ComAp
The heart of smart control

InteliVision 18Touch

18.5" display unit for ComAp controllers

SW version 1.0

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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 18Touch display unit that shall be fullfilled during the installation and maintenance.

This manual provides general information how to install and use InteliVision 18Touch display unit.

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Pay attention to the following recommendations and measures to increase the level of security of ComAp products and services.

Please note that possible cyber-attacks cannot be fully avoided by the below mentioned recommendations and set of measures already performed by ComAp, but by following them the cyber-attacks can be considerably reduced and thereby to reduce the risk of damage. ComAp does not take any responsibility for the actions of persons responsible for cyber-attacks, nor for any damage caused by the cyber-attack. However, ComAp is prepared to provide technical support to resolve problems arising from such actions, including but not limited to restoring settings prior to the cyber-attacks, backing up data, recommending other preventive measures against any further attacks.

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
FCC	
This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of 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 instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.	FC
UL	
This product is Listed by UL. Representative samples of this product have been evaluated by UL and meet applicable safety standards. 1. Battery used only. CAUTION RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS ATTENTION IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS 2.Caution for Replaceable batteries and instruction may be forming by a hard copy format, CD-ROM or website 3. This product is intended to be supplied by a Listed Power Adapter, rated 12-30Vdc, 5-2A minimum and Tma 60 degree C minimum and LPS, if need further assistance, please contact NEXCOM INTERNATIONAL CO LTD for further information. 4. The product intended for vertical use only.	c UL us LISTED I.T.E 15CR E465230
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, 2011/65/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, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.	RoHS COMPLIANT

1.5 Document history

Revision number	Related sw. version	Date	Author
1	1.0	11.4. 2018	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

2 System overview

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2.1 General description

The new InteliVision 18Touch is the natural successor to the InteliVision 17Touch. It is designed as an easy-to-use Windows based panel suitable for use with a wide range of ComAp controllers. InteliVision 18Touch features 18.5“ LED backlit projected capacitive touchscreen with a resolution of 1366x768 pixels, extended temperature range and UL certification. Its front protection complies with IP66 and operating temperature extends from -10 °C to +60 °C. Smooth operation is ensured by powerful Intel processor.

The new InteliVision 18Touch is designed for complete monitoring and control of multiple controllers or complex installation, with large numbers of measured values (CHP - Combined Heat and Power). Optimized for ease of installation, configuration and use, the touchscreen allows users to create touch buttons linked to another screen, with the option of directly controlling gen-sets or breakers. InteliVision 18Touch communicates over standard interfaces such as RS232/485, Ethernet & USB. InteliVision 18Touch 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 18Touch is designed to mount on a panel in a power distribution room or optionally on the wall using the VESA standard. InteliVision 18Touch has an integrated mounting kit.

3 Technical data

Power supply

Power supply range	12-30 VDC

Operating conditions

Operating temperature	-10 to 60 °C
Storage temperature	-20 to 75 °C
Operating humidity	10%~90% relative humidity (non-condensing)
Vibration	IEC 68 2-64 (w/ HDD) 1Grms @ sine, 5~500Hz, 1hr/axis (HDD operating) 2Grms @ sine, 5~500Hz, 1hr/axis (CFast operating) 2.2Grms @ random condition, 5~500Hz, 0.5hr/axis (non-operating)
Shock	IEC 68 2-27 HDD: 20G@wall mount, half sine, 11ms

Mechanical

Housing	IP-66 (front)
Mounting	Panel/Wall/Stand/VESA100
Weight	8.2 kg
Dimension	490.8 mm x 320.6 mm x 62.65 mm

Interfaces

Rear I/O	2 x RS232/422/485 2 x USB 2.0 1 x USB 3.0 VGA port: 1 x DB15 Audio port: 1x Line-out
Ethernet	10/100/1000 Base-Tx, 2 x RJ45

System

CPU	Intel® Celeron® quad core J1900 2.0 GHz (2.42 GHz turbo boost)
Memory	4GB RAM
Storage Device	1x 32 GB Solid-state-drive 1x External locked CFast socket
Expansion	2 x mini-PCIe sockets support optional Wi-Fi, 3.5G module or fieldbus card

LCD specification

LCD panel	18.5" TFT LCD
Resolution	1366 x 768 px
Luminance	300 cd/m^2
Contrast Ratio	1000
Viewing angle	170°(H), 160°(V)
Backlight	LED

Touchscreen

Type	Ten points P-Cap (Projected Capacitive Touch)
Light Transmission	87%
Anti-scratch Surface	7H hardness

Operating system

OS	Windows Embedded Standard 7

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4 Installation and wiring

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4.1 Front panel description

Image 4.1 Front panel overview

4.2 Rear panel description

4.2.1 Rear Top

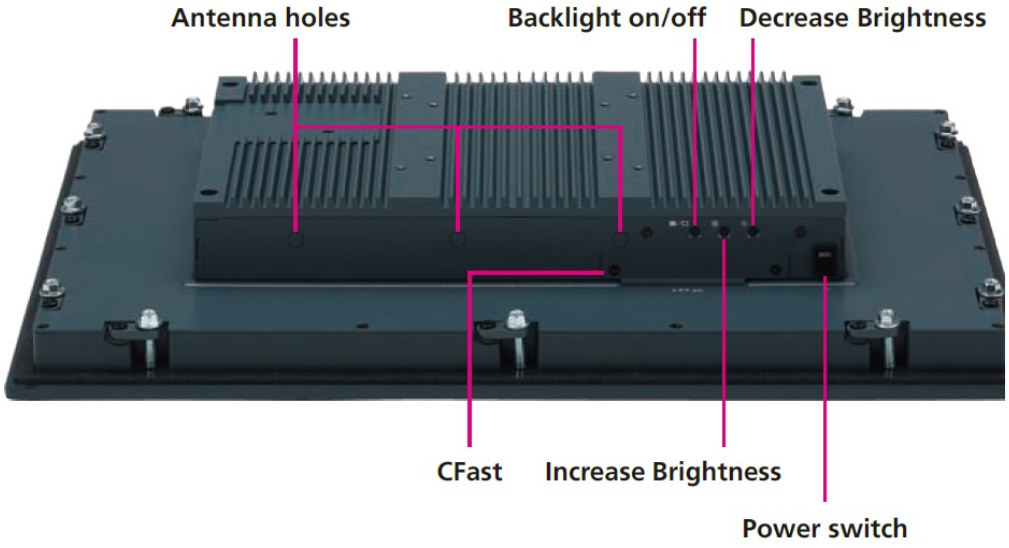


Image 4.2 Rear bottom panel description

Title	Description
Antenna holes	The 3 external antenna holes are used to mount and connect optional 3.5G/ Wi-Fi antennas.
CFast	CFast Card Socket Used to insert a CFast card.
Power switch	Press to power-on or power-off the panel PC.
Backlight on/off	Press to turn-on or turn-off the display
Increase Brightness	Press to increase brightness of the screen.
Decrease Brightness	Press to decrease brightness of the screen.

4.2.2 Rear Bottom

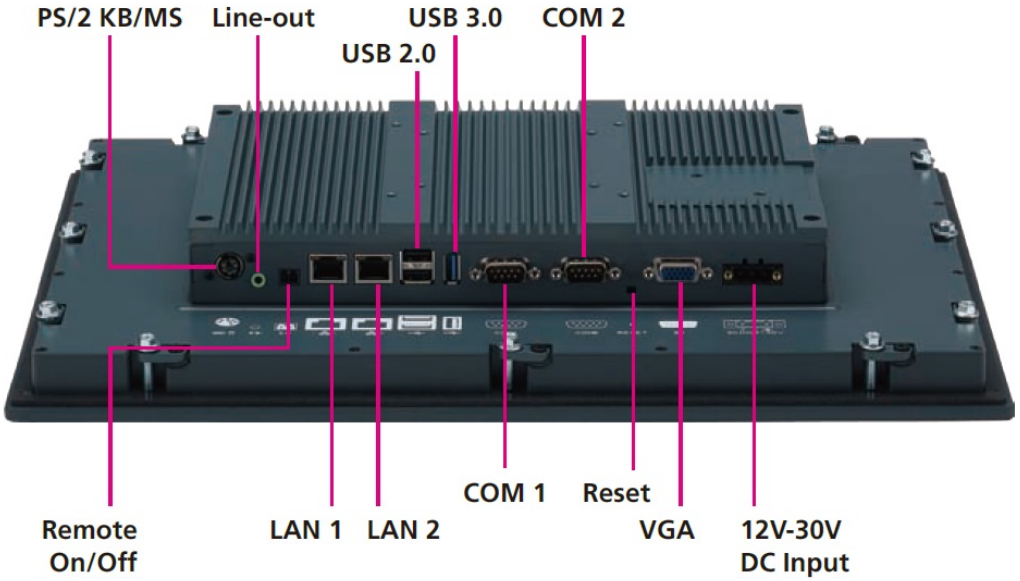


Image 4.3 Rear bottom panel description

Title	Description
PS/2 KB/MS	Used to connect a PS/2 keyboard or a PS/2 mouse.
Line-out	Used to connect a headphone or a speaker.
Remote On/Off	Used to connect a remote to power on/off the system.
LAN1 / LAN2	Used to connect the system to a local area network. LAN1 supports Wake up on LAN.
USB 2.0	Used to connect USB 2.0/1.1 devices.
USB 3.0	USB 3.0 port to connect the system with USB 3.0/2.0 devices.
COM1 / COM2	These COM ports support RS232/422/485 compatible series device through BIOS setting, and have 2.5kV isolated protection.
Reset Button	Press this button to restart the system.
VGA	Used to connect an analog VGA monitor.
12-30 V DC Input	Used to plug a DC power cord.

4.3 Dimensions drawings

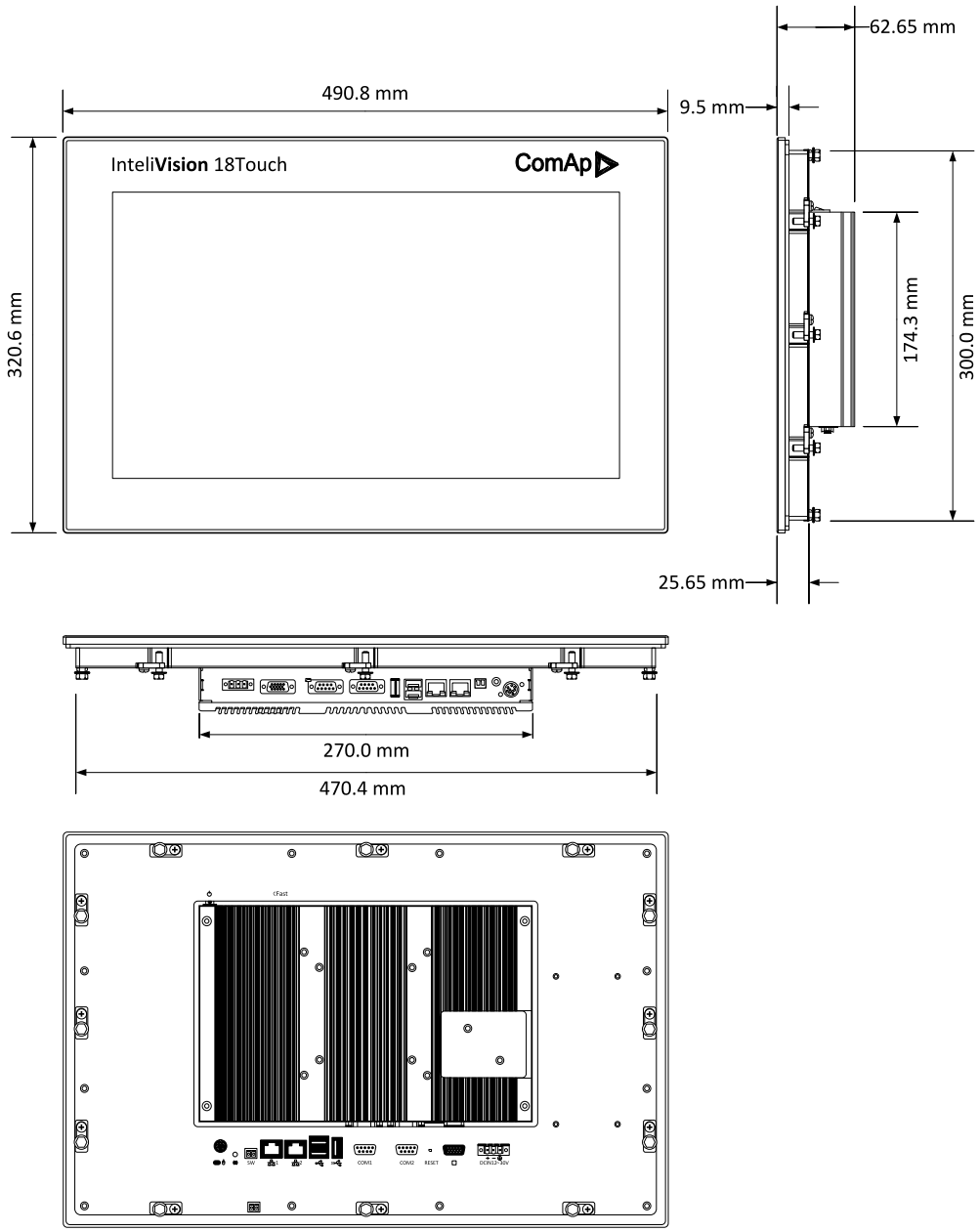


Image 4.4 Dimensions of the InteliVision 18Touch

4.4 Mounting

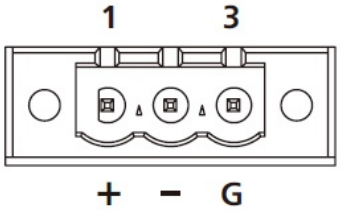
IV18T is designed to mount onto the panel. IV18T has an integrated mounting system. The recommended cutout size for panel mounting is 472,4 mm (width) x 302,2 mm (height). Insert IV18T into the cut area and from the rear side install the attached mounting clips and fix them with a screwdriver.

IV18T is a fanless system – no fan cooling system is installed inside the IV18T. For proper operation, install IV18T in a cabinet or rack with enough space around it and away from any strong source of heat. The operating temperature range of the IV18T is from -10 to 60 °C.

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

4.5 Power

Use the proper power cable. The power supply range is from a 12–30V DC. Use the proper fuse (maximum 5 A) when powered from an onsite DC source. The max input current is 5 A at 12 V. The negative supply voltage pin is connected to the IV18T chassis internally. Ensure correct polarity when connecting the DC power supply.



PIN	Definition
1	DC+ (Positive supply voltage)
2	DC- (Negative supply voltage)
3	GND (Ground)

Table 4.1 Description of Power connector

IMPORTANT: Do NOT connect power between pins GND and DC- (IT WILL CAUSE UNREPAIRABLE DAMAGE OF THE DISPLAY UNIT).

Table 4.1 shows the consumption of the InteliVision 18Touch measured on the two voltage level. The values was measured by the temperature of 20°C.

Performance (Mode)	+12 V	+30 V
S3 Mode - StandBy	0,13 A	0,11 A
Total Watts	1,56 W	3,30 W
Idle Mode	1,58 A	0,71 A
Total Watts	18,96 W	21,30 W
Full-Loading Mode	2,70 A	1,16 A
Total Watts	32,40 W	34,80 W

Table 4.2 Consumption of IV18T

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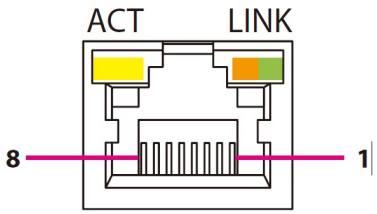
4.6 Ethernet (LAN) Ports

4.6.1 LAN1 Port

- Support Wake on LAN (WOL)
- Connector type: RJ45 port with LEDs



Pin	Definition	Pin	Definition
1	LAN1M0P	2	LAN1M0N
3	LAN1M1P	4	LAN1M2P
5	LAN1M2N	6	LAN1M1N
7	LAN1M3P	8	LAN1M3N

Table 4.3 Pin description of LAN1 Port on InteliVision 18Touch

ACT	Status
Flashing yellow	Data activity
Off	No activity

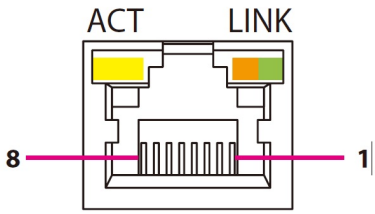
Table 4.4 ACT / Status description table

LINK	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link

Table 4.5 LINK / Status description table

4.6.2 LAN2 Port

- Support Wake on LAN (WOL)
- Connector type: RJ45 port with LEDs



Pin	Definition	Pin	Definition
1	LAN1M0P	2	LAN1M0N
3	LAN1M1P	4	LAN1M2P
5	LAN1M2N	6	LAN1M1N
7	LAN1M3P	8	LAN1M3N

Table 4.6 Pin description of LAN1 Port on InteliVision 18Touch

ACT	Status
Flashing yellow	Data activity
Off	No activity

Table 4.7 ACT / Status description table

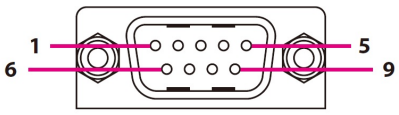
LINK	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link

Table 4.8 LINK / Status description table

4.7 COM Ports

4.7.1 COM1 Port

- Connector type: DB-9 port, 9-pin D-Sub

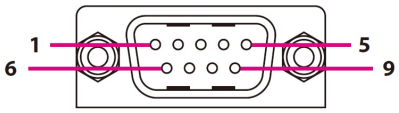


Pin	RS232	RS422	RS485
1	COM1_DCD	COM1_TXD	COM1_TXD- COM1_RXD-
2	COM1_RXD	COM1_TXD+	COM1_TXD+ COM1_RXD+
3	COM1_TXD	COM1_RXD+	Reserve
4	COM1_DTR	COM1_RXD-	Reserve
5	COM1_GND	COM1_GND	Reserve
6	COM1_DSR	COM1_RTS-	Reserve
7	COM1_RTS	COM1_RTS+	Reserve
8	COM1_CTS	COM1_CTS+	Reserve
9	COM1_RI (Could be a +5V Power Pin)	COM1_CTS- (Could be a +5V Power Pin)	Reserve (Could be a +5V Power Pin)

Image 4.5 Pin description of COM1 Port on InteliVision 18Touch

4.7.2 COM2 Port

- Connector type: DB-9 port, 9-pin D-Sub



Pin	RS232	RS422	RS485
1	COM1_DCD	COM1_TXD	COM1_TXD- COM1_RXD-
2	COM1_RXD	COM1_TXD+	COM1_TXD+ COM1_RXD+
3	COM1_TXD	COM1_RXD+	Reserve
4	COM1_DTR	COM1_RXD-	Reserve

5	COM1_GND	COM1_GND	Reserve
6	COM1_DSR	COM1_RTS-	Reserve
7	COM1_RTS	COM1_RTS+	Reserve
8	COM1_CTS	COM1_CTS+	Reserve
9	COM1_RI (Could be a +12V Power Pin)	COM1_CTS- (Could be a +12V Power Pin)	Reserve (Could be a +12V Power Pin)

Image 4.6 Pin description of COM2 Port on InteliVision 18Touch

4.7.3 COM Port Mode

- COM port mode can be changed using BIOS setup
  - RS-232
  - RS-422
  - RS-485

About BIOS setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

How to get to BIOS Setup

At first connect the keyboard to the Panel PC. Powering on the computer and immediately pressing <Del> key allows you to enter Setup. Press the <Del> key to enter Setup. Navigate to the Serial Port Configuration (see picture bellow) and setup the requested mode and interface parameters. Then exit the BIOS setup with saving the changes.

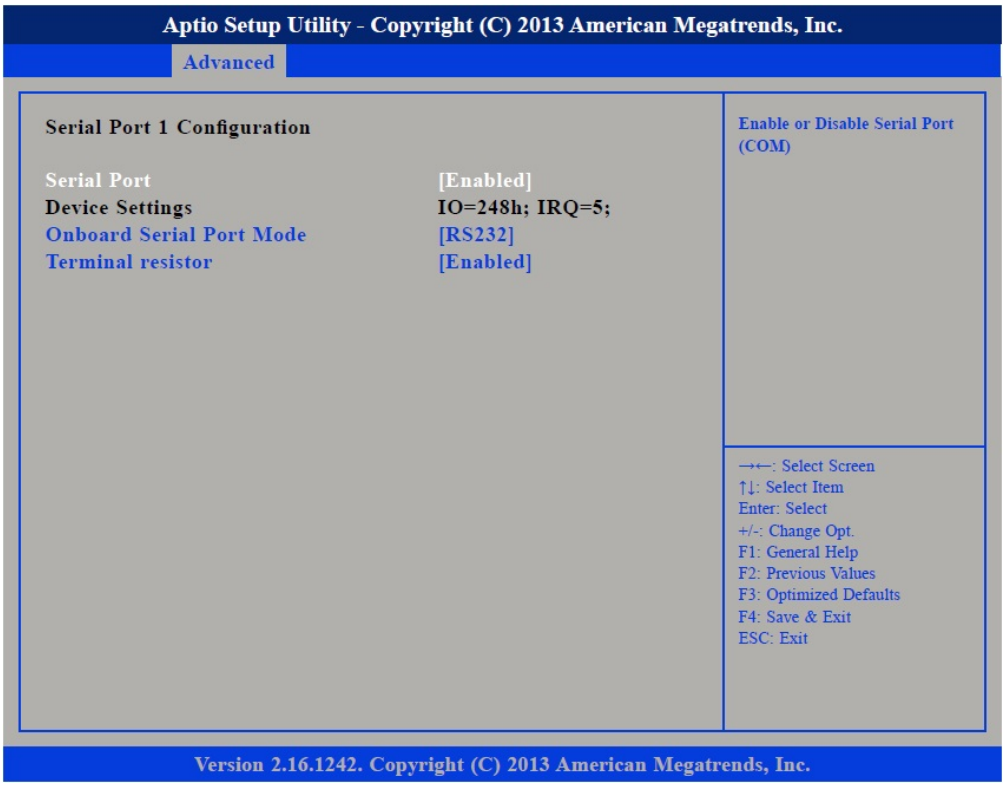


Image 4.7 Serial Port mode settings using BIOS setup

Serial Port

Enables or disables the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS232, RS422, RS485 or RS485 Auto.

Terminal Resistor

Enables or disables the terminal resistor.

IMPORTANT: Only experinced user should do the BIOS changes.

5 Display Unit Settings

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As the operating system Microsoft Windows Embedded Standard 7 is installed on the IV18T, 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, ‘admin’, 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.

5.1 Touchscreen settings

It is possible to calibrate touch sensor using the standard Microsoft Windows 7 functions.

1. Navigate to Start - Control Panel - Tablet PC Settings - Calibration
2. Perform the calibration
3. Save the calibrate data
4. Done

5.2 On-Screen Keyboard (OSK) settings

The On-Screen Keyboard (OSK) is preinstalled. It can be found on the left side of your desktop. The OSK can be called simply using the gesture tap on the keyboard area.

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6 InteliVision 18Touch connection possibilities

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

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6.1 IV18T connection to a Single gen-set

6.1.1 RS-232 connection

Image 6.1 Point to point RS-232 connection to the IV18T

IV18T settings	Controller settings
2 x RS-232 serial ports additional settings	Setpoints / Comms settings group RS232 (1) mode = DIRECT additional settings

Table 6.1 Communication settings for the IV18T and controller

Note: *It is also possible to establish a RS-232 connection via I-LB+ or IB-NT*

6.1.2 USB connection

Image 6.2 Point to point USB connection

IV18T settings	Controller settings
3 x USB serial ports (3x rear) No special settings required	No special settings required. Some controllers only via ext. bridge.

Table 6.2 Communication settings for the IV18T and controller

Note: *Direct USB connection is not possible for some controllers. However, USB connection is available for all above-mentioned controllers via I-LB+ or IB-NT (see the chapter Connection via I-LB+ or IB-NT)*

6.1.3 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.

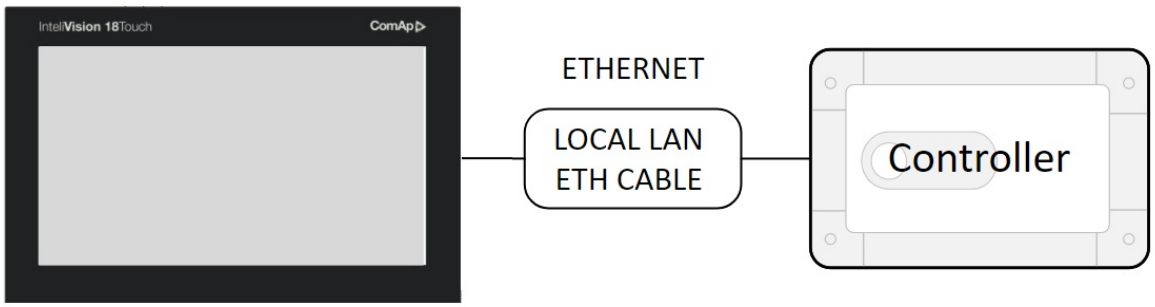

Image 6.3 Point to point Ethernet connection

IV18T settings	Controller settings
2 x 10/100/1000 TX ports. IP settings necessary.	Max. 2 clients with InteliMonitor or max. 2 WebSupervisor clients with Web Interface IP setting necessary

Table 6.3 Communication settings for the IV18T and controller

Note: *Ethernet connection is available for all controllers mentioned in chapter related products via an external Bridge IB-NT (See the chapter Multiple Ethernet connection). You can also use IB-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, RS-232, RS-485 or Ethernet). Setup is provided via InteliMonitor. For the Ethernet connection, set the following options in the Comms Settings group:

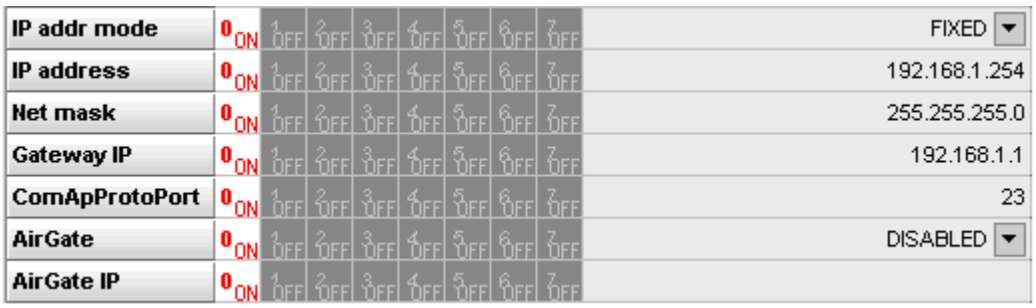

Image 6.4 Controller IP settings

Note: *The IP addresses of the controllers must be accessible from the IV18T. If the IV18T 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 IV18T 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.*

6.2 IV18T connection to a Multiple gen-set

6.2.1 USB / RS-232 connection via I-LB+.

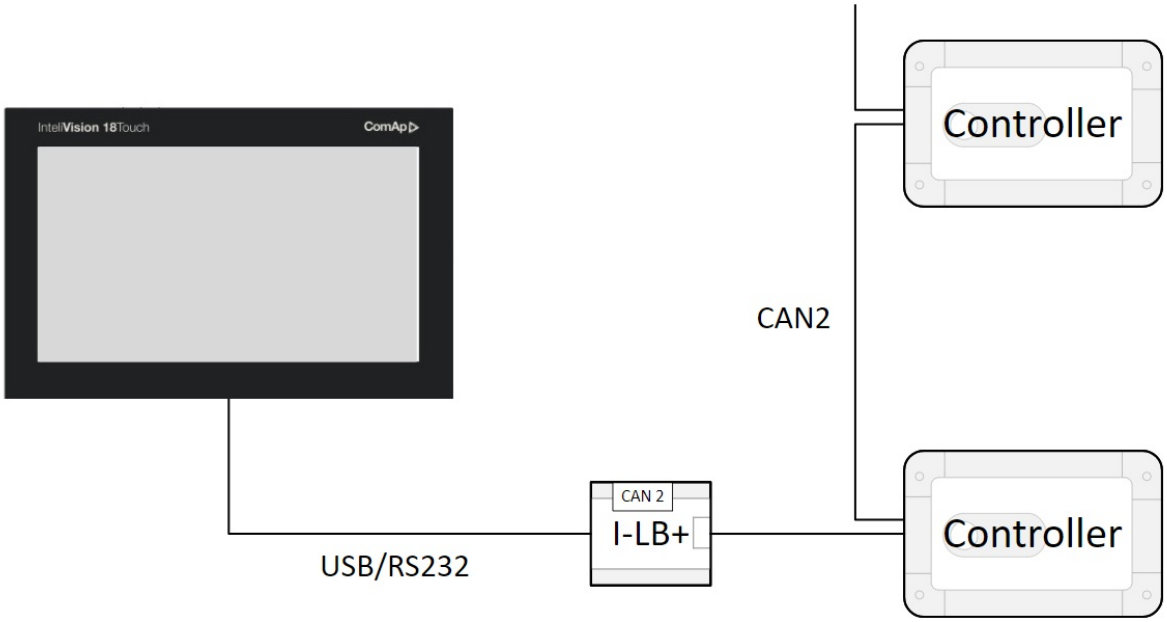

Image 6.5 Connection to the controllers via I-LB+

Note: *The I-LB+ module enables monitoring and configuration of up to 32 controllers connected via a CAN(2) intercontroller bus. It is also possible to use I-LB+ for single controller connection. It is recommended to use a USB connection because of the communication bandwidth it provides (rate). It is also possible to use the RS-485 interface on the controllers' side instead of CAN2.*

- I-LB+ hardware setup
  - All jumpers in these positions

HW/SW control	Does not matter
ComAp/ModBus	Open
ADDR1/ADDR2	Selection of CAN address. Open = ADDR1, Close = ADDR2 It is possible to use up to two I-LB+ devices in direct mode on the CAN(2) bus. Leave the jumper open when using one I-LB+ module. The other I-LB+ module has to have this jumper closed. (See I-LB+ module for further details.)
DIRECT/MODEM	Open
RS485/RS232	Selection of com port (jumper is in RS232 position) / Does not matter
Comm. speed.	Does not matter
RS485 120 Ohm	Open = terminator not connected, Closed = terminator connected
CAN 120 Ohm	Open = terminator not connected, Closed = terminator connected
RS-232 / USB	Open (USB Disable) / Closed (USB enabled)

Table 6.4 I-LB+ settings

6.2.2 Multiple Ethernet Connection

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.

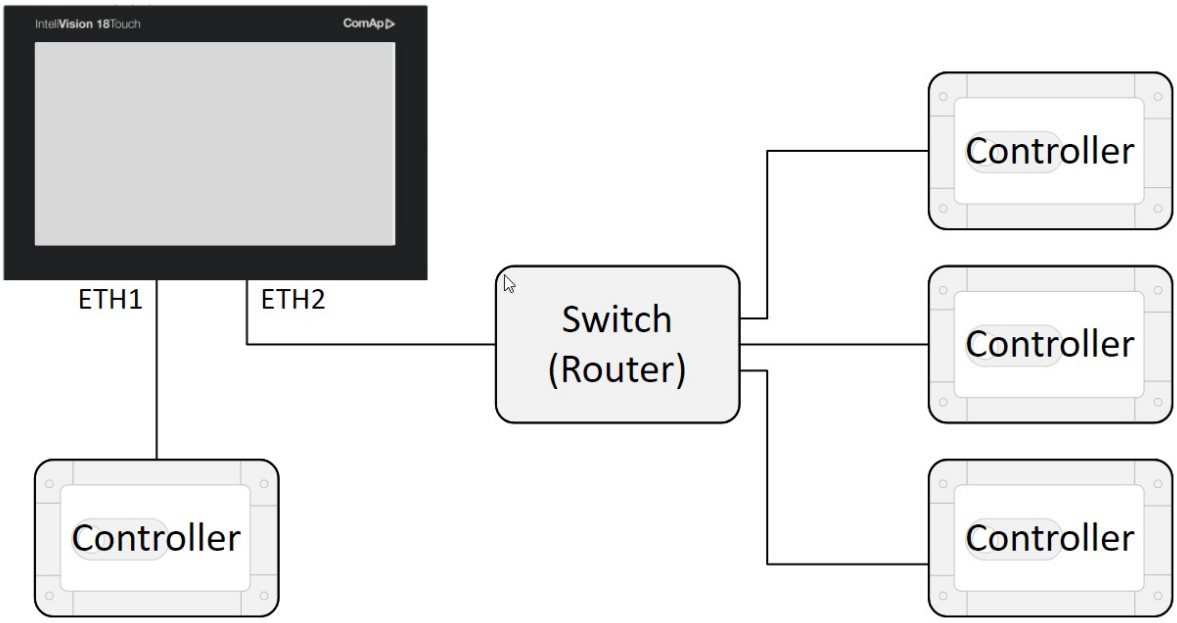

Image 6.6 Multiple Ethernet connection example

IV18T settings	Controller settings
2 x 10/100/1000 TX ports IP setting necessary.	Max. 2 clients with InteliMonitor or max. 2 WebSupervisior clients with Web Interface IP setting necessary (see Image 6.4)

Table 6.5 Communication settings of IV18T and controller

Note: *An Ethernet connection is also available for all above-mentioned controllers via an external Bridge IB-NT (See the chapter Ethernet connection via IB-NT). You can also use IB-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:

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 6.7 Controller IP settings

Note: *IP addresses of the controllers must be accessible from the IV18T. If the IV18T 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 IV18T 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.*

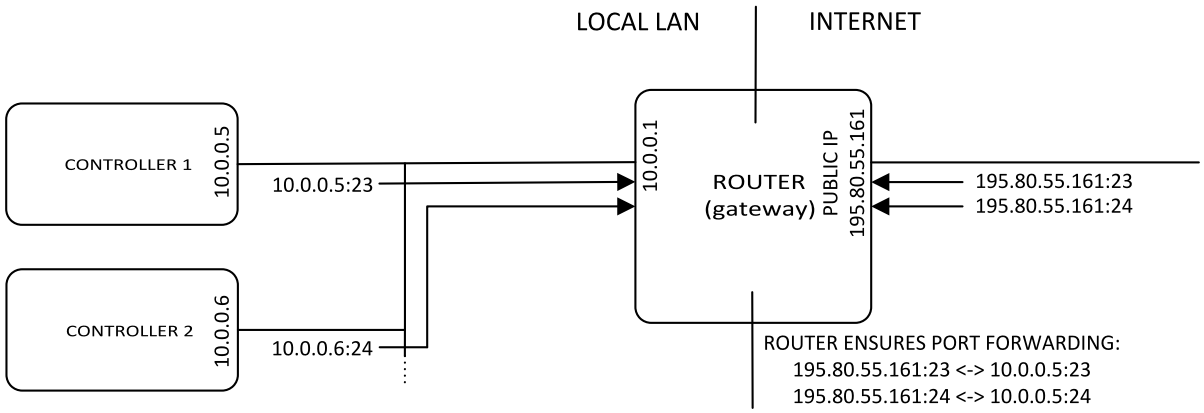

Image 6.8 Internet gateway (router) configuration example

6.2.3 Ethernet (Internet) connection via InternetBridge-NT

Up to 32 controllers can be remotely monitored via a single InternetBridge-NT. 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 IV18T and controllers locally via InternetBridge-NT as a local bridge from the Ethernet network to the CAN fieldbus or RS-485 interface.

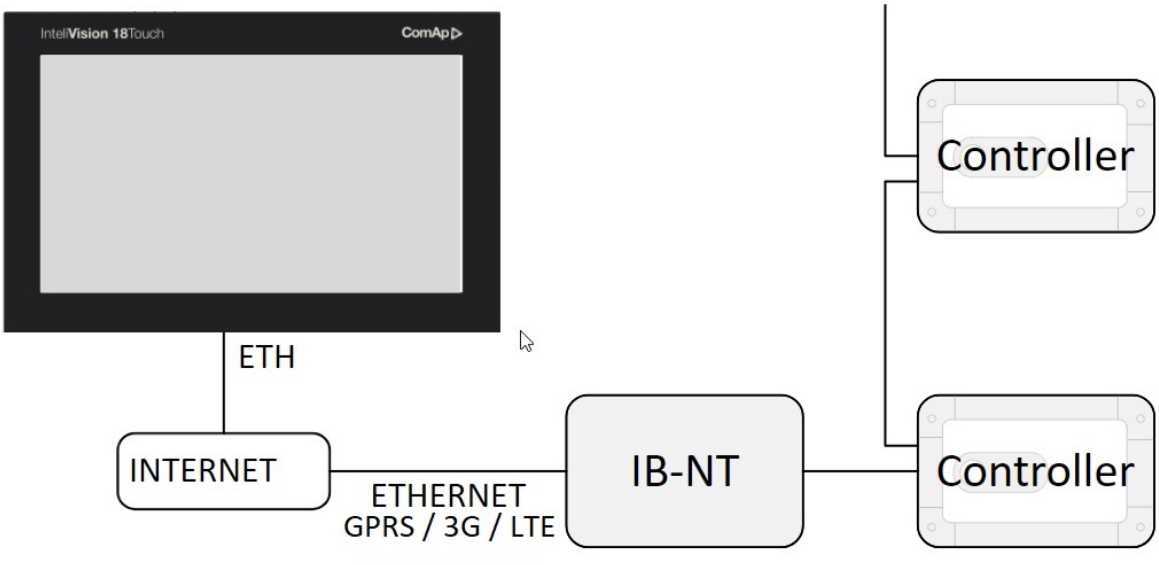

Image 6.9 IB-NT connection example

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*

6 back to InteliVision 18Touch connection possibilities

7 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.

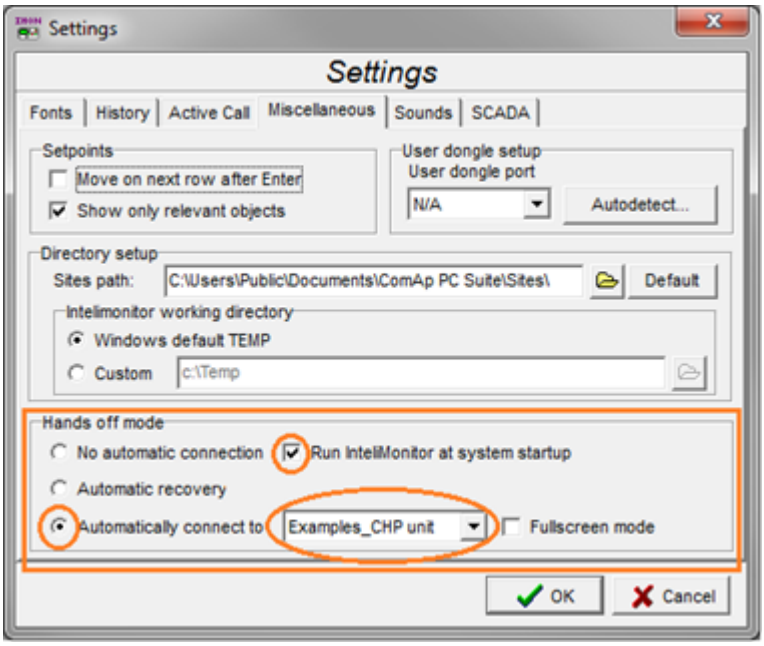

Image 7.1 SCADA automatic start example

When the IV18T boots up, InteliMonitor will automatically start and connect to the predefined site. By enabling the function Fullscreen mode, InteliMonitor will start in fullscreen mode.

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.*

8 Creating a SCADA diagram

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8.1 Automatic SCADA generating

To automatically generate a SCADA, physically connect the IV18T 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”.

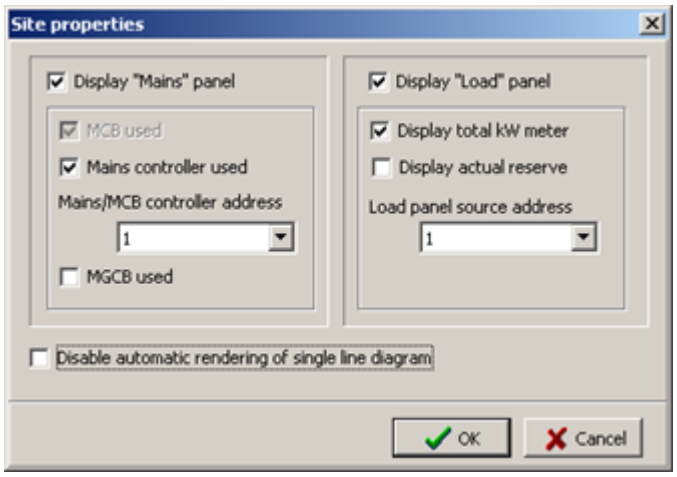

Image 8.1 Site properties

Add all controllers available in the system and their properties.

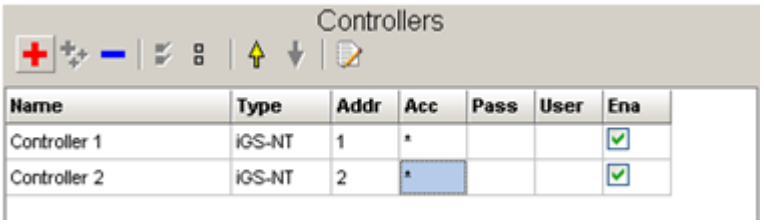

Image 8.2 Controllers settings

Choose the connection type used for communication between the system and the IV18T.

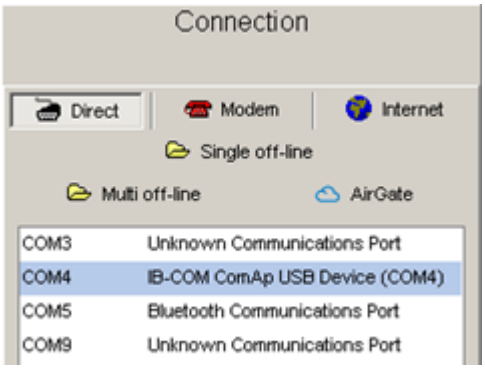

Image 8.3 Connection settings

Select **Open connection** 

A site diagram will be generated during the connection process.

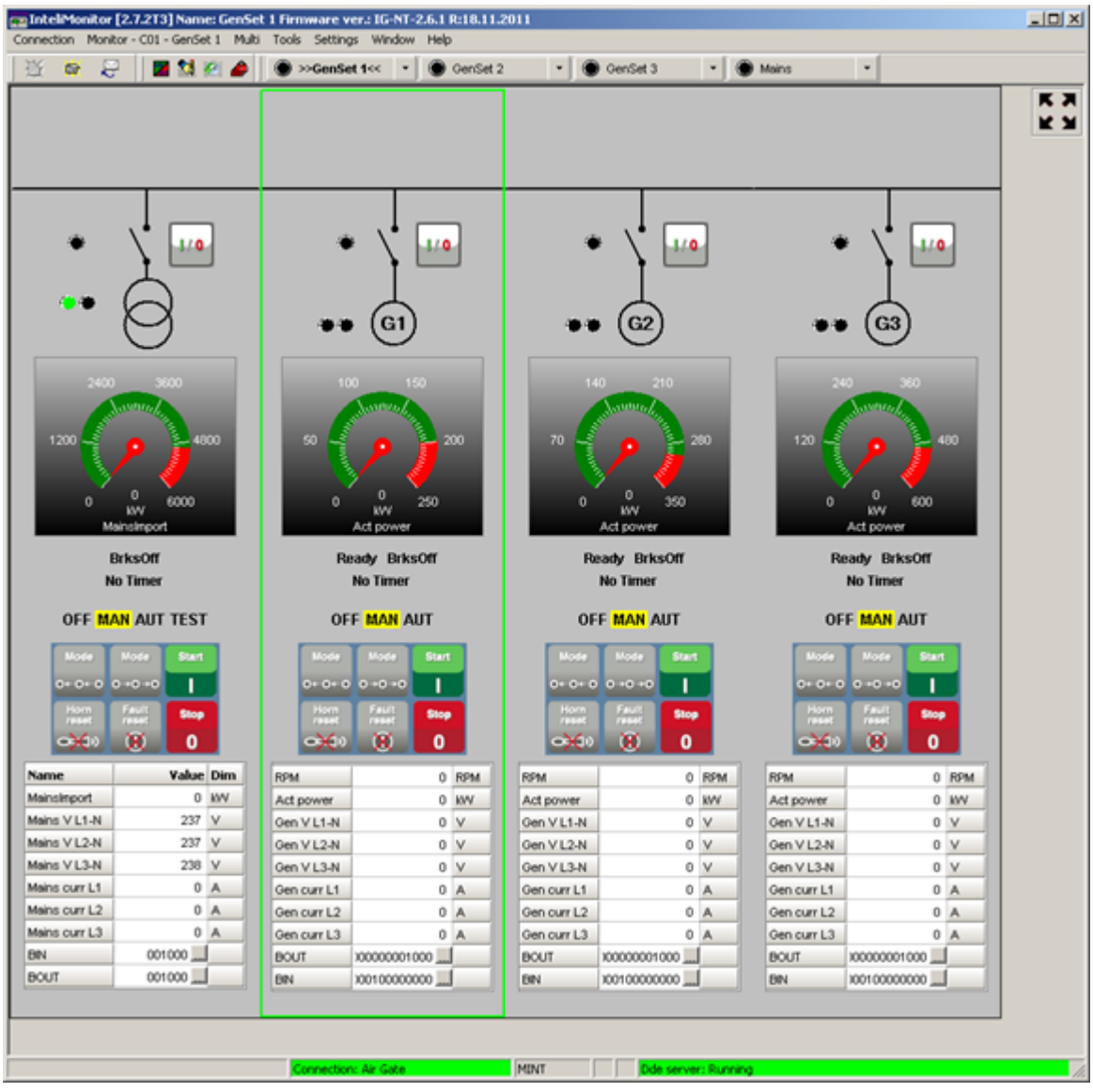

Image 8.4 Automatically generated SCADA diagram example

8.2 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

8.2.1 Preparing SCADA archives

Physically connect the IV18T 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".

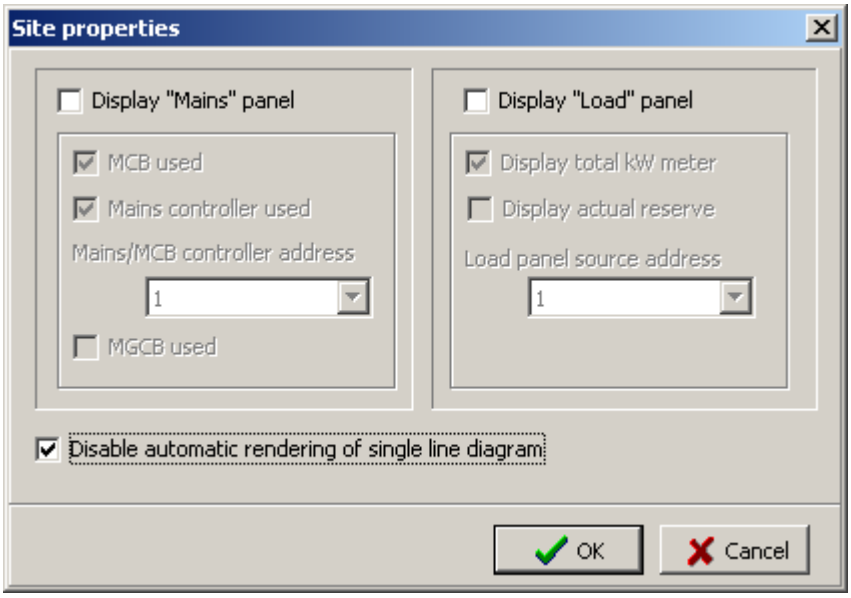

Image 8.5 Site properties

Add all controllers available in the system and their properties.

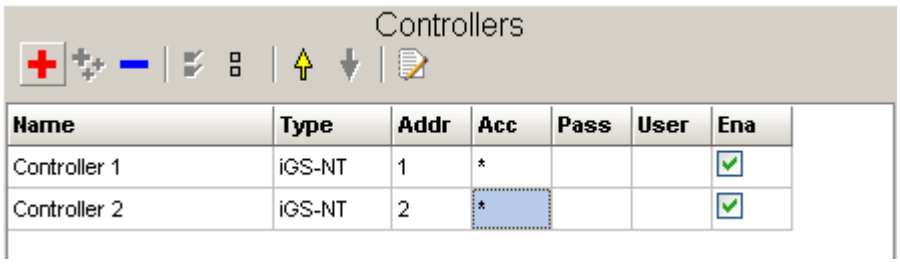

Image 8.6 Controllers settings

Choose the connection type used for communication between the system and IV18T.

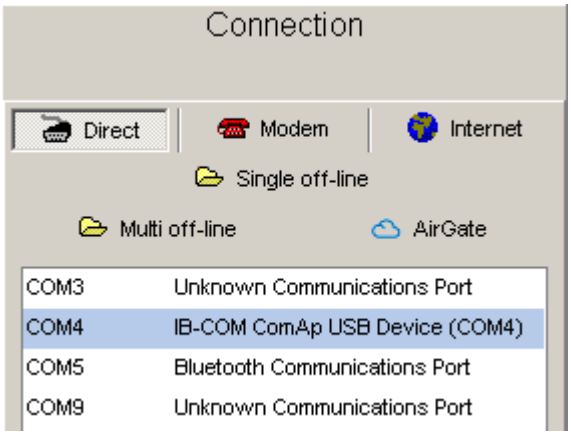

Image 8.7 Connection settings

Select **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.

8.2.2 Creating SCADA on another PC

You can create a SCADA on the IV18T 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 IV18T. 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**.

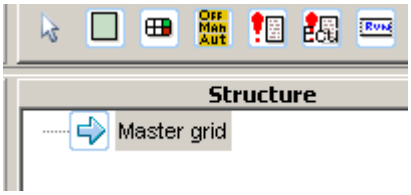

Image 8.8 Structure (Master grid)

In the Properties, change the size to 1366 x 768. This is the native screen resolution of the IV18T. 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 IV18T 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*

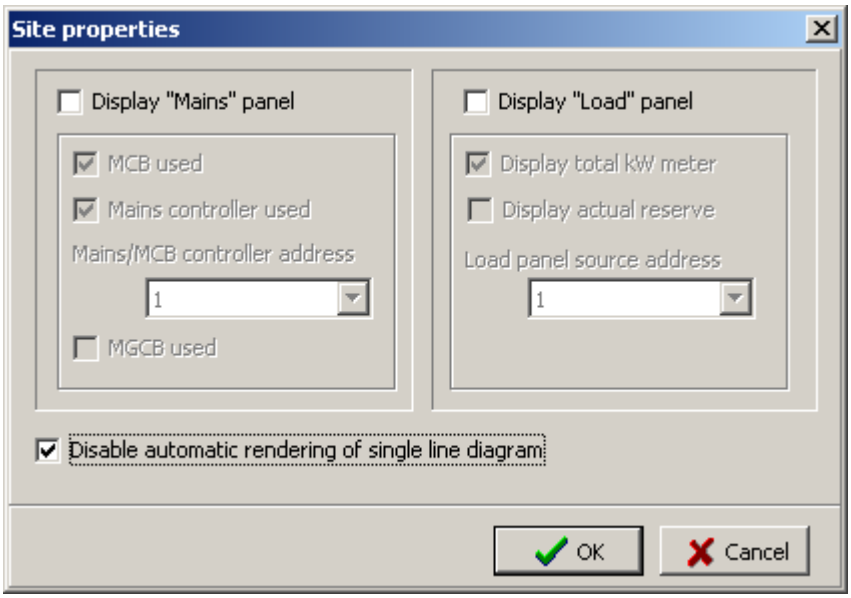

Image 8.9 Site properties

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 IV18T and on the IV18T use **Import site from file**. Select the appropriate Connection type and connect.

6 **back to Creating a SCADA diagram**