

# T7 SYSTEM



Starter Kit



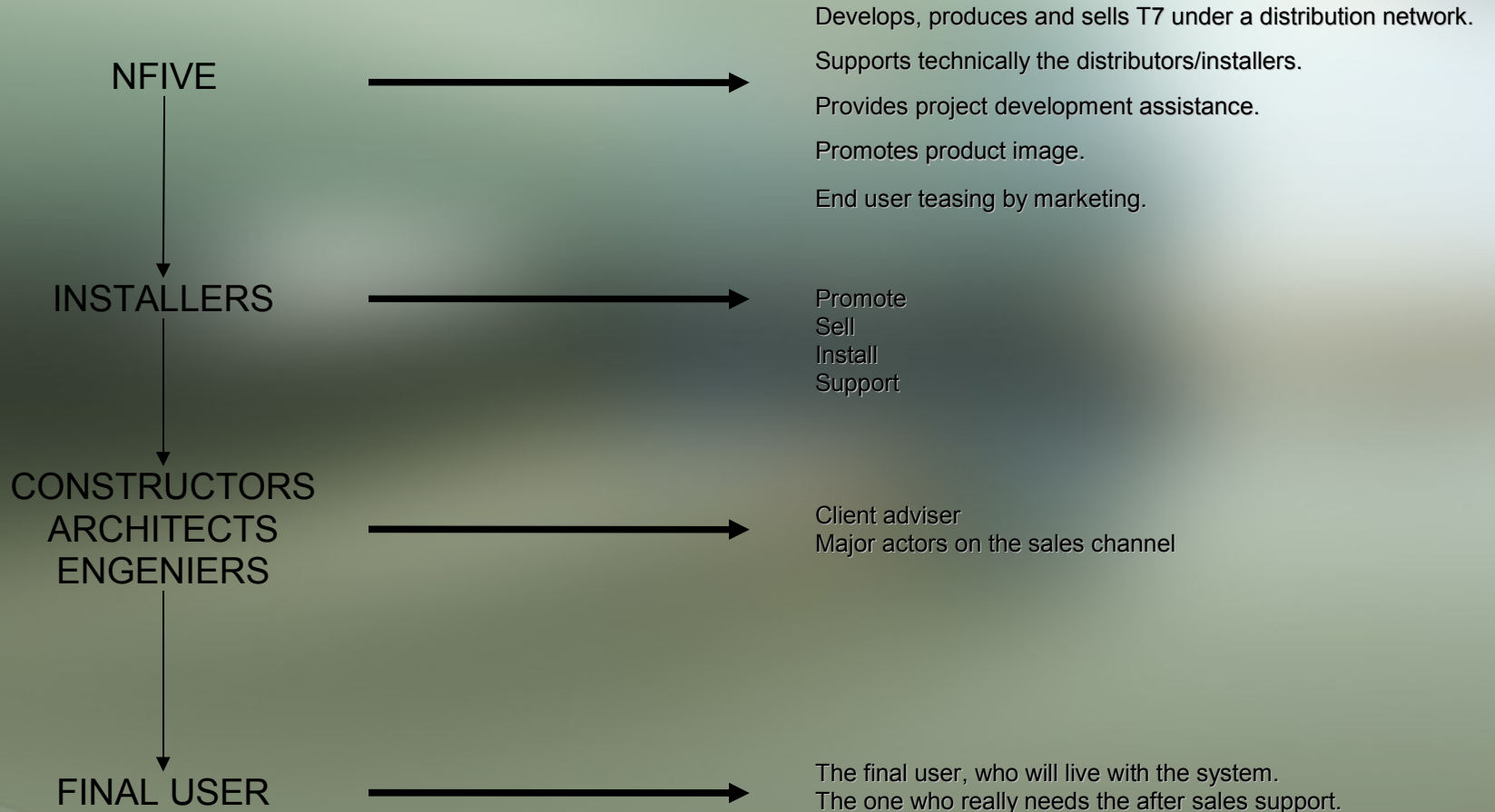
Sales Info



System Overview

# System Overview

## Deploy Cycle



# System Overview

## Events Concept and Messages



- The T7 is a reactive system, reacts to real world events.
- The system reacts based on readings or time, as programmed
  - This devices can be sensors or switches.
  - You can make the system react to a programmed hour.
- Each one of this reactions generates an EVENT that causes a message to be sent along the system.
- T7 system communications are media independent

# System Overview

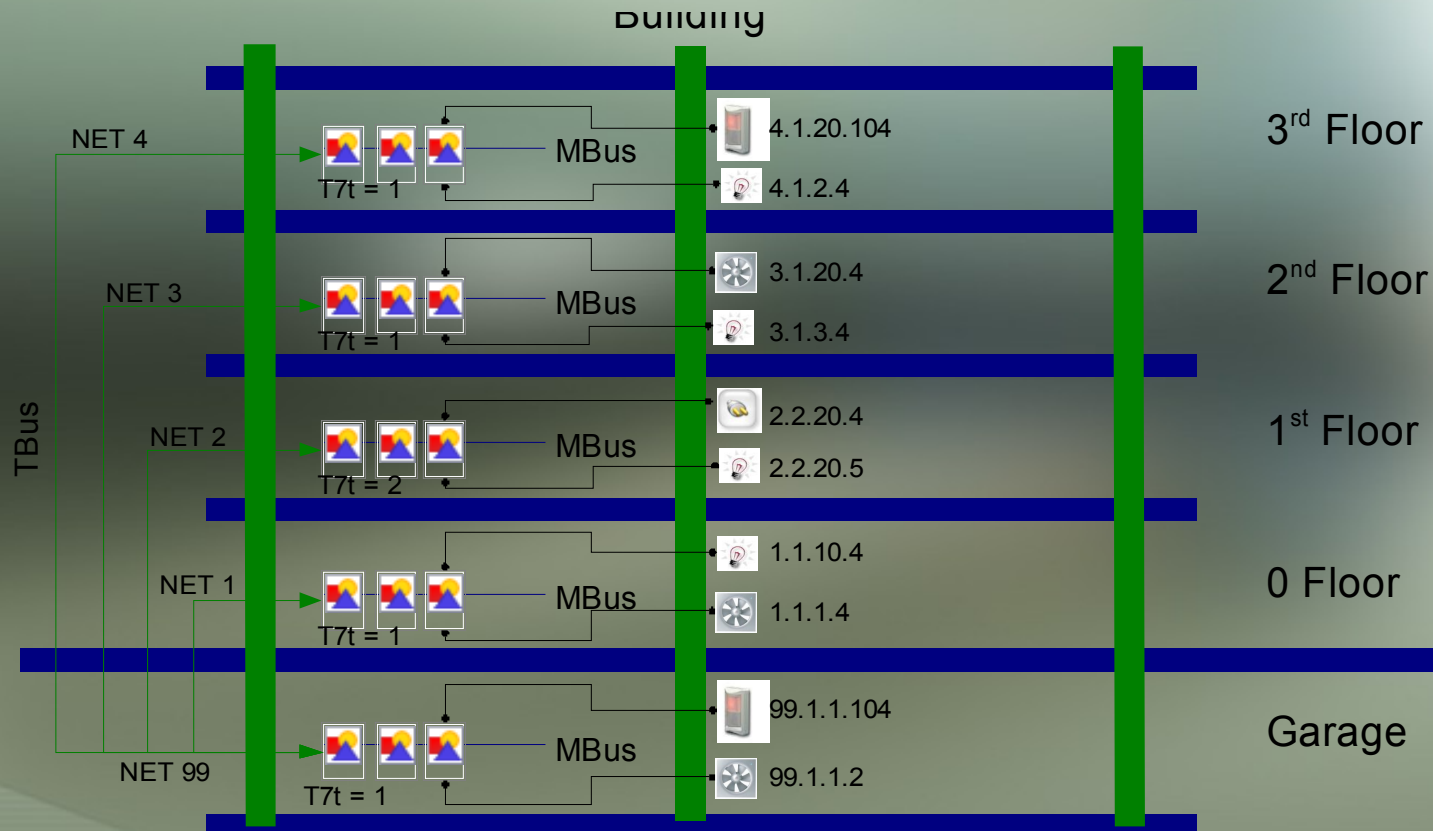
## Addressing



- The T7 modules address is based on N.T.M.L. system where:
  - N = Net
  - T = Terminal
  - M = Module
  - L = Line
- NET = A logical network, a mechanism to isolate sets of modules and grant or deny access among several installations physically linked.
- TERMINAL = A set of T7pw + T7t that creates a branch of modules.
- MODULE = The physical module that manages device.
- LINE = The lines on the modules that connect to the devices. Lines can be...
  - Input lines, sensing the real world and causing events to happen.
  - Output lines, turning on, off or dimming electrical devices.
  - Data Lines, Interfacing other electronic equipment.

# System Overview

Addressing Example (Building)



# System Overview

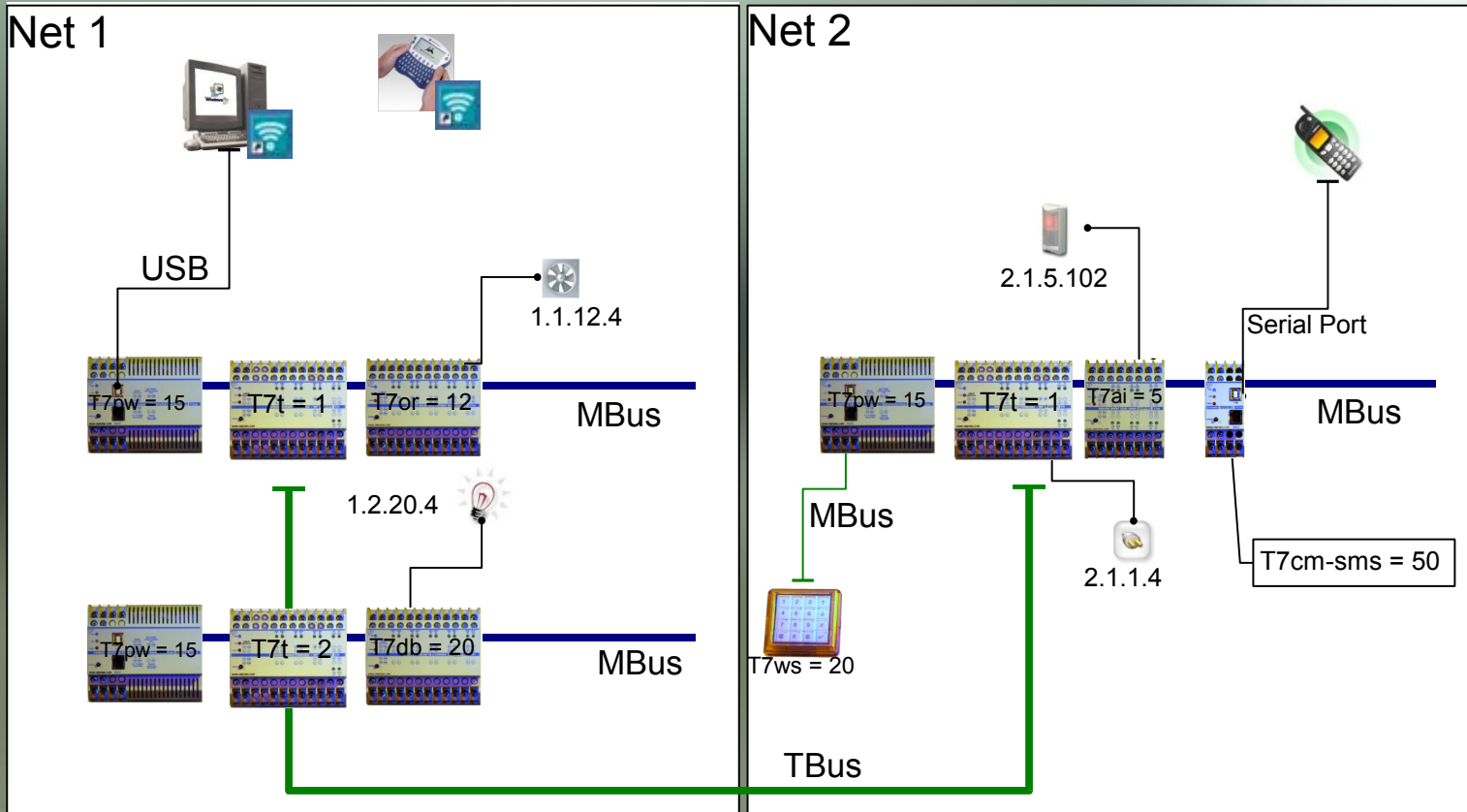


## Connections

- T7 System allows several different connections.
- USB – Located on T7pw, is basically a slave connection where you can plug any PC or any other master usb device.
- Serial Port – Have the same characteristics of USB connector, is also located on T7pw module, but as a master/slave port you can also use it to connect other devices, like a cellular phone or a LBR90.
- Ethernet
- Wireless
- GSM
- The T7 system considers two main buses, both of those are wired, based on RS485 with CDMA (Collision Detection Media Access) at 57.600 Bauds. :
  - TBUS, the backbone, communication between terminals.
  - MBUS, communication between modules.

# System Overview

## Connections Example – 2 Nets

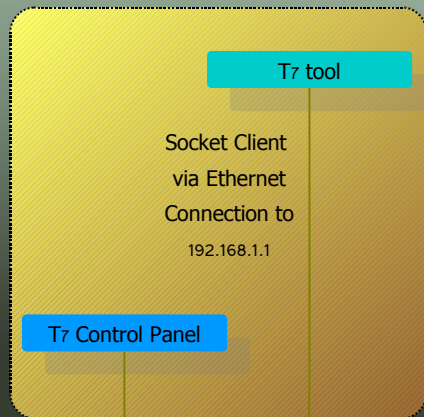


# System Overview

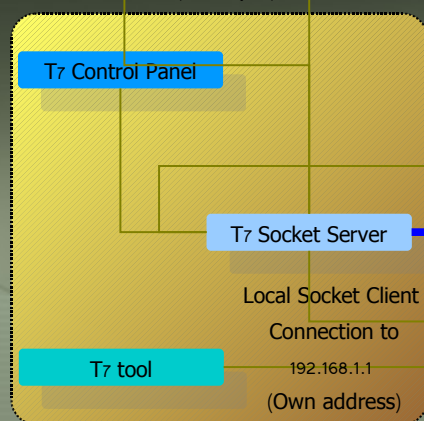
InterConnections, Software and Device



PC - IP Address (example): 192.168.1.2



PC - IP Address (example): 192.168.1.1



Ethernet

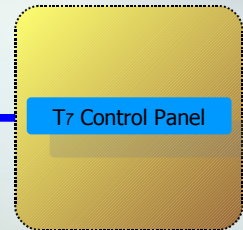


Socket Client via Ethernet Wireless Connection to 192.168.1.1

WiFi

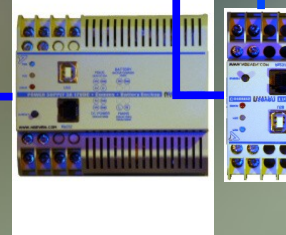


T7 Control Panel (Windows Pocket PC)



PC Connects to T7 via Serial or USB

PC Connects to T7 via Serial or USB



PC Connects to T7pw or T7cm



OR



SMS Interaction Command Messages send to T7 system and warning messages back to mobile phone

T7 Messenger (Windows Pocket PC)



Mobile Phone Siemens TC35 or Nokia 62X0

A registered SIM card is required.



# System Overview

## Modules



### T7pw - Power Supply

- Supplies power to MBUS, 12 Vdc / 3 Amp.
- Automatic power cut in over current situation.
- Automatic power cut under short circuit circumstances.
- Addressable, it reports power consumption status.
- Generates an event message in case of power cutting.
- PC interface
- Serial port or USB port to communicate with a PC.
- Converts RS232 in T7comms with intelligent buffering.
- Usable in MBUS.
- Mbus Derivation
- Connect T7ws module with the system.



### T7t – Terminal.

- Implements the terminal concept, sets net and terminal address to Mbus.
- Manages MBUS communications, TBUS and other media routing.
- Handles events and generate reactions to events.
- Manages current loads through a configuration prioritized table.
- Power supply derivation port 5Vdc and 12Vdc for external devices.
- TBus derivation port.
- 4 Output Lines with 10Amp relays.
- 2 Output Lines with dim bright.
- 4 Input Lines.



# System Overview

## Modules



### T7ai – Analog Input

- 12 Input lines open collector.
- 8 bit resolution.
- Power supply derivation port 5Vdc and 12Vdc for external devices.
- MBus derivation.



### T7or – Output Relay

- 10 Lines with 10 Amp relays each.
- NC/NO connectors.
- MBus derivation.
- Power supply derivation port 5Vdc and 12Vdc for external devices.

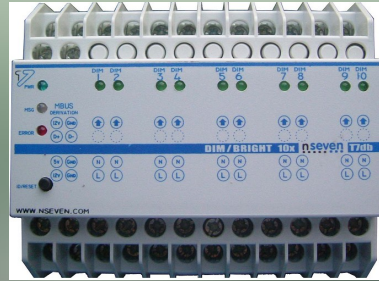


# System Overview

## Modules



### T7db – Dim Bright



- 10 Output lines dim
- 220Vac / 150Watts.
- Merge line function for high loads.
- Configurable soft ON/OFF timings.
- Load measurement (consumption in watts).
- Power supply derivation port 5Vdc and 12Vdc for external devices.
- MBus derivation.

### T7mp – Multipurpose



- 4 Output relay ports
- 2 Output Dim bright ports
- 8 Analog input ports
- This module is a mix of the last three, T7ai, T7or and T7db.
- Also keeps all their characteristics and functions.



### T7ws – Wall Switch.

- Convenient, compatible with regular switches format.
- 16 Keys, each key is configurable and multi functional.
- Membrane keyboard pocket for user layouts.
- 16 Signaling led.
- Glowing enclosure, blue or red led illumination.



### T7cm – Comms

- T7 system PC link (USB or RS232)
- T7 system and external devices interface (RS232 port only).
- Power supply derivation port 5Vdc and 12Vdc for external devices.
- MBus derivation.



# Commercial

Market Areas

*T7 System is suitable for any control needs, some of the major markets can be seen as:*

*Security, Access Control*

*Home Automation*

*Public Site Automation*

*Industrial Control*

*Systems, Machinery Integration*





## Security

- Home, building offices, public sites and industrial environments.
- With T7 system it can go from a simple installation to open a door with a fingerprint recognition to complex access control with access allowances and time attendance.
- Security can be related with comfort.



## Home Automation

- T7 integrates illumination control, alarm functions, temperature control, ambient sound control, garden sprinklers, pool control, gates, doors, shades and much more.
- Turning the house of today into the home of tomorrow at your reach.
- Generate scenarios of utilization, make your home intelligent and allow it to embrace you in a totally revolutionary way. Allow your home to economize by itself and secure you by means of a T7 system installation.



- ## Public Sites Automation

- The huge flexibility of T7 makes it the best choice for buildings and public sites automation.
- Light control, utilization of sensing and measuring, are just some idea of the capabilities of a T7 system.
- Some Public Sites examples:
  - Offices building automation;
  - Airports;
  - Hospitals;
  - Hotels;
  - Public Parks;
  - Road and traffic control;
  - Amusement Parks; Museums;
  - Cinemas & Theaters... and more.



- **Industrial Control**

- Robust, flexible, reliable, independent and easy to set-up, T7 systems are highly suitable to use in harsh industrial environments to automate processes.
- Some examples of Industrial Control application:
  - Production lines automation;
  - Conveyors;
  - Cooling chambers and temperature control;
  - Industrial ovens;
  - Logistics Processing;
  - Production Plant Synoptics;
  - Production plants conditioned Alarms... and more.



- ## Systems Integration

- This message is to machinery manufacturers.
- They don't have to bother anymore to create the control electronics for machinery control. Just use T7 systems inside to manage their machinery with it.
- It can be use on motors control, frequency meters, analogue inputs, output DC and AC for 0 to 1000 Volts.
- The machinery will be fully integrated on the whole environment for control, synoptics and sensing, T7 just need a plug for the communication bus.

# Commercial

## Cost Estimation



- Basic Steps to Cost Estimation
  - Understand customer needs...
  - Get the projects available, architecture, electrical..
  - Apply T7 to the project, by identifying control lines and calculating modules, sensors, devices needed to fulfill customer expectations.

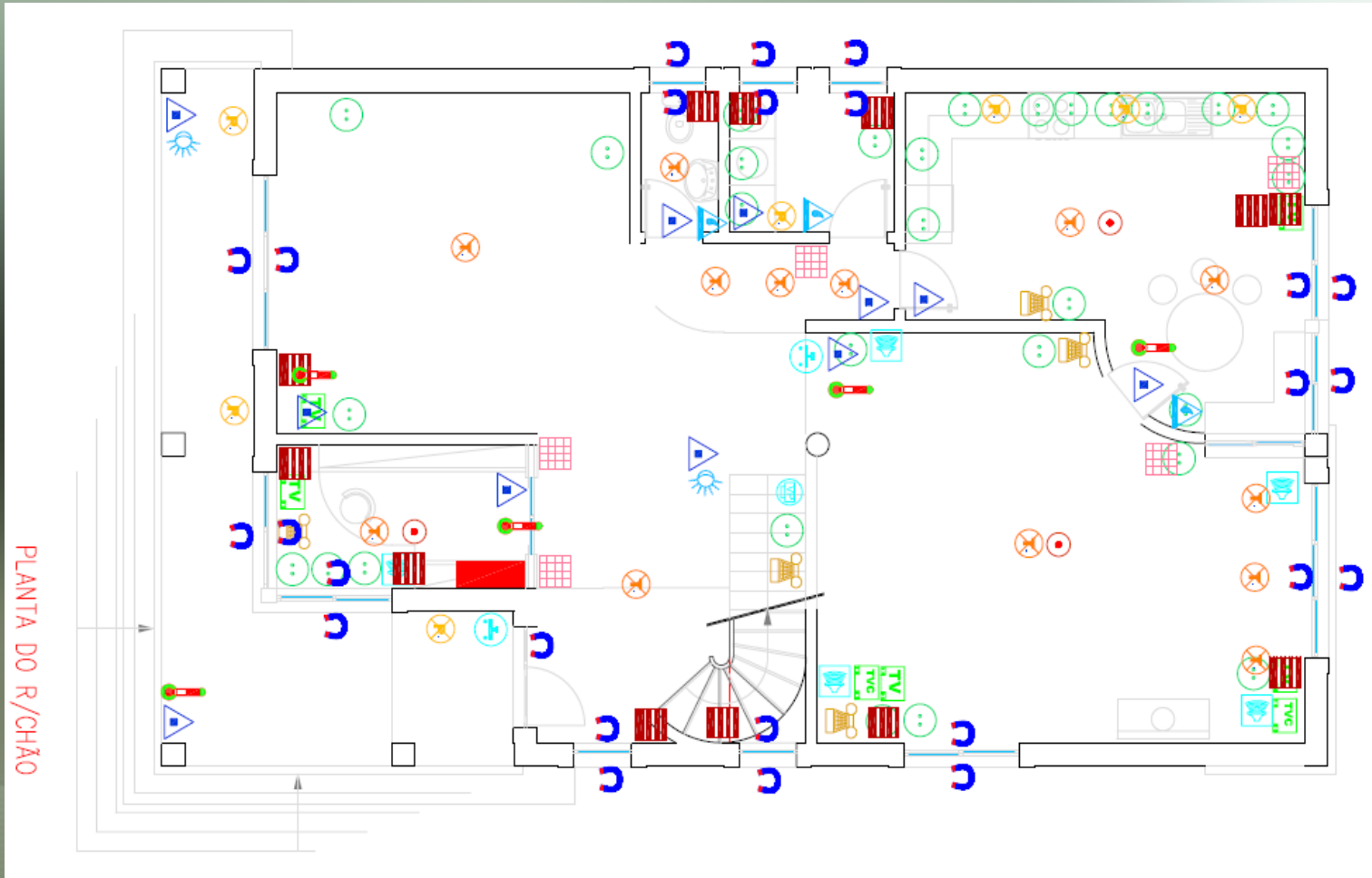
# Commercial

## Cost Estimation – Control Lines



- Identify Lines and Modules
- Calculate the number of circuits that the client want the system to control.
- Get the number of sensors that will be connect to the system.
- Note that T7 is based on a modular set-up, allowing to save time and money on wiring by distributing the control over the physical areas.

# Commercial





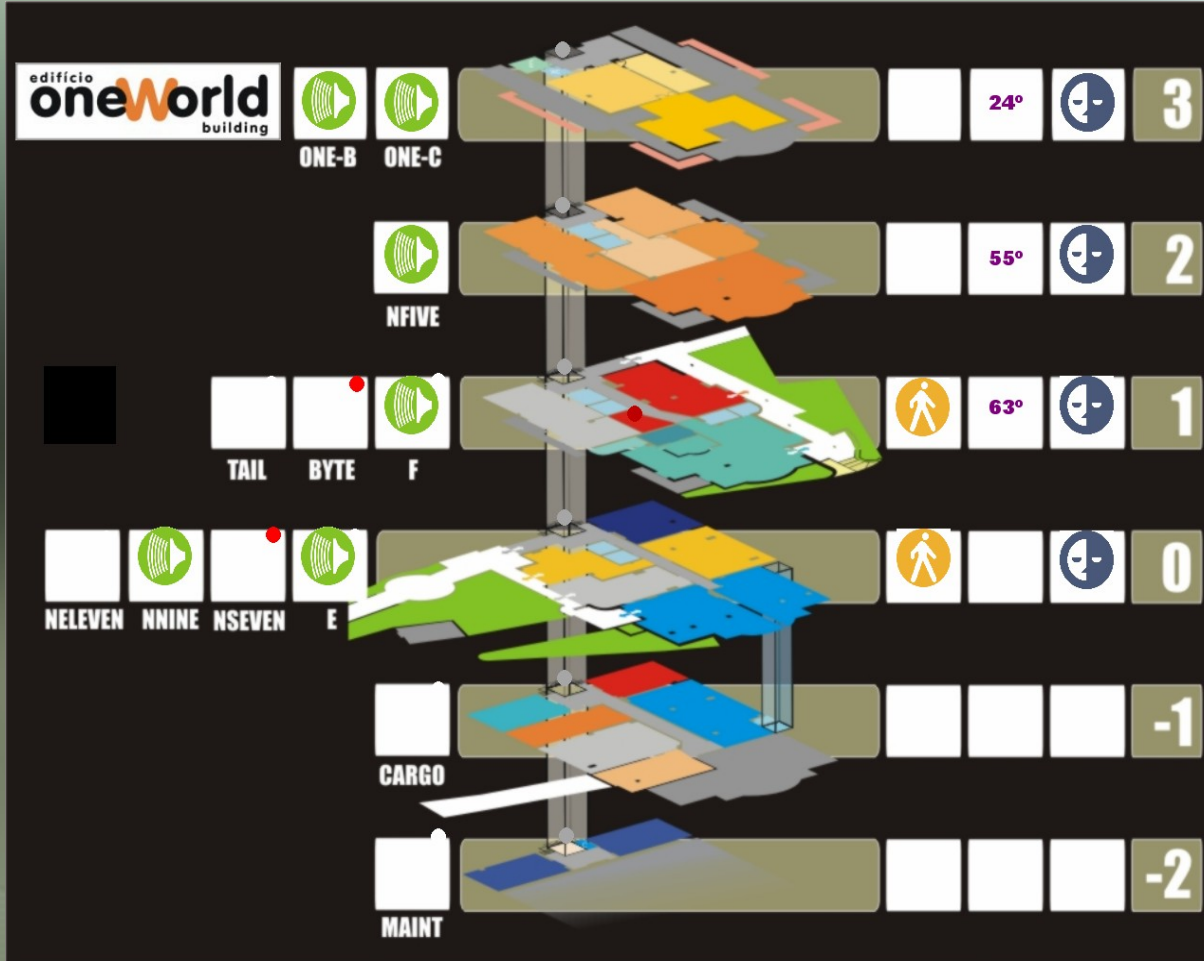
- User Interface

- T7ws is the cheapest and most effective way to interact with the user.
- T7Control Panel, Software, needs a PC, preferably touch screen, and allows full control power, sinoptics, reporting, visual and sound effects.
- T7cm-sms allows interaction via mobile phones, either to or from the system.

- ID Terminals

- T7ac-sc – SmartCard simple interface with Lock Control and more integrated
- BioScript Terminals
- (Other options available soon)

# Commercial



# Commercial

## Features and Functionalities



- Security is a major functionality of T7 System
  - Access Control
  - Intrusion Alarm
  - Fire alarm
  - Flood Alarm
  - Malfunctions alarm
- Convenience, ease of use. The best automation is never noticed by the user.
- Comfort is a very important issue when talking about control systems.
  - Temperature control
  - Lightning and Shades
  - Constant control
- Economy, the system can save you money turning off devices when you don't need them anymore and turn them on when you are not there, replace a security system with fire alarm, avoid the research and development of control electronics for machinery control, organize access control and allowances.



# Starter KIT

## Description



- A basic T7 system.
- The idea is to allow the installer to install a basic system for personal training.
- It should be used to lab testes, test wiring and functionalities of any device that you want to connect to the system.
- Come with all hardware and software needed.

# Starter KIT

## Content



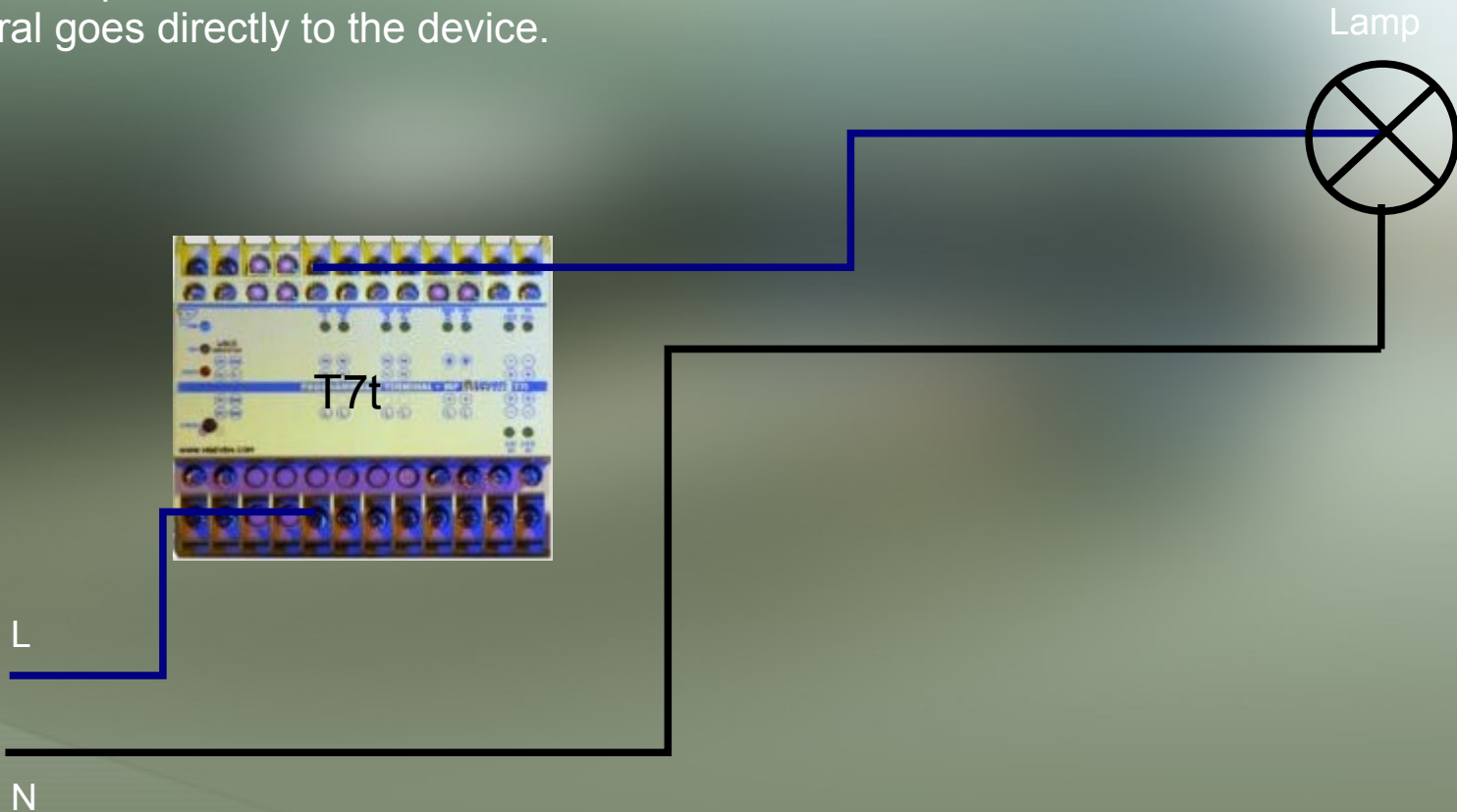
- 1 T7pw module
- 1 T7t module
- 1 T7ws module
- 1 CD with
  - Software T7Tool
  - Software T7CPanel
  - Datasheets in PDF format
  - Technotes in PDF format
  - System Reference Document in PDF format

# Starter KIT

## Wiring Lamp Scheme



Connect the Line to T7or port.  
The Line comes out from a NO or NC port, to a lamp is normally a NC port.  
The Neutral goes directly to the device.

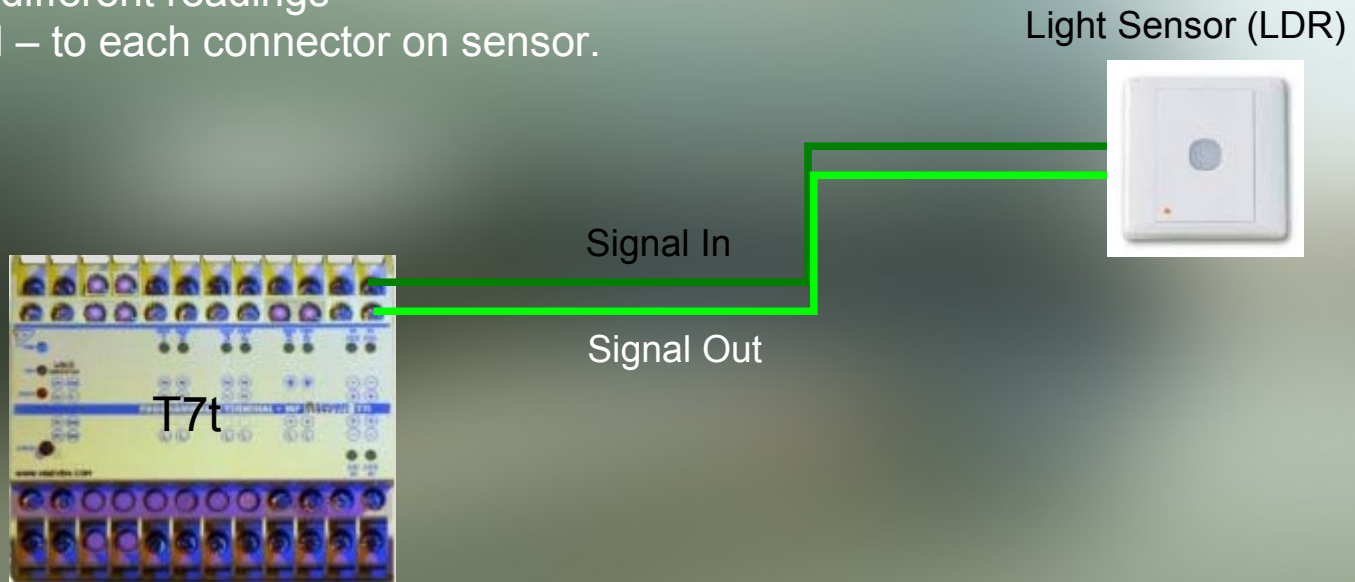


# Starter KIT

## Wiring Light Sensor Scheme



The light sensor is basically a variable resistor, this variation depends on light intensity. This gives to T7ai different readings. Connect the + and - to each connector on sensor.

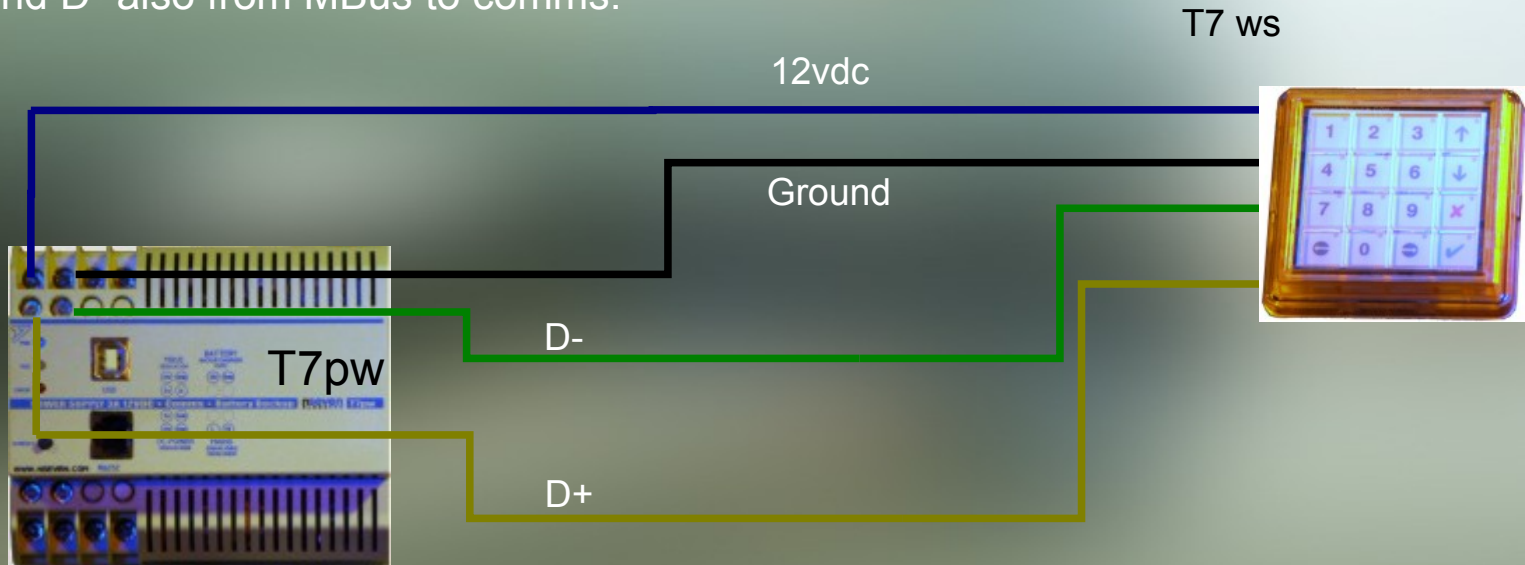


# Starter KIT

## Wiring Wall Switch Scheme



Connect a T7ws is basically make a MBus derivation.  
You have to connect 12vdc and ground from MBus to  
power and D+ and D- also from MBus to comms.



# T7 Tool

## Description



- Installation tool, identify and test wiring.
- Program reactions.
- A separated document for each installation.
- Modules self detection system.
- Drag & drop auto program.
- T7CPanel program and layout.
- SMS control system.

# T7 Wiring

## Cable Distances



### MBUS CABLING

- MBUS is 4 Wires, 2 for Power (12VDC and GND), 2 for communications (Data+ and Data-, differential Rs485 with CDMA). Use CAT5/5e/6, TVHV, or any cable of your convenience.
- Distances are critical only on power supply line, the communication wired supports 1Km without any concerns. Power supply distances are limited by several factors: Consumption, Cable attenuation, normally related to cable section and tension (voltage) drop allowed.
- The formula to calculate is:  $\text{Distance Mts} = ((\text{Tension Drop} / \text{Cable Resistance per KM}) * (1000 / \text{Current})) / 2$ . A typically resistance of a cable with 1mm section is 17 Ohms per Km. The bigger the section the less resistance and bigger the distance allowed. The maximum tension drop allowed on modules is 3 Volts, other equipments connected to the same power supply may not support a 3V drop.