eTag® Board

Hardware User Manual

Version 2.0

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Manual

Safety Guidelines

Warning notices must be observed to ensure personnel safety as well as that of others, and to protect the product and connected equipment or process. These warning notices are accompanied by a clarification of the level of caution to be observed.

Qualified Personnel

This device/system may only be set up and operated in conjunction with this manual. Qualified personnel are only authorized to install and operate this equipment in accordance with established safety practices and standards.

Safety Precautions

This product can only function properly and safely if it is correctly transported, stored, installed, set up, operated, and maintained.

Disclaimer

K4 Integration Inc. reserves the right to make changes to the TopVu® products and manuals without further notice to improve reliability, function or design.

The documentation found within this manual is to provide the users of our products with technical information relating to the installation, maintenance and set up of the eTag® Board.

Contact Information

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Innovation, Science and Economic Development Canada

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.
L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) L'appareil ne doit pas produire de brouillage;
(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
This radio transmitter [IC: 22620-ETAG11] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.
Le présent émetteur radio [IC: 22620-ETAG11] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci‑dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.
ET-1244, ET-3025
Innovation, Science and Economic Development Canada ICES-003 Compliance
CAN ICES-3 (A)/NMB-3(A)

FCC

Note: 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.
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

US Patent: 9,668,105

System and method for identifying locations of mobile elements in a facility with a number of regions.

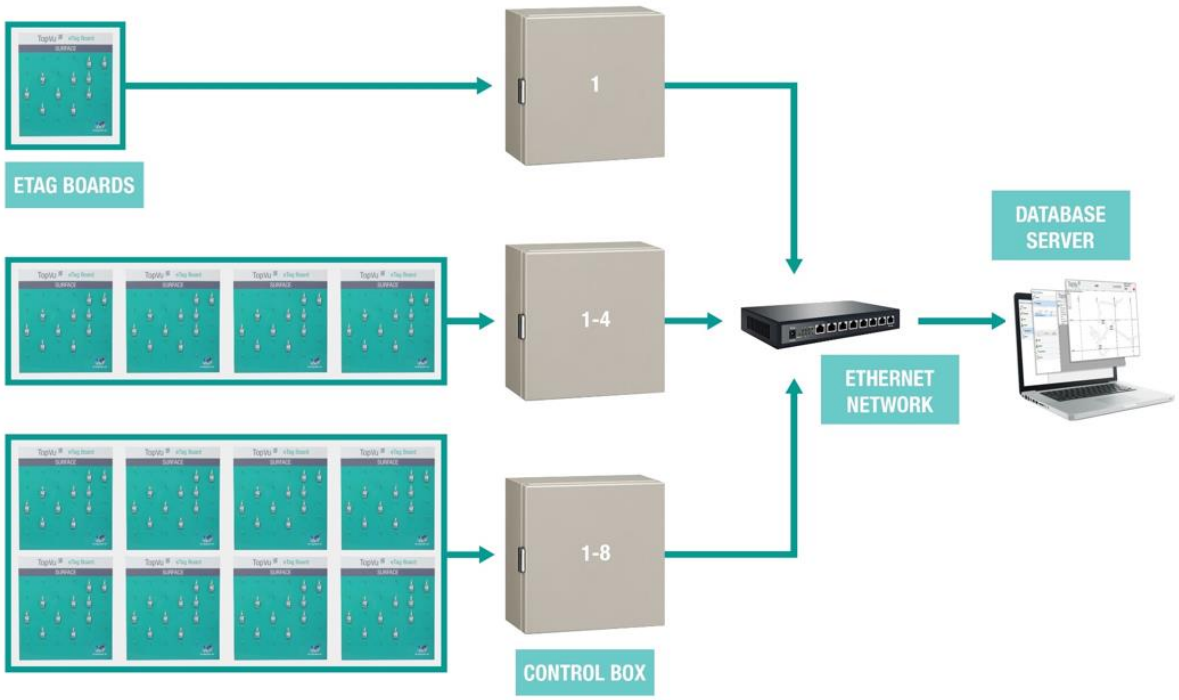
eTag® Board Introduction

The eTag® Board system will discover tagged assets placed on these boards – providing location data for tags in strategically identified zones. They provide a mechanism for centrally viewing the location of personnel in real time. Using a passive tag reader interface, the eTag® Boards will locate the tag on the boards and identify which zone or region the tag was placed.

The eTag® Boards consists of two general sizes and can be combined to create a matrix of multiple boards. Using two basic board dimensions; 1ftx2ft (36 tags) and 2ftx2ft boards (50 tags).

TopVu®'s eTag® Board is designed to be used in conjunction with the TopVu® control unit, later described in this manual. This system allows to track production, maintenance and safety personnel as well as contractors without having to change existing behavior. When connected to TopVu® software, the eTag® Board system can provide real time and historical data of the personnel tagged onto the eTag® Board as individual profiles.

A typical diagram of several eTag® Boards' connections to the eTag® Controller is shown below.



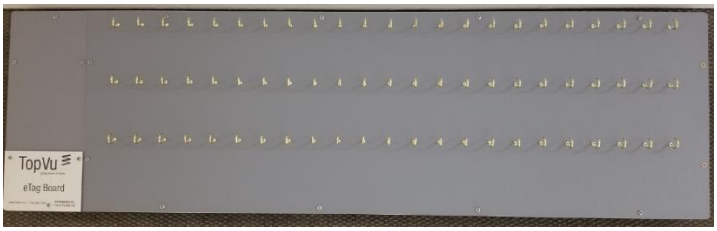
In this case, boards are connected to a 1; 4 or 8 channel eTag® Control boxes. The eTag® Controller interfaces to a standard Ethernet TCP/IP network using an Ethernet switch/router to transmit the data to the TopVu® Database Server.

Components of eTag® System

eTag® Board 2x2

27'' x 24.5'' x 2'' (HxWxD)

eTag® Board 1x2



14.5'' x 25.375'' x 2'' (HxWxD)

eTag® Controller Box

11.024'' x 11.024'' x 5.039'' (HxWxD)

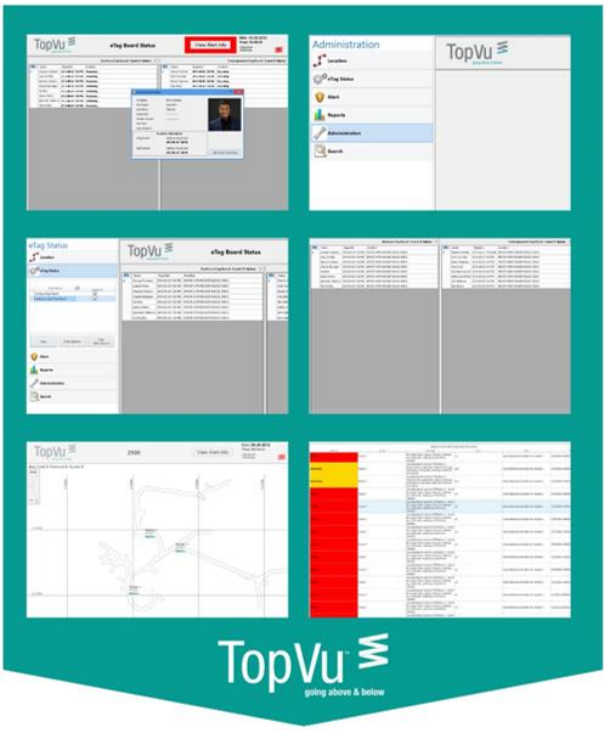
Cables

eTag® Board Coaxial SMA Male-Male cables come in 5 standard lengths.

05ft, 10ft, 15ft, 20ft, 25ft. Custom lengths are available.

Software

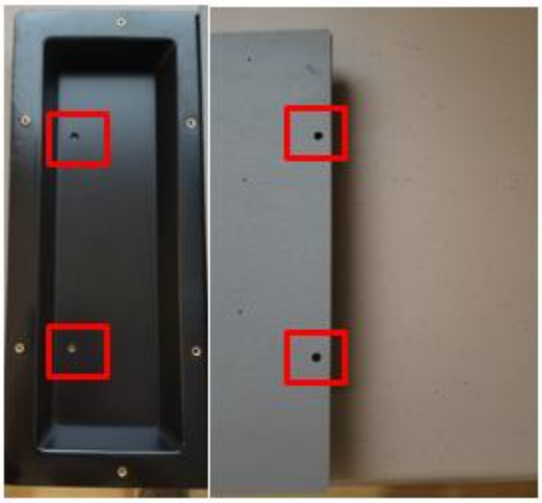
TopVu® InSight



eTag® Board Mounting

The eTag® Board is mounted using the 2 mounting holes inside the cableway as well as the 2 mounting holes on the opposite side of the board.

1. Open the cableway to be able to access the mounting holes.
2. With proper bolts for mounting area, secure the eTag® Board to the wall.
3. Secure the eTag® board with the mounting holes on the opposite side of the cable way.



Installation

1) Setting the eTag® Board controllers IP address.

- TopVu®'s eTag® management software tool is required on your PC to change the default IP address from: 10.40.40.97.

a) Connect the eTag® Controller directly to your PC using a standard straight through Ethernet cable.

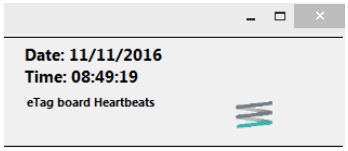
b) Apply 120VAC power to the eTag® Controller box.

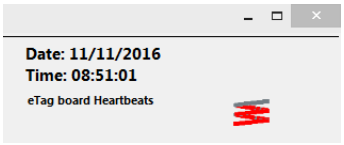
c) Follow the instructions in the eTag® management software tool guide to change IP settings.

d) Reboot the eTag® unit and verify changes by pinging the new IP address that was just set.

2) **Physical Installation**.
   a) Install the eTag® Controller enclosure (in range of the cables used to connect the eTag® Boards) using the mounting holes or bracket.
   b) Attach the male SMA coax cables to the eTag® Board antenna connectors.
   Note: Although the eTag® Board is factory calibrated, it may require fine tuning once installed to optimize performance. Nearby Ferro magnetic materials can affect the antenna negatively. This calibration must be performed by a qualified service technician using an SWR meter.
   c) Once all eTag® Boards have been calibrated, connect each cable to antenna connectors on the controller box. Verify that each connector is properly tightened.
   d) The TopVu® InSight software will require the heartbeat ID of each individual eTag® Board to verify functionality. The ID's of these tags can be found beside the eTag® Boards cableway.
   Note: you will need to note which eTag® Board is associated to which heartbeat ID.

3) Verification.
   a) Start the TopVu® InSight software. (Installation procedures of the InSight software will be supplied with the software.)
   b) Within the TopVu® InSight software, add an RFID tag ID into the Database (See software manual for instructions.)
   c) Place an eTag® (that has been registered in the database) on the eTag® Board.
   d) Verify that the software has recognised the discovery of the tag by noting the heartbeat flag on the software as well as data table record created.





   Green heartbeat indicates correct function.
   Red heartbeat indicates one or more antennas are not properly functioning.
   e) Verify all location on the eTag® Board.
   Note: If the InSight software does not detect the eTag® on specific location, a qualified technician will need to perform a fine-tuning calibration.

4) Set up eTag® information in the TopVu® InSight database software settings.
   a) Instructions for this set up will be supplied with the TopVu® InSight software manual.

Customization

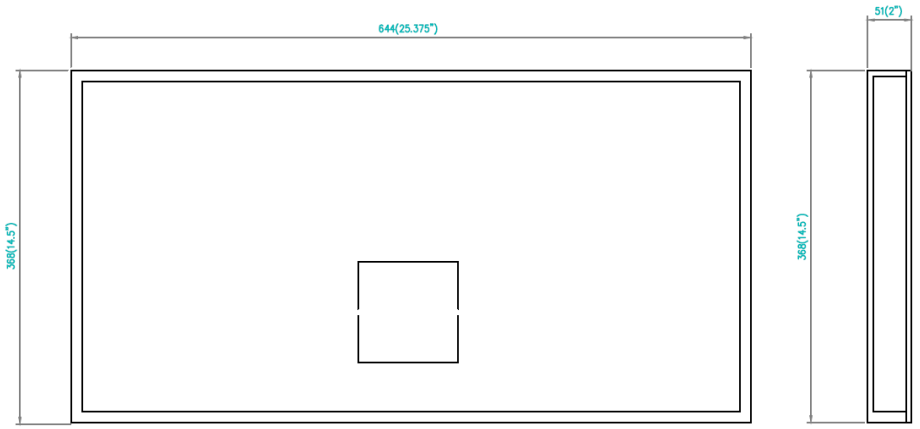
The front face of the eTag® Boards can be customized to reflect special requirements, for example, changing the title of the board or identifying special groups such as safety personnel.

Note: For any modifications or repair, contact your TopVu® sales representative.

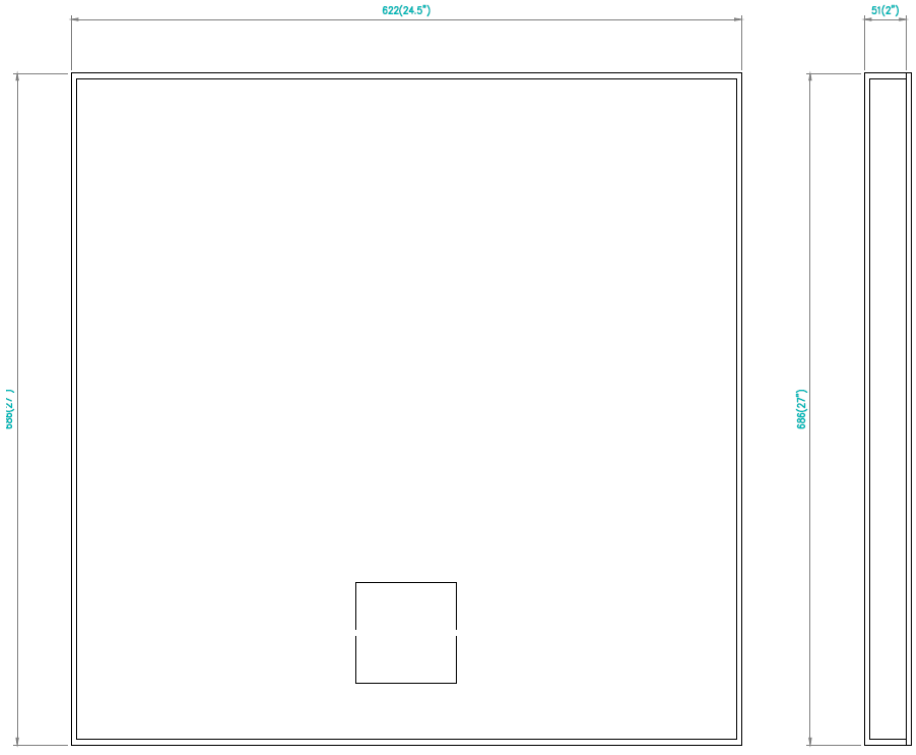
Specifications

eTag® Board Dimensions

	Height	Width	Depth	Tags (Max)
1x2	14.5”	25.375”	2”	36
2x2	27”	24.5”	2”	50



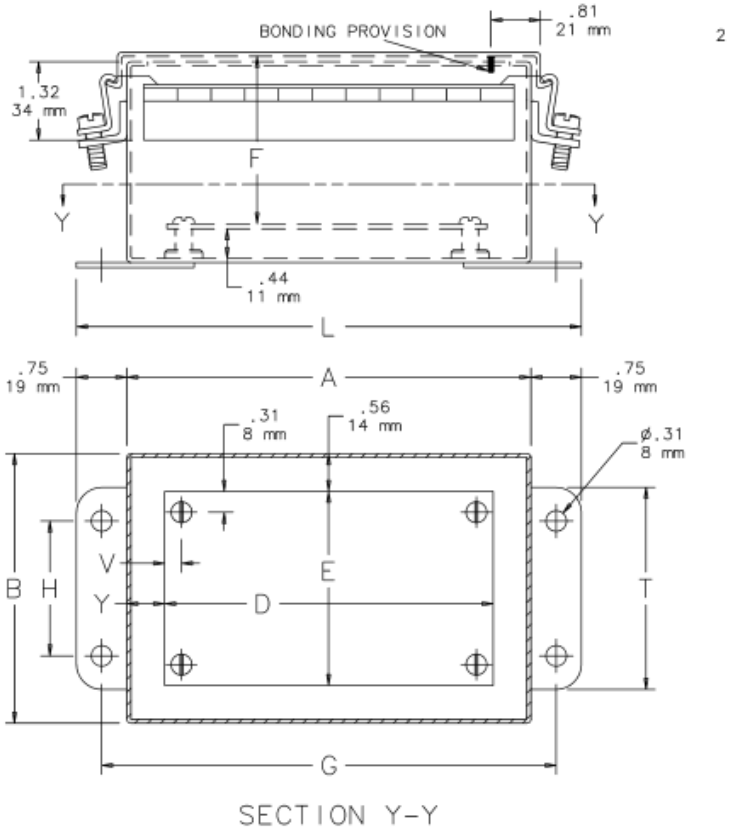
eTag® Board 1x2.

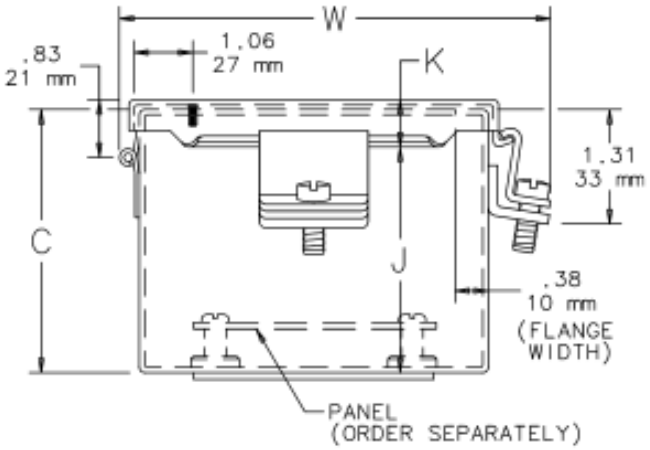


eTag® Board 2x2.

eTag® Controller Dimensions

	Height	Width	Depth
Enclosure	12”	10”	5”





Power Consumption

Input Voltage	120VAC 1A
Power Consumption	MAX 16VA

Operating Frequencies

eTag® Board	13.56Mhz 1W-5W (adjustable)

Data Transmission

Networking	Ethernet RJ45 (TCP/IP)

Environmental

Temperature Range

Operation	-25°C to 55°C
Storage	-25°C to 85°C
Relative Humidity	5% to 80% (Non-Condensing)

Connections

eTag® Board	Female SMA connectors optionally located at the Top; Bottom; Left; Right.
eTag® Controller	4 or 8 (depending on 4 or 8 channel models) Coaxial SMA Female Connections (50 Ohm)

Cabling

120VAC power Cable.

Standard Male-Male SMA cable of optional length.

Ethernet, 100Base-T, Maximum cable length 100 meters. (Uses TCP/IP)

Warranty

1 Year

Part Numbers

eTag® Board Part Number.

ET - __ __ - __ 0 0 - __

1	2		3				4

Example: ET-22-T00-0

Sections are 2ft x 2ft.

Antenna connector port on the Top of the board.

0 No additional requirements.

1. Section Height.
   (Options for eTag® dimensions 1ft or 2ft)
2. Section Width.
   (Options for eTag® dimensions 1ft or 2ft)
3. Position of the antenna connector.
   T = Top; B = Bottom; L = Left; R = Right.
4. Additional Info.
   0 = No additional information.
   C = Custom specifications, must describe requirements.

eTag® Board Control Box Part Number.

ET-JB - ___ - ___

1 2

Example: ET-CB-8-0

eTag® Board with 8 sections Antennas.

0 No additional requirements.

1. Total Number of sections.
   (Options 1-8) This will allow to know if using 1, 4 or 8 channel.
   1 = Single channel
   4 = 4 channel
   8 = 8 channel
2. 0 = No additional information.
   C = Custom specifications, must describe requirements.

eTag® Board Antenna Cables Part Number.

ET-AC - ___ ___ - ___

1 2

Example: ET-AC-10-0

10ft Coax cables with SMA male connectors

0 No additional requirements.

1. Antenna cables lengths
   05ft, 10ft, 15ft, 20ft, 25ft…
2. 0 = No additional information.
   C = Custom specifications, must describe requirements.