

PoolManager 5 – Interfacing with Building Management Systems (BMS)

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1 Overview

The PoolManager® (and Analyt) swimming pool controllers of the 5th generation ("PoolManager® 5" or "PM5", from 2012) provide the following options to interface with Building Management Systems (BMS) or data bus gateways:

- Full remote access to the PoolManager® web based graphical user interface (WebGUI) from any system running a standard web browser
- An additional compact HTML info frame („Quick Info“), which can also be displayed in a web browser, provides the most important current information at a glance.
- Electrical current outputs 4-20mA to output the PoolManager®'s measurement readings (pH, free chlorine (or bromine), Redox, temperature, BayroSoft dosings)
- Alarm relay to provide a collective alarm signal (volts-free switch or 230V~ output)
- Modbus-TCP data protocol via TCP/IP network connection (read parameter settings, measurement readings and alarm statuses)
- XML based data protocol via TCP/IP network connection (read parameter settings, measurement readings and alarm statuses)

Other interfaces, e.g. to an EIB/KNX bus system can be realized with standard gateways, which are available on the market.

2 Web based Graphical User Interface (WebGUI)

The by far most comfortable remote access to a PoolManager® is the fully transparent remote access to the PoolManager® WebGUI with a web browser.

This can be done from a PC, a smartphone, a tablet or any other web enabled device. Also most Building Management Systems (BMS) today have a web browser included and can be used to access a PM5 controller directly (the web browser should have HTML 5 support, which is the case for all relevant browsers today).

We have tested remote access from many different BMS at the last Light & Building show at Frankfurt, see the photos below.

The BMS and the PoolManager controller must both be connected to the same local TCP/IP network. Of course, remote access from the internet is also supported.

Using the PoolManager® WebGUI is described in detail in the PoolManager® user manual.

2.1 Light & Building show in Frankfurt 2012

Remote access to the PoolManager® WebGUI from many different BMS touch panels:



3 Remote Display & Control Unit at the Pool

Thanks to the PoolManager's® WebGUI there are several options to realize a remote display & control unit at the pool. Basically every web enabled device can be used as a remote display & control unit. All you need is a standard web browser running on the device. The remote display & control unit and the PoolManager® must be connected to the same (local) TCP/IP network to be able to communicate to each other. Standard cost efficient WiFi or Powerline (dLAN) can be used to establish the network connection.

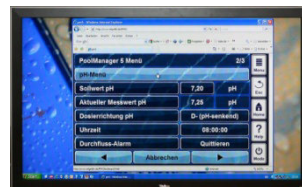
BMS touch panels, as shown above, can be used as a remote display & control unit. These systems are available in a wide range of different screen sizes, with or without IP65 protection (against water and dust) and with many different options.

The following list shows some more options for possible remote display & control units:



All-in-one Touch PC

- e.g. Viewsonic VSD220
- 21,5" touch screen
- Android operating system
- Wall mount option
- ca. 360,-€



Standard flat screen TV plus Web enabled mini PC

- e.g. All-in-one Mini PC with Android operating system
- e.g. Sony Internet Player with remote control



Wall mount for tablet PC

- e.g. Tablet Station for Apple iPad or Samsung Galaxy Tab

4 Quick Info

PoolManager® provides an additional compact HTML info frame (Quick-Info) for remote access, which provides the most important current information at a glance. This Quick Info is implemented as an HTML web page and can be displayed e.g. in a web browser.



The following information is shown:

- PoolManager® device name
- Current measured values
- Text colour on measured values:
 - green** Everything OK
 - red** There is at least one alarm pending

Pressing (or clicking) on the quick info field starts full remote access to the corresponding PoolManager® controller.

4.1.1 Calling up quick info

To call up quick info, the normal address for remote access (IP address or URL) is attached along with the following suffix:

[/cgi-bin/webgui.fcgi?infoframe=0](#)

Thus, a complete URL would be, for example

<http://myPoolManager.dtdns.net/cgi-bin/webgui.fcgi?infoframe=0>

or

<http://192.168.1.111/cgi-bin/webgui.fcgi?infoframe=0>

This URL is relatively complicated, but it can easily be stored in the browser as a favourite.



TIP

Multiple devices at a glance

If you are a specialist in charge of multiple PoolManager® units, you can have the quick info of all relevant devices displayed jointly on one webpage. To do so, you could e.g. design a simple HTML webpage (frame page) locally on your PC which shows clearly arranged the quick info of all relevant controllers.

This means you'll have the most important information from all controllers in one place.

If, for example, there is a controller showing an alarm (red text), then you can directly access that controller with one click.

5 Current outputs 4-20mA

The optional plug-in module PM5-SA4 (BAYROL item No. 127011) provides four current outputs 4-20mA (industry standard). It can be used to output the current pH, redox (mV), chlorine (or bromine) and temperature readings as well as the BayroSoft dosings for the PoolManager® Oxygen. The current outputs can be connected to a system or a gateway which provides 4-20mA current inputs.

Please refer to the separate user manual available for the PM5-SA4 plug-in module for more information.

6 Alarm Relay

The alarm relay of the PoolManager® is activated in case of an alarm. It can be used to signal alarms to a Building Management System or other systems. The alarm relay provides a collective alarm signal, i.e. individual alarms cannot be identified. This can be done on the PoolManager® or by a WebGUI remote access to the PoolManager®.

Electrically, the alarm relay can either be configured as a volts-free switch or as a 230V~ output (max. 4A).

7 Modbus-TCP data protocol

The PoolManager® swimming pool controllers support a Modbus-TCP protocol over a TCP/IP network connection, which allows Building Management or other external systems to read out measurement readings, parameter values and alarm statuses from the controller.

It provides a Modbus-TCP server (Modbus slave). The PoolManager® swimming pool controller must be connected to the same TCP/IP network as the Modbus-TCP client (Modbus master), which reads out the data.

Please refer to the separate Modbus-TCP protocol specification document for more information.

8 XML based data protocol

The PoolManager® swimming pool controllers support an XML based data protocol over a TCP/IP network connection, which allows Building Management or other external systems to read out measurement readings, parameter values and alarm statuses from the controller.

While the Modbus-TCP protocol only provides the current settings, readings or statuses, the XML data protocol provides additional information on top of that, e.g. the parameter names and physical units, all given in the current menu language of the PoolManager®.

The XML data structures can be read with HTTP GET requests. The PoolManager® swimming pool controller must be connected to the same TCP/IP network as the client system (e.g. the building management system), which reads out the data.

Please refer to the separate XML data protocol specification document for more information.

9 CAN bus

The PoolManager® provides a CAN bus interface. This interface is not intended for connections to Building Management systems or other external systems. It is intended for connections of future PoolManager® system extensions, e.g. so-called Feature Boxes.

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10 Gateways (e.g. EIB/KNX)

The PoolManager® does not directly provide specific domestic bus interfaces, such as EIB (KNX) or LON. However, standard gateways can be used, to connect the PoolManager® to various bus systems. Such gateways are available on the market and usually come with programming tools to configure them for the required functions and data points.

On the PoolManager® side, either the 4-20mA current outputs or the Modbus-TCP protocol can be used to connect to the gateway. The XML based data protocol could also be an option.

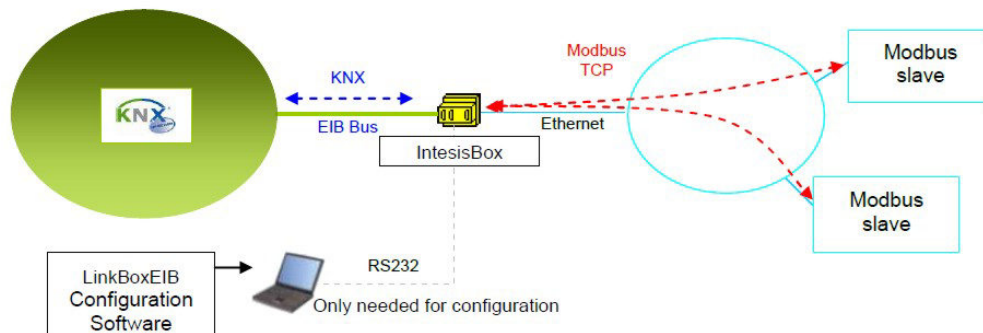
The following figure shows an example of a system using a Modbus-TCP to EIB (KNX) Gateway from the manufacturer Intensis (www.intensis.com). The PoolManager® is a “Modbus slave” in this context.



IntesisBox® KNX – Modbus TCP master

Gateway for integration of Modbus TCP slave devices into KNX control systems.

Integrate any Modbus TCP slave device into KNX.



Source: Intensis (www.intensis.com)