The heart of smart control

InteliVision 13Touch

13.3" display unit for ComAp controllers

SW version 1.0

Global Guide

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1 Document information

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1.1 Clarification of notation

Note: *This type of paragraph calls readers attention to a notice or related theme.*

> IMPORTANT: **This type of paragraph highlights a procedure, adjustment etc., which can cause a damage or improper function of the equipment if not performed correctly and may not be clear at first sight.**

> **Example:** This type of paragraph contains information that is used to illustrate how a specific function works.

1.2 About this guide

This manual contains important instructions about InteliVision 13Touch display unit that shall be fullfilled during the installation and maintenance.

This manual provides general information how to install and use InteliVision 13Touch display unit.

1.3 Legal notice

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Warning: Some forms of technical support may be provided against payment. There is no legal or factual entitlement for technical services provided in connection to resolving problems arising from cyber-attack or other unauthorized accesses to ComAp's Products or Services.

General security recommendations and set of measures

1. AccessCode

• Change the AccessCode BEFORE the device is connected to a network.

• Use a secure AccessCode – ideally a random string of 8 characters containing lowercase, uppercase letters and digits.

• For each device use a different AccessCode.

2. Password

• Change the password BEFORE the device enters a regular operation.

• Do not leave displays or PC tools unattended if an user, especially administrator, is logged in.

3. Controller Web interface

• The controller web interface at port TCP/80 is based on http, not https, and thus it is intended to be used only in closed private network infrastructures.

• Avoid exposing the port TCP/80 to the public Internet.

4. MODBUS/TCP

• The MODBUS/TCP protocol (port TCP/502) is an instrumentation protocol designed to exchange data between locally connected devices like sensors, I/O modules, controllers etc. From it's nature it does not contain any kind of security – neither encryption nor authentication. Thus it is intended to be used only in closed private network infrastructures.

• Avoid exposing the port TCP/502 to the public Internet.

5. SNMP

• The SNMP protocol (port UDP/161) version 1,2 is not encrypted. Thus it is intended to be used only in closed private network infrastructures.

• Avoid exposing the port UDP/161 to the public Internet.

1.4 Certifications

Declaration of Conformity	
The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.	CE
RoHS	
This device complies with conditions known as "RoHS compliance" and conforms to the requirements of the European Union's Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment ("RoHS") Directive, 2015/863/EU. RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm, Bis(2-Ethylhexyl) phthalate (DEHP) < 0.1% or 1,000ppm, Benzyl butyl phthalate (BBP) < 0.1% or 1,000ppm, Dibutyl phthalate (DBP) < 0.1% or 1,000ppm, and Diisobutyl phthalate (DIBP) < 0.1% or 1,000ppm.	RoHS COMPLIANT
FCC	
This product complies with FCC 47 CFR Part 15, Subpart B, Class A. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.	FC
EU RO MR	
Marine certification stands for European Union Recognised Organisation Mutual Recognition Type Approval Certification. It is a Marine certification recognized by the EU RO MR group members. Nowadays (March 2020) EU RO MR group members are: American Bureau of Shipping ("ABS"), Bureau Veritas Marine & Offshore SAS ("BV"), China Classification Society ("CCS"), Croatian Register of Shipping ("CRS"), DNV GL AS ("DNV GL"), Indian Register of Shipping ("IRS"), Korean Register ("KR"), Lloyd's Register Group Ltd. ("LR"), Nippon Kaiji Kyokai General Incorporated Foundation ("NK" or "ClassNK"), Polski Rejestr Statkow S.A. ("PRS"), RINA Services S.p.A. ("RINA"), Russian Maritime Register of Shipping ("RS"). When using the InteliVision 13Touch EU RO MR certificate it is necessary to enclose also Statement of Similarity for RD1IV13TBME also available for download.	**EU RO MR**

1.5 Document history

Revision number	Related sw. version	Date	Author
1	IV13T_image_version_1.0.0	1.5.2020	ComAp a.s.

1.6 Related products

Product	Description	Order code
InteliSys Gas	Industrial grade controller for gas gen-set based CHPs and power generation applications	I2GASXXBAB
InteliSys^{NTC} BaseBox	Premium Parallel Gen-set Controller	IS-NTC-BB
InteliGen^{NTC} BaseBox	Complex Parallel Gen-set Controller	IG-NTC-BB
InteliMains^{NTC} BaseBox	Mains Supervision Controller Base Unit	IM-NTC-BB
InteliGen^{NT}	Complex Parallel Gen-set Controller	IG-NT GC
InteliSys^{NTC} Hybrid	Hybrid system controller	IS-NTC HYBRID
InteliMains^{NT}	Mains Supervision Controller	IM-NT GC
InteliDrive DCU Marine	Modular Certified Engine Controller for Marine Applications	ID-DCU MARINE
InteliGen^{NT} BaseBox	Complex Parallel Gen-set Controller with Detachable Colour Display	IG-NT-BB
InteliLite^{NT}	Manual Remote Start (MRS) Gen-set Controller	IL-NT MRS15
InteliCompact^{NT}	Genset Controller for Gensets in Multiple Parallel Applications	IC-NT MINT
InteliLite	New generation of the most advanced Auto Mains Failure (AMF) gen-set controller	IL3AMF25BAA
InteliGen 200	New Generation of Parallel Gen-set Controller	IG3200XXBAA
InteliGen 500	Advanced paralleling gen-set controller with 5" colour display	IG3500XXBAA

2 System overview

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2.1 General description

The new InteliVision 13Touch is a high-quality easy-to-use 13.3" Marine certified Panel PC with multi-controller support and buttons for brightness regulation on its front face. Even though the software allows to configure up to 32 controllers the hardware is designed for simultaneous monitoring and control of up to 4 controllers only. Compatible controllers should be connected via Ethernet, in some cases with use of InternetBridge-NT. USB ports are recommended not to be used for monitoring.

InteliVision 13Touch is mainly dsigned to communicate over Ethernet interface. InteliVision 13Touch comes with PC SCADA software enabling users to freely configure their screen with different types of items such as meters, bar graphs, numeric values, control buttons, pictures, etc. The software allows users to check the history of multiple controllers and change setpoints from a single location. IGS-LOG software is also preinstalled at no extra cost for continuous logging of desired parameters. InteliVision 13Touch is designed to mount on a panel.

Technical data

Power supply

Power Supply Range	10 - 31 V DC

Operating conditions

Operating Temperature	-15 °C to 55 °C
Storage Temperature	-20 °C to 60 °C
Vibration	On engine 4grms
Humidity	Up to 95% relative humidity (non-condensing)

Interfaces

Rear I/O	2 × USB 2.0
	2 × USB 3.0
	Ethernet: 2 × RJ45, 10/100/1000 Base-Tx

System

CPU	Intel Atom® x5-E3930 Processor, 2 MB Cache, 1.30 GHz / 1.80 GHz
Memory	4GB RAM
Storage Device	32 GB eMMC
	240 GB SSD

LCD specification

LCD panel	13.3" TFT-LCD
Resolution	1920 × 1080 px (FHD)
Luminance	600 cd/m^2

Contrast Ratio	600 : 1
Viewing Angle	85 deg. (up/down/left/right) (typical)
Backlight	LED

Touchscreen

Type	P-Cap (Projected Capacitive Touch)

Mechanical

Housing	IP66 front, IP20 rear (EN60529)
Weight	approx: 3.0 kg / 6.6 lbs
Dimensions (W × H × D)	355.00 [13.98"] × 248.50 [9.78"] × 69.00 [2.72"] mm [inch]

Operating system

OS	Windows® 10 IoT Enterprise 2019 LTSC (64bit)

3 Installation and wiring

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3.1 Front panel description
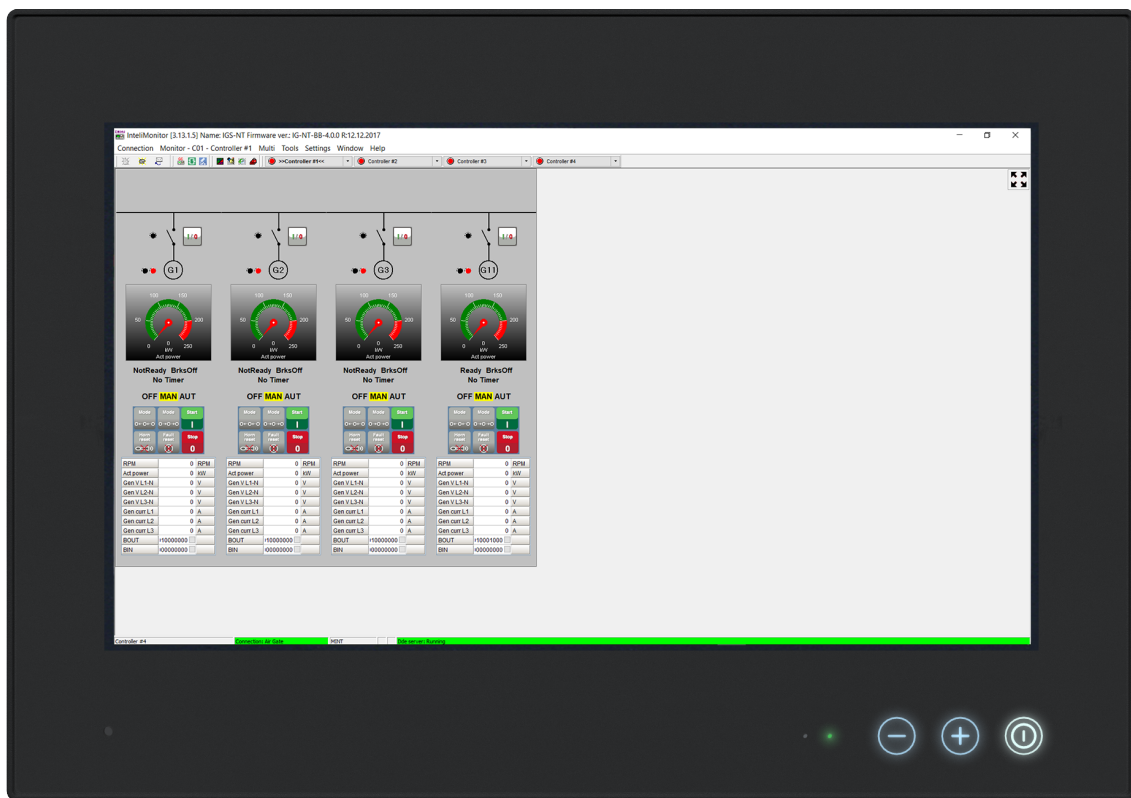
Image 3.1 Front panel overview

Title	Description
LED indication	Status RGB LED
Brightness settings	Brightness setting using buttons plus/minus
Power ON/OFF	Power ON/OFF of the device

3.2 Rear panel description

3.2.1 Rear panel
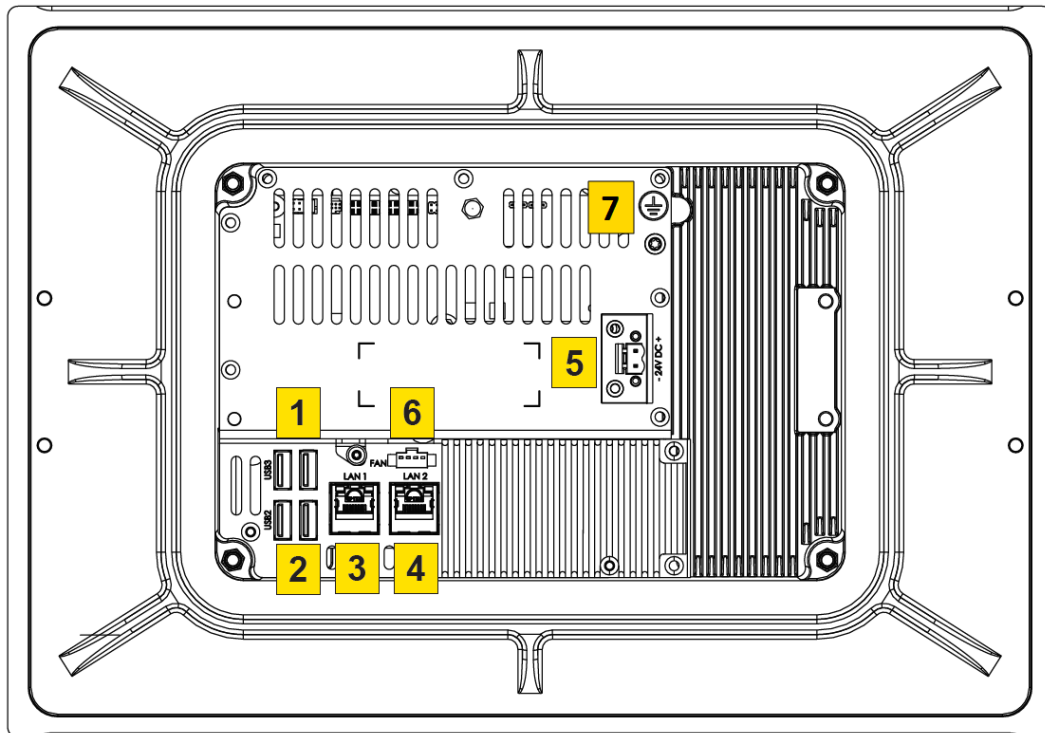
Image 3.2 Rear bottom panel description

Number	Title	Description
1	USB 3.0 Type A (Host)	2 x 9-pin USB Type A
2	USB 2.0 Type A (Host)	2 x 4-pin USB Type A
3,4	Ethernet RJ45	2 x 8-pin RJ45 10/100/1000Mbps LAN/Ethernet
5	DC Power Input	1 x 2-pin Termin Block 5.08 - DC Power Input
6	External Fan Connector	Not used.
7	Earthing	Earthing screw connector.

IMPORTANT: It is strictly recommended to use earthing in any circumstances.

3.3 Dimensions drawings
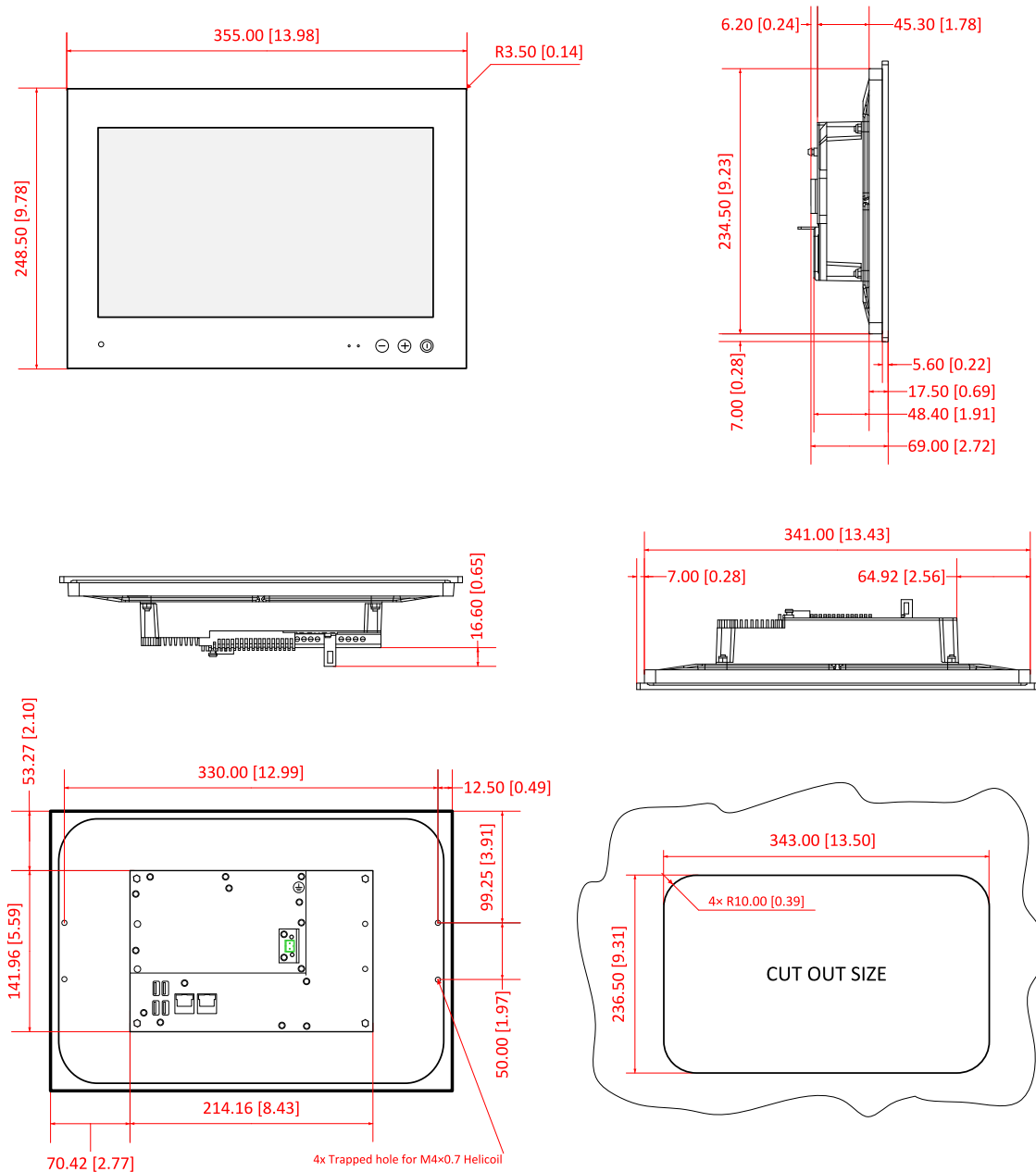
Image 3.3 Dimensions of the InteliVision 13Touch

Note: *Dimensions are in mm (inches)*

3.4 Mounting

InteliVision 13Touch is designed to mount on a panel. InteliVision 13Touch has an external bracket mounting system. Clips are included in the package. The recommended cutout size for panel mounting is 343,00 mm (width) x 236,50 mm (height). Insert InteliVision 13Touch into the cut area and from the rear side install the attached mounting clips and fix them with a screwdriver.

InteliVision 13Touch is a fanless system – no fan cooling system is installed inside the InteliVision 13Touch. For proper operation, install InteliVision 13Touch in a cabinet or rack with enough space around it and away from any strong source of heat. The operating temperature range of the InteliVision 13Touch is from -15 °C to 55 °C.

InteliVision 13Touch front frame sealing is included in the box. The installation of the front frame sealing is a must to fulfill IP66 protection standard.

> **IMPORTANT: Do not overtighten the screws to prevent damaging the Panel PC.**

> **IMPORTANT: The installation of the front frame sealing (included in the box) is a must to fulfill IP66 protection standard.**

3.5 Power

Use the proper power cable. The power supply range is from a 10–31V DC. Use the proper fuse (maximum 3 A) when powered from an onsite DC source. The max input current is 3 A at 10 V. Ensure correct polarity when connecting the DC power supply.
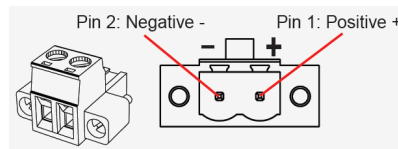
PIN	Definition
1	DC+ (Positive supply voltage)
2	DC- (Negative supply voltage)

Table 3.1 Description of Power connector

3.6 Ethernet (LAN) Ports

3.6.1 LAN Ports

▶ Connector type: RJ45 port with LEDs
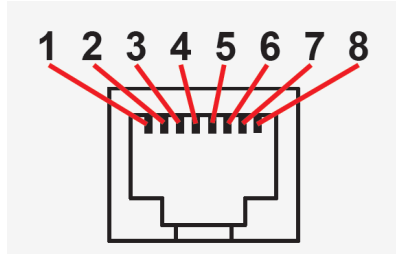
Pin	Mark	Definition
1	D0P+	Differential Pair 0 (Positive)
2	D0N-	Differential Pair 0 (Negative)
3	D1P+	Differential Pair 1 (Positive)
4	D2P+	Differential Pair 2 (Positive)
5	D2N-	Differential Pair 2 (Negative)
6	D1N-	Differential Pair 1 (Negative)
7	D3P+	Differential Pair 3 (Positive)
8	D3N-	Differential Pair 3 (Negative)

Table 3.2 Pin description of LAN1 Port on InteliVision 13Touch

4 Display Unit Settings

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As the operating system Windows® 10 IoT Enterprise 2019 LTSC (64bit) is installed on the IV13T, you can use standard settings such as the screensaver (the ComAp Screensaver is preinstalled), power off the display or the whole unit after a set period of time, etc.

Only one user, 'User', is predefined with no password set. You can restrict users by setting passwords and/or creating new users with limited rights. For more details, use Windows help.

4.1 Touchscreen settings

It is possible to calibrate touch sensor using the standard Windows® 10 IoT Enterprise 2019 LTSC (64bit) functions.

1. Navigate to Start - Control Panel - Tablet PC Settings - Calibration

2. Perform the calibration

3. Save the calibrate data

4. Done

4.2 On-Screen Keyboard (OSK) settings

The On-Screen Keyboard (OSK) is a part of Windows® 10 IoT Enterprise 2019 LTSC (64bit) operating system. OSK is pined to the Windows taskbar by default.

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5 InteliVision 13Touch connection possibilities

See chapter related products for more information about compatible ComAp controllers.

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5.1 InteliVision 13Touch connection to a Single gen-set

5.1.1 Ethernet (direct) connection

Many different kinds of Ethernet topologies exist. A basic point to point Ethernet connection can be made by a direct or cross Ethernet cable. In addition, it is also possible to monitor more than one controller in a site through a switch (TCP/IP protocol-based network). Another possibility is establishing a connection through the internet network, but for this a public IP address is necessary (or AirGate ComAp technology without a need for a public IP address). The physical configuration of such a network can be a small Ethernet LAN or also through the internet.
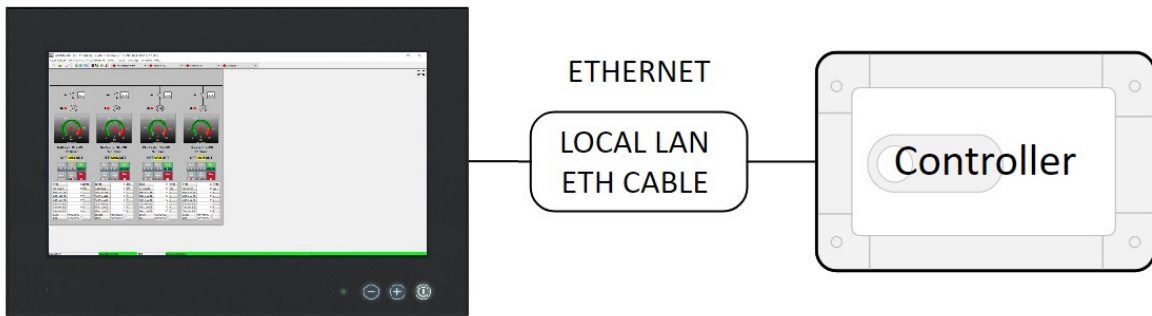
Image 5.1 Point to point Ethernet connection

IV13T settings	Controller settings
2 x 10/100/1000 TX ports. IP settings necessary.	See the Controller manual for the specific help.

Table 5.1 Communication settings for the IV13T and controller

Note: Ethernet connection is available for all controllers mentioned in chapter related products via InternetBridge-NT (See the chapter Multiple Ethernet connection). You can also use InternetBridge-NT without the need for a public IP address (find details on our AirGate technology on our website www.comap-control.com)

▶ Using a web browser

- An Ethernet connection to the controller allows one to use any web browser for basic monitoring and configuration. Simply enter the IP address of the module into the address bar of your web browser, e.g. `http://192.168.1.254` and then enter the access code. When connecting through a web browser, there is 5-minute timeout period after closing the browser window. After that, the client is automatically logged out.

▶ Ethernet connection settings

- Settings can be edited via any type of connection (USB or Ethernet). Setup is provided via InteliMonitor. For the Ethernet connection, set the following options in the Comms Settings group:

IP addr mode	0 ON	1 OFF	2 OFF	3 OFF	4 OFF	5 OFF	6 OFF	7 OFF	FIXED ▼
IP address	0 ON	1 OFF	2 OFF	3 OFF	4 OFF	5 OFF	6 OFF	7 OFF	192.168.1.254
Net mask	0 ON	1 OFF	2 OFF	3 OFF	4 OFF	5 OFF	6 OFF	7 OFF	255.255.255.0
Gateway IP	0 ON	1 OFF	2 OFF	3 OFF	4 OFF	5 OFF	6 OFF	7 OFF	192.168.1.1
ComApProtoPort	0 ON	1 OFF	2 OFF	3 OFF	4 OFF	5 OFF	6 OFF	7 OFF	23
AirGate	0 ON	1 OFF	2 OFF	3 OFF	4 OFF	5 OFF	6 OFF	7 OFF	DISABLED ▼
AirGate IP	0 ON	1 OFF	2 OFF	3 OFF	4 OFF	5 OFF	6 OFF	7 OFF	

Image 5.2 Controller IP settings

Note: The IP addresses of the controllers must be accessible from the IV13T. If the IV13T is connected to another LAN segment than the gen-sets are, there must be a gateway (router) that enables direct traffic between the segments. If the IV13T is connected via the Internet, then the internet gateway of the LAN where the gen-sets are connected must have a public IP address, must allow incoming traffic and must provide port forwarding from the external public IP address to the various internal gen-set IPs according to the port used.

5.1.2 USB connection

IMPORTANT: USB ports are not suitable to be used for monitoring purposes. USB ports should be used for configuration only. This recommendation is valid not only for InteliVision 13Touch, it is valid in general. When using InteliVision 13Touch for monitoring, its Ethernet ports should be used.
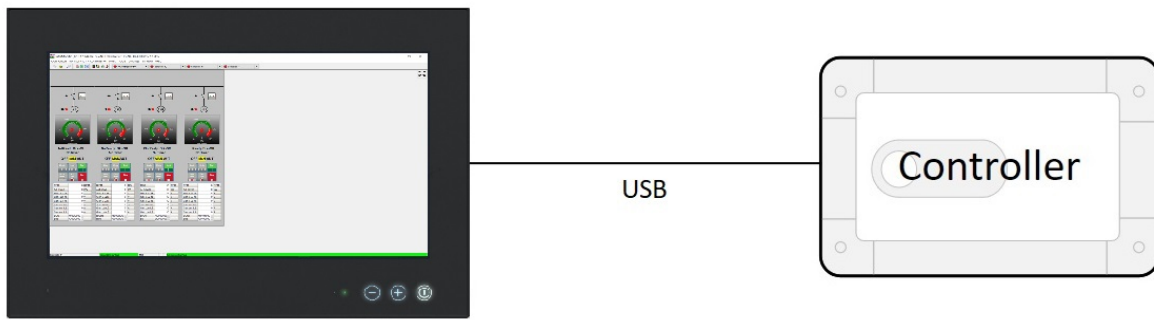
Image 5.3 Point to point USB connection

IV13T settings	Controller settings
2 x USB 2.0 serial ports 2 x USB 3.0 serial ports No special settings required	No special settings required. Some controllers only via ext. bridge.

Table 5.2 Communication settings for the IV13T and controller

Note: Direct USB connection is not possible for some controllers. However, USB connection is available for all above-mentioned controllers via InternetBridge-NT

5.2 InteliVision 13Touch connection to a Multiple gen-set

5.2.1 Multiple Ethernet Connection

Even though the software allows to configure up to 32 controllers **the hardware is designed for simultaneous monitoring and control of up to 4 controllers only.** Many different kinds of Ethernet topology exist. The basic point to point Ethernet connection can be made by a direct or cross Ethernet cable. In addition it is also possible to monitor more than one controller in a site through a switch (TCP/IP protocol-based network). Another possibility is establishing a connection through the internet network, but for this a public IP address is necessary (or AirGate ComAp technology, see our website www.comap-control.com for more information). The physical configuration of such a network can be a small Ethernet LAN or also over the internet.
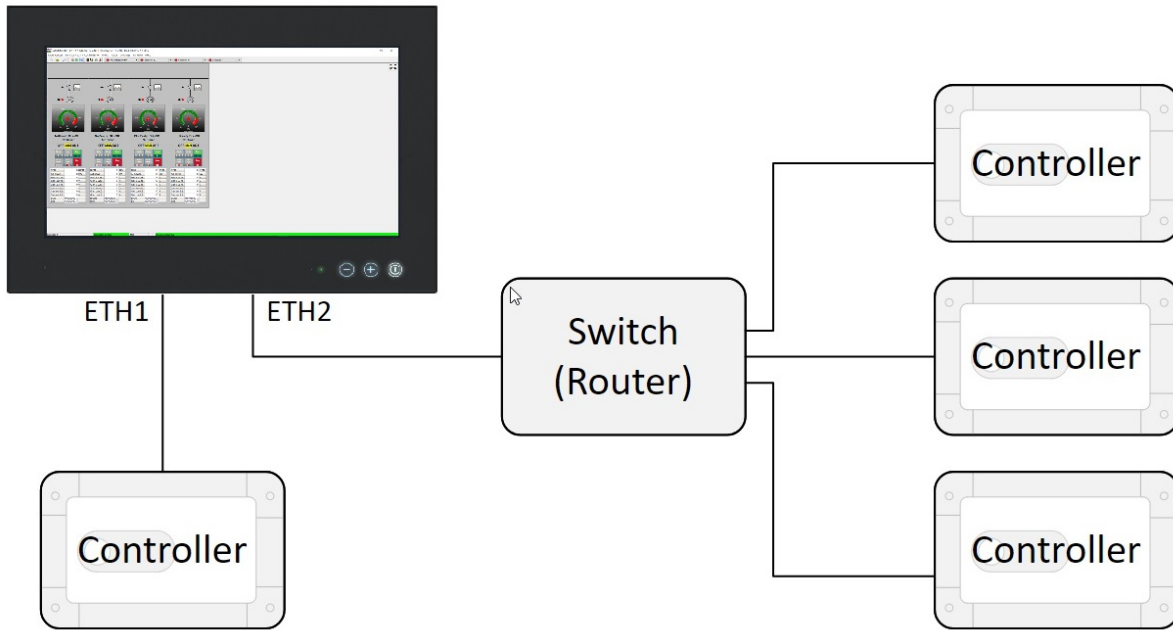
Image 5.4 Multiple Ethernet connection example

IV13T settings	Controller settings
2 x 10/100/1000 TX ports IP setting necessary.	See the Controller manual for the specific help.

Table 5.3 Communication settings of IV13T and controller

Note: Ethernet connection is also available for all above-mentioned controllers via InternetBridge-NT (See the chapter Ethernet connection via IB-NT). You can also use InternetBridge-NT without the need for a Public IP address (find more information about our AirGate technology on our website www.comap-control.com).

▶ Using a web browser

 ● An Ethernet connection to the controller allows one to use any web browser for basic monitoring and adjustment of the controller. Simply enter the IP address of the module into the address bar of your web browser, e.g. `http://192.168.1.254` and then enter the access code. When connecting from a web browser, there is a 5-minute timeout after closing the browser window. After that, the client is automatically logged out.

▶ Ethernet connection settings

 ● Settings can be edited via any type of connection (USB, RS232/422/485, Ethernet). Setup is provided via InteliMonitor. For an Ethernet connection, set the following options in the Comms Settings group:

Note: *IP addresses of the controllers must be accessible from the IV13T. If the IV13T is connected to another LAN segment than the gen-sets are, there must be a gateway (router) that enables direct traffic between the segments. If the IV13T is connected via the Internet, then the internet gateway of the LAN where gen-sets are connected must have public IP address, must allow incoming traffic and must provide port forwarding from the external public IP to the various internal gen-set IPs according to the port used.*
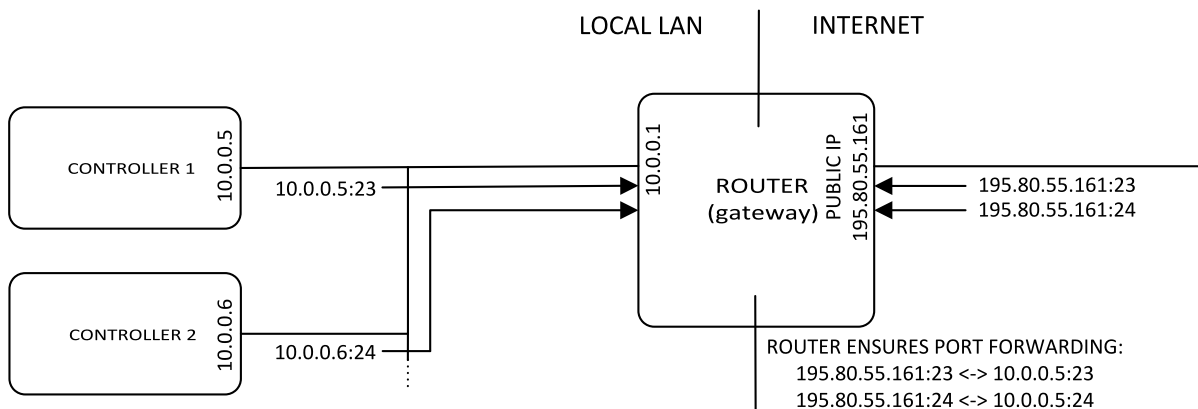
Image 5.6 Internet gateway (router) configuration example

5.2.2 Ethernet (Internet) connection via InternetBridge-NT

Even though the software allows to configure up to 32 controllers **the hardware is designed for simultaneous monitoring and control of up to 4 controllers only.** The response time of a system with this type of connection depends on the number of controllers. The higher the number of controllers, the slower the system response time. It is also possible to interconnect IV13T and controllers locally via InternetBridge-NT as a local bridge from the Ethernet network to the CAN fieldbus or RS-485 interface.
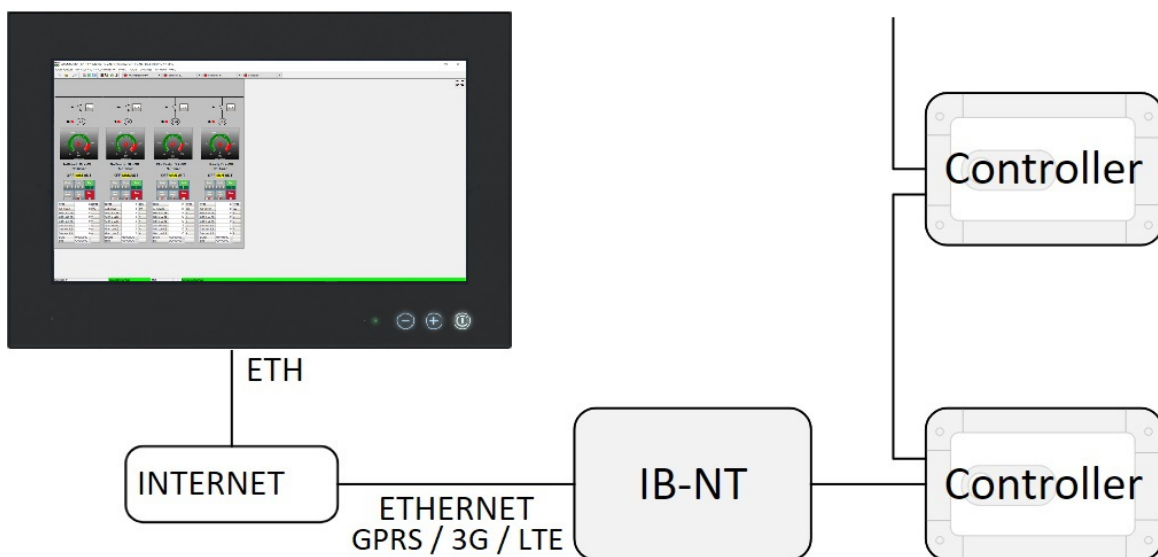
Image 5.7 IB-NT connection example

Note: For more information about setting the InternetBridge-NT, see IB-NT-1.0-Reference Guide.pdf, which can be downloaded from our website www.comap-control.com

🔺 **back to InteliVision 13Touch connection possibilities**

6 Automatic SCADA start and connecting to the system

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To automatically start SCADA and connect to the system, use the following settings in InteliMonitor:

▶ Enable (Check) the functions highlighted in the graphic.
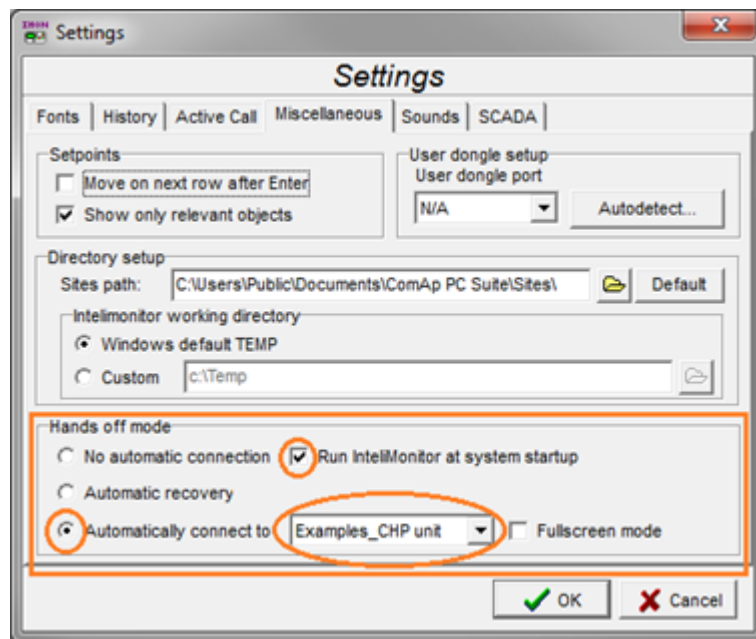
Image 6.1 SCADA automatic start example

Note: You can easily secure your fullscreen SCADA by setting a password in the SCADA tab. Another setting in the same SCADA tab is Touch panel mode which opens the embedded alphanumeric InteliMonitor keyboard. For further information please see the InteliMonitor manual or help.

7 Creating a SCADA diagram

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7.1 Automatic SCADA generating

To automatically generate a SCADA, physically connect the IV13T to the system, start InteliMonitor, select **Open connection** 📄 and create a new Site. Select **Site properties** 🔧 and choose the appropriate options for your site topology. Uncheck the box "Disable automatic rendering of single line diagram".
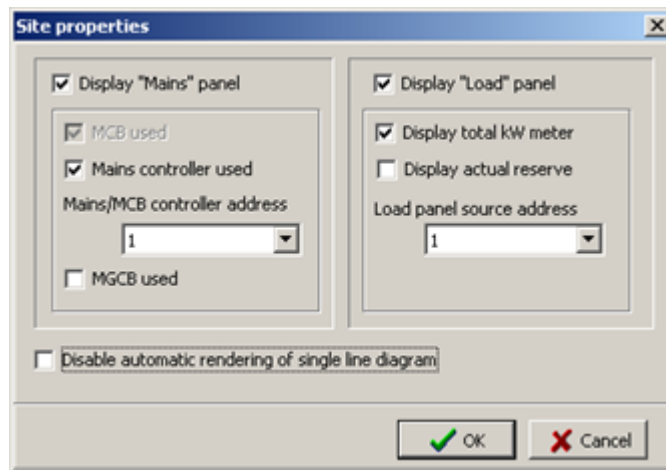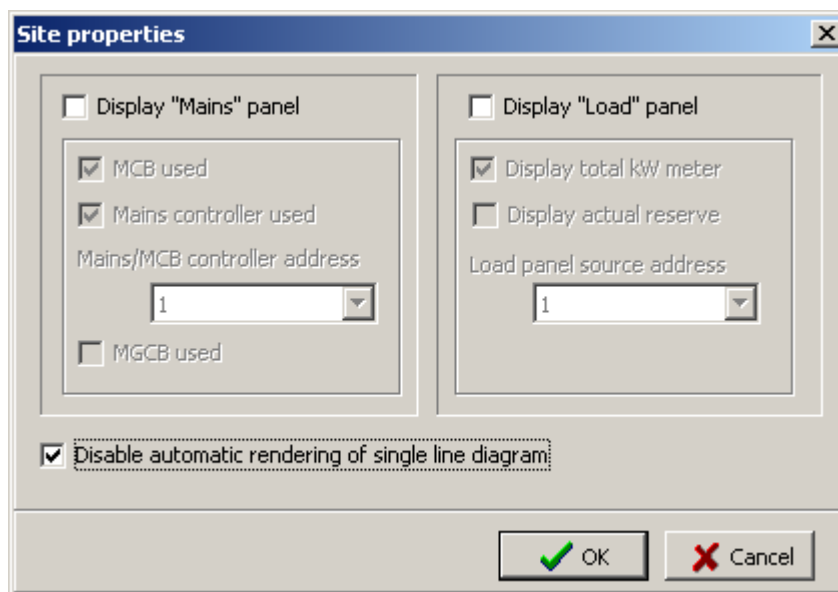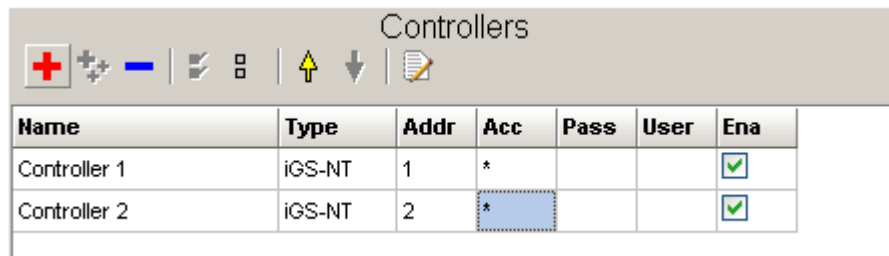

Image 7.1 Site properties

Add all controllers available in the system and their properties.

Image 7.2 Controllers settings

Choose the connection type used for communication between the system and the IV13T.
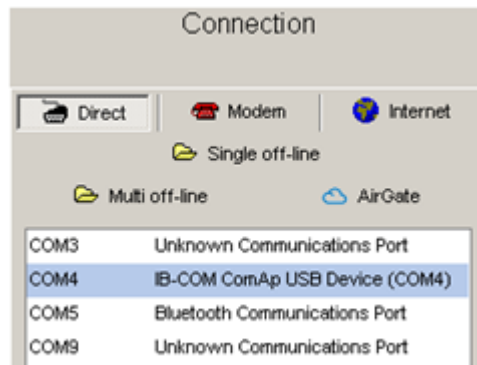
Image 7.3 Connection settings

Select **Open connection**

A site diagram will be generated during the connection process.
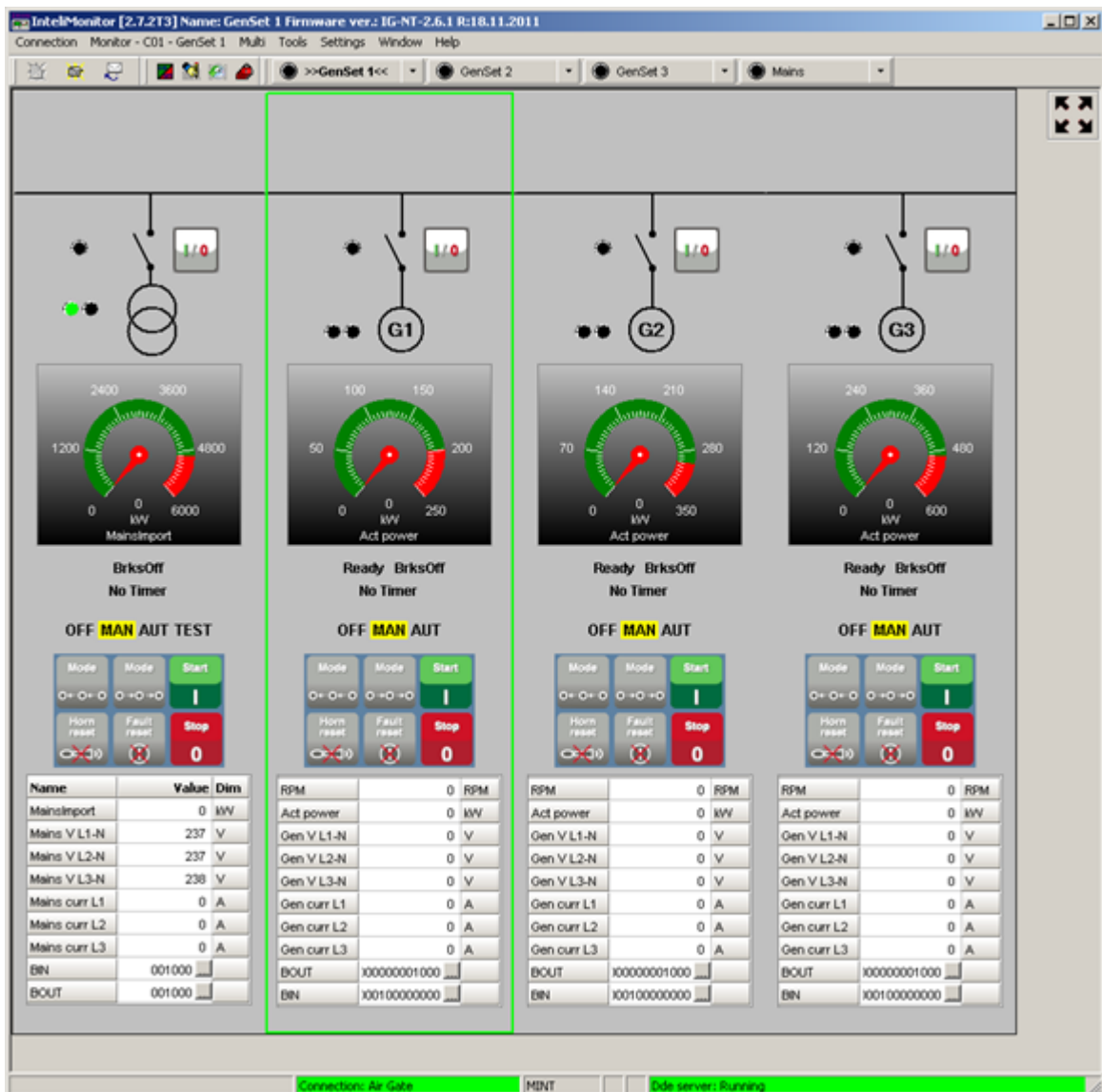
Image 7.4 Automatically generated SCADA diagram example

7.2 User-defined SCADA layout

▶ It is possible create a user-defined SCADA which can contain

- ● User pictures – static
- ● User pictures – dynamically controlled by a binary value
- ● Simple graphical objects like lines, circles, rectangles
- ● Control buttons
- ● Meters
- ● Breakers
- ● Bar graphs
- ● Trends data grids with binary/analog values
- ● Link buttons

7.2.1 Preparing SCADA archives

Physically connect the IV13T to the system, start InteliMonitor, select **Open connection** 📋 and create a new Site. Select **Site properties** 🔧 and choose the appropriate options for your site topology. Enable the box "Disable automatic rendering of single line diagram".

Image 7.5 Site properties

Add all controllers available in the system and their properties.

Image 7.6 Controllers settings

Choose the connection type used for communication between the system and IV13T.
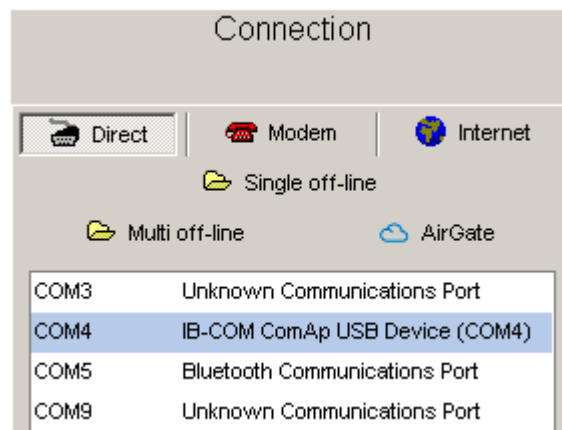
Image 7.7 Connection settings

Select **Open connection** ✔ Open connection

Ensure that you can see all controllers on the site. If yes, save archives from all controllers by **Connection – Save all as...**. You will need these archives to create your own SCADA schemes.

7.2.2 Creating SCADA on another PC

You can create a SCADA on the IV13T itself or use a more convenient procedure to create a SCADA on any PC or laptop. Use the procedure from the previous chapter to save valid archives. Use the **Export site to file** function located in the **Open connection** window to create a ZIP archive for the previously created site – highlight it, press and enter the name and location of the ZIP file (it is best to save it directly to a flash drive).

After that, you can disconnect from the system. Use the **Import site from file** function on your laptop or office PC to get an exact copy of the site structure from the IV13T. You can then work offline with the stored archives.

You can also connect your laptop to the system and save archives from controllers directly to your laptop.

Start InteliMonitor and without connecting, launch **Tools—Line Diagram Editor**. Click on **Master grid**.
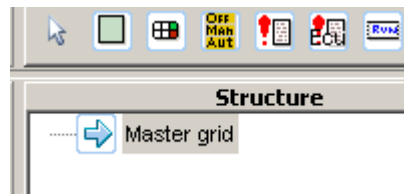

Image 7.8 Structure (Master grid)

In the Properties, change the size to 1920 x 1080. This is the native screen resolution of the IV13T. You can also change other properties such as the background color or place your own image as the background. The image will be placed automatically in the top left corner. We suggest using an image file with the same resolution as the IV13T screen.

Now you are ready to place other objects.

Panels

It is possible to use Panels. This object is useful if you need to group multiple objects for one controller. You can set the Panel size, position and background color or user image. If you change the Controller address in the Panel properties, all objects inside this Panel change their controller address to this address.

A limitation is that the Panel is not transparent, which leads to problems when using a user-defined image as the background for the Master grid. It is not obligatory to use Panels.

Objects

You can place other objects in Panels or directly in the Master grid. If the object has properties like Controller address or Communication object, set it. You can enter the Communication object number directly, but it is more convenient to click on the [...] button to the right and choose the object from the list. You may be asked for an archive with a valid configuration.

If you use images, it is strongly recommended to copy all images used into the root of your site folder. **Do not create any subfolders under your site.**

Linked screens

SCADA supports multiple screens, e.g. with detailed information about controllers. The number of screens is limited only by the free space on the HDD. To use them, place an object **Link** located in the **General** tab. You can set some properties such as text or image. For now, leave the box **Linked scheme** empty. Save this main screen as Default.cwd into the root of your site folder (replace existing one).

From the **File** menu, choose **New drawing** and create a new screen. Do not forget to place a **Link button** to go back to the main (or other) screen. Click **Linked scheme** and choose Default.cwd from the list. Save this scheme with another name with the extension .cwd (e.g. GenSet1.cwd).

From the **File** menu click on **Load drawing from…**, open Default.cwd again, click on **Linked scheme** and from the list choose GenSet1.cwd from the previous example. Save the scheme.

Do not forget to back up your data on a regular basis.

Now you can test it. Switch to InteliMonitor and open proper .ast as Multi off-line. You can see your SCADA from Default.cwd. If not, right-click on the SCADA icon and select Refresh Test Link buttons.
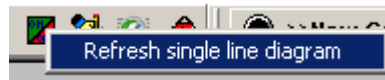
*Note: When SCADA connects to the system, the screen with the Default.cwd name is automatically displayed if it exists. To display the user screen in SCADA, enable the option **Disable automatic rendering of single line diagram** located in **Open window** in the **Sites** section under the button*
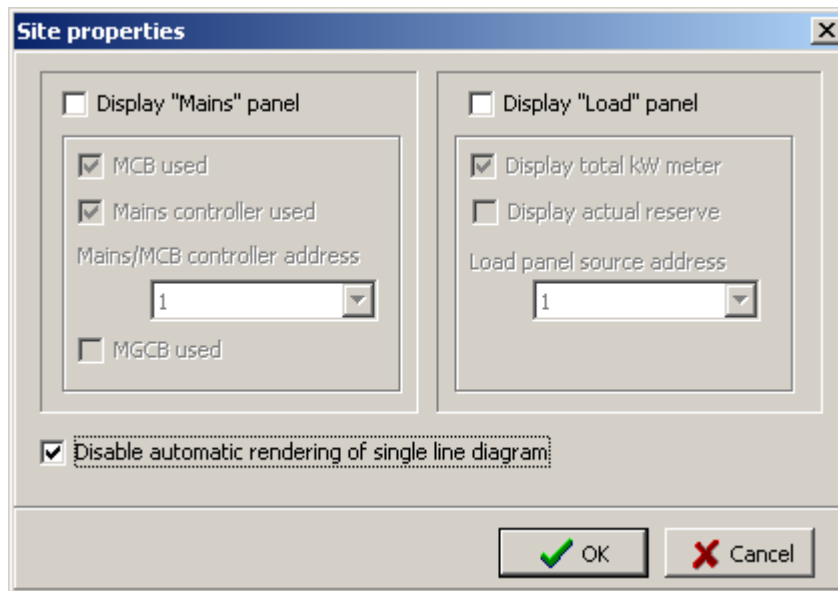

Image 7.9 Site properties

If everything is OK, save all data.

If you have prepared screens offline, close the offline archive on laptop. Click on **Open…** and in the **Open connection** window select your site and click **Export site to file** . Save the ZIP file to the flash disk, insert this flash disk into the IV13T and on the IV13T use **Import site from file** . Select the appropriate Connection type and connect.

⬆ **back to Creating a SCADA diagram**