Intelligent Building Solutions

CIB-tech System – a short description

General Description:

CIB-tech (**C**omplete **I**ntegration **B**us **tech**nology) is a building automation system provided by IBS (Intelligent Building Solutions) which targets on the idea of integrating with a wide range of regular third-party end devices like switches, lighting controls and dimmers, heating/cooling, energy metering, video surveillance, access control, different sensors like movement, gas, humidity, etc... from different manufacturers. CIB-tech is pretty much different from other automation systems by the fact that our equipments usually do not include the front-end interface the end user has to operate, but only the controlling component behind the scene which receives and processes commands of the operator's GUI (via ESS software). Given this fact it offers more varied options in terms of where to place the controlling component by allowing to use a wider range of end devices from producers which do not necessarily have to be connected by any means to the CIB-tech technology nor any other kind of house automation standard like LON, X10 or EIB/KNX, in most cases they will be regular electrical device manufacturers. Furthermore IBS provides the option to develop with low effort custom controlling equipments for special end devices in order to integrate these into our system if the customer has special requirements.

Due to the fact that most of the CIB-tech controlling equipments usually do not interfere with the end user the freedom of cabling infrastructure and the options for end-devices to install is rather various. The possibility of placing the equipments close to the to be controlled end device is possible but they also can be concentrated together in one or several groups far away from the devices they have to control. Different types of CIB-tech controlling equipments, wall, surface or DIN ail mounting types, are available. CIB-tech systems integrate very well with most of regular third party end device such as light switches, power plugs, heating, cooling, security access systems as key card readers (RFID or iButton), video surveillance devices (PTZ), etc.

Via an USB, RS232 or Bluetooth interface a CIB-tech based network is connected to the **ESS** server (**E**nvironmental **S**ettings **S**oftware) which provides almost unlimited possibilities of intelligence to the system such as simple centralized end-device control via GUI, certain automated actions depending on former measured values, simple or complex scenarios, history of device activities, control access and rights management based on user log-in. Different users can be provided with different GUI views to the same system, some might not even see certain items, others might see them but will not be allowed to control some or all of them, etc.

ESS is Open source Public-GNU licensed software which is provided free of charge to customers running a CIB-tech system.

Cabling Infrastructure:

A CIB-tech network operates on a low voltage power supply following industrial standards at 24 V/DC having a voltage range of 20 - 28 V/DC which guarantees a stable functioning in case of backup battery feed-in.
Inter-connectivity of CIB-tech equipments is made with twisted pair cable of 2x2x0.5 wires and 4P4C (RJ9) connectors. Inter-connectivity between network backbone devices (CIB-tech hubs) is made using twisted pair cable 4x2x0.5 and 8P8C (RJ45) connectors.

Equipment Addressing in the Network:

Each CIB-tech equipment has a 7 bytes unique address which assures a correct identification of each equipment in a CIB-tech network. The first byte defines the network address in order to address the equipment in the network similar to an IP-address. The other 6 remaining bytes (2 bytes device type definition / 4 bytes device serial number) are unique comparable to a MAC-address or hardware address. While the network address can be changed and even needs to be changed in order to assure that each equipment in the CIB-tech system has a unique network address assigned, the hardware address will always remain the same. By this address the equipment is auto-detected in the system as a certain type of device.
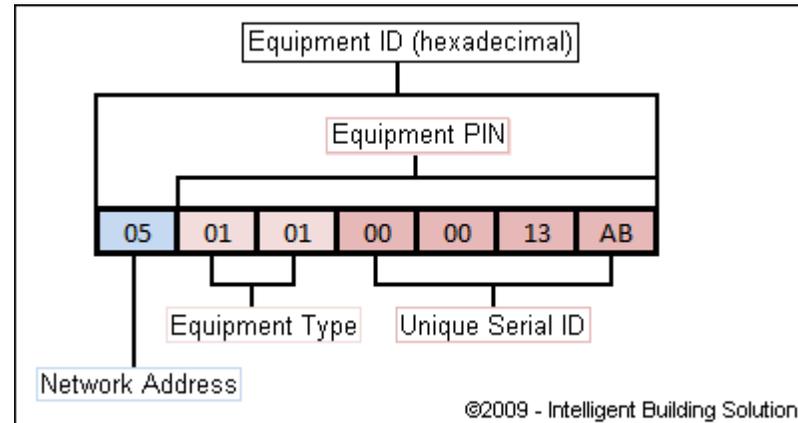

Network Structure and Topology:

A CIB-tech network is composed of a maximum of 127 equipments, the CIB-tech/ESS server interface of the system and if required some CIB-tech hubs. Several CIB-tech networks can be connected to one ESS server, and thus it's possible to considerably extend the amount of installed equipments in a larger building.

The CIB-tech system is build in an extended star network topology, in its simplest form it consists of a few equipments in a row or connected to each other or a hub up to several accumulations of equipments interconnected via CIB-tech hubs. Finally the system ends up in a software server module from where communication to/from the outside world is established via TCP/IP, internet, LAN, WLAN etc... even configuration and management of the system is usually done via TCP/IP from any regular computer with network interface.

Please see example of a CIB-tech structure on next page.
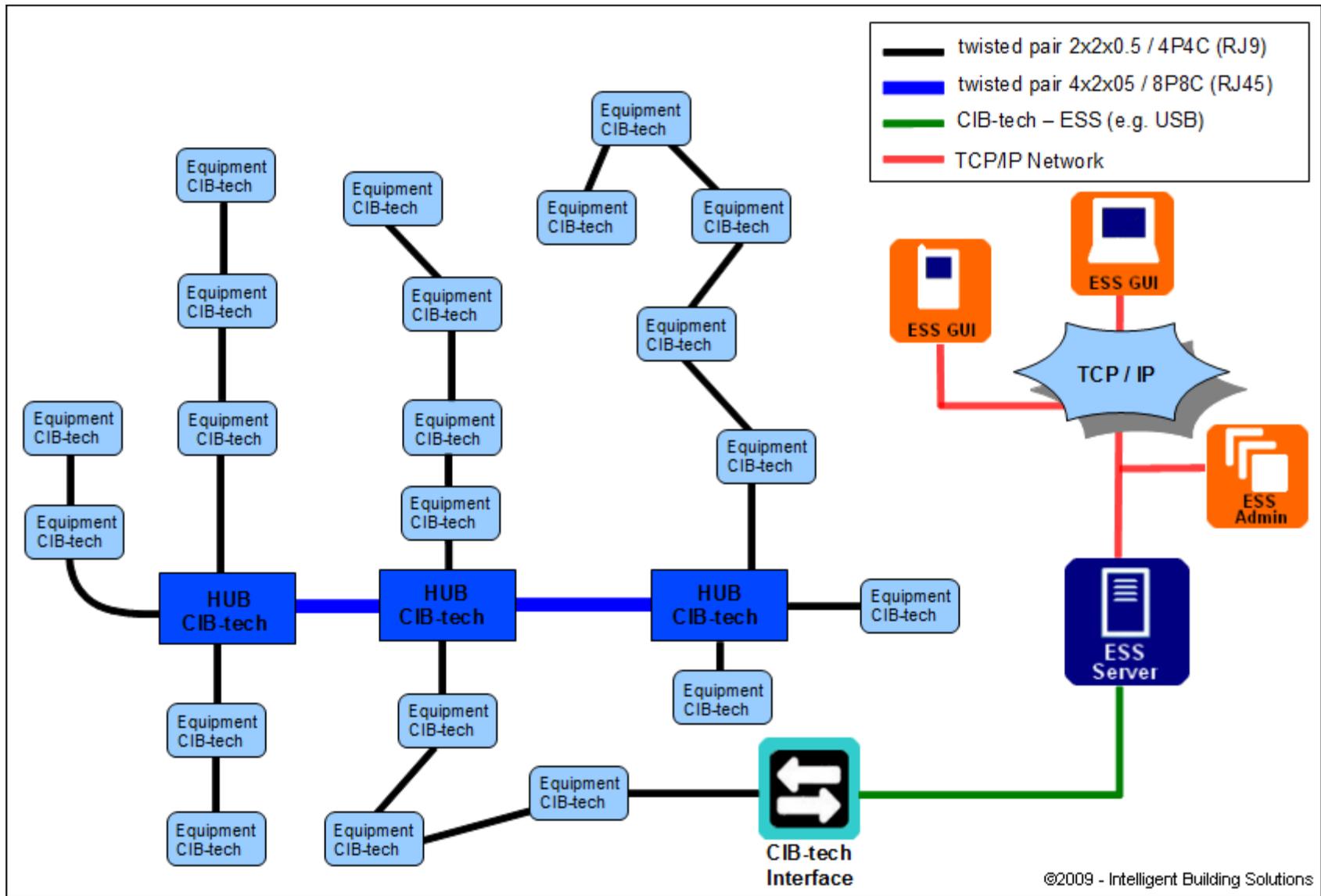
NOTE: For a detailed description of the CIB-tech system functioning please refer to the "CIB-tech Installation Manual", for detailed information and circuit diagrams of specific equipments please refer to the section Products at http://www.ibs-smarthouse.com

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