INTERNATIONAL ROAD DYNAMICS INC.

LTPP WIM DATA COLLECTION SYSTEMS

CLIN 1002 MARYLAND
Task Order 4

Submittal For:
Federal Highways Administration
Maryland SPS-5
LTPP ID 240500

August 8, 2004

Contact Information:

Roy Czinku
International Road Dynamics
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e roy.czinku @irdinc.com

Bruce Myers
International Road Dynamics
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International Road Dynamics
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CY-CON Inc
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e MYoung@CY-Con.com

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SECTION 1.0

Coordination Activity Illinois

June 3, 2005
Contacted Tom Winkleman, Illinois DOT, 217-782-2940
Spoke with Tom regarding the encroachment permit for lane closer at LTPP site, he referred me to
Jerry Cearlock, District 5 Operations Engineer 217-466-7234. Tom W. emailed me approved drawing's for the TCP. Jerry C. said he will contact me next week about the encroachment permit for Traffic Control. He's not sure at this time if a permit will be needed we may just need to notify him when and where we will be working. Informed him our tentative installation start date is July 18, 2005.

Mr. Myers,

As discussed on the telephone, attached are the standard drawings for the traffic control required for the WIM installation on Interstate 57 in Illinois. If you have any questions, please feel free to contact me.

Thank you,

Tom

Thomas Winkelman

Research Engineer

Illinois Department of Transportation

Bureau of Materials and Physical Research

126 East Ash Street

Springfield, IL 62704

Phone (217) 782 - 2940

Fax (217) 782 - 2572

----- Original Message -----
From: Bruce Myers
To: Walker, Deborah
Cc: Thomas Winkelman

Sent: Thursday, June 09, 2005 3:06 PM
Subject: CLIN 2, Illinois

Debbie,

The Phase 2 contract requires that the control cabinet support (concrete pedestal) is approved by the highway agency. Is this approval process done before or during the review of the CLIN 2 submittals? Is the highway agency involved in the CLIN 2 approval process?

We have requested a lane closure permit from Illinois DOT for the installation of the WIM system. They can't determine what type of permit to issue until they have reviewed the contract between IRD and FHWA. Can you supply this?

Thanks

Bruce Myers
Sales / Sr. Project Manager
IRD PAT Traffic
Ph: (717) 264-2077 Fax:(717) 264-4941
www.irdinc.com
IRD is Customer Driven!

----- Original Message -----
From: Bruce Myers
To: Thomas Winkelman
Sent: Friday, June 10, 2005 2:56 PM
Subject: Fw: CLIN 2, Illinois

Thomas,

I spoke with Debbie regarding the submittals for CLIN 2 she confirmed a copy will be sent to Illinois DOT for approval. The submittals are scheduled to ship to FHWA on June 20, 2005.

Debbie is also looking into getting you a copy of the contract information you requested.

Our tentative start date for installation of the WIM system is July 18, 2005.

Thanks
Bruce Myers

----- Original Message -----

From: Bruce Myers
To: Walker, Deborah
Sent: Monday, June 13, 2005 9:56 AM
Subject: Data Collection Guide

Debbie,

Is there a new version of the "Data Collection Guide for SPS WIM Sites" I have version 1.0 dated August 31, 2001? I can't seem to find the guide on the LTPP website.

Thanks

Bruce Myers
Sales Project Manager
IRD PAT Traffic
Ph: (717) 264-2077 Fax:(717) 264-4941
www.irdinc.com
IRD is Customer Driven!

----- Original Message -----
From: Walker, Deborah
To: Bruce Myers
Cc: Roy Czinku ; Brian Taylor
Sent: Monday, June 13, 2005 10:00 AM
Subject: RE: Data Collection Guide

Bruce,

This is the latest version and it is not currently available on the LTPP website. I am working on reviewing the second version. It may be some time before I can get through my review. So, please use the 1.0 version for now. I will make sure the IRD team gets a copy of the new version when it is ready for distribution.

Best regards,
Debbie

----- Original Message -----
From: Bruce Myers
To: Doug Bishoff
Cc: Mike Young ; Tim Weber
Sent: Wednesday, June 15, 2005 2:50 PM
Subject: Illinois I-57 WIM System

Doug,

Attached the preliminary site drawings and pull box specification for the WIM site on 1-57. Once the submittals are approved you can purchase the pull box, will advise.

Special Note!

1. The reinforcing mat requirement having to be epoxy coated or galvanized may be removed if not required by the DOT.
2. The drain conduit from the weighpads will be 1.5" rigid (type not specified in draft drawing).

Tentative schedule:

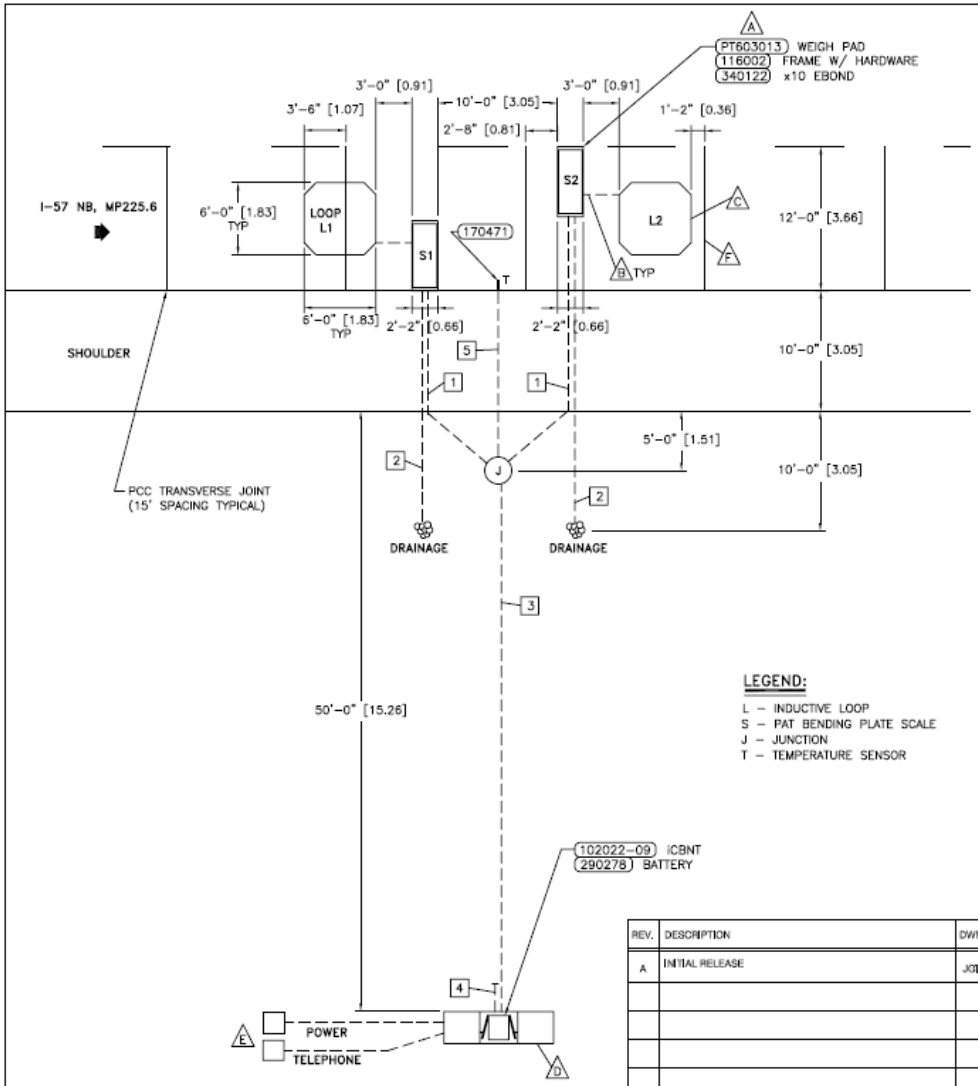
Submittals approved - July 4, 2005
Materials Ship - July 4, 2005
Installation start - July 19, 2005
Installation Complete - July 21, 2005
Calibration Start - July 22, 2005

If you have any questions please contact me.

Thanks

Bruce Myers
Sales/ Project Manager
IRD PAT Traffic
Ph: (717) 264-2077 Fax:(717) 264-4941
www.irdinc.com
IRD is Customer Driven!

SECTION 2.0



SIGNAL CONDUITS:

1. 1" RIGID STEEL CONDUIT
   1-2C 14AWG (LOOP WIRE)
   1-2PR 20AWG (SCALE LEAD)
2. 1.5" RIGID STEEL DRAIN PIPE
3. 2" PVC CONDUIT
   2-1PR 18AWG (LOOP LEAD)
   2-2PR 20AWG (SCALE LEAD)
   1-2PR 20AWG (TEMPERATURE SENSOR LEAD)
4. 2" PVC CONDUIT
   SPARE FOR EXPANSION, STUB OUT 2' FROM CABINET AND CAP.
5. 1-2PR 20AWG (TEMPERATURE SENSOR LEAD)

NOTES:

A. SCALE, SEE IRD DOCUMENT 123-429-900-940.
BENDING PLATE SCALE MUST BE A MINIMUM OF 2' [0.61m] AWAY FROM PAVEMENT JOINTS.

B. LOOP LEADS IN SLOT, THEN IN 1/2" PVC CONDUIT UNDER FRAME AND ROUTE WITH SCALE LEADS.

C. SAWCUT LOOP, SEE IRD DOCUMENT 69027901. CABLES MUST BE PROTECTED BY PVC SLEEVES WHERE THEY CROSS PAVEMENT JOINTS/CRACKS.

D. CABINET, FOUNDATION AND WORKPAD, SEE IRD DRAWING 82300101.
THE BASE OF THE CABINET MUST BE SEALED TO THE FOUNDATION. AFTER CABLE INSTALLATION, ALL CONDUITS MUST BE PLUGGED.

E. UTILITIES SUPPLIED TO THIS LOCATION BY OTHERS. WIM CABINET REQUIRES 240V/120V SPLIT PHASE (30A PER PHASE). POWER FOR CABINET SHOULD BE TAKEN FROM CLOSEST SOURCE TO MINIMIZE VOLTAGE DROP.

F. THIS JOINT IS LOCATED 75' [22.8m] FROM DOWNSTREAM EDGE OF 500' PCC SLAB.

G. ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES ARE DONE IN PULL BOX AND ARE SOLDERED THEN SEALED FOR WATERPROOFING.

H. POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/PULLBOXES FROM SIGNAL CABLES.

I. SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT, ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS BY THE IRD FIELD REPRESENTATIVE.

LEGEND:

L – INDUCTIVE LOOP
S – PAT BENDING PLATE SCALE
J – JUNCTION
T – TEMPERATURE SENSOR

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	JG/AHs			

NOT TO SCALE

SIZE: B

DIMENSIONS IN: FEET [m]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
SITE LAYOUT
1 LN BENDING PLATE DATA COLLECTION
MARYLAND SPS-5, LTPP ID 240500

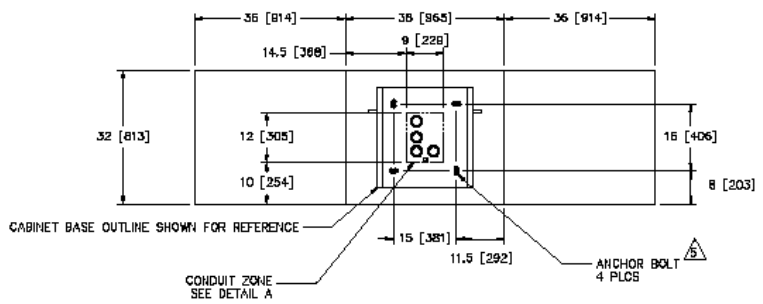
DWG. No. C10407B002

REV.: A

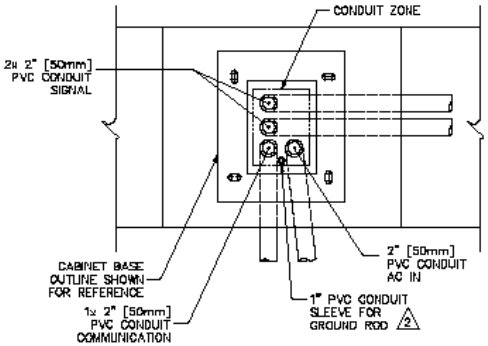
CAD FILE: C10407B002.DWG

SHEET 1 OF 1

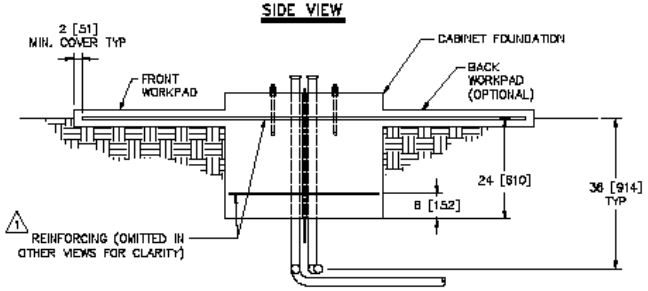
TOP VIEW – CABINET MOUNTING



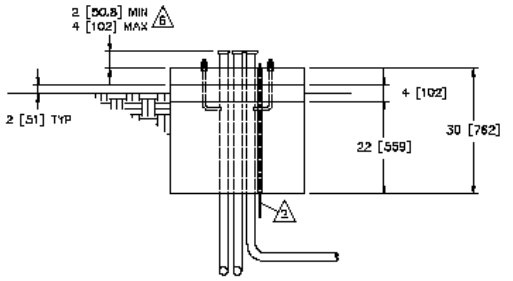
DETAIL A – MINIMUM CONDUITS 3



SIDE VIEW



FRONT VIEW



NOTES:

1. INSTALL REINFORCING MATS. #4 [12M] BAR 12" [300mm] ON CENTER EACH WAY. REINFORCEMENTS ARE MINIMUM REQUIREMENTS AND MAY BE SUPERSEDED BY LOCAL CONSTRUCTION CODES.
2. GROUND ROD MUST BE PROVIDED TO MEET LOCAL ELECTRICAL CODE.
3. ALL CONDUITS SHOWN SHALL BE FURNISHED AND INSTALLED IN FOUNDATION IN ACCORDANCE WITH LOCAL CODES. CAP IF NOT USED. ADDITIONAL CONDUITS MAY BE REQUIRED. CONDUITS SHALL EXIT FOUNDATION IN DIRECTION APPROPRIATE FOR SITE GEOMETRY.
4. CONCRETE SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI [20.7 MPa].
5. CABINET ANCHORS MUST BE GALVANIZED OR STAINLESS STEEL AND MAY BE CAST IN PLACE, CHEMICAL OR EXPANSION TYPE DRILLED INTO BASE. TYPICAL SIZE IS 3/4" NC x 12" x 4". ANCHORS SHALL PROJECT A MINIMUM OF 2" [50mm] AND A MAXIMUM OF 2-1/2" [63mm] ABOVE FOUNDATION.
6. THE CABINET BASE CONDUIT MUST BE HIGHER THAN SURROUNDING PULL BOXES. THE HEIGHT OF CONDUITS ENDING IN THE CABINET MUST BE HIGHER THAN THE OTHER END TO PREVENT WATER ENTRY DUE TO HYDROSTATIC PRESSURE.

REV.	DESCRIPTION	DWN/CHK	APPR.	APPR.	DATE
A	INITIAL RELEASE	JW/KPP	BCI	JSR	JUN 14/08

NOT TO SCALE

SIZE: B

DIMENSIONS IN: INCHES [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
STANDARD DRAWING
CABINET BASE
i9INC-3365 ELECTRONICS

DWG. No. 82300101 REV.: A

CAD FILE: 82300101.DWG SHEET 1 OF 1

SECTION 3.0

Illinois Department of Transportation

TRAFFIC CONTROL AUTHORIZATION REQUEST FOR PERMITS

Marked Route: I 57
Section: 10 ((31, 32) RS - 1; 33RS-4)
Permit No.:
County: Champaign

LOCATION: I-57 North Bound Driving Lane, MP-225.6
IN 1.5 Miles downstream of SPS 6 Test Section
(City or Village) (Use other side for sketch, if necessary)

*INCLUSIVE DATES OF WORK: June 26, 27, 28 WORK HOURS: 7:00 A.M. To 7:00 P.M.

WORK TYPE: Utility ☐ Private Access Commercial Access X Other

DESCRIBE WORK: Installation of LTPP Weigh-In-Motion System

*CONTRACTOR OR AGENCY DOING BUSINESS: International Road Dynamics
ADDRESS: 702 43rd Street East, Saskatoon, SK., Canada, S7K 3T9

*RESPONSIBLE PERSONS: (Construction Foreman and Applicant)

Name Tim Weber Phone: 563-940-4068 (Office) 563-940-4068 (Home)
(No lanes closed on holidays. Night closure requires 24-hour telephone number)

Name Corinne Daelick Phone: 306-653-9722 (Office) 306-653-9722 (Home)

Name Doug Bishoff Phone: 320-252-1658 (Office) _____ (Home)

Name _____ Phone: _____ (Office) _____ (Home)

CONTROLS: (Describe specific controls to be used, including reference to appropriate Highway Standards or sections of manual, and set forth any special controls proposed.)

MOST CURRENT ISSUE OF TRAFFIC CONTROL STANDARDS:
Drawing Attached

* TO BE COMPLETED BY APPLICANT AND CONTRACTOR. THIS FORM MUST BE COMPLETED AND SUBMITTED TO THE DISTRICT 5 ENGINEER OF OPERATIONS FOR APPROVAL ONE (1) WEEK PRIOR TO THE START OF WORK.

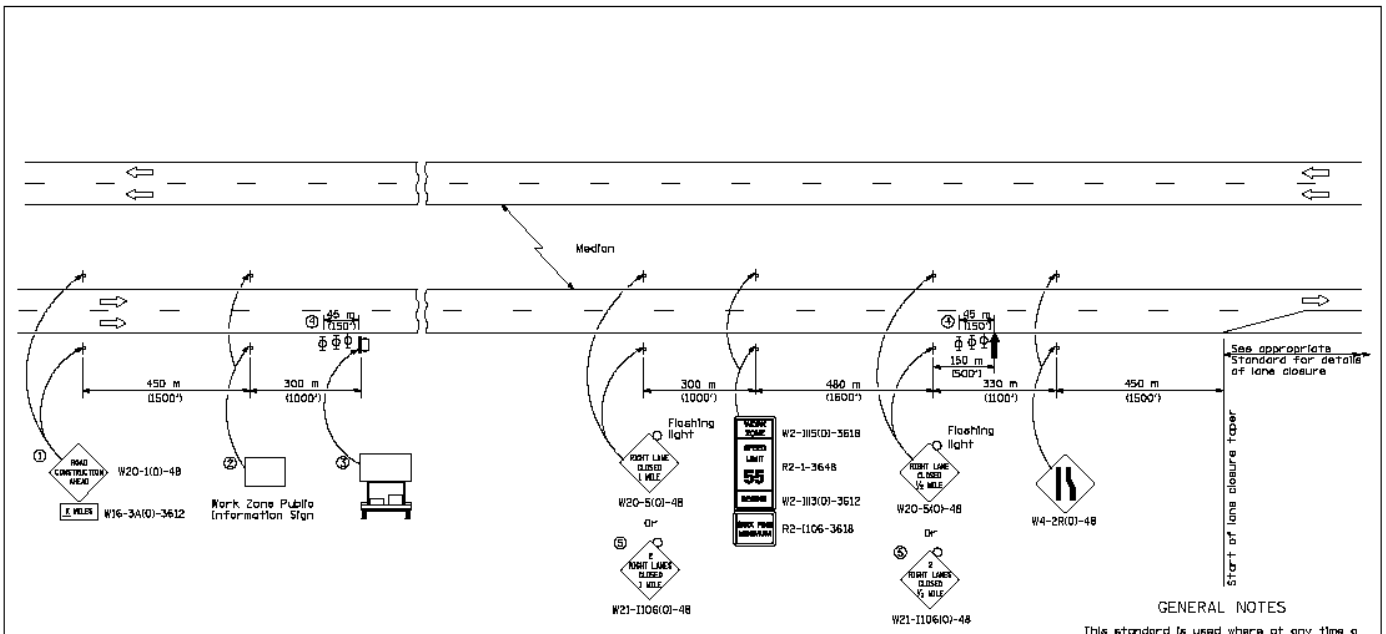
Comments: _____

*SUBMITTED BY: J. Mc J. Becker, P.Eng. (PM)

APPROVED BY: _____
District 5 Engineer of Operations

Distribution:
Permit File
Traffic Control Supervisor

Form BT-725



SYMBOLS

- Arrow board
- Portable changeable message sign
- Sign
- Type II barricade, drum, or vertical barricade with monodirectional flashing light

① The Road Construction Ahead sign shall be located 3 to 5 miles in advance of the project limits.

② The message and size of the Work Zone Public Information Sign shall be as specified by the Department.

③ The message board shall be used to display status of lanes within the project. The primary messages shall be:
"Right Lane Closed" / " x Miles Ahead"
"Left Lane Closed" / " x Miles Ahead"
"All Lanes Open"

④ Three, Type II barricades, drums, or vertical barricades at 15 m (50') centers.

⑤ This sign shall be used when 2 lanes are closed.

GENERAL NOTES

This standard is used where at any time a lane is closed on a freeway/expressway. When the left lane is closed, LEFT LANE CLOSED signs shall be substituted for the RIGHT LANE CLOSED signs.

The first two signs and the message board are stationary.

The last four signs and arrowboard shall be moved as necessary to maintain the required distance from the start of the lane closure taper(s).

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

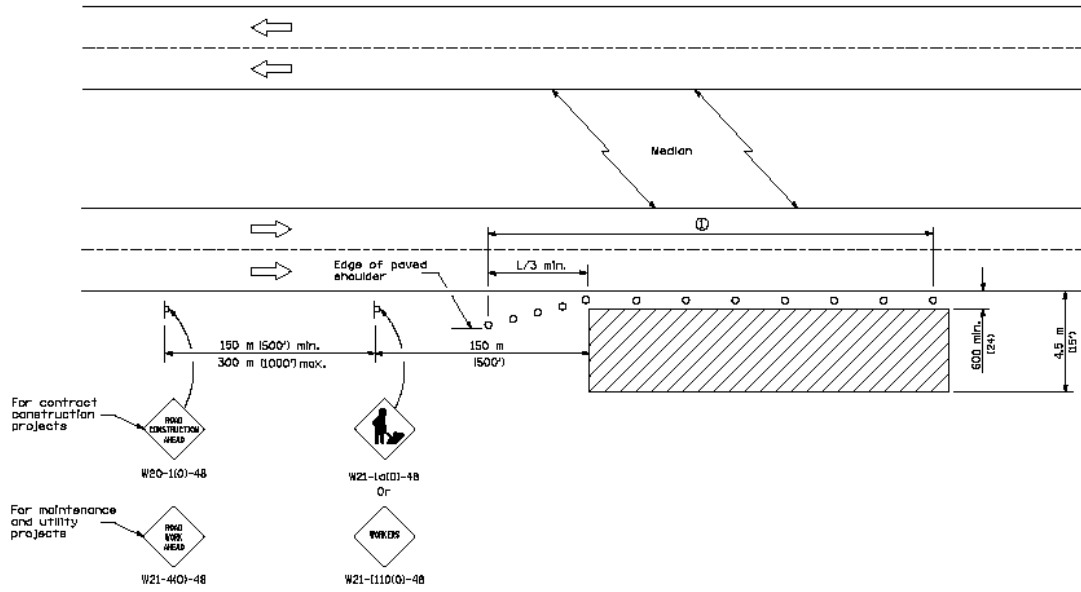
APPROVED January 1, 2005
ENGINEER OF OPERATIONS

APPROVED January 1, 2005
ENGINEER OF POLICY AND ENVIRONMENT

DATE	REVISIONS
1-1-05	Added signs for 2 lane closures.
4-15-04	Deleted a note.

APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY

STANDARD 701400-02



TYPICAL APPLICATIONS

Utility operations
Culvert extensions
Side slope changes
Guardrail installation and maintenance
Delineator installation
Landscaping operations
Shoulder repair
Sign installation and maintenance

SYMBOLS

Work area

Sign

Cone, drum or barricade

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 8 m (25') centers for L/3 distance, and at 15 m (50') centers through the remainder of the work area.

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 4.5 m (15') to 600 (24) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	Metric	(English)
70 km/h (40 mph) or less:	$L = \frac{WS^2}{150}$	$L = \frac{WS^2}{60}$
80 km/h (45 mph) or greater:	L=0.65(W)(S)	L=(W)(S)

W = Width of offset in meters (feet).

S = Normal posted speed km/h (mph).

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2005
ENGINEER OF OPERATIONS

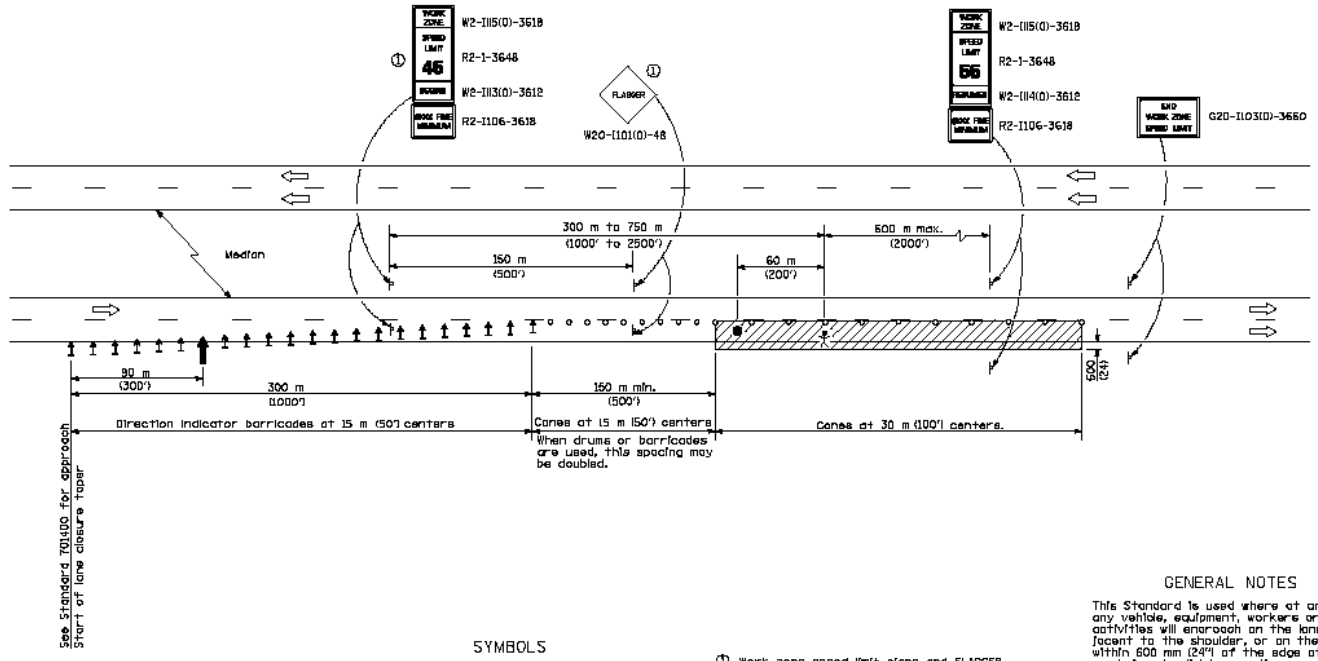
APPROVED January 1, 2005
BUREAU OF BASIS AND PAVEMENT

STANDARD 701101-01

DATE	REVISIONS
1-1-05	Revised title, notes, and sign spacing.
1-1-97	Renum. Standard 2314-9.
	Deleted orange flags.

OFF-RD OPERATIONS, MULTILANE, 4.5 m (15') TO 600 mm (24") FROM PAVEMENT EDGE

STANDARD 701101-01



TYPICAL APPLICATIONS

Pavement patch

Utility operations

Bituminous resurfacing

SYMBOLS

- Arrow board
- Work area
- Worker
- Sign
- Direction indicator barricade
- Cone, drum or barricade
- Flagger with traffic control sign

① Work zone speed limit signs and FLAGGER signs shall be moved as necessary to maintain the required spacing between the signs and the workers in each separate work activity.

GENERAL NOTES

This Standard is used where at any time, any vehicle, equipment, workers or their activities will encroach on the lane adjacent to the shoulder, or on the shoulder within 600 mm (24") of the edge of pavement for day light operation.

This Standard must always be used in combination with Standard 701400.

This Standard also applies when work is being performed in the left lane. Under these conditions, the set up would be a mirror image to what is shown.

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 15, 2004
ENGINEER OF OPERATIONS

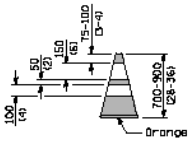
APPROVED April 15, 2004
ENGINEER OF DESIGN AND ENVIRONMENT

DATE	REVISIONS
4-15-04	Revised signs.
4-1-04	Revised to provide
	consistency on freeway/
	expressway closures.

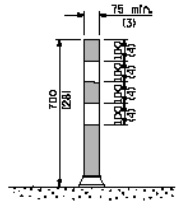
LANE CLOSURE, FREEWAY/EXPRESSWAY, DAY OPERATIONS ONLY

STANDARD 701406-04

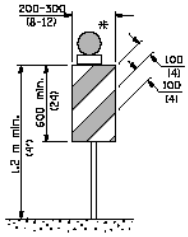
CONE



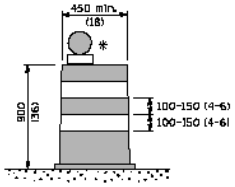
REFLECTORIZED CONE



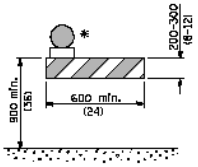
FLEXIBLE DELINEATOR



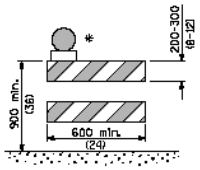
VERTICAL PANEL
POST MOUNTED



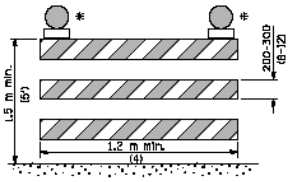
DRUM



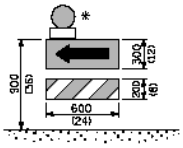
TYPE I BARRICADE



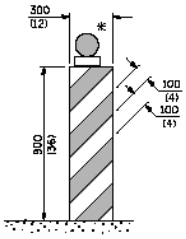
TYPE II BARRICADE



TYPE III BARRICADE



DIRECTION INDICATOR BARRICADE



VERTICAL BARRICADE

* Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2005
ENGINEER OF OPERATIONS

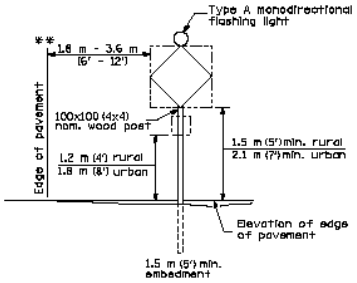
APPROVED January 1, 2005
ENGINEER OF POLICY AND ENVIRONMENT

DATE	REVISIONS
1-1-05	Added note to work limit signing and re-added Type I barricade.
4-1-04	Removed Type I barricade and constr. speed limit sign.

TRAFFIC CONTROL DEVICES

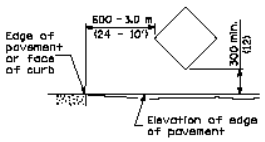
(Sheet 1 of 3)

STANDARD 702001-05

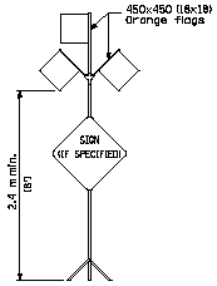


POST MOUNTED SIGNS

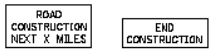
** When curb or paved shoulder are present this dimension shall be 600 (24) to the face of curb or 1.8 m (6') to the outside edge of the paved shoulder.



SIGNS ON TEMPORARY SUPPORTS



HIGH LEVEL WARNING DEVICE



G20-1(X)-6036 G20-2a(X)-6024

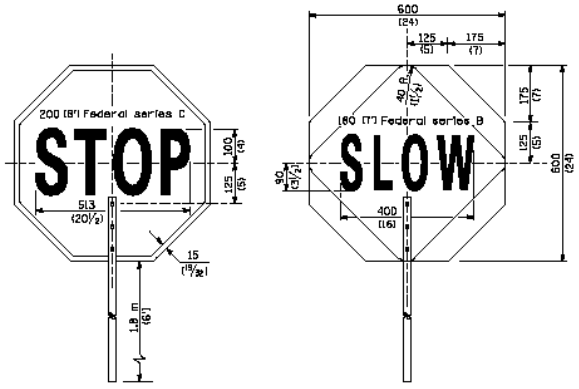
This signing is required for all projects 3200 m (2 miles) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 150 m (500') in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 3200 m (2 miles).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING



FRONT SIDE REVERSE SIDE

FLAGGER TRAFFIC CONTROL SIGN

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

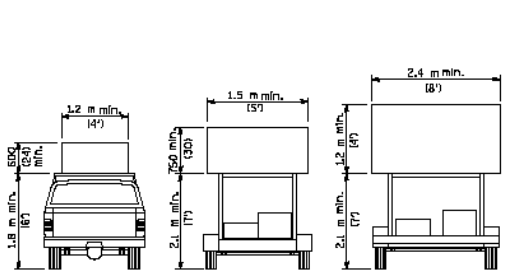
APPROVED January 1 2005
ENGINEER OF OPERATIONS

APPROVED January 1 2005
BUREAU OF ROADS AND STRUCTURES

TRAFFIC CONTROL DEVICES

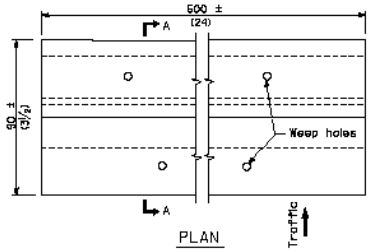
(Sheet 2 of 3)

STANDARD 702001-05

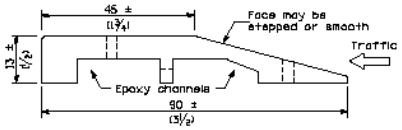


TYPE A ROOF MOUNTED | TYPE B ROOF OR TRAILER MOUNTED | TYPE C TRAILER MOUNTED

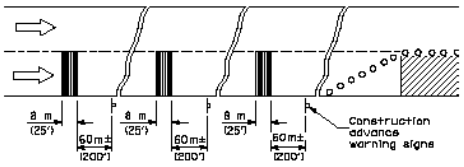
ARROW BOARDS

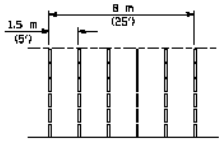


PLAN



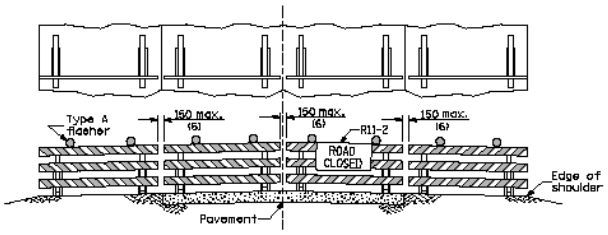
SECTION A-A





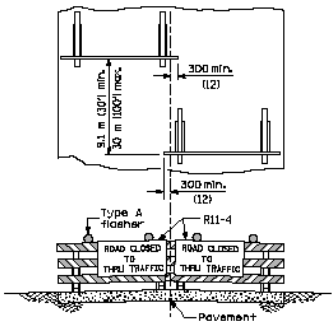
TYPICAL INSTALLATION

TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.



ROAD CLOSED TO THRU TRAFFIC

Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2005
ENGINEER OF OPERATIONS

APPROVED January 1, 2005
BUREAU OF DESIGN AND ENVIRONMENT

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD

TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

STANDARD 702001-05

Traffic Control Proposal Estimate

Description:	**Cost:**
Speed Limit Sings	
Arrow Board	
Scade Barricades	
Verticades	
Lights	
End Work Zone	
All Equipment Including Labor:	$3, 639.00

SECTION 4.0

iSINC SYSTEM ELECTRONICS
WIM TECHNICAL SPECIFICATIONS

GENERAL

The ISINC Weigh-In-Motion (WIM) System Electronics is an integrated vehicle information processing package that implements sensor input signal conditioning, system software to transform the inputs into the required outputs and a user interface. The System Electronics consist of a WIM Control Unit, Sensor and Output Modules to interface the various devices specific to a site's requirements, terminal panels with over-voltage protection and isolation for each input and output line, system controlled AC power outputs and an integral Power Supply, all housed within a weatherproof enclosure.

The system software is pre-loaded and automatically starts when the system is powered up. The electronics use a modular design based on the Controller Area Network (CAN) communication bus for easy of maintenance, troubleshooting and in-field servicing.

iSINC WIM CONTROL UNIT DETAILS

Communication:

- CAN Bus environment for very extensive sensor and control configuration
- On-board Ethernet interface
- One RS-232 serial interface dedicated to external system interface
- One RS-232 serial interface dedicated to remote administration facilities (modem dial-in)
- Local user interface for system configuration and fault diagnosis
- Remote administration via Telnet
- Remote file download via FTP

Peripherals:

- Non-volatile storage for vehicle information to prevent data loss during power outages: Compact Flash cards from a minimum of 32 MB up to 4 GB
- Sensor inputs from SLC, SSWIM, Bending Plate, Kistler, Piezo, Dynax, Serial and Digital devices
- Output control options for a wide variety of Serial, Digital and AC powered devices (CMS, VMS, OCS, LCS, DMS, printers, signal lights, toll gates, etc.)

Software:

- Processes up to eight lanes of traffic
- Records data logs on operational status, power supply condition, and safety system activity
- Weight Compliance and Classification with user-definable classification scheme
- Serial output compatible with HELP, I75 and others

- Compatibility with IRD's complete line of optional application specific software packages:
  - Automated Ramp Weigh Station
  - Automated Mainline Weigh Station
  - Data Analysis and Reporting

User Interface

- Local through a handheld keypad or laptop PC in terminal mode
- Remote through a dial-up modem to a PC in terminal mode
- Telnet over the Ethernet Interface

INTERFACE MODULE DETAILS

The iSINC interface modules are mounted in a sub-chassis. Each chassis accommodates up to 10 modules. The module options installed in a particular system will depend on the devices used at that site. Each module includes built in signal conditioning for the devices that interface with it. All sensor modules are field replaceable. Every module features self testing and built in fault diagnosis.

Scale Sensor Module

- Three lanes of SLC, SSWIM or PAT Bending Plate scales
- One lane of IRD Bending Plate scales

Piezo/Kistler Sensor Module

- Four piezoelectric sensor inputs plus temperature sensor
- Class 1 or Class 2 sensors

Digital I/O Module

- Eight isolated contact closure inputs or outputs
- Report on rising edge, falling edge or both
- Adjustable input debounce
- Control output state, single pulse, or square wave
- Adjustable timeout on inputs

Serial Control Module

- RS232C compatible asynchronous serial port for communication with serial devices such as printers and VMS

Serial Bridge Module

- RS232C compatible asynchronous serial port for devices communicating directly with the CAN Bus

Loop Sensing Module

- Four magnetic sensing loop inputs
- Adjustable for sensitivity and frequency

iSINC ENCLOSURE DETAILS

The iSINC electronics enclosure houses the following components:

- WIM control Unit
- One or two chassis for iSINC modules; up to 10 modules per chassis
- I/O Signal Panels with terminals and over-voltage protection for each channel

- iSINC controlled AC power outputs with 4 channels per panel
- Power supply
- All components mounted in a 19" rack
- Brushed aluminum panels
- Enclosure size required is dependant on the options selected for an installation. The available sizes are:
  - 117 cm high x 61 cm wide x 52 cm deep (46 in. x 24 in. x 20 in.)
  - 170 cm high x 61 cm wide x 76 cm deep (67 in. x 24 in. x 30 in.)
- Multiple enclosures may be connected together for expansion up to 160 modules

iSINC POWER SUPPLY DETAILS

Power Supply

- 30 Watts supply. Power consumption varies with the options selected for an installation installed, but typically is in the range of 5 Watts
- 90 to 264 VAC, 47 to 63 Hz operation
- Surge protection
- One GFI and three AC duplex outlets for peripheral equipment
- Optional Solar power, 40 W to 85 W panels
- Optional 12 VDC battery for backup or extended operation (up to 30 days). Integral charge controller for battery conditioning

SYSTEM EXPANDABILITY

The iSINC Electronics may be expanded with any combination of the above modules up to a maximum of 160 modules per installation. Each enclosure accommodates up to 20 modules; multiple enclosures may be connected together for larger installations. Using the built-in Ethernet or a Serial Bridge Module for expansion and connection of multiple WIM Control Units, expansion at a single location is virtually unlimited.

Rack Mount

IRD #580065

Mfg #RM462420

APPLICATION - NEMA 3R

APX Enclosures, Inc. 3R 19" rack mount enclosures are designed to house electronic controls, terminals, and instruments, and to provide protection from rain, sleet, snow, dripping water and corrosion, while providing ventilation.

APPLICATION - NEMA 4X

APX Enclosures, Inc. 4X 19" rack mount enclosures are designed to house electronic controls, terminals, and instruments, and to provide protection from rain, sleet, snow, dripping water and corrosion, as well as hosedown, splashing water, oil or coolant seepage.

INDUSTRY STANDARD:

U.L. Type 3R, 4X

A. ENCLOSURE:

1. The complete enclosure is made from .125" thick aluminum alloy type 5052-H-32 to provide a strong and rigid construction. Alternative material is 14 gauge type 304 stainless steel. (Specifier must choose the material to be used.)
2. Each enclosure is equipped with bracket provisions for rigid mounting of an optional EIA 19" rack frame assembly for mounting components. (See page C8 for E.I.A. rack specifications and catalog numbers.)
3. The door frame opening is double flanged on all four sides. These flanges increase the strength of the door opening and help prevent dust and liquids from dropping into the enclosure when the door is opened.
4. All exterior seams are ground smooth or sealed weathertight with silicone sealant.
5. All hardware is either stainless steel or aluminum.
6. Each (3R only) enclosure has provisions for mounting a forced-air fan system that can be thermostatically controlled, and air is exhausted through a screened vent system in the enclosure top.

B. DOOR: (Front-hinge on left, rear-hinge on right)

1. Equipped with three-point latching mechanism with nylon rollers at the top and bottom.
2. The door handle is .75" stainless steel round bar and has provisions for a padlock.
3. (3R only) The standard main door lock is Corbin #1548-1 or equal.
4. (3R only) A louvered air vent with reusable metal filter and retaining brackets is provided.
5. The main door is sealed with closed-cell neoprene gasket.
6. The continuous door hinge is .075" thick stainless steel with a .25" stainless hinge pin.

C. FINISH:

1. Natural aluminum enclosures are mill finish per federal specification QQA-250/8.

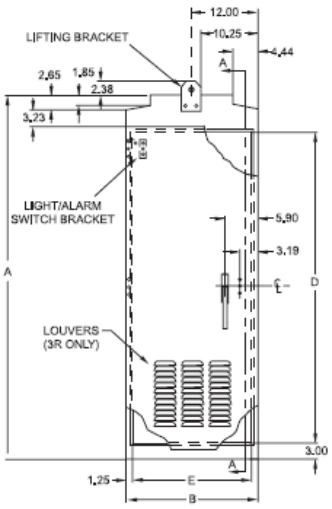
NEMA 3R SHOWN

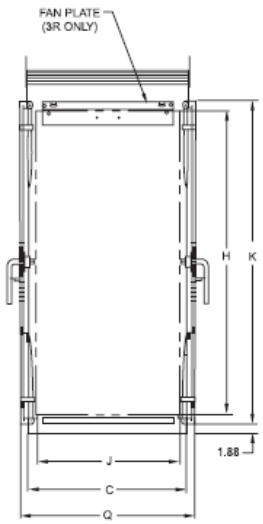
Optional rack frame shown installed

2. Painted enclosures are treated with an iron phosphate coating and dried by radiant heat. The standard finish coat is baked polyester powder.

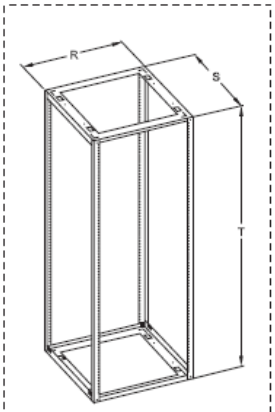
FOR NEMA TYPE 4X RATING:
DELETE *all vents and main door lock (Corbin #1548-1), and switch compartment assembly.*
ADD *all through holes are sealed.*

Rack Mount Enclosure



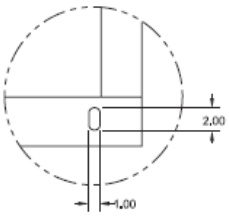


SECTION A-A

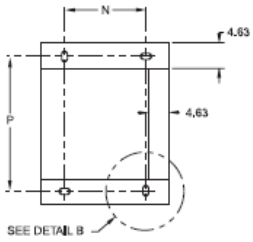


OPTIONAL RACK FRAME ASSEMBLY

SEE EIA RACK MOUNT SPECIFICATIONS ON PAGE 60.



DETAIL B



PAD MOUNTING PATTERN

OPTIONS:

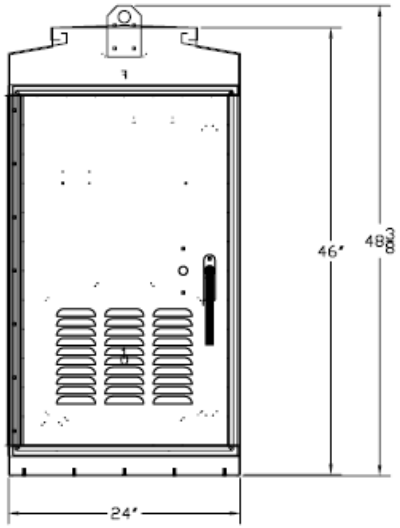
- Locks: Keying, Other Than Standard
- Rack Frame Assembly
- Switch Compartment
- Custom Equipment Mounting
- Climate Control
  - Air Conditioner
  - Sunshields
  - Insulation
  - Heater
  - Forced-Air Ventilation Fan (3R only)

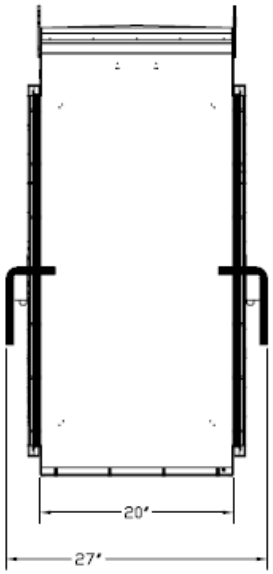
CATALOG NUMBER	SUGGESTED MOUNTING OPTIONS			CABINET			DOOR OPENING		SWITCH COMPARTMENT LOCATION		AVAILABLE SPACE		DOOR HEIGHT	PANEL		PAD MTG. PATTERN		GENERAL INFORMATION			
	PED	POLE	PAD	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
RM392420	YES	YES	YES	39.00	24.00	20.25	9.00	21.50	OPTIONAL		25.75	16.50	31.25	N/A	N/A	15.00	15.00	22.75	20.00	15.75	27.25
RM462420	NO	YES	YES	46.00	24.00	20.25	36.00	21.50	OPTIONAL		32.75	16.50	38.25	N/A	N/A	15.00	15.00	22.75	20.00	15.75	34.25
RM463026	NO	YES	YES	46.00	30.00	26.25	36.00	27.50	OPTIONAL		32.75	22.25	38.25	N/A	N/A	21.00	21.00	28.50	20.00	20.75	34.25
RM553026	NO	YES	YES	55.00	30.00	26.25	44.00	27.50	OPTIONAL		41.75	22.25	47.25	N/A	N/A	21.00	21.00	28.50	20.00	20.75	43.25
RM672430	NO	NO	YES	67.00	24.00	30.00	57.00	21.50	OPTIONAL		53.75	26.25	59.25	N/A	N/A	15.00	25.00	32.50	20.00	20.75	55.25
RM672438	NO	NO	YES	67.00	24.00	38.00	57.00	21.50	OPTIONAL		53.75	34.25	59.25	N/A	N/A	15.00	33.00	40.50	20.00	29.25	55.25

200 Oregon Street, Mercersburg, PA 17236-1630 · Tel (717) 328-9399 · Fax (717) 328-2447 · www.apx-enclosures.com

INTERNATIONAL
ROAD DYNAMICS INC.
www.irdinc.com

ITEM	PART NUMBER	QUANTITY	MATERIAL





MATERIAL:
.125 5052-H32 ALUMINUM

FINISH:
NATURAL

FEATURES:
1. UL LISTED NEMA TYPE 3R
2. DOORS FRONT & REAR, BOTH HINGED ON LH SIDE
3. POLE or PAD MOUNT
4. CORBIN #2 MAIN DOOR LOCKS

REV.	ECN	DESCRIPTION	DATE	ENGINEER
01	0053	PROTO RELEASE	5-03-05	TRS

REVISIONS

DIMENSIONS ARE IN INCHES.
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:
FRACTIONS ± 1/64 DECIMALS .XXX ±.005 ANGLES ±2°

BEND RADIUS 90° ____
BEND DEDUCTION ____
BEND RADIUS 75° ____
BEND DEDUCTION ____
BEND RADIUS ___° ____
BEND DEDUCTION ____

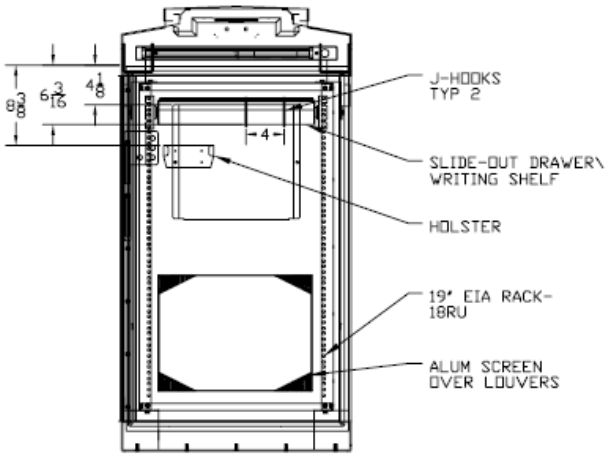
APPROVALS	DATE
TRS	5-03-05

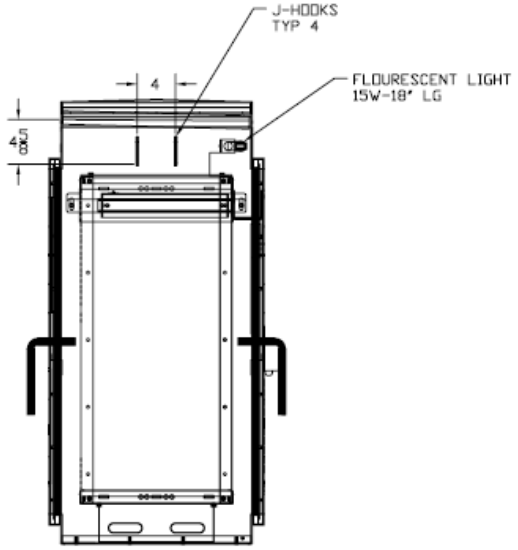
SPECIFICATION DRAWING
TCRM462420A1253R9
POLE/PAD - IRD

SIZE	DWG. NO.	REV.
B	1-550-000148	01

SCALE: 1:10 SHEET 1 OF 3

ITEM	PART NUMBER	QUANTITY	MATERIAL





REV.	ECN	DESCRIPTION	DATE	ENGINEER
01	0053	PROTO RELEASE	5-23-05	TRS

REVISIONS

DIMENSIONS ARE IN INCHES.
UNLESS OTHERWISE SPECIFIED
TOLERANCES ARE:
FRACTIONS ±1/16 DECIMALS .XXX ±.015 ANGLES ±2°

BEND RADIUS 90°
BEND DEDUCTION
BEND RADIUS 75°
BEND DEDUCTION
BEND RADIUS
BEND DEDUCTION

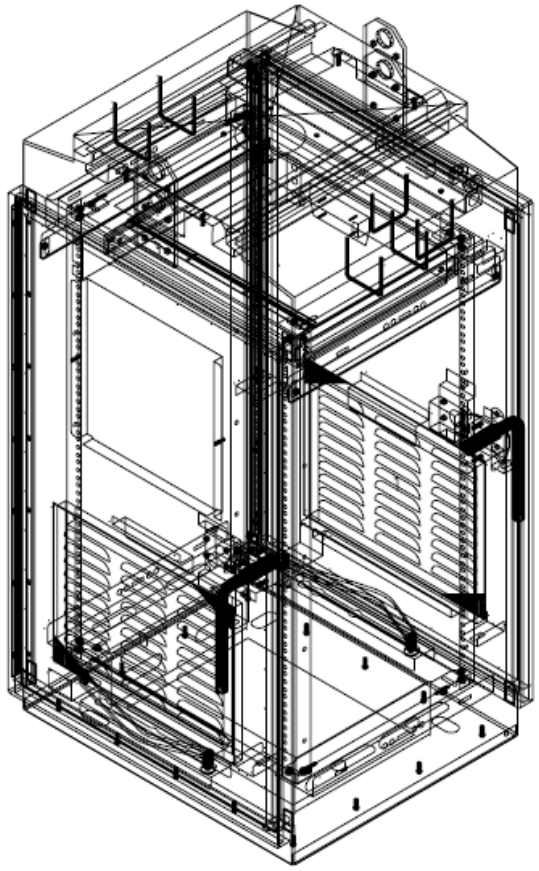
APPROVALS	DATE
DRAWN TRS	5-23-05
CHECKED	
ENG	
MFG MGR	

SPECIFICATION DRAWING
TCRM462420A1253R9
POLE/PAD - IRD

SIZE	DWG. NO.	REV.
B	1-550-000148	01

SCALE: 1:10 SHEET 2 OF 3

ITEM	PART NUMBER	QUANTITY	MATERIAL



REV.	ECN	DESCRIPTION	DATE	ENGINEER
01	8053	PROTO RELEASE	3-03-06	TRS

REVISIONS

DIMENSIONS ARE IN INCHES.
UNLESS OTHERWISE SPECIFIED
TOLERANCES ARE:
FRACTIONS ± 1/16 DECIMALS .XXX ±.005 ANGLES ±1°

BEND RADIUS 90° ____
BEND DEDUCTION ____
BEND RADIUS 75° ____
BEND DEDUCTION ____
BEND RADIUS ___° ____
BEND DEDUCTION ____

APPROVALS	DATE
DRAWN TRS	3-03-06
CHECKED	
ENG	
QUALITY	

SPECIFICATION DRAWING
TCRM462420A1253R9
POLE/PAD - IRD

SIZE	DWG. NO.	REV.
B	1-550-000148	01

SCALE: 1:10 SHEET 3 OF 3

Please see Operator’s Manual on FTP site.

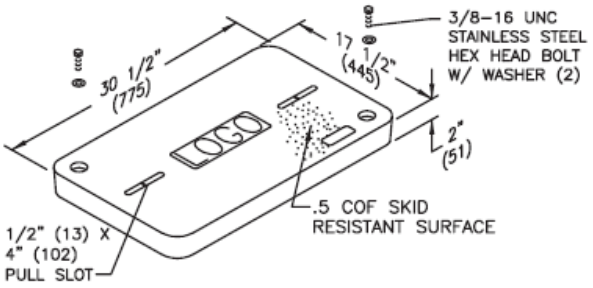
SECTION 5.0

Contact Us

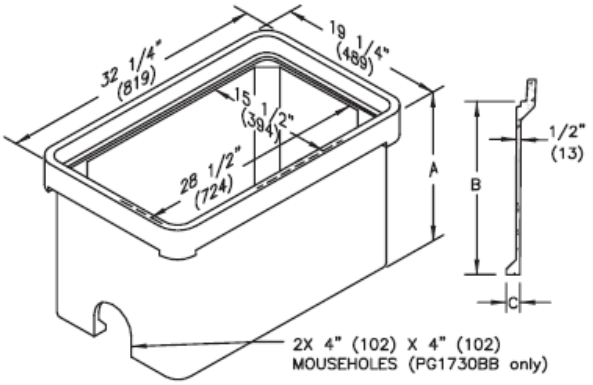
Products are continually being added. For assistance, contact your local Graybar representati

Item Details

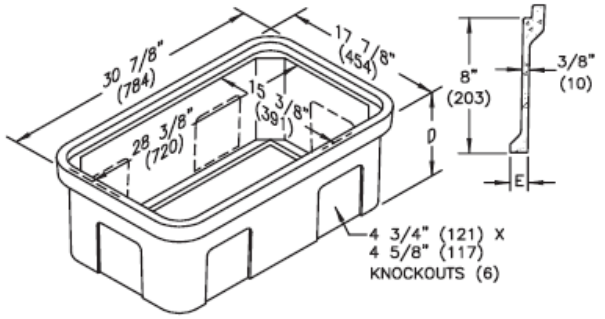
Category	Enclosures, Underground - Boxes
Mfg Name	Strongwell-Quazite
Mfg Part Num	PG1730BA24
Graybar ID	94070839
Description	Enclosure, Box, Underground, 17 X 30 in, Stackable Box with Open Bottom, Precast Polymer Concrete
Application	Splice Box, Pull Box, Equipment Enclosure
Approvals	UL
Brand or Series	Quarzite, PG Series
Dimensions	19-1/4 X 32-1/4 X 24 D Inch
Features	Straight Sides for Easy Adjustment of Box to Grade, Lightweight, High Strength, Corrosion Resistant
Load Rating	Tier 22, 22568 Lbs Design, 33852 Lbs Test
Material	Precast Polymer Concrete
Nominal Size	17 X 30 Inch
Type	Stackable Box with Open Bottom
Weight	122 Lbs



STANDARD COVER



PG BOX



PG BOTTOM EXTENSION

Quazite®

SPECIFICATIONS/DATA

17" x 30" PG Style (Stackable) Assembly

Covers (Blank unless logo is specified)

DESCRIPTION	PART NO.	WEIGHT #	DESIGN/TEST LOAD #	ANSI TIER
W/2 Bolts	PG1730CA00	52 (23.6 kg)	8,000 / 12,000	8
Gasketed w/2 Bolts	PG1730CG00	52 (23.6 kg)	8,000 / 12,000	8
No Bolts	PG1730WA00	52 (23.6 kg)	8,000 / 12,000	8
Heavy Duty w/2 Bolts	PG1730HA00	83 (37.6 kg)	15,000 / 22,500	15
Gasketed Heavy Duty w/2 Bolts	PG1730HG00	83 (37.6 kg)	15,000 / 22,500	15
Extra Heavy Duty w/2 Bolts	PG1730HH00	85 (38.6 kg)	22,500 / 33,750	15*

- Covers with meter lids available upon request.
- Gasketed covers and bolt grommets must be used with a gasketed box. Gaskets reduce the inflow of fluids but do not make the enclosure water tight.

* Loadings for HH covers comply with all test provisions of ANSI/SCTE 77 except that the vertical design load is 22,500 lbs. with a test load of 33,750 lbs. over a 10" x 20" plate.

PG Boxes (Stackable with self-aligning, replaceable EZ Nut) *22" - 30" deep boxes must be used as bottom of any stack

DESCRIPTION	PART NO.	WEIGHT #	DIMENSION A	DIMENSION B	DIMENSION C	DESIGN/TEST LOAD #	ANSI TIER
Open Bottom	PG1730BA12	67 (30.4 kg)	12" (305 mm)	10" (254 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	PG1730BA18	94 (42.6 kg)	18" (457 mm)	16" (406 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BA22	106 (48.1 kg)	22" (559 mm)	20" (508 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BA24	122 (55.3 kg)	24" (610 mm)	22" (559 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BA28	126 (57.2 kg)	28" (711 mm)	26" (660 mm)	1/2" (13 mm)	22,500 / 33,750	15**
	* PG1730BA30	144 (65.3 kg)	30" (762 mm)	28" (711 mm)	1/2" (13 mm)	22,500 / 33,750	15**
Open Bottom w/ Gasket	PG1730BG12	67 (30.4 kg)	12" (305 mm)	10" (254 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	PG1730BG18	94 (42.6 kg)	18" (457 mm)	16" (406 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BG22	106 (48.1 kg)	22" (559 mm)	20" (508 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BG24	122 (55.3 kg)	24" (610 mm)	22" (559 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BG28	126 (57.2 kg)	28" (711 mm)	26" (660 mm)	1/2" (13 mm)	22,500 / 33,750	15**
	* PG1730BG30	144 (65.3 kg)	30" (762 mm)	28" (711 mm)	1/2" (13 mm)	22,500 / 33,750	15**
Open Bottom w/ 2 Mouseholes	PG1730BB12	65 (29.5 kg)	12" (305 mm)	10" (254 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	PG1730BB18	92 (41.7 kg)	18" (457 mm)	16" (406 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BB22	104 (47.2 kg)	22" (559 mm)	20" (508 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BB24	120 (54.4 kg)	24" (610 mm)	22" (559 mm)	1 1/4" (32 mm)	22,500 / 33,750	15**
	* PG1730BB28	124 (56.2kg)	28" (711 mm)	26" (660 mm)	1/2" (13 mm)	22,500 / 33,750	15**
	* PG1730BB30	142 (64.4 kg)	30" (762 mm)	28" (711 mm)	1/2" (13 mm)	22,500 / 33,750	15**
Solid Bottom	PG1730DA12	85 (38.5 kg)	12 1/2" (318 mm)	10" (254 mm)	N/A	22,500 / 33,750	15**
	PG1730DA18	112 (50.8 kg)	18 1/2" (470 mm)	16" (406 mm)	N/A	22,500 / 33,750	15**
	* PG1730DA22	124 (56.2 kg)	22 1/2" (572 mm)	20" (508 mm)	N/A	22,500 / 33,750	15**
	* PG1730DA24	137 (62.0 kg)	24 1/2" (622 mm)	22" (559 mm)	N/A	22,500 / 33,750	15**
	* PG1730DA28	143 (64.9 kg)	28 1/2" (724 mm)	26" (660 mm)	N/A	22,500 / 33,750	15**
	* PG1730DA30	150 (68.0 kg)	30 1/2" (775 mm)	28" (711 mm)	N/A	22,500 / 33,750	15**
Solid Bottom w/ Gasket	PG1730DG12	85 (38.5 kg)	12 1/2" (318 mm)	10" (254 mm)	N/A	22,500 / 33,750	15**
	PG1730DG18	112 (50.8 kg)	18 1/2" (470 mm)	16" (406 mm)	N/A	22,500 / 33,750	15**
	* PG1730DG22	124 (56.2 kg)	22 1/2" (572 mm)	20" (508 mm)	N/A	22,500 / 33,750	15**
	* PG1730DG24	137 (62.0 kg)	24 1/2" (622 mm)	22" (559 mm)	N/A	22,500 / 33,750	15**
	* PG1730DG28	143 (64.9 kg)	28 1/2" (724 mm)	26" (660 mm)	N/A	22,500 / 33,750	15**
	* PG1730DG30	150 (68.0 kg)	30 1/2" (775 mm)	28" (711 mm)	N/A	22,500 / 33,750	15**

** Loadings comply with ANSI/SCTE 77. These boxes and extensions meet and exceed ANSI Tier 15 test provisions.

PG 17" x 30" Extensions (For use under 12" & 18" deep boxes only, one per box. For grade adjustable extension see page 41.)

DESCRIPTION	PART NO.	WEIGHT #	DIMENSION D	DIMENSION E	DESIGN/TEST LOAD #	ANSI TIER
Open Bottom	PG1730EA08	36 (16.3 kg)	8 3/4" (222 mm)	1" (25 mm)	22,500 / 33,750	15**
Solid Bottom	PG1730RA08	55 (24.9 kg)	9 1/4" (235 mm)	N/A	22,500 / 33,750	15**

Dimensions & weights in parentheses are metric equivalent.

SECTION 6.0

INTERNATIONAL ROAD DYNAMICS INC.
www.irdinc.com

BENDING PLATE

We make highways talk™

- *MANAGEMENT*
- *SAFETY*
- *PRESERVATION*

International Road Dynamics Inc. develops and maintains traffic management products and systems technology that make highways talk. What are they saying? They are providing information that roadway administrators need to manage traffic, preserve infrastructure and provide safety warnings to drivers.

IRD's multi-discipline, innovative and customer-focused team is expert in advanced technologies, advanced traffic solutions and custom-designed systems.

CUSTOMER DRIVEN

The "**Bending Plate**" from IRD-PAT Traffic is used for Weigh-In-Motion (WIM). The importance of measuring the loads of driving road vehicles has increased enormously. Traffic safety, the protection of the infrastructure road and statistical data are the main purpose of Weigh-In-Motion equipment.

The stationary weighpads are delivered in two sizes for different width of lanes: **WP 1250 and WP 1750**

FEATURES

- Excellent long term stability
- Speed range: 5 to 200 km/h
- Robust
- Long life time (> 10 years)

APPLICATION EXAMPLES

- Traffic monitoring
- Road maintenance planning
- Overload detection
- Toll applications
- Statistical purpose

DESCRIPTION

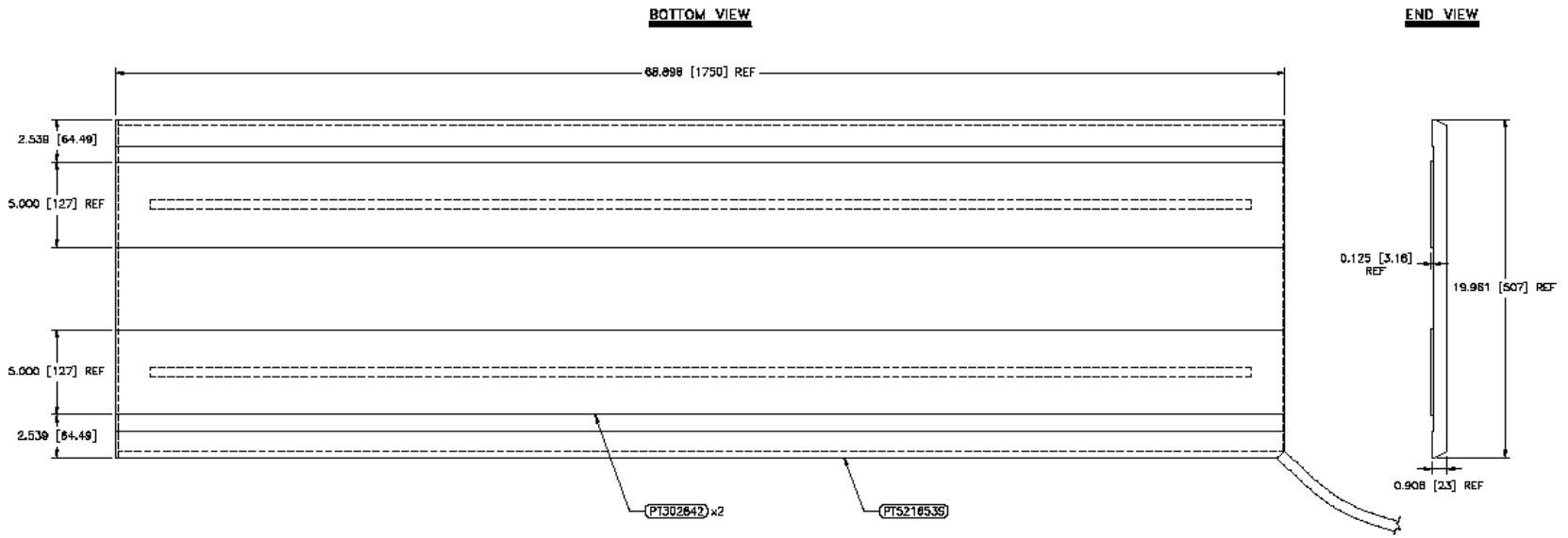
The foundation is made of high-strength steel plates. On the bottom side two slots are milled for the incorporation of wire strain gauges. The wire strain gauges are bridged to a Wheatstone-Bridge with supplementary fixed resistors for temperature compensation. The supply voltage and the output signal are carried in a shielded 4 conductor cable inserted through a hole with waterproof fitting.

The whole weighpad is covered with a neoprene rubber film hot vulcanised on. Along the longitudinal borders two rubber tapes, used as bearings, are vulcanised on the bottom side.

For fixing the weighpad, it is bevelled on both sides at the longitudinal borders and supported by two bevelled strips in a foundation frame.

The foundation frames are tied firmly in the road surface by a special installation procedure. Details are described in a separate installation manual.

OCTOBER, 2003 REV A
PRINTED IN CANADA



NOTES:

1. BOND NEOPRENE STRIPS TO WEIGH PAD USING REMA TIP TOP SC-4000 (IRD P/N 340180). FOLLOW THE MANUFACTURER'S RECOMMENDED PROCEDURE. ENSURE THE APPROPRIATE SURFACE PREPARATION IS DONE.
2. STRIP LOCATION TOLERANCE = ±0.125 [3.18].

REV.	DESCRIPTION	DWN/CHK	APPR.	APPR.	DATE
A	INITIAL RELEASE	LH/GDo	SCI	GDo	NOV 18/04
B	CHANGE SPECIFICATION FOR ADHESIVE. ECO-01	SB/GDo	GDo	SCI	DEC 09/04
C	CHANGE MATERIAL THICKNESS TO 0.12in AND WIDTH TO 5.000. ECO-05.	JCK/GDo	GDo	SCI	FEB 8/05

NOT TO SCALE

SIZE: B

DIMENSIONS IN: INCHES [mm]

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
FABRICATION
COLD VULCANIZATION
1.75m WEIGHPAD

DWG. No: PT6030135G2 REV.: C

CAD FILE: PT6030135G2.DWG SHEET 1 OF 1

SECTION 7.0

SIXNET®
331 Ushers Road, P.O. Box 767, Clifton Park, NY 12065 USA
+1 (518) 877-5173 Fax +1 (518) 877-8346
e-mail: modemsales@sixnetio.com www.industrialmodem.com
Make Your Job Easier

Rugged Industrial Telephone Modems

General Purpose Industrial Modem

Select a VT-MODEM-1 when...
...you need a telephone modem rated for tough industrial environments that will work on the hottest and coldest days.

- Rated for -30° to +70°C operation
- Tough enough for Class I, Div. 2 (Zone 2) hazardous locations
- DIN Rail or flat panel mounting
- DC powered - No more bulky AC adapters
- Five year guaranteed availability for OEMs

PLC Self-Dialing Industrial Modem

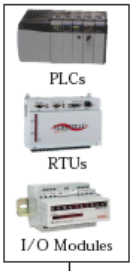
Select a VT-MODEM-2 when...
...you need all the features of the General Purpose Modem plus dial out based upon an alarm contact or PLC coil output.

- Dial upon alarm using a PLC coil output
- Works with all brands and models of PLCs
- Auto-answers for two-way operation
- Report low tank level with a level switch
- UL508 (PLC enclosure), CSA and CE rated

RS422/RS485 Industrial Modem Plus

Select a VT-MODEM-3 when...
...you need all the features of the General Purpose Modem plus an RS422 / RS485 port or the ability to run up to 52 VDC power.

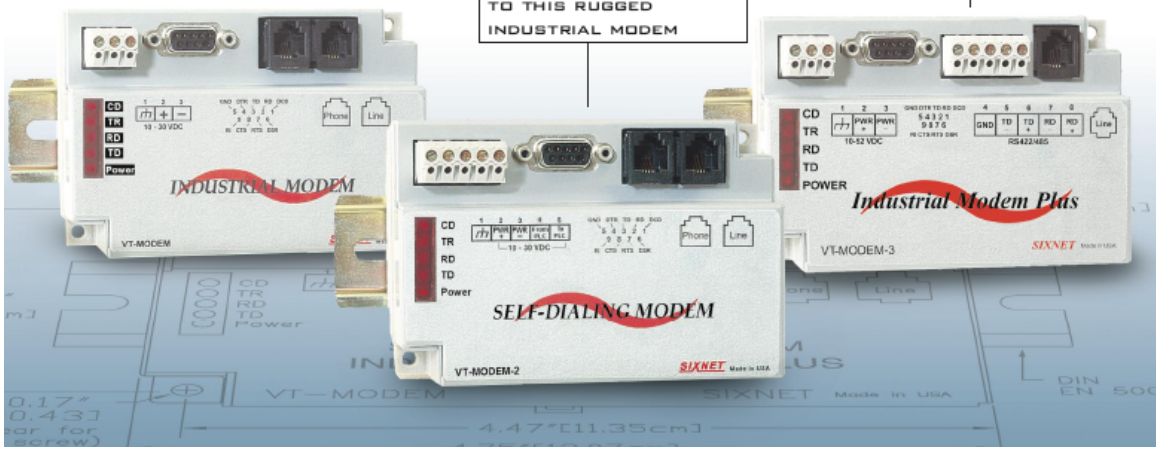
- Connects to existing multi-drop devices
- RS422 / RS485 port uses 2 or 4 wire connections
- Has a standard RS232 port as well
- Connects directly to industrial I/O



THIS INDUSTRIAL MODEM IS AS RELIABLE AS THE PLC YOU CONNECT IT TO.

ANY PLC WILL CONNECT TO THIS RUGGED INDUSTRIAL MODEM

THE RS485 PORT CAN CONNECT TO MULTIPLE DEVICES



Industrial Modems Make Your Job Easier

SIXNET Industrial Telephone Modems

ELIMINATE THE DIFFICULTIES OFTEN ENCOUNTERED WITH INSTALLING OFFICE-GRADE MODEMS IN INDUSTRIAL SETTINGS. THESE RUGGEDIZED MODEMS CONNECT TO ANY PLC, RTU OR OTHER INDUSTRIAL EQUIPMENT AND PROVIDE THE IMPORTANT FEATURES YOU HAVE BEEN LOOKING FOR.

- *Reduce Design Time*
- *Simplify Installation*
- *Increase Reliability*

Why an Industrial Telephone Modem?

SIXNET industrial telephone modems are designed for industrial environments. Their rugged packaging and protected circuitry keep them working under conditions that may cause cheap office-grade modems to fail. Industrial applications are demanding - it gets hot, it gets cold - the power browns out or spikes wildly - and you need a reliable industrial modem that can keep on going.

Industrial modems survive heat & cold

SIXNET industrial modems work reliably through the dead of winter to those hot summer days. Unlike ordinary modems that are intended only for use in air conditioned offices, SIXNET industrial modems are designed for those places that you don't want to be - over the temperature range of -30º to 70ºC.

PC Software compatibility guaranteed

SIXNET industrial modems contain an industrial version of the same modem chip-set found in PC internal modems. They support the full set of modem (AT) commands, protocols and operating features, and are 100% Windows software ready.

Forget the Velcro and makeshift brackets

SIXNET industrial modems can be DIN rail or direct panel mounted. Their compact footprint fits easily into equipment-filled enclosures.

Lose those bulky power transformers

SIXNET industrial modems run directly on the DC power that you already have in your control cabinet. Get rid of those cumbersome AC outlet transformers. No AC power means fewer safety issues. If you ship your equipment internationally, you can forget about the headaches caused by different line voltages and incompatible power plugs.

Stop redesigning your OEM products

Have you ever qualified a system only to find that the modem you used is no longer available? SIXNET guarantees availability of these modems for a minimum of five years. Design your system just once!

A simple solution for global business

Forget about the troubles of supplying different modems for each country. SIXNET industrial modems are compliant with telephone systems around the world. Simplify the logistics of your worldwide business and improve your bottom line.

System Integrators increase profits

System Integrators are putting SIXNET industrial modems in every PLC cabinet they design or service. Now, you can make program changes and get your customer's systems running without leaving your office. Your customers will be delighted with your quick service and you will love the cost savings of not having to make a site visit.

SIXNET

331 Ushers Road, P.O. Box 767, Clifton Park, NY 12065 USA
+1 (518) 877-5173 Fax +1 (518) 877-8346
e-mail: modemsales@sixnetio.com www.industrialmodem.com

Industrial Modem Selection Guide

Industrial Feature Designed to Make Your Job Easier	SIXNET MODEM-1 General	SIXNET MODEM-2 Self-Dialing	SIXNET MODEM-3 RS485 Port	Office-grade External Modems
DIN Rail or flat panel mounting	Yes	Yes	Yes	No
UL508 (electrical control enclosure) rated	Yes	Yes	Yes	No
CE rated for European and International use	Yes	Yes	Yes	?
Compliant with International phone systems	Yes	Yes	Yes	?
RS232 port	Yes	Yes	Yes	Yes
RS485 port for 2 wire or 4 wire operation	No	No	Yes	No
Auto-answer for unattended remote locations	Yes	Yes	Yes	Yes
Auto-dials from a simple contact closure	No	Yes	No	No
Dials upon an alarm in any PLC	No	Yes	No	No
Powered directly from 12 or 24 VDC source	Yes	Yes	Yes	No
Powered directly from 48 VDC source	No	No	Yes	No
Does not need a cumbersome wall-mount Transformer	Yes	Yes	Yes	No
Rated for tough industrial environments	Yes	Yes	Yes	No
Operates outdoors without requiring a heater	Yes	Yes	Yes	No
Will survive the heat in your control cabinet	Yes	Yes	Yes	No
Includes internal surge protection	Yes	Yes	Yes	No
Rated for Class I, Div. 2 (zone 2) hazardous locations	Yes	Yes	Yes	No
Auto-select or fixed rate up to 33.6K bits/sec	Yes	Yes	Yes	Yes
Replaces old 1200, 2400 or 9600 baud modems	Yes	Yes	Yes	?
100% Windows software compatible	Yes	Yes	Yes	Yes
100% compatible with the modem in your PC	Yes	Yes	Yes	Yes
Supplied with RS232 cable to make setup easier	Yes	Yes	Yes	No
Long-term support for OEMs and end users	Yes	Yes	Yes	No
Protected by an extended industrial warranty	Yes	Yes	Yes	No
Designed to make your job easier	Yes	Yes	Yes	No

Ordering Information

Modem Type	US Part Number*	Price	EC Part Number*	Price	World-Wide Part Number*	Price
General Purpose	VT-MODEM-1US	$340	VT-MODEM-1EC	$340	VT-MODEM-1WW	$360
PLC Self-Dialing	VT-MODEM-2US	$450	VT-MODEM-2EC	$450	VT-MODEM-2WW	$470
RS422 / RS485	VT-MODEM-3US	$410	VT-MODEM-3EC	$410	VT-MODEM-3WW	$430
Extended Warranty	Extend the warranty period from 12 months to 3 years				VT-CARE-36	$35
All modems include a RS232 modem cable (DB9) and complete Windows software CD, at no extra cost.						

* Location Codes

US For use in U.S., Canada, Mexico, Central and South America

EC For use in Europe, Asia, Africa, Australia and New Zealand

WW For world-wide use. OEMs install and test it here — use it there.

** All prices given are in U.S. Dollars

SIXNET

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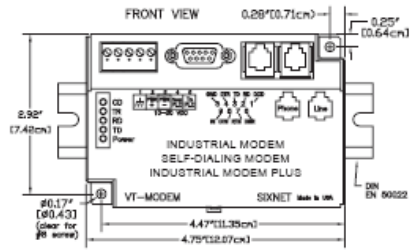
e-mail: modemsales@sixnetio.com www.industrialmodem.com

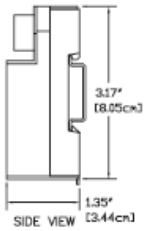
VT-MODEM Performance Specifications

Telephone Line	
Max. data rate	33.6 kbps (V.34)
Compatibility	V.34, V.32 bis, V.32, V.22, V.22A/B, V.23, V.21, Bell 212A and 103
Data compression	V.42 bis MNP 5
Error correction	V.42 MNP 2-4
Max. fax rate	14.4 kbps
Fax capabilities	Group 3 (V.33, V.17, V.29, V.27 ter, V.21)
Ringer equivalent	0.3
Line / Auxiliary jack	RJ11
RS232 Port	
Max. RS232 Rate	115.2 kbps (Kilobaud)
RS232 (DB9 female)	TD, RD, CTS, RTS, CD, DTR, DSR, RI, GND
Command Set	All standard AT and S register commands, incl. Class 1 & 2 Fax
Status LEDs	
CD (Carrier detect) TR (Terminal Ready)	Carrier detected on the phone line Host connected and ready
RD (Receive Data)	Data is coming from the serial port
TD (Transmit Data)	Data being sent out the serial port
Power	On when power is present
General Characteristics	
Input power	10-30 VDC (VT-MODEM-1 & -2)
Input power	10-52 VDC (VT-MODEM-3)
Input current	65 mA @ 24 VDC
Operating Temp.	-30° to 70°C (-40° to 85°C storage)
Humidity	5% to 95% RH (non-condensing)
Flammability	UL 94V-0 materials
Telecom Certification	FCC part 68, Industry Canada CS03-8, CTR21 (98/482/EC); ACA TS 001-1997; ACA TS 002-1997
Electrical Safety	UL 508, CSA C22.2/14; EN61010-1 (IEC1010), IEC 950: 1991, AS/NZS3260-1993 CE
EMI emissions	FCC part15, ICES-003, Class A; EN55022; AS/NZS3548-1995 CE
EMC immunity	EN50082-1 (IEC801-2, 3, 4) CE
Surge withstand	IEEE-472 (ANSI C37.90)
Vibration	IEC68-2-6
Hazardous locations	UL 1604, CSA C22.2/213-M1987, (Class I, Div 2, Groups A, B, C, D) Cenelec EN50021 (EEx nA II T4)
Mounting	DIN rail or panel mount
PLC Discrete I/O Interface (VT-MODEM-2 Only)	
"Trigger" Input	Connects to PLC output. Starts auto-dialing when TRUE.
Voltage range	9 to 30 VDC (6.5 mA at 24 VDC)
Max OFF voltage	5 VDC
"On-line" Output	Output is ON as long as a connection exists (carrier detect).
Output type	Sourcing — switches supply power
Max. output current	100 mA
RS422 / RS485 Port (VT-MODEM-3 Only)	
RS422 mode	Supports 4 wire full duplex
RS485 modes	2 or 4 wire party-line operation
Signal rate	Standard rates up to 115.2 kbps
RS422/485 distance	Up to 0.5 miles

Mounting Dimensions

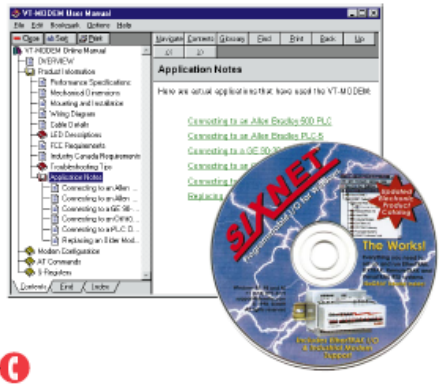


Note: Screw holes are provided as an alternative to DIN rail mounting.



Complete documentation

is provided on the SIXNET CD or may be downloaded from www.industrialmodem.com. Includes applications help for many common situations.



Contact your SIXNET Applications Engineer today!

For instant availability and the latest product information check out www.industrialmodem.com

05.15.03 Final Modem Brochure_r04.qxd

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SECTION 8.0

Please see PAT Bending Plate install manual on FTP site.

SECTION 9.0

Please see MSDS on FTP site.