

## 1.2 Application software for Windows PCs

### 1.2.1 Saia PCD® Supervisor

#### 1.2.1.1 Saia PCD® Supervisor

#### The complete solution for intelligently managing buildings and infrastructures

The scalable Saia PCD Supervisor software platform monitors and controls simple HVAC regulating systems as well as company-wide control stations in larger building complexes or infrastructure systems.



#### Main properties of the Saia PCD Supervisor

**Complete solution:** controlling, monitoring, reporting and visualising with just one centralised software platform

**Compatibility:** allows integration of all Saia PCD controllers, third-party devices and smart devices via IT protocols and numerous drivers

**Flexibility:** can easily be adapted to individual customer requirements

**Technology standard:** based on robust Tridium N4 technology with HTML5 and Cyber security

**SBC:** brand-specific extra services (S-Bus driver, Import Wizard and Icon gallery)

## Complete solution

As a modern monitoring and management solution, the Saia PCD Supervisor bundles visualisation, interaction, monitoring and reporting into a user-friendly, high-performance software platform. By bringing together all relevant data and displaying them in a way which is easy to understand, the Saia PCD Supervisor helps to optimise building systems and thus improve building efficiency significantly.

### 1. Visualisation

The Saia PCD Supervisor sets new standards: whether you use a desktop PC, a tablet or a smartphone – thanks to HTML5, real-time visualisations can be displayed without problems on virtually all devices.



### 2. Monitoring

The Saia PCD Supervisor conveniently presents system data in graphical system diagrams, as a trend diagram or in table form – all within a web browser and independently of the operating system.



### 3. Reporting

Data can be exported as reports in CSV or PDF format at any time – this can also be done automatically. Thanks to the optional SQL and OPC interface, integration with other systems is easily possible.



### 4. Dashboards

Keep track of key performance indicators at all times: users can create and modify dashboards themselves.



### 5. Monitoring

The Saia PCD Supervisor from SBC is a high-performance integration and monitoring platform with central data display for all building sub-systems. With Saia PCD Supervisor EM (see chapter 1.2.1.2), the energy monitoring software from SBC, the energy consumption of buildings is also analysed and monitored. As a result, it can be optimised.



## Compatibility

Designed to offer compatibility regardless of brands, the Saia PCD Supervisor allows the integration of all building systems across disciplines. The platform monitors and controls all HVAC and non-HVAC systems such as lighting, shading or security systems. The Saia PCD Supervisor also supports all established communication protocols and integrates all systems and applications in a standardised structure, even across a number of buildings.

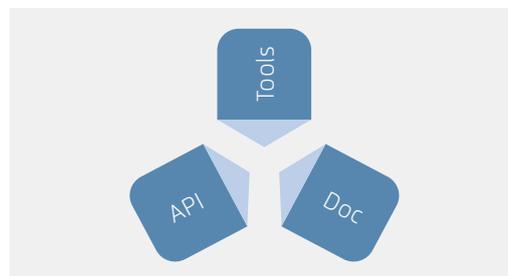
### Large selection of drivers

Open communication, a factor which is relevant in today's building automation, is supported by various protocols including BACnet, LON, Modbus, M-Bus, KNX, OPC and SNMP. Most open systems are based on the TCP/IP communication standards and can be integrated directly into the Saia PCD Supervisor. Optionally, external systems can also be connected via the SQL interface.



### Faster, more efficient development

The open Niagara Framework on which the Saia PCD Supervisor is based allows developers to extend the framework and program their own unique applications, drivers, plug-ins, data displays and application logics for business applications. In addition to this, there is detailed documentation, a comprehensive, open API library and ready-made tools which provide support during development.



### BACnet driver

The Saia PCD Supervisor is a BACnet-certified control centre which satisfies the BACnet profiles B-OWS (Operator Workstation) and B-AWS (Advanced Workstation). It is also certified in accordance with BTL "Revision 14". BACnet guarantees interoperability between devices from various manufacturers. A BIBB (BACnet Interoperability Building Block) defines which services and procedures need to be supported on the server and client side in order to achieve a specific system requirement. The PICS (Protocol Implementation Conformance Statement) document belonging to a device lists all supported BIBBs, object types, character sets and communication options. With the Saia PCD Supervisor, it is possible to search for BACnet objects within the network or import them via EDE files.



## High level of flexibility

The system can be extended almost unrestrictedly and adapted to meet the individual requirements of integrators, planners or operators.

### Modular and scalable

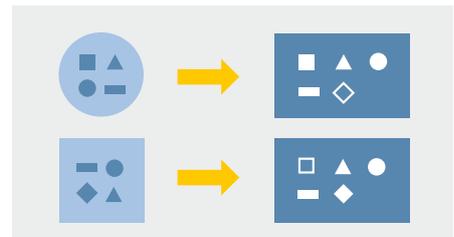
Individual buildings can be managed in the same way as larger building complexes and facilities spread across various sites. All important SCADA functions are already included in the basic packages. Thanks to data point extensions – even for open protocols – the system can be adapted to the particular project size at any time.

The customer can therefore select any package as a basis and add various data points at any time in order to give the Supervisor system the capacity it needs for the points to be monitored and controlled. All Saia PCD Supervisor basic packages also include an 18-month maintenance package and a free upgrade for older versions. Continuous maintenance is necessary in order to keep the system up to date. This can be extended by purchasing maintenance upgrade options. Our partners also get an engineering licence (annual contract) which can be used to configure, test and demonstrate the Saia PCD Supervisor. With this annual contract, partners also receive support from SBC (training and technical assistance) in order to ensure that the Saia PCD Supervisor can be operated properly.



### Normalised data points

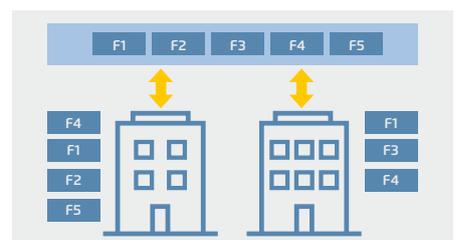
The data of connected devices and networks are normalised in the Saia PCD Supervisor and are then available throughout the system. Normalised means that the data read by the driver are packaged in a standardised data structure and can be used in the same way in any function and visualisation. Each data point in the Saia PCD Supervisor provides a priority array. S-Bus, M-Bus or BACnet data points are also supplemented with a priority array in the Saia PCD Supervisor. The priority array makes it possible to execute various operating states on the same data point with a different priority.



### Higher-level functions

The Saia PCD Supervisor provides a level for higher-level functions with the Wire Sheet.

- ▶ Creating cross-building data sets
- ▶ Preparing data for reports and visualisation
- ▶ Creating alarm escalations and e-mail recipients



### Tailored visualisation

Each user logged in to the system focuses on various individual tasks. The information in a system is therefore user-specific. With the Saia PCD Supervisor, each user sees exactly what is relevant to them: system technicians see the system diagrams and MSR technicians see additional control parameters. The facility manager can also change time plans while the security personnel receive security-related messages. Naturally, all of this can be set up in accordance with specific user requirements. The status reports too can be personalised. The Saia PCD Supervisor offers sophisticated functions for filtering, processing, escalating and forwarding alarms. It is also possible to send alarms via e-mail.

## Technological standard

The Saia PCD Supervisor is based on the proven Niagara 4 Framework which is already used in over half a million applications around the world.

### Cyber security

The Saia PCD Supervisor is secure as standard and uses the "Defence in Depth" approach for the security architecture on the Internet of Things which is based on the security concept of the Niagara Framework. For authentication, users must select secure login information. In addition, both transmission data and data on network drives must be encrypted. The Saia PCD Supervisor also uses role-based access authorisations. As a result, user authorisations can be configured easily and are less susceptible to errors. The user concept is based on categories, roles and users. This setup allows a very detailed description of the rights of a user within a system up to individual data point features. Each user is assigned a role which defines their access rights and locations. If a user is given a new role in the system, the rights needed for this are added immediately. Each user can also be assigned an individual start page and an individual language. The Saia PCD Supervisor can also be integrated into existing systems for identification and access management such as LDAP or Kerberos. All user activities and security-relevant events are recorded in the Niagara Audit Log and can be traced.



### HTML 5

The Saia PCD Supervisor features an intuitive user interface for comprehensive building management. It uses the HTML5 standard in order to provide numerous reliable functions and thus combines maximum control with the very highest data security.



### System requirements

- ▶ The Saia PCD Supervisor supports the following operating systems:
  - ▶ Windows 10 (32 bit and 64 bit)
  - ▶ Windows 8.1 Professional/Enterprise/Ultimate (32 bit and 64 bit)
  - ▶ Windows 7 Professional/Enterprise/Ultimate (32 bit and 64 bit)
  - ▶ Windows Server 2012 R2 Standard/Enterprise (SP2) (64 bit)
- ▶ In addition to the operating system requirements for the Saia PCD Supervisor, the following requirements must also be met:
  - ▶ Processor: Intel® Xeon® CPU E5-2640 x64 (or more powerful), compatible with dual and quad core processors
  - ▶ Memory: at least 4 GB; for larger systems, 8 GB or more recommended
  - ▶ Free hard disk space: at least 4 GB; more may be required depending on the archiving requirements
  - ▶ Display: video card and monitor with a pixel resolution of 1680 × 1050 or more
  - ▶ Supported networks: Ethernet adapter (10/100 MB with RJ-45 connection)
  - ▶ Connectivity: permanent ISP high-speed connection for remote site access recommended (e.g. T1, ADSL, cable modem)
  - ▶ If data archiving is necessary on a company level (optional), one of the following compatible database applications must be installed: MS SQL Server 2012 or MS SQL Server 2014.

## SBC-specific benefits

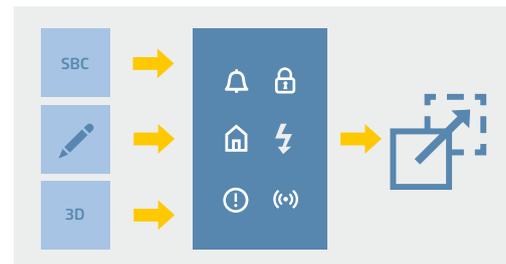
### Saia PG5® Import Wizard

The data point structure and functions are created in the PG5 development tool. Data points from the PG5 project are required in the Saia PCD Supervisor to create the application. The Import Wizard extends the Saia PCD Supervisor with an efficient and fault-free data import of the existing PG5 data point structure. Via the Saia PG5® Import Wizard, symbols and alarm lists with alarm texts from a Web Editor 8 project as well as HDLog lists previously defined in PG5 projects can be imported into the Saia PCD Supervisor quickly and easily. The filter functions can be used if only selected symbols are to be imported. During the import process, the Ether-S-Bus driver is created and configured. All CPUs in a PG5 project where data points were selected are automatically created under the driver as a device and configured for communication. From this moment, data point communication begins automatically when the PCD is available in the network and the device configuration is correct.



### SBC Icon Gallery

The Saia PCD Supervisor supports all common image formats such as PNG, SVG, GIF and JPG. In addition to 3D graphics, the graphics in the SBC Icon Gallery on the basis of SVG files are available as usual. Graphics and system diagrams are created in the Saia PCD Supervisor graphics editor. Systems are often made up of the same system parts. These can be created in the Saia PCD Supervisor on a one-off basis and reused. In order to reuse a created object, it is dragged to a page using drag and drop. In the process, data points are automatically connected with the correct system. Changes to an object are made immediately to all usage instances. This is possible both with individual objects and with complete views.



### S-Bus driver

Complete solution for integrating a Saia PCD controller via the proprietary S-Bus: the SBC S-Bus-over-IP driver is ideal for connection to PCD1, PCD2, PCD3, PCD7 and gateways.

Supported functions:

- ▶ Reading and writing all Saia PCD media
- ▶ Reading the Saia PCD status and the firmware version
- ▶ Reading out the HDLog data
- ▶ Receiving and acknowledging alarms from the PCD system



It is possible to use a number of PCD controllers under an SBC IP network driver. A number of SBC IP network drivers can also be managed in one system. The systems can thus be separated or optimised.

It is also possible to place PCD sub-stations under PCD devices which cannot be connected directly via an Ethernet interface (S-Bus gateway).

### Training and technical assistance

A four-day engineering training course provides all the knowledge needed for successful project work.

On the basis of an extensive demo project, participants are taught how to work with the Saia PCD Supervisor in a practical context. And if questions or problems arise later on, our technical support department would be happy to help!



### Supported PCD devices

Saia PCD devices are connected directly to the Saia PCD Supervisor via an Ethernet interface.

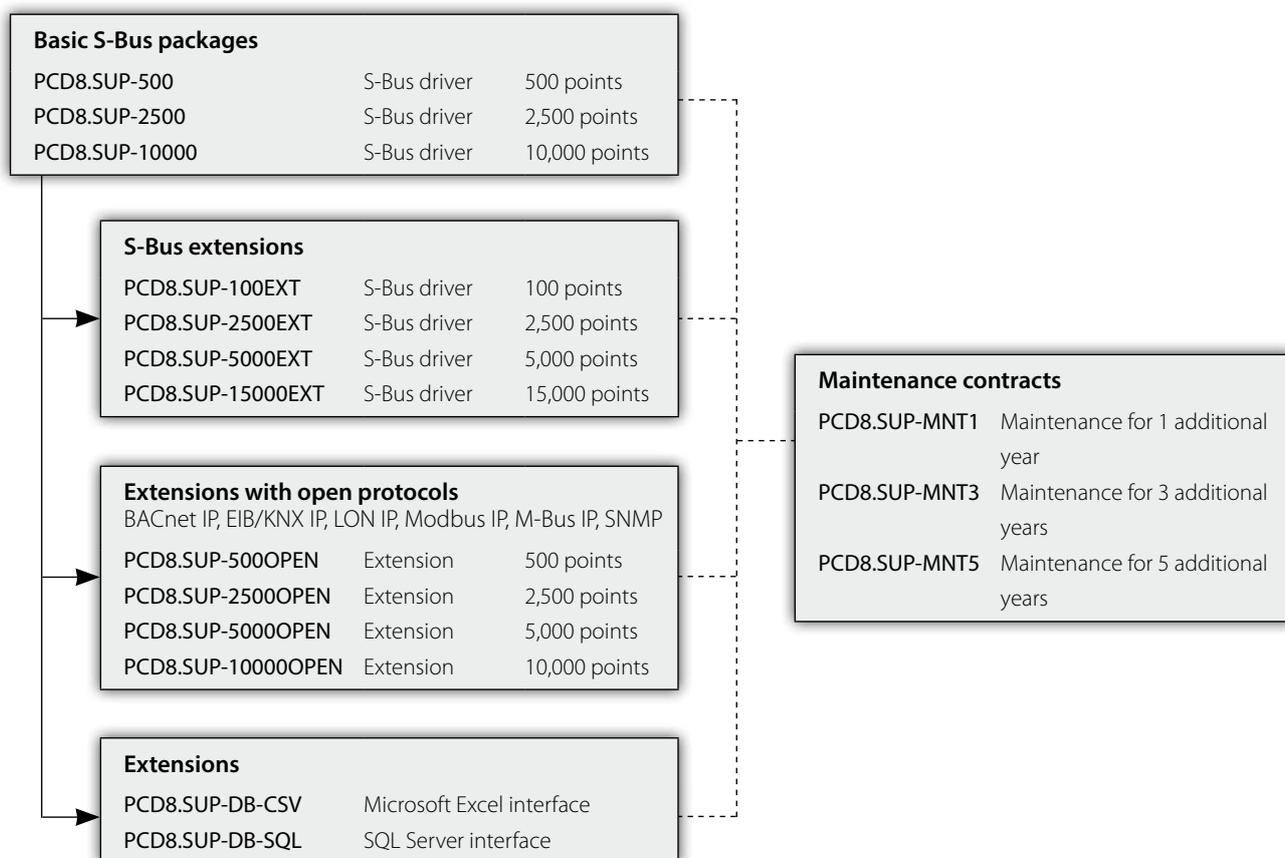
Devices with an RS-485 interface can communicate with the management system via a gateway station which is connected to the Saia PCD Supervisor via Ethernet.

The following devices are supported:

- |                                                                                                                                                                                                                                                                   |                                                                                                              |                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>▶ PCD with RS-485 interface for connection to a gateway station which is connected to Niagara via Ethernet:</li> <li style="padding-left: 20px;">PCD1.G/F/Wxxx-xx5 with RS-485 (as slave of a gateway station).</li> </ul> | <ul style="list-style-type: none"> <li>▶ PCD1.M0160E0</li> <li>▶ PCD1.M2xx0</li> <li>▶ PCD2.M4x60</li> </ul> | <ul style="list-style-type: none"> <li>▶ PCD2.M5xx0</li> <li>▶ PCD3.Mxxx0</li> <li>▶ PCD7.D4xxxT5x</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|

## Order information

The licensing scheme for the Saia PCD Supervisor is geared to the number of points. A point is an individual information element which is stored in the Saia PCD Supervisor database. With the Saia PCD system, points such as flags, registers, inputs, outputs etc. can be added to the Saia PCD Supervisor. There are two main categories here: SBC points and open points.



## SBC points

SBC points are points which are controlled by SBC's own controllers (PCD1, PCD2, PCD3 and PCD7) and are accessed via the S-Bus protocol. For this device category, the scope of the licence is geared to the points which are monitored. Three basic versions of the Saia PCD Supervisor are available to system integrators:

### Order information

| Type           | Description                                                                                  |
|----------------|----------------------------------------------------------------------------------------------|
| PCD8.SUP-500   | Saia PCD® Supervisor basic package including SBC S-Bus driver and 500-point database size    |
| PCD8.SUP-2500  | Saia PCD® Supervisor basic package including SBC S-Bus driver and 2,500-point database size  |
| PCD8.SUP-10000 | Saia PCD® Supervisor basic package including SBC S-Bus driver and 10,000-point database size |

If more points are required in order to meet the system requirements as regards the database size of the Saia PCD Supervisor, any starter kit can be combined with one of the following point extensions:

### Order information

| Type              | Description                                                           |
|-------------------|-----------------------------------------------------------------------|
| PCD8.SUP-100EXT   | Saia PCD® Supervisor extension with 100 additional SBC data points    |
| PCD8.SUP-2500EXT  | Saia PCD® Supervisor extension with 2,500 additional SBC data points  |
| PCD8.SUP-5000EXT  | Saia PCD® Supervisor extension with 5,000 additional SBC data points  |
| PCD8.SUP-15000EXT | Saia PCD® Supervisor extension with 15,000 additional SBC data points |

## Open points

Open points are points of devices or sub-systems with an open protocol which are integrated directly into the Saia PCD Supervisor. The open driver packages for the Saia PCD Supervisor contain a selection of standard drivers which can be used for head end system integration. Open driver packages can be added to the basic package with the following order codes:

### Order information

| Type               | Description                                                                     |
|--------------------|---------------------------------------------------------------------------------|
| PCD8.SUP-500OPEN   | Extension for basic licence with 500 additional points with an open protocol    |
| PCD8.SUP-2500OPEN  | Extension for basic licence with 2,500 additional points with an open protocol  |
| PCD8.SUP-5000OPEN  | Extension for basic licence with 5,000 additional points with an open protocol  |
| PCD8.SUP-10000OPEN | Extension for basic licence with 10,000 additional points with an open protocol |

## Maintenance upgrade options

Saia PCD Supervisor basic packages contain an 18-month maintenance package including free upgrades. The package can be extended by purchasing the following maintenance upgrade options:

### Order information

| Type          | Description                                                   |
|---------------|---------------------------------------------------------------|
| PCD8.SUP-MNT1 | Saia PCD® Supervisor maintenance upgrade – 1 additional year  |
| PCD8.SUP-MNT3 | Saia PCD® Supervisor maintenance upgrade – 3 additional years |
| PCD8.SUP-MNT5 | Saia PCD® Supervisor maintenance upgrade – 5 additional years |

## Advanced support options

### Order information

| Type            | Description                                                                    |
|-----------------|--------------------------------------------------------------------------------|
| PCD8.SUP-DB-CSV | Extension of the interaction functions with Microsoft Excel for the Supervisor |
| PCD8.SUP-DB-SQL | Extension of the communication functions with SQL Server for the Supervisor    |

## Partner licence agreement

### Order information

| Type               | Description                                                            |
|--------------------|------------------------------------------------------------------------|
| PCD8.SUP-NAA-STK   | Saia PCD® Supervisor starter kit for annual agreement                  |
| PCD8.SUP-NAA-STK3M | Saia PCD® Supervisor starter kit, agreement for 3 months (5 engineers) |
| PCD8.SUP-NAA-STK6M | Saia PCD® Supervisor starter kit, agreement for 6 months (5 engineers) |
| PCD8.SUP-NAA-REN   | Saia PCD® Supervisor extension of the annual agreement                 |
| PCD8.SUP-NAA-UPG   | Saia PCD® Supervisor upgrade of the annual agreement                   |
| PCD8.SUP-NAA-ENG   | Saia PCD® Supervisor extension with additional engineering licence     |

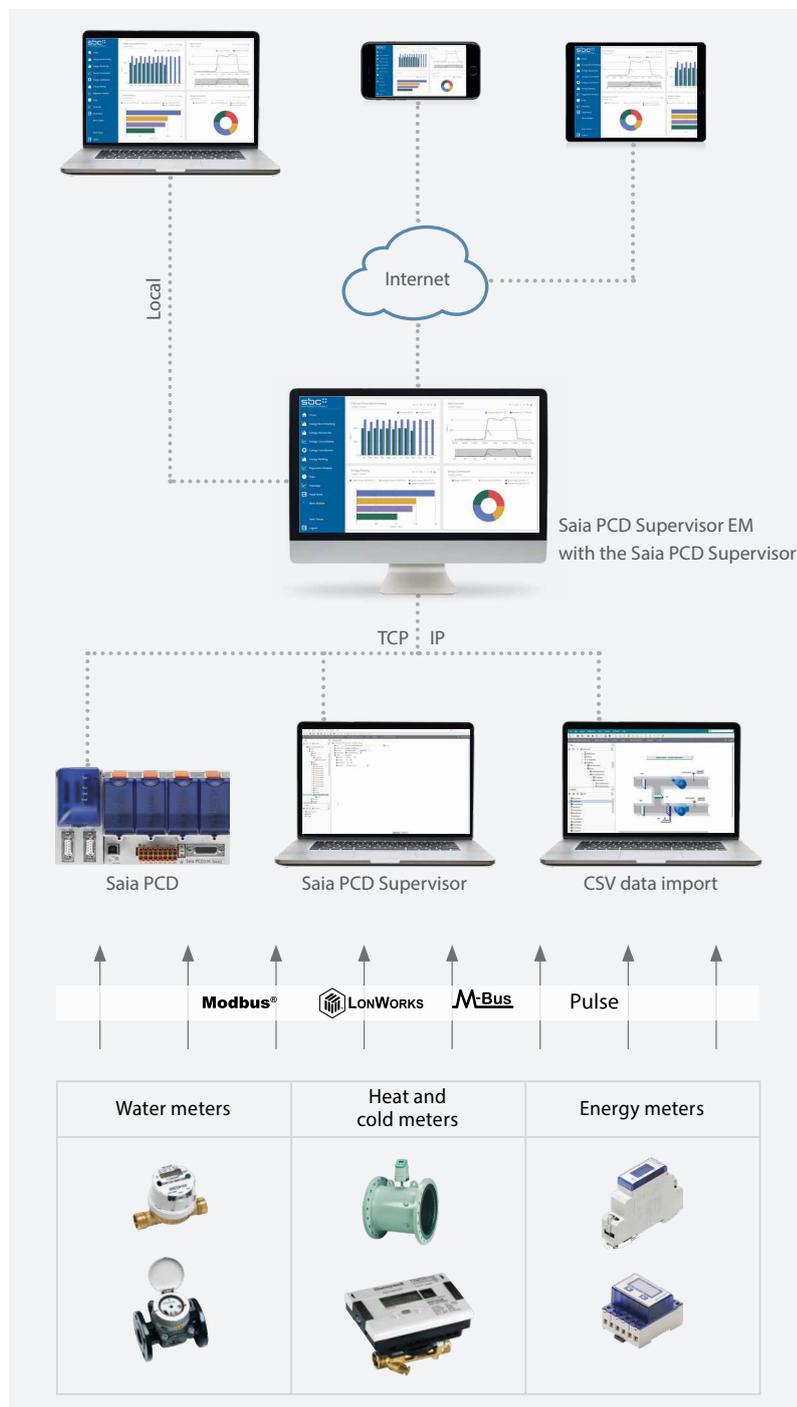
### 1.2.1.2 Saia PCD® Supervisor EM

Comprehensive solution for energy monitoring in the Saia PCD Supervisor. Saia PCD Supervisor EM is a benchmarking and analysis tool for monitoring energy consumption – an integrated solution for all types of buildings. It allows a wide range of energy data to be recorded and optimised at a central location. Saia PCD Supervisor EM is the ideal system for:

- ▶ Recording, analysing and optimizing energy consumption
- ▶ Measuring energy consumption across disciplines
- ▶ Setting up an energy monitoring system in accordance with DIN EN ISO 50001



The complete solution for energy monitoring is fully integrated into the Saia PCD Supervisor. It includes an impressive array of technologies to manage all aspects of energy-related data.



#### Analysis and optimisation

Saia PCD Supervisor EM is the SBC programme package for monitoring energy consumption. Whether it is used locally or from a remote location, the solution which is fully Internet-capable allows monitoring and analysis of energy consumption anywhere. With various access rights and display options, tenants, property managers and service partners can optimise energy consumption according to individual requirements.

#### Recording

The SBC system provides a range of options for recording measurement data:

- ▶ Via Saia PCD controllers
- ▶ Via the Saia PCD Supervisor control centre
- ▶ Via data import

#### Measuring

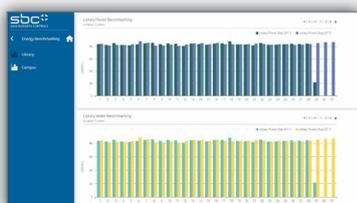
Measuring all loads is the basis for analysing and optimizing energy consumption. SBC supports a wide range of SBC and Honeywell energy meters. Meters from other manufacturers can also be integrated seamlessly.

Saia PCD Supervisor EM converts technical data into easy-to-understand graphics, including diagrams with details of the costs in CHF, EUR, GBP or USD. Automatically generated PDF reports can also be sent via e-mail.



### Energy ranking

Visualise and compare the performance of your sites, buildings and systems. Increase energy efficiency by optimizing your biggest loads.



### Energy benchmarking

Compare consumption in various areas during similar periods and thus identify areas with low energy efficiency.



### Energy consumption analyses

Gain an overview of energy consumption and the corresponding costs in various areas, buildings and periods.



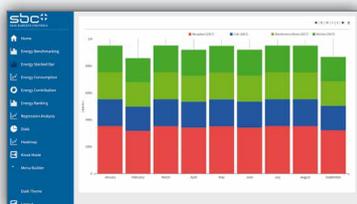
### Daily load profile

Identify inefficient energy use by comparing 24-hour periods on different days.



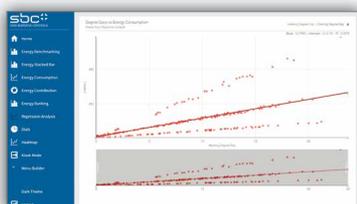
### Heat map

Bring up a heat map view of annual data for a load. Would you like to see the profile for a specific day? Simply click on the relevant part of the overview. Configure the heat map according to your specific needs.



### Stacked bars

Stacked bar diagrams show how individual loads contribute to total energy consumption over time – within a day, a week or a year – as well as the corresponding costs. On this basis, you can also define specific or general targets or budgets.



### Regression analysis

Compare energy consumption with outside temperature, degree days or another value on the basis of regression lines.