VIP3D.1 & VIP3D.2 Vehicle Presence & Data Detector
The Original 170, NEMA TS-1 & TS-2 Plug-In Module,
2nd Generation

VIP3D.1 & 3D.2 FUNCTIONALITY

The VIP3D Video Image Processor provides traffic data and information on the presence of vehicles approaching or waiting at the intersection.

» Vehicle presence detection
» Traffic data collection:
  Counts, Speeds, Classification, Occupancy, Density, Headway, Gap time
» Alarm events
» Wrong way driver detection
» Queue length
» Turning movement count

KEY BENEFITS

• Presence detection identical to the field-proven VIP3.1 & 3.2 module
• Data acquisition identical to the field-proven VIP/D module
• Direct plug-in module for Type 170, NEMA TS-1 & TS-2 controller cabinets
• VIP3D.2 is a 2-camera unit.
• 24 outputs and 20 inputs via expansion modules
• System connection via VIEWCOM/E (Ethernet)
• VIP3.x Link Software via serial communication RS232
• Real time video output on module
• Data storage on board

TRAFFIC DATA ACQUISITION

• Volume, speed, gap time, headway, occupancy, concentration, classification
• All data available per lane

FLOW MONITORING

• Distinction between different types of traffic flow
• Speed drop and wrong-way drivers

LOOP EMULATION

• Pulse output similar to traditional loops in addition to traffic data.
• VIP3D.2 and Expansion Modules (4 I/O and 2 I/O)
• Remote image provided by VIEWCOM/E.

TRAFFIC DATA ACQUISITION

The VIP3D provides all relevant traffic data such as volume, speed, gap time, headway, occupancy, concentration and classification. The VIP3D can even store data on board in non-volatile memory.

It automatically distinguishes five types of traffic flow (levels of service) based on flow speed and zone occupancy. Within seconds it detects wrong-way drivers or sudden speed variations.

LOOP EMULATION

VIP3D can emulate traditional double or single loop detectors. In addition to the traffic data, it provides pulses similar to those provided by inductive loops.
VIP3D.1 & VIP3D.2 Vehicle Presence & Data Detector
The Original 170, NEMA TS-1 & TS-2 Plug-In Module, 2nd Generation

VIP3D.1 & VIP3D.2 PRESENCE & DATA DETECTION

» VIP3D.1 monitors 1 camera. VIP3D.2 monitors 2 cameras.
» VIP3D.1 provides up to 24 presence detection zones. VIP3D.2 provides up to 20 presence detection zones per camera.
» Each presence zone call can be delayed, extended or combined with an input to inhibit the call.
» Queue length measurements and directional counts on the intersection.
» Combination of outputs and inputs using Boolean functions AND, OR and NOR.

» The VIP 3D.1 provides 8 data detection zones. The VIP 3D.2 provides 4 data detection zones per camera.
» Data: count, speed, classification, occupancy, density, headway and gap time.
» Generation of alarm events like: speed alarms (4 service levels), speed drop, wrong way driver, queue length threshold and quality alarm.
» Double and single data loop simulation.

» Per zone, detection can be made direction sensitive.
» Single zones can be edited without disturbing the detection.
» Each VIP3D can control up to 24 outputs (4 per board and 20 via the I/O extension boards) and 20 inputs (four for each of the five I/O extension boards).
» The VIP3D stores up to four configurations per camera.
» Internal non volatile memory database.

» The VIP3D link software handles
  o Configuration up and download
  o Data download (database or individual data monitoring)
  o Firmware upload via RS232 port
  o Event download

FLOW MONITORING

» VIP3D monitors four to eight lanes flow speed between 0 and 100 mph.
» VIP3D also monitors the zone occupancy of the detection area.
» VIP3D automatically distinguishes five types of traffic flow.
» VIP3D detects both wrong-way drivers and sudden speed variations within seconds.

» During set-up, alarm levels can be programmed for:
  o Speed
  o Speed drop
  o Occupancy
  o Image Quality

Data subject to alteration without notice or obligation.
**VIP 19” RACK**

**8VIP – 1COM position**

Ref. Nr. 10.324

- The VIP 19” RACK is a housing for 8 VIP detector boards and 1 communication board and is equipped with all necessary input and output connectors on the backplane.

- One power supply unit is needed for the entire rack (included with the rack).

- The housing is not designed for outdoor installations.

### Specifications

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Height 135 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width 485 mm</td>
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<tr>
<td></td>
<td>Depth 240 mm</td>
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<td>Suitable for EuroCard Format 100 * 160 mm 3HE</td>
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<tr>
<td>Weight</td>
<td>2500 gram without VIP boards</td>
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<tr>
<td>Communication</td>
<td>RS485 for polling of the VIP boards</td>
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<td>RS232 &amp; RS485 for external communication</td>
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<tr>
<td>Power Requirements</td>
<td>PSU Mains 100-240V AC</td>
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<td>65 Watt</td>
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<td>Signal connectors on the backplane</td>
<td>8 BNC female video inputs and 8 outputs for composite video for the VIP modules</td>
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<tr>
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<td>Video connections for the video matrix</td>
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<td></td>
<td>2 Video connections for the video bus (RJ11)</td>
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<td>8 opto-isolated outputs for each VIP, open collector 20mA up to 24V</td>
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<td>Outputs for the COM module on dedicated connector on position 9</td>
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<td>Extra outputs available on dedicated connector on position 8</td>
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<td>Environmental</td>
<td>-34°C to +74°C</td>
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<td>0-95% relative humidity – non-condensing</td>
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<td>EMC</td>
<td>EN 55022 - EN 50082-2 Industrial</td>
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</table>
VIP 19” RACK

Ref. Nr. 10.324

**Frontside**

Board Address: 0 1 2 3 4 5 6 7

8 VIP positions & 1 COM position

**Backplane**

Video connections (BNC) per board
Input (top) & Output (bottom)

Connector JP10

BNC Matrix Out (J22)

BNC Video Bus Out (J10)

Mains Input

P1 RS232

P2 RS232

Connector JP9

COM output (4)
COMM input (1)
On position 9


Digital Output Connector per board
JP1 to JP8

Data subject to alternation without notice or obligation

YOUR CONTACT

Bid 09-16 Exhibit A3
VIP ½ 19” RACK

Ref. Nr. 10.326

- The VIP 1/2 19” RACK is a housing for 4 VIP boards and is equipped with all necessary input and output connector on the backplane.

- One power supply unit is needed for the entire rack (included with the rack).

- As an additional feature, the VIP 1/2 19” demonstration rack has a case around the rack itself.

- The housing is not designed for outdoor installations.

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<td>- RS485 for polling of the VIP boards</td>
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<td><strong>Power Supply</strong></td>
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<td>- PSU Mains 100-240V AC</td>
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<td>- 35 Watt</td>
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<td><strong>Signal Connectors</strong></td>
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<td>- BNC Female Video inputs and outputs on back side : Composite Video</td>
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</table>
VIP ½ 19” RACK

Ref. Nr. 10.326

Frontside

½ 19” rack: containing a maximum of 4 boards (3 VIP’s and 1 COM or 4 VIP’s)

Board Address

0 1 2 3

Backplane

Video connections (BNC) per board
Input (top) & Output (bottom)

Connector JP10

Connector JP9

BNC Matrix Out (J22)

BNC Video Bus Out (J10)

RS232 connector (P1)

RS232 connector (P2)

Digital Output Connector per board: JP6 to JP8

JP12: RJ11 connectors for use with video bus

Data subject to alternation without notice or obligation

YOUR CONTACT

Issue: v2 08/2010
VIP-T is a multi-functional Video Image Processing module for traffic control. VIP-T integrates automatic incident detection, data collection, presence detection, digital recording of pre and post incident image sequences and streaming video in one board.

**Features**

- IP-addressable video detector with high quality MPEG-4 compression on board
- Wide range of events: stopped vehicle, inverse direction, pedestrian, speed drop, traffic congestion, underspeed, overspeed, fallen object, smoke in tunnel
- Traffic data: flow data, integrated and individual vehicle traffic data
- Technical alarms
- Automatic recording of image sequences, pre and post incident
- Streaming video over IP (RTSP) at full frame rate

**Benefits**

- High detection rate, minimum detection time and low false alarm frequency
- Field proven detection, fast and reliable
- Easy to install, high MTBF and low MTTR
- Fast, user-friendly and modular setup
- For fixed and PTZ cameras (PAL or NTSC), new or existing infrastructure

**Powerful and Cost-effective Solution**

For automatic incident detection, data collection and presence detection including streaming video function

**MPEG-4 Compression and Video Detection integrated in one board**

With VIP-T Traficon® continues its reference role in video detection solutions for traffic control. The image processing algorithms from Traficon® result in highly reliable systems with fast detection.

The VIP-T system provides a powerful and cost-effective solution for a wide range of traffic management applications, such as rerouting, travel time calculation or dynamic speed indication.

**Scalable System with Open Architecture and Modular Setup**

VIP-T has been developed to deliver automatic incident detection in tunnel or outdoors, traffic data collection or vehicle presence detection in combination with streaming video over IP for centralised and decentralised systems.

Its open architecture and modular setup provide you with a scalable and expandable system.
VIP-T generates relevant traffic data and incident detection information for traffic supervision or management. The analysis of the camera image results either in traffic data or in an event when an incident is detected. VIP-T also gives non-traffic events and technical alarms.

The table below provides an overview of all possible events, alarms and types of traffic data generated by VIP-T.

<table>
<thead>
<tr>
<th>AUTOMATIC INCIDENT DETECTION</th>
<th>TRAFFIC DATA COLLECTION</th>
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</thead>
<tbody>
<tr>
<td>Traffic events</td>
<td>Traffic flow data per lane</td>
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<tr>
<td>Stopped Vehicle</td>
<td>Traffic Flow Speed</td>
</tr>
<tr>
<td>Inverse Direction</td>
<td>Zone Occupancy</td>
</tr>
<tr>
<td>Speed Drop</td>
<td>Integrated vehicle traffic data</td>
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<tr>
<td>Traffic Congestion</td>
<td>Volume (count) and Average Speed per vehicle class per lane, Headway</td>
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<tr>
<td>Levels of Service</td>
<td>Gap Time per length class per lane</td>
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<tr>
<td>Underspeed</td>
<td>Occupancy, Density and Vehicle Length per lane</td>
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<tr>
<td>Overspeed</td>
<td>Individual vehicle traffic data</td>
</tr>
<tr>
<td>Vehicle Presence</td>
<td>Speed, Gap Time, Headway, Confidence Level</td>
</tr>
<tr>
<td></td>
<td>Vehicle Classification</td>
</tr>
</tbody>
</table>
ON BOARD MPEG-4 COMPRESSION

Real-time streaming video over IP

Using MPEG-4 video technology for compression, VIP-T provides real-time streaming video over a network to display live or on demand. VIP-T uses Real Time Streaming Protocol (RTSP) for streaming video available at full frame rate.

A configurable resolution, bit rate and frame rate allow for optimum use of the available bandwidth.

Pre and post incident image sequences

VIP-T uses MPEG-4 compression for digital recording of pre and post incident image sequences. Incidents detected by VIP-T automatically trigger the recording process.

COMMUNICATION OF TRAFFIC DATA, EVENTS, ALARMS AND VIDEO IMAGES

Transfer to the traffic management system over the network in real-time and based on the TPC/IP protocol

All traffic data, events, alarms and video images generated by the VIP-T board are sent to the Traficon® management system, TMS. The TMS server stores data, events and alarms in a relational database. Real-time data are available from a TCP/IP socket.

The open architecture of the VIP/TMS system allows an easy integration into any larger traffic management system.

USER-FRIENDLY REMOTE SETUP
VIA MULTILINGUAL PC TOOL

A user-friendly PC tool allows remote setup of the VIP-T board and functional optimisation to the exact requirements of the project.

The straightforward graphical user interface enables the administrator to visually control zone editing and fine-tuning in order to obtain an efficient and reliable system with maximum performance.

Graphical user interface for the setup of VIP-T
**VIP-T SYSTEM ARCHITECTURE**

Industrial Setup for a Centralised or Decentralised System

In a typical installation, the VIP-T boards are mounted into a standard Euro rack. A VIP-T I/O Expansion board may provide extra inputs and outputs for all VIP-T boards in the rack.

Transfer of all traffic data, events, alarms, video images and streaming video in a centralised system is done over the network in real-time to any PC with TMS, Traficon's software platform for traffic management. TMS is a standalone management solution but can be integrated into a larger traffic management system also.

MPEG-4 streaming video can be viewed from any connection point on the network. Analogue video is available directly from the VIP-T board or over the network via a MPEG-4 decoder.

The modular and network based architecture allows for a scalable system, expandable and upgradeable to meet the exact project requirements.
Flux is an intelligent software platform for use with a Traficon video detection system. Flux collects traffic data, events, and video images generated by the video detectors.

The main goal of Flux is to manage and control all traffic information generated by these various detectors and to make it useful, meaningful, and relevant to the user.

Communication with the video detection system goes over Ethernet. Flux stores all traffic data, events, and alarms in a relational database.

Flux provides a user-friendly interface composed of a monitoring and a reporting application. Flux enables real-time monitoring of events and alarms. All event info is automatically documented and visualised in a straightforward way, allowing managing each traffic situation efficiently.

Real-time video can be viewed from several cameras simultaneously.

Via the reporter application the database is queried to generate data or event reports as exportable graphs or tables.

Flux allows defining different intelligent filtering functions to ensure relevant data presentation and event alerting to the operator during situations such as maintenance or roadwork.

Flux visualises the layout of the video detection system. The customised graphical user interface allows intuitive handling of the total video detection system to respond efficiently to any traffic alarm and event.

The open architecture of Flux allows scaling the system to the exact requirements of the project.
**Browser-based Graphical User Interface (GUI)**

The client of Flux is a web-based application. This means users only need a web-browser installed on their PC that is connected to the network of the video detection system to access the traffic management system.

This web-based zero-install GUI provides more flexibility and better manageability for all users because there is no requirement to install client code or software on the PC.

**Real-time Traffic Monitoring**

Flux enables real-time monitoring of events and real-time traffic data. Traffic and technical events are automatically visualized and documented with their status, a camera image, all event info and an incident movie.

**Event Recording and Immediate Replay**

As Flux is used to store and collect data, events AND video, an operator can immediately retrieve these recorded video sequences comprehending pre- and post-incident images. This direct visual information is not only extremely valuable for the operator to take all necessary actions in case of an incident but also for traffic analysis and evaluation afterwards.

**Powerful Event Alerting and Intelligent Filtering**

To ensure relevant event alerting Flux allows maximum flexibility by the implementation of advanced filters. A filter is a set of inhibitions to be launched for a group of cameras. Each inhibition is characterised by events that must be filtered on one or more detection zones. These filters can be triggered directly from the Flux user interface, automatically from digital inputs from the video detection system or the built-in Flux scheduler or remotely from a larger management system.
**INTUITIVE DRAG-AND-DROP SIMPLICITY**

Flux enables an intuitive and straightforward setup of the graphical user interface. Elements (e.g. camera icons) are added to the central map image via drag-and-drop. The result is a customised GUI for the operator.

**STREAMING GRID MODE**

Via the streaming grid mode, and its underlying Imux streaming video server, real-time video can be viewed from several cameras simultaneously. This allows the user to have a perfect overview of different consecutive cameras.

**REPORTING TOOL**

Flux has a dedicated reporter application to generate data and event reports by querying the database where all traffic data and events are stored. Traffic data reports are available as exportable graphs or tables.
VERSATILE TRAFFIC MANAGEMENT PLATFORM FOR ANY SIZE SYSTEM

From small-scale video detection to large-scale systems with hundreds of detection devices, Flux enables transportation center operators to meet the challenges of today’s transportation management demands. Flux allows to monitor the transportation network during normal, day-to-day traffic and to respond quickly and efficiently to unexpected traffic conditions.

Upon expansion of the detection system Flux can be adapted easily. Because of its open architecture Flux can be integrated into any traffic management system through an open TCP/IP protocol or dedicated Java plug-ins.

Flux is both Windows and Linux compatible. For large-scale systems requiring multiple servers (e.g. for redundant applications) Linux is recommended.

FLUX SYSTEM ARCHITECTURE

In a typical installation, data and events generated by the video detectors are transferred in real-time to the Flux server PC. Real-time data and events are available also on the Flux client PC. The client application is a web-based user interface for traffic monitoring, event alerting and data reporting. The Flux server and client can be installed on one or multiple PC’s in a network.

Flux is designed to handle any type of Traficon detector. Not only VIP modules can be connected to Flux but also integrated sensors like Traficam x-stream and Collect-R. Depending on the type of application it is even possible to combine both detectors in one system.