



CONSTRUCTION DOCUMENTS

100% SUBMISSION

DESIGN ENVIRONMENTAL CONTROLS AND MONITORING DEVICES

Project No. 593-15-103

Prepared for the Veterans Affairs Southern Nevada Healthcare System

December 11, 2015



VA
HEALTH
CARE

Defining
EXCELLENCE
in the 21st Century

LEO A DAILY

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VA Hospital Las Vegas- Environmental Control and Monitoring

A DESCRIPTION OF EXISTING SYSTEMS AND NEW SCOPE

Work shall include as the following:

1. Monitoring temperature, relative humidity, pressure, air flow (supply and exhaust air) for the operating rooms as indicted on the drawings.
2. Monitoring temperature, pressure, air flow (supply, return or exhaust air) for or other critical rooms as indicted on the drawings.
3. Controlling temperature, relative humidity for the operating rooms as indicted on the drawings.
4. Controlling temperature for all other critical rooms as indicted on the drawings.
5. Controlling and monitoring of sensitive rooms from nurse's stations. And other rooms as indicated on the drawings.

Monitoring and control will be done locally by the following monitors:

1. Wall recessed mounted touch screen panels with 5.7" screen (LVIS-ME2000 Touch panel or equal) at the door of Isolation Rooms, rooms in radiology department and Pharmacy Department and other areas as indicated on the drawings will control and monitor.
 - a. Fifteen (15) locations on the first floor.
 - b. Two (2) on the second floor.
 - c. Six (6) on the third floor
 - d. Four (4) for four Airborne Infectious Isolation Rooms on the fifth floor.
 - e. Eight (8) for eight Airborne Infectious Isolation Rooms on the fifth floor.
2. Surface mounted touch screen with 27" screen (Asus Model ET2702IGTH or equal) for controlling and monitoring:
 - a. One (1) in OOTC LARGE Training Office on the second floor.
 - b. One (1) in Cath Lab on the third floor.
 - c. Eight (8) Operating Rooms (Operating Room No 1 through room No 8) located on the third floor.

In addition to local monitoring and controlling the monitoring and control will be from the following monitors and locations:

1. Surface wall mounted or Reach arm mounted Surface Pro Monitor (by Microsoft or equal) with 12" screen:
 - a. One (1) wall mounted in Phys Office 1D223 on the first floor.
 - b. One (1) Reach arm mounted in the Nurses Station 1A153 on the first floor.
 - c. One (1) wall mounted in Support Staff Workstation on the second floor.
 - d. One (1) mounted in the OOTC LARGE Training Office on the second floor.
 - e. One (1) Reach arm mounted in the Nurses Station 3D119 on the third floor.
 - f. One (1) Reach arm mounted in the Nurses Station 3D229 on the third floor.
 - g. One (1) Reach arm mounted in the Nurses Station 3D354 on the third floor.
 - h. One (1) Reach arm mounted in the Nurses Station 3D369 on the third floor.
 - i. One (1) Reach arm mounted in the Nurses Station 5D364 on the fifth floor.
 - j. One (1) Reach arm mounted in the Nurses Station 5D417 on the fifth floor.
 - k. One (1) Reach arm mounted in the Ward Clerk 6D146 on the sixth floor.

- l. One (1) Reach arm mounted in the Comm Station Nurse C 6D229 on the sixth floor.
- m. One (1) Reach arm mounted in the Ward Clerk 6D360 on the sixth floor.
- n. One (1) Reach arm mounted in the Comm Station Nurse D 6D437 on the sixth floor.

In addition to above monitoring the Building Automation System located in the central plant will monitor and control all the critical rooms through interface with the existing Johnson Control System.

B. ELECTRICAL

- 1. 120 volt AC Electrical power will be provided from existing electrical panels located in each floor through junction boxes in each floor for touch screens and DDC control panels. Transformers at each junction box will provide 24 volt power to touch screen required.

C. CODES AND STANDARDS

- 1. 2012 International Building Code (IBC).
- 2. 2012 International Mechanical Code (IMC).
- 3. 2012 International Plumbing Code (IPC).
- 4. 2012 International Electrical Code (IEC).
- 5. Rules and Regulations of the State Fire Marshal.
- 6. American Gas Association (AGA).
- 7. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
 - ASHRAE Standard 62.1-2007
 - ASHRAE Standard 90.1, 2007 and 2010
 - ASHRAE Equipment
- 8. DVA Facilities Management HVAC Design Manual, PG-10, 2013
- 9. DVA Physical Security Design Manual for Mission Critical and Life Safety Protection Facilities.
- 10. DVA Seismic Design Requirement, H18-8, February 2013
- 11. National Fire Protection Association (NFPA), including the California Edition of the National Electric Code (NEC).
- 12. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
- 13. DOE

ASUS All-in-one Touch Screen PC 27" – ASUS Model ET2702IGTH



- Operating System
Windows 8 Pro
Windows 8
- Display
27.0" (68.47cm), 16:9, Wide Screen, WQHD 2560x1440, LED-backlight, IPS, 178° wide viewing angle
- Touch Screen
Multi-touch (10 Fingers Touch)
- Processor
Intel® Core™ i7 4770 Processor
Intel® Core™ i5 4430 Processor
- Chipset
Intel® B85
- Graphic
AMD® Radeon HD8890A 2GB

- Memory
 - 4 GB Up to 32 GB
 - DDR3 at 1600MHz
 - 4 x SO-DIMM
- Storage
 - 1TB Up to 3TB SATA Hard Drive
 - ASUS Hyper Storage:
 - 1TB HDD+128GB SSD
- Optical Drive
 - Tray-in Supermulti DVD RW
 - Blu-Ray Disc Combo
 - Blu-ray Writer
- Wireless Data Network
 - 802.11 b/g/n/ac Bluetooth V4.0
- LAN
 - 10/100/1000 Mbps
- Camera
 - 2 M Pixel
- Audio
 - SonicMaster Premium
- Speaker
 - 4 x 3 W
- Built-in Mic
 - Yes
- Side I/O Ports
 - 4 x USB 3.0
 - 1 x 3 -in-1 Card Reader
 - 1 x Headphone
 - 1 x Microphone
 - 1 x Line out
- Back I/O Ports
 - 2 x USB 2.0
 - 1 x HDMI-In
 - 1 x HDMI-Out
 - 1 x RJ45 LAN
 - 1 x TV Jack (Optional)
 - 1 x Kensington Lock
 - 2 x Thunderbolt port (Optional)
 - 1 x Subwoofer jack (2.5mm)
 - 1 x Power input
- Card Reader
 - 3-in-1: SD/SDHC/MMC
- Power Supply

- 180 W Power adaptor
- Dimensions
660 x 508 x 233 mm (WxHxD)
- Weight
13.5 kg
- Color
Black
- Accessories
Keyboard+Mouse (Optional),
AC Adaptor
Power Cord
Warranty Card
ASUS Certified Wall Mount Adapter (sold separately)
ASUS Certified Wall Mount Screws
Device Share cable (Optional)
Remote Control (Optional)
Quick Start Guide
- Software
Anti-Virus Trial
Adobe Acrobat Reader
Arcsoft *1
ASUS Launcher
ASUS WebStorage
Ai Charger II
Freshpaint
Fingertapps Instrument
MaxxAudio
Office trial
SKYPE
- Note
*1: bundled with optional TV Tuner



L-VIS Touch Panel

LVIS-ME200

Datasheet #89017317



✓ BACnet
CEA-709
KNX

✓ Modbus
M-Bus
✓ OPC

L-VIS Touch Panels for BACnet networks are ideally suited for visualization and operation of various applications in building automation. L-VIS Touch Panels visualize building systems, can be used as room operator panels, in hospital operation or isolation rooms, conference and reception areas. The fully customizable user screens can show dynamic pages that are easy to navigate. L-VIS Touch Panels make use of an extremely low power embedded controller platform utilizing an embedded operating system. This makes L-VIS resistant against problems when re-booting after power outage and also against any viruses.

L-VIS impresses with its timeless design, harmonic integration into modern and historical architecture, and with its extremely user friendly concept. The shallow installation depth and low thermal power loss allow mounting in almost any location.

Dynamic Graphical Pages

The graphical pages may consist of multiple dynamic graphical controls that show the current plant status in real time. It is also possible to access decentralized schedules, alarm servers, or trends. The graphical projects are designed with the L-VIS/L-WEB configuration tool free of charge. Without any know-how in HTML or Java, user specific graphical pages can be created. Dynamic information is shown through value or text controls, changing symbols, bar charts, trend views, alarm and event lists, or schedule controls. The L-VIS/L-WEB configuration tool allows for using most of the pixel graphic formats (GIF, JPG, BMP, TIFF, PNG, MNG, ICO), vector graphics (SVG) and alpha blending.

Automatic Page Generation

Pages including data point names and values, alarm views, schedules, or trends can be created automatically by the L-VIS/L-WEB configuration tool. This significantly reduces engineering time and cost.

Connectivity and Data Points

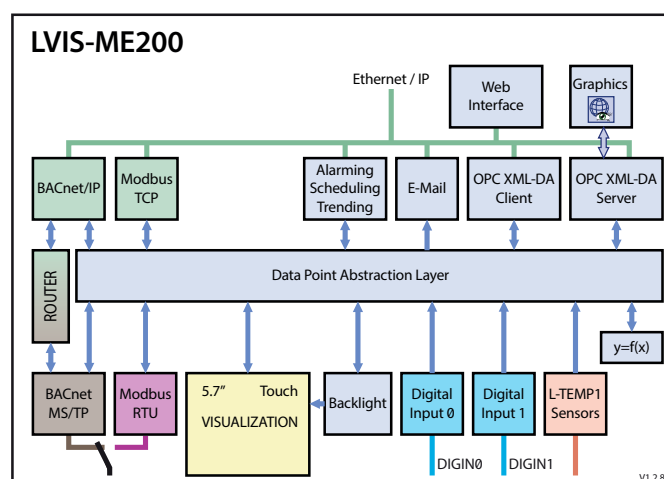
The L-VIS Touch Panels support connectivity to BACnet/IP and BACnet MS/TP and implement the BACnet Building Controller (B-BC) profile. They include a fully featured built-in BACnet/IP to MS/TP router with BBMD and slave proxy functionality. In addition, the L-VIS Touch Panels provide connectivity to Modbus TCP via Ethernet/IP and to Modbus RTU via RS-485.

Math objects can calculate any kind of formula using data points available on the device. The resulting data point value can then be either shown on the page or provided via a BACnet object. All BACnet server objects are automatically mapped to OPC XML-DA data points that can be accessed via web services.

The L-VIS devices provide fully featured AST™ functionality (Alarming, Scheduling, and Trending) and can be integrated perfectly into the L-WEB Building Management System.

Features

- High resolution TFT touch display with dimmable backlight
- Anodized aluminum front frame
- Flush-mounting in combination with the mounting frame
- Stores customized graphical pages
- Visualization of customized graphical pages through built-in Touch Panel, LWEB-900 (building management) and LWEB-802/803
- Device configuration and graphical page creation with the L-VIS/L-WEB configuration tool free of charge
- Supports all popular graphic file formats such as GIF, JPG, BMP, TIFF, PNG, MNG, ICO
- Support of SVG vector graphics
- Supports alpha blending
- Supports popular font types such as TrueType, Type-1, BDF, PCF, and OTF
- Supports Unicode text
- Built-in OPC XML-DA server
- Built-in OPC XML-DA client
- Alarming, Scheduling, and Trending (AST™)
- Event-driven e-mail notification
- Math objects to execute mathematical operations on data points
- Compliant with ANSI/ASHRAE 135-2012 and ISO 16484-5:2012 standard
- Supports BACnet MS/TP and BACnet/IP
- BACnet Client Function (Write Property, Read Property, COV Subscription)
- BACnet Client Configuration with configuration tool (scan and EDE import)
- B-BC (BACnet Building Controller)
- Integrated BACnet/IP to BACnet MS/TP Router
- BBMD (BACnet Broadcast Management Device)
- Modbus TCP and Modbus RTU (Master or Slave)
- Integrated web server for device configuration and monitoring data points
- Access to network statistics
- Configurable via Ethernet/IP



L-VIS Touch Panel

LVIS-ME200

Specifications

Type	LVIS-ME200
Screen size	5.7" (145 mm)
Dimensions (mm)	210 x 164 x 63 (L x W x H), DIM001
Dimensions cut-out (mm)	180 x 150 x 57 (L x W x H)
Display resolution	320 x 240, 256 colors
Interfaces	1 x Ethernet (100Base-T): OPC XML-DA (server, client), BACnet/IP, HTTP, FTP, SMTP, NTP, VNC, Modbus TCP (Master or Slave) 1 x RS-485 (ANSI TIA/EIA-485): BACnet MS/TP or Modbus RTU (Master or Slave) 2 x Digital Input 1 x Digital interface for up to 4 L-TEMP1 sensors
Power supply	20-35 VDC / 24 VAC $\pm 10\%$ typ. 3 W, backlight on: 8 W
Operating conditions	+10 °C to 40 °C, 10-90 % RH @ 50 °C, non condensing
Degree of protection	Front: IP54 / back: IP10
Tools	L-VIS/L-WEB Configurator

Resource limits

OPC data points	2 000
Modbus data points	2 000
VNC clients	16
BACnet server objects	512
BACnet calendar objects	25
BACnet scheduler objects	100 (64 data points per object)
BACnet notification classes	32
E-mail templates	100
Math objects	500
Alarm logs	10
Trend logs	100 (390 000 entries, ≈ 6 MB)
Total trended data points	256
Connections (Local/Global)	1 000/250
Number of L-WEB clients	15 (simultaneously)

Order number Product description

LVIS-ME200	BACnet Touch Panel with 5.7" display (Aluminium frame with anodized finish), B-BC
LVIS-FRAME1	Mounting frame for 5.7" Touch Panels
L-TEMP1	External temperature sensor

Surface Pro 3



Technical Specifications

- **Size**

11.5" x 7.93" x 0.36"
(292.1mm x 201.4mm x 9.1mm)

- **Weight**

1.76lbs
(800 grams)

- **Display**

Screen: 12" ClearType Full HD Plus
Resolution: 2160 x 1440
Aspect Ratio: 3:2
Touch: Multi-touch

- **Battery Life**

Up to 9 hours of web browsing¹

- **Storage²/RAM**

64GB or 128GB storage with 4GB RAM
256GB or 512GB storage with 8GB RAM

- **Processor**

- Intel Core i3
- Intel Core i5

Intel Core i7

○ Clock Speed

1.5GHz

1.9GHz

1.7GHz

○ CPU Max

1.5GHz

2.9GHz

(w/ turbo)

3.3GHz

(w/ turbo)

○ Graphics

Intel 4200

Intel 4400

Intel 5000

○ TPM chip for enterprise security

● Network

Wireless: Wi-Fi 802.11ac/802.11 a/b/g/n

Bluetooth® 4.0 Low Energy technology

● Location

Digital Compass

● Ports

Full-size USB 3.0

microSD™ card reader

Headset jack

Mini DisplayPort

Cover port

● Software

Windows 8.1 Pro

● Cameras, Video and Audio

5.0 megapixel rear-facing camera

5.0 megapixel front-facing camera

Stereo microphones

Stereo speakers with Dolby® sound

● Sensors

Ambient light sensor

Accelerometer

Gyroscope

Magnetometer

● Kickstand positions

Multiple

- **What's in the box**

Surface Pro 3

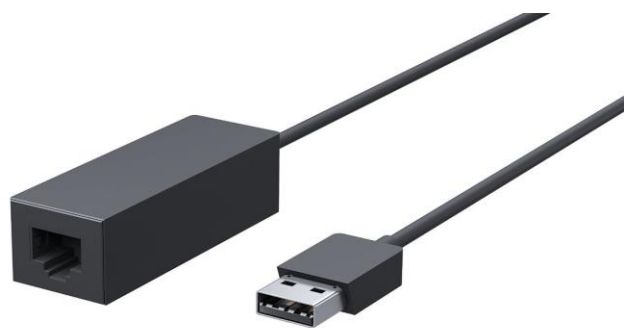
Surface Pen

36W Power supply

Quick Start Guide

Safety and warranty documents

Microsoft – Surface USB to Ethernet Adapter



Specifications

Specs:	Details:
Warranty Terms - Parts	1 year limited
Warranty Terms - Labor	Not Available
Color Category	Black
Compatibility	Microsoft Surface
Quantity	1
Cable Adapter Type	Surface Ethernet Adapter
End 1 Connector Type	USB
End 2 Connector Type	Ethernet
UPC	885370804577

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