|--------------|------------|
| | | X | X | - |
| <ul style="list-style-type: none"> • SVG based dashboard, application specific. • For each specific controller application, a specific dashboard can be set up to be used on all identical controllers with the same application. • Examples for standard Chiller, Air handling unit and District heating applications available. These are made available as .zip files in the planning phase. | | | | |

| smarthMI Plant view | | mobile | touch | API |
|---|--|---------------|--------------|------------|
| | | X | X | - |
| <ul style="list-style-type: none"> • Plant views can be displayed in smartHMI as 'Scalable Vector Graphics' (SVGs). The Climatix IC graphic configurator can be used to enhance SVG graphics with data points, texts and more. • The plant view is specific to your Climatix application. • Dynamic plant data: Monitor setpoints, actual values, actuators, and sensors. • Examples for standard Chiller, Air handling unit and District heating applications available. These are made available as .zip files in the planning phase. | | | | |

| smarthMI Operations | | mobile | touch | API |
|---|--|---------------|--------------|------------|
| | | X | X | y |
| <ul style="list-style-type: none"> • Operating page per the structure of the Climatix application. • Read and write plant data points. • Add data points to trends page (see also function Trend below). | | | | |

| smartHMI Alarms | mobile | touch | API |
|--|--------|-------|-----|
| | X | X | y |
| <ul style="list-style-type: none"> • Notification on alarm events when online to a controller in the header bar. • Active events are shown in current alarm list. • The alarm list shows pending alarms and helps troubleshooting. • Events that are acknowledged and resolved are saved in the alarm history. • The alarm history permits an analysis of alarms. | | | |

| smartHMI Trend | mobile | touch | API |
|--|--------|-------|-----|
| | X | X | y |
| <ul style="list-style-type: none"> • Data assigned via Operations is presented on an interactive chart. • Allowing users to see single or multiple trends over actual time period with zoom function. • Common X- and Y-axis. | | | |

| smartHMI Time scheduler | mobile | touch | API |
|---|--------|-------|-----|
| | X | X | y |
| <ul style="list-style-type: none"> • Set and edit start/stop times for the scheduler programs. • Set up exception day profile and exception days. • Assign values to events in profiles. | | | |

| smartHMI App settings | mobile | touch | API |
|---|--------|-------|-----|
| | X | X | - |
| <ul style="list-style-type: none"> • Select the language, time format and unit system. • Switch between light and dark mode. • Configure TCP/IP settings. • Import UI (check for graphic updates). • Import and manage Overview / Plant view pictures. • Search (under test). • Logging: advances tracking possibilities • Info: your currently installed app version | | | |

| smartHMI About | mobile | touch | API |
|--|--------|-------|-----|
| | X | X | y |
| <p>For example:</p> <ul style="list-style-type: none"> • Legal information: Copyright information and version, Privacy policy, Terms of use. • Cyber security disclaimer. • Open source licenses. • Help: Online help manual | | | |

API calls overview

| API calls | Climatix | SystemONE |
|--------------------|----------|-----------|
| connectDevice | x | x |
| disconnectDevice | x | x |
| authenticateCloud | x | |
| listCloudPlants | x | |
| listCloudFiles | x | |
| getCloudFile | x | |
| activateCludPlant | x | |
| getActiveAlarms | x | x |
| getHistoryAlarms | x | x |
| getAlarmSummary | x | |
| alarmAcknowledge | x | |
| getLanguages | x | x |
| getObjects | x | x |
| Command | | x |
| changePassword | x | x |
| getSchedulers | x | x |
| writeScheduler | x | x |
| getCalendars | x | x |
| writeCalendar | x | x |
| listViewNodes | x | x |
| getViewNode | x | x |
| getViewNodeValues | x | x |
| listDataPoints | x | x |
| getDataPointValues | x | x |
| getDataPoint | x | x |
| writeDataPoint | x | x |
| getLicense | x | |
| transferLicense | x | |
| Upgrade | x | |
| getCopyright | x | x |
| Logging | x | x |
| getObjects | x | x |

Documentation

In-app documentation

The mentioned documents can be found in the smartHMI app under the menu "About".

| Designation | Description |
|---------------------------|---|
| Privacy policy | About privacy of personal data |
| Terms of use | End User License Agreement (EULA) |
| Cyber Security Disclaimer | Siemens Cyber Security Disclaimer |
| Open Source Licenses | Third-party Software Information document |
| Online help | See product documentation, A6V12543494 |

Product documentation

| Document ID | Title |
|-------------|---|
| A6V12519226 | Climatix smartHMIapi in Native - Quick Reference Guide |
| A6V12368254 | Climatix smartHMIapi in Ionic - Quick Reference Guide |
| A6V12968727 | smartHMItouch: Install, connect, operate and modify the Application |
| A6V12543494 | smartHMImobile: Connect, Update, Operate and Modify the App |
| A6V10449189 | Product and Service Data Sheet: Climatix IC |
| A6V12570229 | License Manager for POL controllers |

Note the following on the Siemens online support:

| | |
|---------|---|
| Support | <p>Customer Support may be contacted via the Support Request wizard at any time.</p> <p>https://support.industry.siemens.com/cs/ww/en/my</p> <p>Customer Support hours of operation are during office hours, typically Monday through Friday, 8:00 am to 5:00 pm, excluding national and local holidays. Support is available in English and in the local language in most of the countries.</p> |
|---------|---|

Security

The communication via Climatix IC that smartHMI is using as a communication option is secure, as shown below:

| Security feature |
|---|
| Communication between cloud and device, as well as between the cloud and the smartHMI app is secured using SHA-256 hash based encryption. |
| All connections to and from the Cloud are encrypted (HTTPS) to prevent tapping into the line and man-in-the-middle attacks. |
| Data is stored in geo-redundant servers within the EU with secure site access. |

Trademarks

| Trademarks | Legal owner |
|----------------------------|-----------------------------------|
| iOS (operating system) | Apple Inc. |
| Android (operating system) | Open Handset Alliance, Google LLC |

We forgo the labeling (e.g. using the symbols ® and ™) of third-party trademarks for the purposes of legibility based on this list.

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