

*Note to the Designer/Architect/Engineer: These Specifications are basic minimum criteria to be met in preparing the final project specifications for this section, which is the responsibility of the Designer*

York University Building Standards

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<p><b>Prepared by:</b> Paul Mayol, Project Manager, Office of the Vice President Finance &amp; Administration</p>	<p><b>Reviewed by:</b> Katherine Branton, Manager, Emergency Preparedness, Community Safety, Office of the VP FA. Tony Manza, Project Manager, Infrastructure Project Administration, UIT, Gautam Janardhanan, Client Solutions</p>	<p><b>Authorized by:</b> Richard Francki, Assistant Vice President Campus Services and Business Operations</p>
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## 1.0 GENERAL

### 1.1 Scope of Work

Digital Signage System including related software and hardware

### 1.2 Guiding Principles:

- .1 The Digital Signage System is comprised of a number of video display monitors that are strategically located across the campus that are networked to a centralized command and programming centre. The Digital Signage System enables real time emergency and safety messaging as well as programmed and rotating community information, way finding, event notices and an opportunity to deliver community news.
- .2 The Digital Signage System (also referred to as LCD displays) shall be located in every academic, administrative and residence building such that there are sufficient emergency communication capabilities across the campus.
- .3 The Digital Signage System is intended to provide York University's Security Services, and a very limited group of senior University management access to a communication platform capable of reaching the campus community on a 24hr/7 day/365 basis.
- .4 The placement of individual Digital Signage System display units shall take into consideration the widest possible audience. At a minimum, the Digital Display monitors shall be located on the main floor of campus buildings.
- .5 A minimum of one Digital Signage unit is required per building.
- .6 Pedestrian traffic patterns, and overall occupancy levels shall be taken into consideration in assessing the total number of Digital Signage System display units to be located in a building.

### 1.3 Related York University Standards

- .1 CCTV Systems Section 28 23 13
- .2 Proximity Card Access Section 08 74 00
- .3 Indoor Safety and Outdoor Emergency Telephones Section 10 17 00
- .4 York University Telecom Standard, University Information Technology (UIT)

### 1.4 Performance Standards References

- .1 All installed equipment must meet most recent applicable CSA/ANSI standards
- .2 All products must bear CSA or ULC labeling

### 1.5 Power Requirements

- .1 110 Volt for both the CPU and the display monitor
- .2 Uninterruptible Power Supplies (UPS) for the Video Display's Central Processing Unit (CPU) is required (see back up power requirements)

### 1.6 Tamper Protection

- .1 The display monitors, CPU and UPS that make up the individual Digital Signage System for a building shall be installed in such a manner as to prevent unauthorized access to the display, CPU and UPS.
- .2 Tamper proof screws shall be used where appropriate to limit access to equipment
- .3 In high pedestrian traffic areas where displays may be subject to vandalism, a protective clear plastic screen should be used to protect the LCD display. This plastic screen shall be incorporated within the metal bracket and display housing.
- .4 The Digital Display System's hardware must be connected to available electrical outlets in such a manner as to negate any access to general public to these connecting electrical outlets. This requirement is intended to avoid any possible tampering of the equipment.

### 1.7 Brackets and other hardware

- .1 Mounting hardware must permit flexible adjustments for large flat panel displays.

- .2 Brackets and mounting hardware will depend on field condition such as the need for ceiling or wall, single display or dual display in back to back configuration.

#### 1.8 Warranty (Standard Warranty and Extended Warranty)

- .1 Provide warranty on both product and installation for a period of one year from the date of system acceptance in writing.

#### 1.9 Submittals

- .1 Shop drawings and equipment cut sheets indicating the complete system design, and all components shall be submitted as a package for approval prior to release of order or installation. As a minimum the shop drawings shall include a floor plan of the installation area, a wiring diagram indicating all components connected and the number type and size of the conductors between each component. Cut sheets of each piece of equipment shall be included in the shop drawing submittal package.
- .2 Three hard copies and one set of electronic files of the "as built" record drawings shall be provided to the University upon completion of the work. The drawings shall reflect the final "as built" arrangement and configuration of the system. They shall be accompanied by illustrated technical supporting literature on all equipment comprising the installation including operating and maintenance instructions for all components.
- .3 As built drawings and wiring diagrams shall be produced by AutoCad version 2010 (2008, 2009 are also acceptable) and supplied to York University's Planning & Architecture Design Services, Campus Services and Business Operations on disk.
- .4 Shop drawings shall include a complete materials list with manufacturer, style, model and quantity.
- .5 Network Drop requirements
- .6 Manufacturers data sheets for all equipment installed
- .7 The Video display monitor's remote control shall be provided to the York University Project Representative along with all manufacturer's equipment documentation
- .8 A Maintenance Profile is required for the UPS so that a preventive battery replacement schedule can be incorporated into ongoing system maintenance

#### 1.10 Qualifications

- .1 The installer of electronic hardware must be a firm with at least 5 years experience with these types of products, have manufacturers'

- references and a good knowledge of the products specified.
- .2 The installer of electronic hardware must hold a building contractor's license issued by the provincial authorities having jurisdiction, and must select a qualified labour force of established competence.

## 2.0 PRODUCTS

### 2.1 Display Device

- .1 Shall be NEC or equivalent commercial grade Liquid Crystal Display (LCD)
- .2 Public display grade panel to protect against permanent image retention
- .3 Digital inputs must be HDCP compliant
- .4 Flat panel native resolution shall be a minimum of 192 X 1080 and support HDTV resolutions plus standard computer resolution
- .5 Minimum display brightness shall be a minimum of 400 Mitsu at full white
- .6 Shall permit tiled images
- .7 Multiple input types including at least one HD-15 VGA, DVI, HDCP, Composite, S-Video, Component
- .8 Ethernet and RS-232 Control to permit remote monitoring
- .9 Incorporate a real-time clock
- .10 Minimum contrast ratio 3000:1
- .11 Minimum refresh rate: 60Hz, 120Hz preferred
- .12 PC and MAC connectivity capable
- .13 Must support VGA type resolution and HDTV resolution (720p, 1080i, 1080p)
- .14 Must support digital input HDMI, DVI-D
- .15 Screen size range is dependent on application range between 32" to 65"
- .16 Acceptable Products: Latest iteration of NEC V series NEC V55, 55"
- .17 Flat screen displays shall have a minimum 15Watt speaker output built in
- .18 Shall be Energy Star rated

### 2.2 CPU Requirement

- .1 One player PCs that is either installed on the back, or above the ceiling, depending on what is considered best for the setup. They are Lanner LC-7900, Core 2 Duo, 2GB RAM, 32 GB SSD. video signal is connected by VGA, audio is dual RCA to 3.5mm.
- .2 Shall be Energy Star rated

- .3 LEI Digital Signage PC model number: HQ-LEC-7900D-V1.OB
- .4 Omnivex Display 3 Player model number: DSPX-P3-P
- .5 Omnivex Control Device model number: CTLXO-P

### 2.3 Back up Power Requirements

- .1 Digital Signage System including CPU shall be connected to an Uninterrupted Power Supply UPS unit appropriately size to provide a minimum of 10 minutes of run time at 100% output capacity for both the CPU and monitor
- .2 Shall be APC (Shneider Electric) or equivalent 500VA to 1500VA output power capacity or as required
- .3 Recharge time shall be not greater than 8 hours
- .4 Shall incorporate an audible alarm when batteries reach low status, overload continuous tone alarm
- .5 Shall include power savings features
- .6 Shall be Energy Star rated

### 2.4 Mounting Hardware

- .1 The specific type of mounting hardware will depend on the location
- .2 Mounting hardware shall be capable of micro adjustments with swing and tilt capacity where necessary
- .3 Mounting hardware must be fitted with secure covers and tamper proof screws to prevent tampering
- .4 Mounting hardware shall be fitted with safety cable
- .5 Acceptable Products
  - .1 Chief: Ceiling flat panel mount, model will depend on flat panel size and weight as well as the need for tilt and swing
  - .2 Chief: Wall panel mount fixed or swing, model will depend on flat panel size and weight as well as the need for tilt and swing

### 2.5 Site Requirements

- .1 Power can be provided by a standard 110V outlet that the UPS will plug into. All other devices (i.e., display and player PC) plug directly into the UPS.
- .2 Network drop for the player PC to get network connectivity.
- .3 UIT to provide IP address and network connectivity to the university's network infrastructure, IP Addresses

### 2.6 Digital Signage Software

- .1 The digital signage software solution deployed is Omnivex
- .2 Server and system requirements:

- .1 Windows Server 2003 is recommended
- .2 Windows Server 2008 can run approximately 90% of the Omnivex digital signage software.
- .3 The software suite York has currently deployed on the server includes Data Pipe 3 Server, Control 4 Server, and XML Link 3.
- .4 Display 3 Player: Software that resides on the players PCs that displays content. A standard PC is acceptable
- .5 Display 3 Director: Software that is used to design content layouts and schedule playlists for the player PCs; decides what is playing where and when. Should be installed on the primary content provider's PC (any standard PC should work)
- .6 Control PC: Used to send commands to and monitor displays. Usually gets installed on the same PC as Director.
- .7 Data Pipe Client: Used to update data cells (messages, etc.,) or give a preview of the Data Pipe Server. Should be able to be installed on almost any computer.

## 2.7 Network connectivity and wiring

- .1 A network drop connecting the Video Messaging System to the University's network infrastructure is required
- .2 Wiring shall be network copper cable Category 6 plenum rated, cable runs must not exceed 90 meters
- .3 Cable connectors – please follow video display manufacturer's recommendations regarding the appropriate video connectors

## 3.0 EXECUTION

### 3.1 Installation

- .1 The Digital Signage System units shall be installed according to Contract drawings
- .2 The Digital Signage System shall be installed in accordance with all municipal, provincial, federal and trade guidelines and regulations
- .3 Installation of Display, UPS and CPU shall be neat, clean plumb and square and in a manner consistent with industry standards
- .4 Rigid and flexible mounting systems (brackets, tube and clamp, frame and other types) used to secure the video display monitor, CPU and or UPS shall have a safety cable attached between the suspended device and the substructure used to support the mounting system. The size and construction of the safety cable,

- and attachment points must be suitable to support the weight of the equipment being supported
- .5 If installing a CPU and or UPS above a suspended ceiling – the equipment shall not be supported by the suspended ceiling in any way. The CPU and UPS equipment shall be secured to the superstructure in such a manner as to avoid placing any weight on the suspended ceiling system – do not impose the weight of the CPU or the UPS, mounting brackets for the display or the display itself on supports provided for other systems. A safety cable shall also be used to secure the mounting system securely to the superstructure.
  - .6 If installing a CPU, and or a UPS within a suspended ceiling space please consult with York University Engineering Department, CSBO to ensure that the additional heat generated by this equipment will not impact the building's HVAC system negatively
  - .7 Equipment shall be installed in accordance with manufacturers documented requirements
  - .8 Any suspended equipment such as Displays or brackets must be certified by the manufacturer for overhead suspension
  - .9 Provide vent panels and cooling fans as required for the operation of the equipment within the manufacturers' specified operating temperature limits. Provide adequate ventilation between equipment for cooling.
  - .10 Provide insulated connections of the electrical raceway to Video Display equipment including the CPU and UPS
  - .11 Execute all wiring work for the Video Display system in adherence with the Ontario Electrical Safety Authority standards and requirements
  - .12 Arrange all cables neatly with plastic ties. Avoid over-tightening cables into bundles, do not twist bundled cables. Install video cables so as to avoid sharp bends or kinks

### 3.2 System Programming

- .1 Provide all system programming required for a complete and operational system
- .2 Coordinate system programming with York University's Manager of Emergency Preparedness, and the university's project representative
- .3 Programming shall follow existing system architecture and shall not deviate from defined parameters, access rights and nomenclature

### 3.3 System Testing



- .1 System Acceptance Testing shall include both factory and field-testing
- .2 System Acceptance Testing shall be performed on a “go no go” basis.
- .3 Working in conjunction with the system owner (Manager of Emergency Preparedness) the installer shall develop a User Acceptance test that demonstrates proof of performance
- .4 Factory and field testing shall be performed in accordance to pre defined test parameters. At a minimum, a newly deployed Digital Messaging System shall undergo the following user acceptance and field-testing:
  1. From the Security Control Centre Digital Signage Control module, the system installer shall remotely black out all Digital Display screens on campus.
  2. Staff from the Office of Emergency Preparedness shall visit the newly installed digital display system location to be tested to validate messages being tested
  3. The system installer representative shall then cycle through all pre recorded messages, including:
    - .1 Lockout
    - .2 Shelter in place
    - .3 Fire
    - .4 Evacuation
    - .5 Weather
    - .6 Custom Weather
    - .7 Alert
    - .8 Information
    - .9 Custom message
  4. Office of Emergency Preparedness staff shall confirm that all messages display correctly and corresponding audio is played for the appropriate messages
  5. Office of Emergency Preparedness staff shall record the results of the testing, noting any issues deficiencies or problems to be addressed by the system installer
  6. Once the testing cycles is completed, the system installer shall return the Digital Display system to normal parameters and programming
  - .7 Field test shall also conduct the following tests of all field devices and connection of these devices to Security Control Centre control module and shall include:
    - .1 Broadcast of freeform emergency message
    - .2 Broadcast of regular daily communication cycle (York University’s Y-File feed)
    - .3 Broadcast of regular daily communication cycle with interruption for emergency messaging broadcast cycle

- .5 After system installation – disconnect 120v source and test/time the UPS to shutdown. Record and report time period ensuring that it falls within manufacturers documented performance parameters
- .6 Factory Test shall include connection of display monitor to CPU to a control module

### 3.5 Cleaning, Patching and repair

- .1 The system installer shall be responsible for maintaining the work area clean
- .2 The system installer shall be responsible for any patch, repair and paint work resulting from the execution of this work

### 3.6 Coordination

- .1 System acceptance testing shall be coordinated with University representatives from Security Services specifically

**End of Section**