APEX
RAIL AUTOMATION

Yard & Track Automation Solutions

Product Catalog
2023

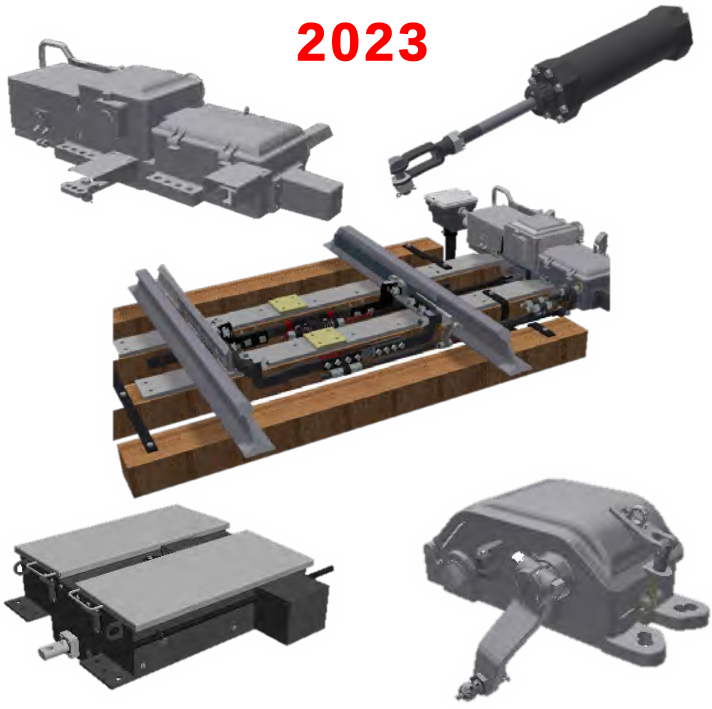


Table of Contents

Table of Contents (Cont.)

Modular Yard Automation Sub-systems (Continued)

Table of Contents (Cont.)

Table of Contents (Cont.)

About US

Apex Rail Automation (Apex) manufactures wayside railroad switch and signaling products as well as railyard automation solution technologies. Apex offers products and engineering solutions for both mainline track and railyards.

We primarily serve large freight railroads such as Class 1 Railroads in North America. We also have many successful automation projects, products and services for the Short-Lines, Industrial, Transit and Intermodal markets.

Our rail automation technologies include:

- **Railyard management software and electronics**
- **Remote-controlled hydraulic switch machines**
- **AEI RF Railcar Tracking**

Our switch control and signaling products include:

- **Mainline track switch machines**
- **Connecting rods and layouts**
- **Industrial crossing warnings**

History

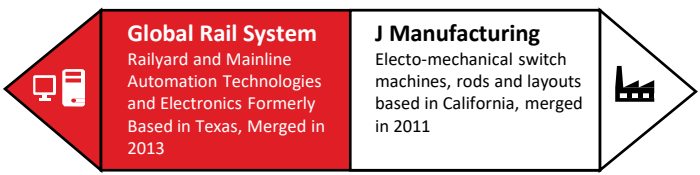
Apex was established in November 2020 with the sale of Vossloh Signaling USA, Inc. (VSIG) from Vossloh AG. Apex is headquartered in Grass Valley, California.

In 2014, VSIG was formed with the merger of Global Rail Systems (GRS) and J Manufacturing, Inc. (JMI) under the parent company Vossloh AG:

JMI was based in California and primarily focused on electro-mechanical switch machines, rods and layouts. JMI was acquired by Vossloh AG in 2011.

GRS was based in Texas and primarily focused on railyard automation technologies and electronics. GRS was acquired by Vossloh AG in two separate transactions with an investment in 2009 and the complete acquisition in 2013.

Apex is the industry leader providing turnkey solutions for both railyard and mainline track. Our origins in the merger of these two businesses gives us the capability to deliver state-of-the-art engineering and high-quality manufacturing.



Commitment to Quality Manufacturing

Apex differentiates itself through its high quality, innovative products, new product launches and equipment updates, which have continually garnered the attention of Class I railroads. We accomplish this by investing in our people and our equipment. Our team conducts incoming inspection of parts and raw material; in-process inspection as product parts and components are assembled and moved throughout the facility; and final inspection prior to packaging finished product for shipping. Each of these inspections is appropriately documented with Quality Control Sign-Off.

M-1003 Certification

For more than 15 years Apex has continued to certify for the Association of American Railroads M-1003 Certification. To learn more about M-1003 Certification requirements scan the QR code below.

Quality Control

Quality Control(QC) personnel continually inspect and test all supplier parts and materials in our state-of-the-art laboratory, which is conveniently located adjacent to our receiving area and production lines. Our QC Technicians are well trained and experienced in all aspects of the quality processes including incoming material inspection, test and inspection requirements, documentation and release of hold points. QC has established hold points allowing them to inspect all material at critical points and catch any issues before any production work proceeds. QC Technicians document their inspections and release of hold points on a router form. QC personnel are vigilant in the continual, ongoing implementation of their Quality Assurance Manual in order to maintain their ARR M-1003 Certification.

Equipment Preventative Maintenance

Our commitment to quality includes our commitment to our equipment. Periodic maintenance of the equipment and machinery are completed and documented to include date of service and personnel completing the maintenance. Frequency of required maintenance is shown on the forms attached on or near the production equipment.

APEX RAIL AUTOMATION

Yard & Track Automation Solutions

Railyard Products

APEX
RAIL AUTOMATION
Yard & Track Automation Solutions

Modular Yard Automation (MYA)

Modular Yard Automation

The Modular Yard Automation system (MYA) enables a railroad to implement to scale automated solutions to increase safety, productivity and efficiency in your rail yard application

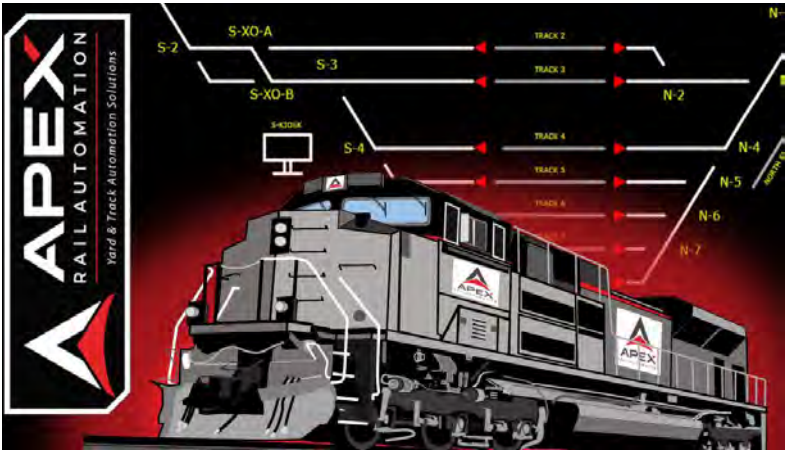
MYA offers a flexible communication solution to conform to the needs of your railroad, providing wired or wireless controls. Our MYA system utilizes Genesis as a standard serial protocol. MYA offers ground crew control of switches, control from a centralized location or control from decentralized locations. The system is scalable for future expansion and offers derail control with name and trade event logging to satisfy FRA requirements.

Features

- **Conformance to AREMA specifications**
- **Ability to monitor equipment in the field**
- **Onboard terminal communication to the train**
- **Expandable from a single switch to a full yard system**
- **Derail control available**

Benefits

- **Ground level maintenance of all components**
- **Increases throughput**
- **Reduces dwell times**
- **Simple routing with Easy Route Subsystem**
- **Made in the U.S.A.**



RailMaster Yard Control Systems

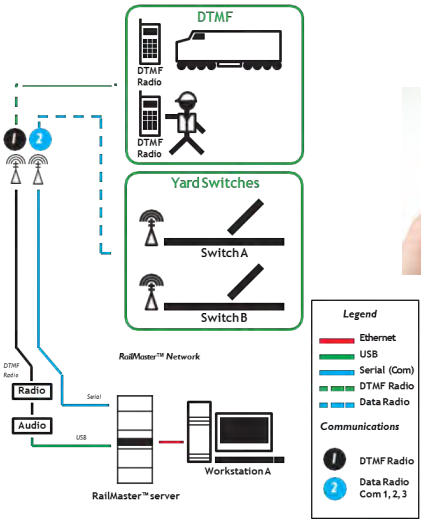
APEX
RAIL AUTOMATION
Yard & Track Automation Solutions

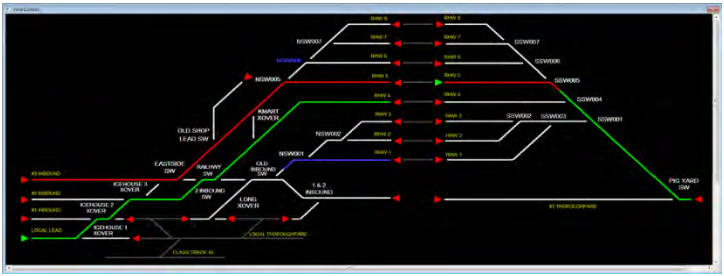
DTMF Routing

DTMF Routing

Allows yard control by locomotive using the onboard VHF radio or by handheld radio. The VHF radio control uses DTMF tones (Codes) which are pre-programmed for various routes within a yard. With DTMF control method switch can be individually controlled or route codes can be used to line multiple switches. In DTMF controlled system once the requested route is established the system will audibly announce the route is lined over the radio.

- Increased Safety
- Reduces bottleneck
- Increases Operational Efficiency



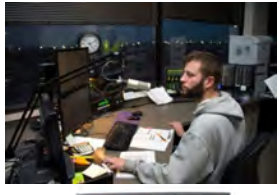


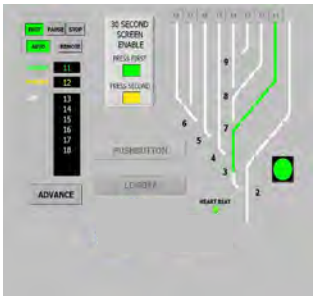
Entrance/Exit Routing

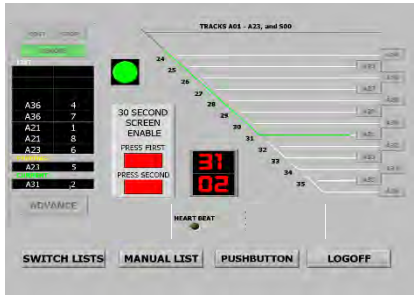
Entrance/Exit Routing

Allows for yard control via a centrally located PC workstation. The office PC is controlled using a mouse and keyboard. Like DTMF routing the yard master can control individually switches, derails, routes or blue flag protection in the yard. All operational critical information is visually displayed to the yardmaster, so they always know the current status of the yard.

- Increased Safety
- Reduces bottleneck
- Increases Operational Efficiency







Flat Yard/Stack Routing

Flat Yard/Stack Routing

Fully automates the flat yard classification process with power switch machines and Local Control Panel (LCP) for easy control of your flat yard operations. Crews can manually enter the cut list into the LCP or it can be downloaded to the LCP.

Stacked routing allows for easy advancing of routes with out the need to be at the LCP. The user has a route advance button which allows for easy advancement of routes from anywhere on the lead.

LCP's are a rugged outdoor touch screen computer design to withstand the harshest rail environments.

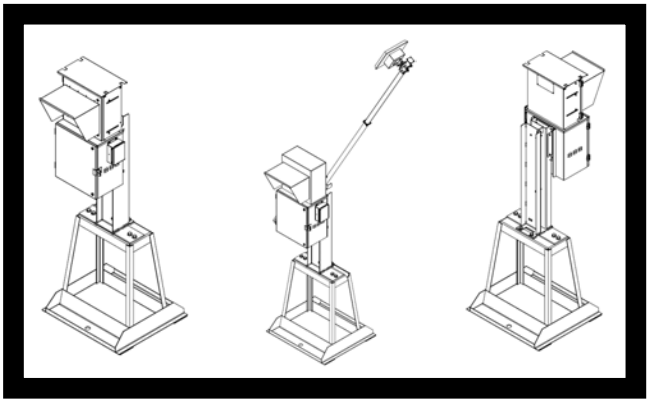
Once the list is entered in the LCP the system automatically lines each route for the next cut.

It lets the operator know the next route is lined by the green cut light located on the LCP screen or a green cut light installed on the first switch in the lead. An optional scoreboard display is also available to display the track the current cut is lined to.

APEX RAIL AUTOMATION

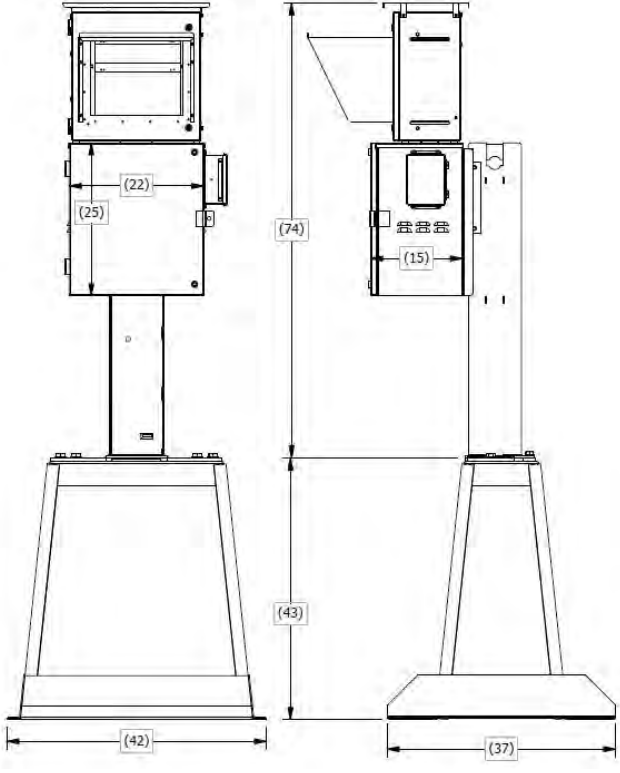
Yard & Track Automation Solutions

Wayside Control Assemblies

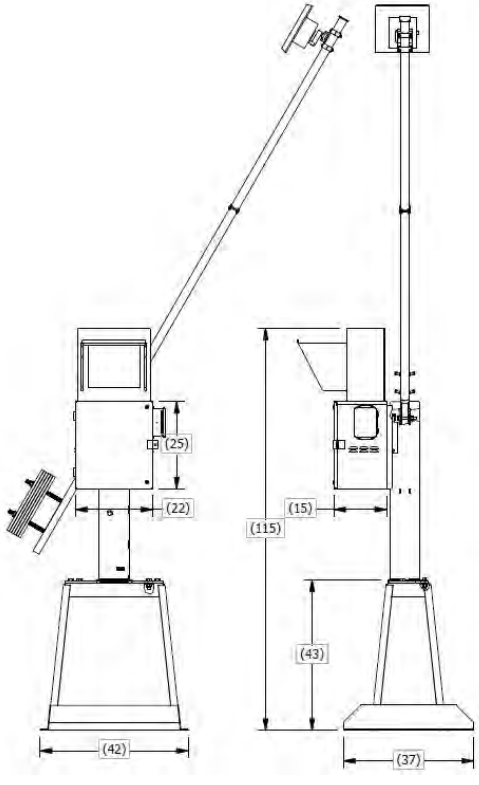


Local Control Panel

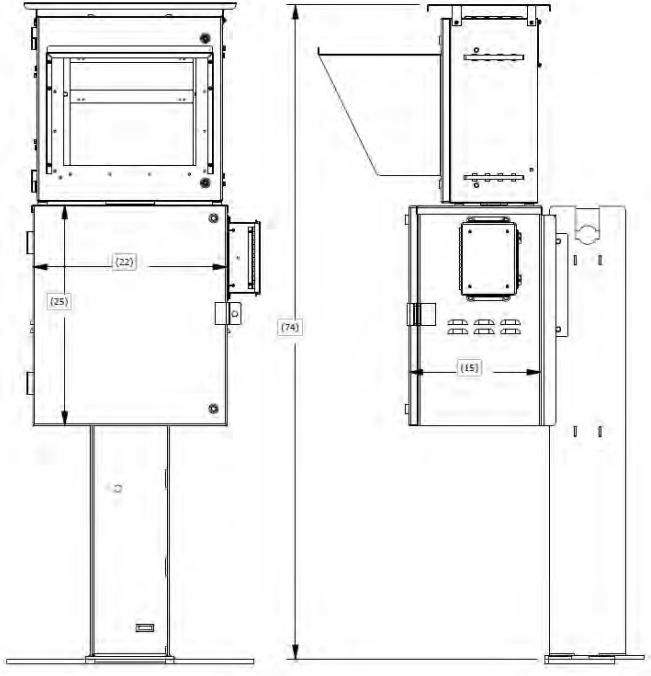
WAYSIDE CONTROL, KIOSK WITH BATTERY BOX, TILT OVER STAND WITH FOUNDATION



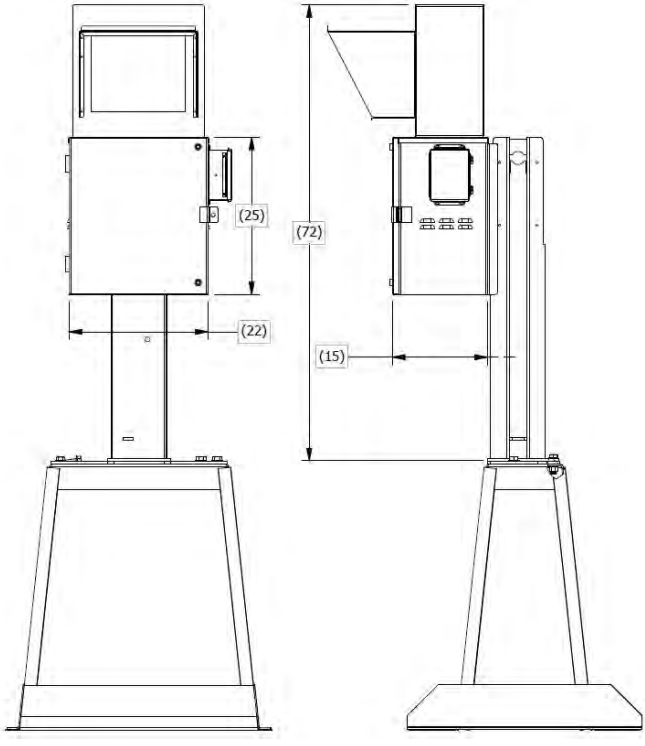
WAYSIDE CONTROL, 25x22x15, BATTERY BOX, TILT OVER STAND WITH MAST,RADIO AND FOUNDATION



WAYSIDE CONTROL, KIOSK WITH BATTERY BOX, TILT OVER STAND WITHOUT FOUNDATION



WAYSIDE CONTROL, 25x22x15, BATTERY BOX, TILT OVER STAND WITHOUT MAST ON MYA FOUNDATION



APEX
RAIL AUTOMATION
Yard & Track Automation Solutions

Yard Automation & Railcar Tracking

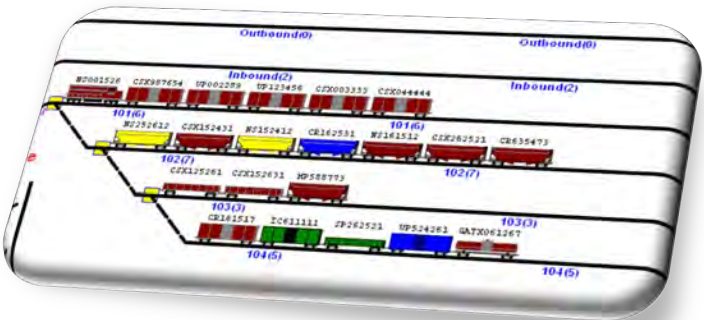
Yard Automation & Railcar Tracking

The Apex Railcar Tracking and Rail Automation system is a fully integrated system allowing for the efficient movement and tracking of AEI tag equipped railcars within a facility. The system is designed to provide the user with the key goals outlined below:

Efficiency: The system will minimize the time required to move railcars using centrally controlled switches. Train crews will not be required to manually operate switches.

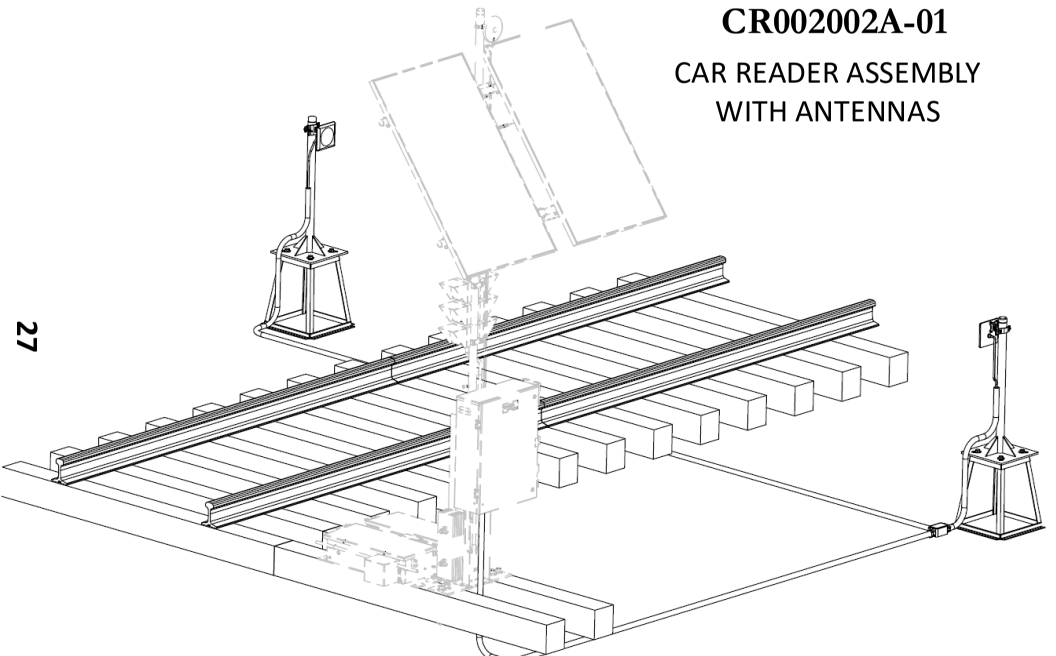
Accuracy: The system will accurately track railcars within the facility minimizing the amount of time to retrieve railcars. Train crews will not be required to enter or track cars manually.

Management: The system will provide the tools to manage railcar inventory.



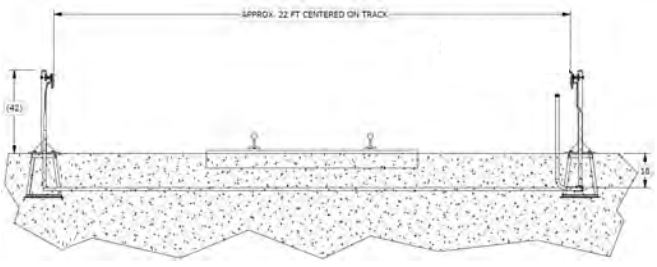
CR002002A-01

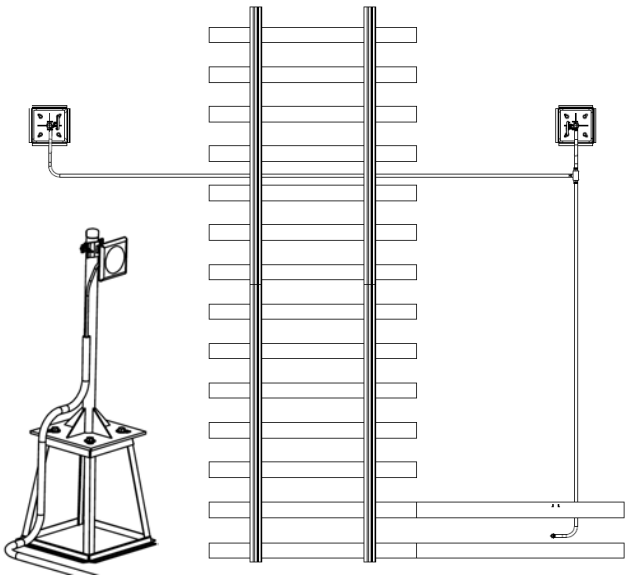
CAR READER ASSEMBLY
WITH ANTENNAS

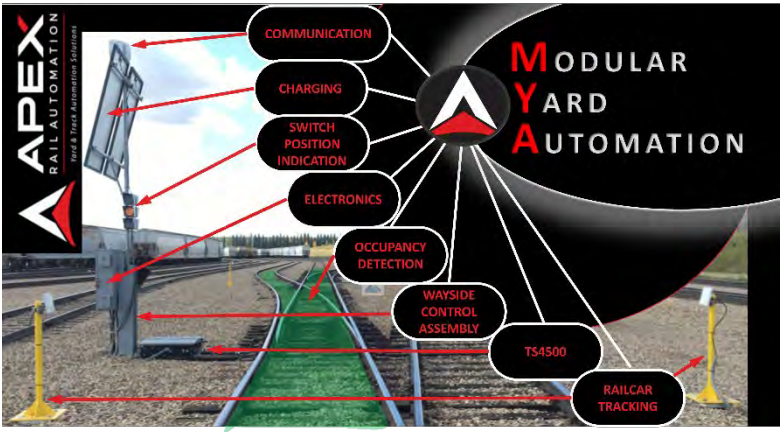


CR002002A-01

CAR READER ASSEMBLY
WITH ANTENNAS







Modular Yard Automation Sub-systems

APEX
RAIL AUTOMATION
Yard & Track Automation Solutions

Electronics Enclosures

EN005001A-01

- 14” Wide
- 20” Tall
- 10” Deep

EN004002A-02

- 25” Wide
- 34” Tall
- 16” Deep

EN001004A-02

- 25” Wide
- 34” Tall
- 10” Deep

EN003001A-01

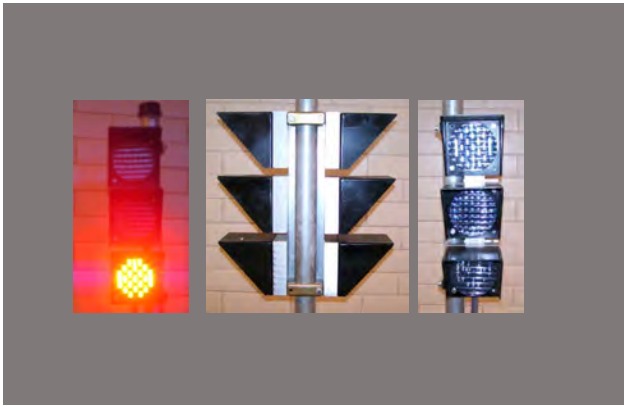
- 37” Wide
- 34” Tall
- 12” Deep

PB002001A-01

MW001001A-01

Normal/Reverse Pushbutton box and MOW Box can be added to any enclosure

APEX
RAIL AUTOMATION
Yard & Track Automation Solutions



Switch Point Indication

Four Aspect – Switch Position Indicators

Single Sided

Back-to-Back

Three Aspect – Switch Position Indicators

Single Sided

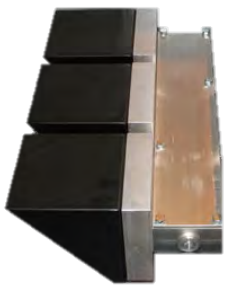
Back-to-Back

Two Aspect – Switch Position Indicators

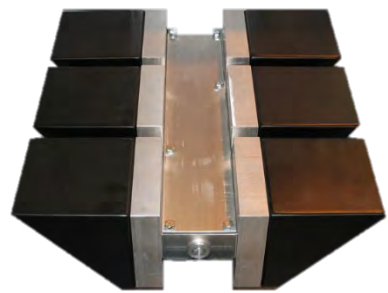
Single Sided

Back-to-Back

Three Aspect – Horizontal Switch Position Indicators

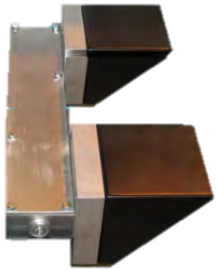


Single Sided

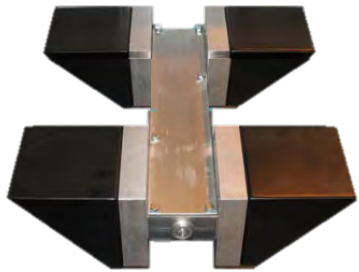


Back-to-Back

Two Aspect – Horizontal Switch Position Indicators



Single Sided

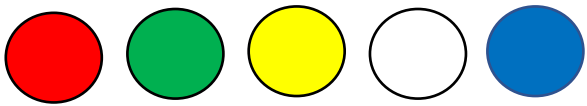


Back-to-Back

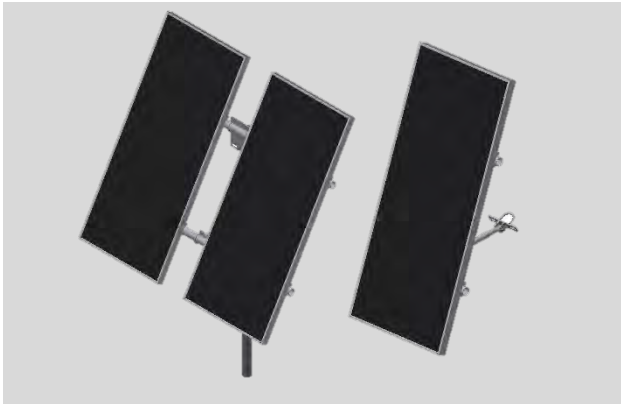
Specifications

- 23 Degree Light Spread
- 5" LED Lens
- Visible up to 10,000 feet
- Dimmable

Available Colors



APEX
RAIL AUTOMATION
Yard & Track Automation Solutions



Solar Assemblies

SLR01001A-03

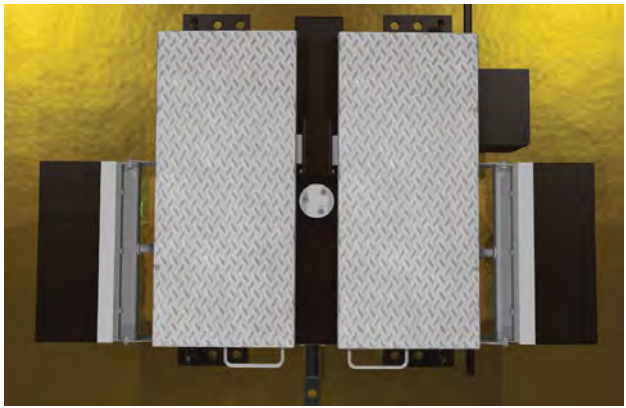
Single Panel Solar Array

Panel Sizes determined by project

SLR02002A-03

Dual Panel Solar Array

APEX
RAIL AUTOMATION
Yard & Track Automation Solutions



TS4500 Switch Machine

US PAT. NO:
9,156,479 B2

The TS-4500 Switch Machine

The TS-4500 power switch machine is the latest in technology design, allowing a cost-effective solution to increase safety and reliability in yard and mainline switch control applications. The unique patent pending design incorporates the best practices of applied engineering for force generation and switch point holding force. The reduction of linkages and use of sealed bearings ensures increased reliability and minimizes maintenance requirements, lowering the overall cost of ownership. The direct drive design maximizes the available power for throwing any size switch point and spring holding force is easily adjusted.

Features

–Push button, DTMF, or Data Radio control

–AC or Solar charged batteries

–Multiple configurations, including low profile

–Direct drive design

–Can be used as a stand alone switch or expanded into a full yard system

Benefits

–Two year parts and labor warranty

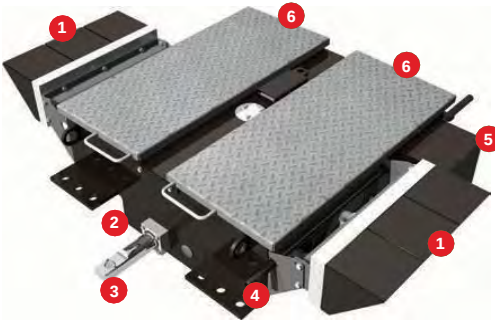
–Event logging for event reconstruction available

–Lower maintenance cost

–Durable for years of use

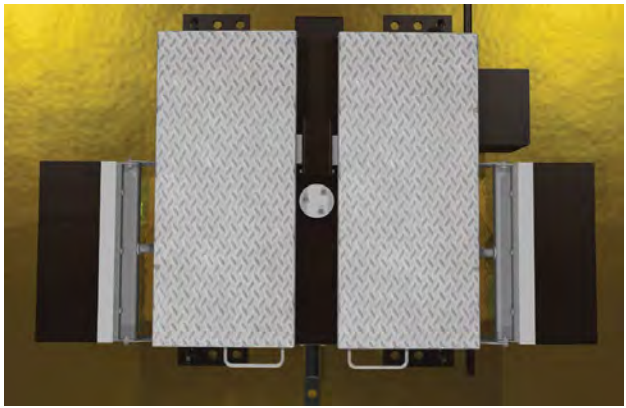
–Internal proximity sensors, secure from the elements

–100% Made in the U.S.A.

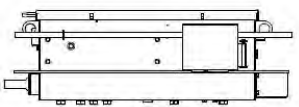


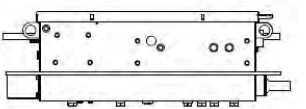
1 Tilt-able Lights
2 Housing
3 Throw Rod
4 Pump Handle
6 Pump Housing
7 Doors

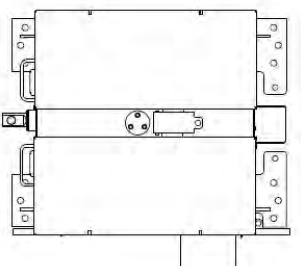
APEX
RAIL AUTOMATION
Yard & Track Automation Solutions

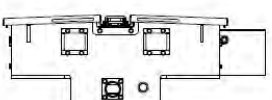


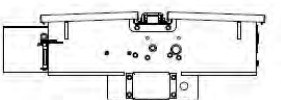
TS4500 Switch Machine Base Configurations



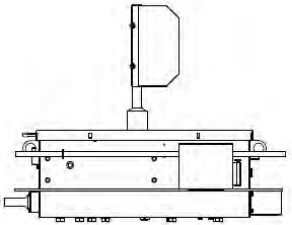


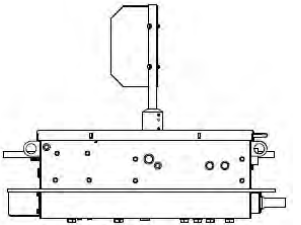


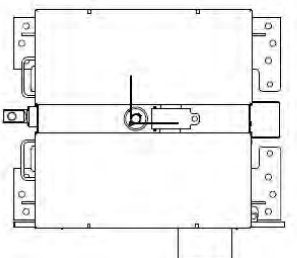


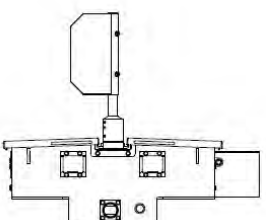


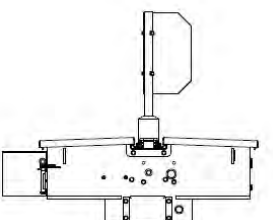
TS4500 SWITCH MACHINE BASE VIEW



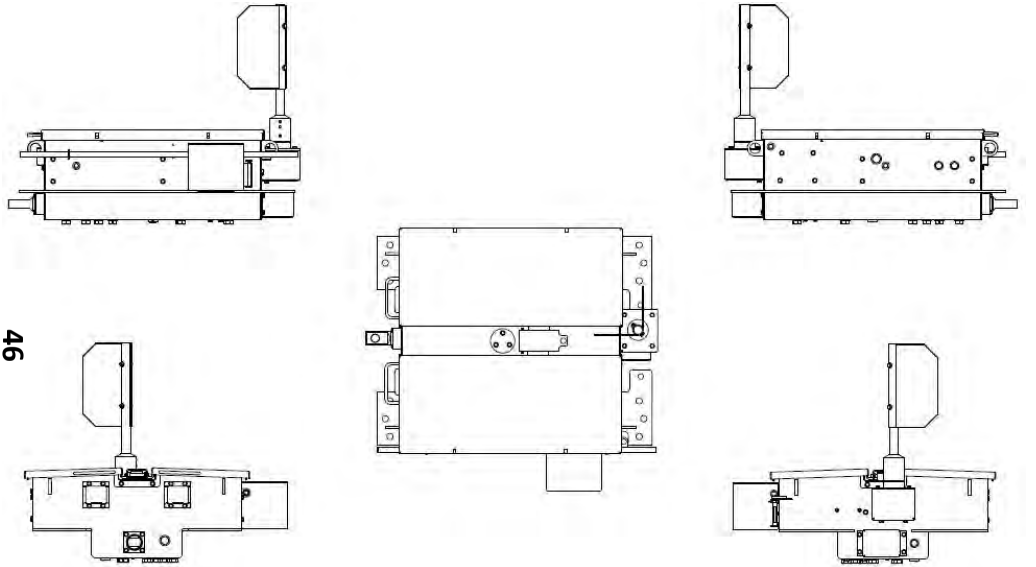




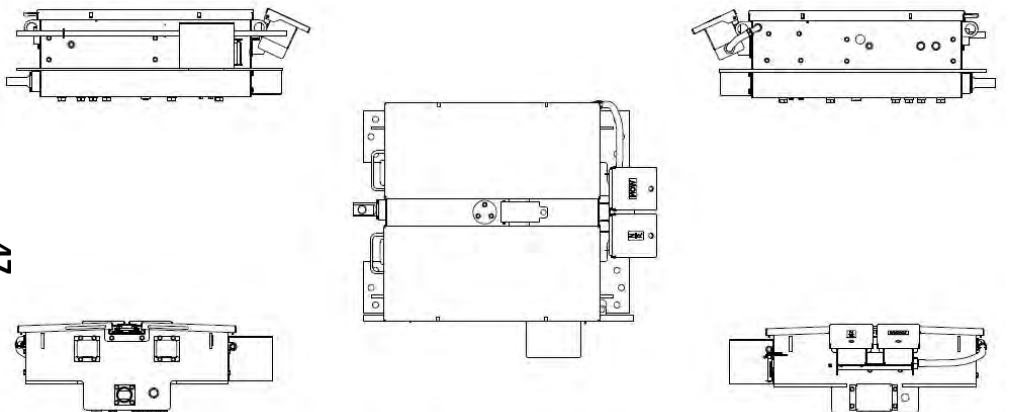




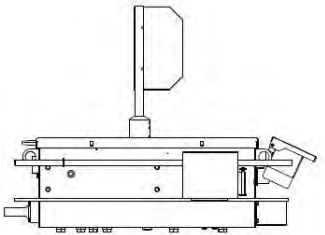
TS4500 SWITCH MACHINE BASE VIEW WITH CENTER TARGET

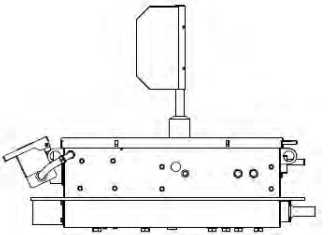


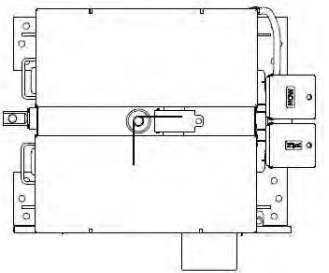
TS4500 SWITCH MACHINE BASE VIEWS WITH REAR TARGET

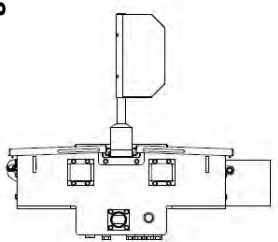


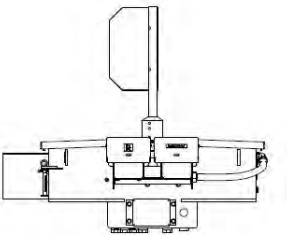
TS4500 SWITCH MACHINE BASE WITH REAR MOUNTED PB & MOW BOXES



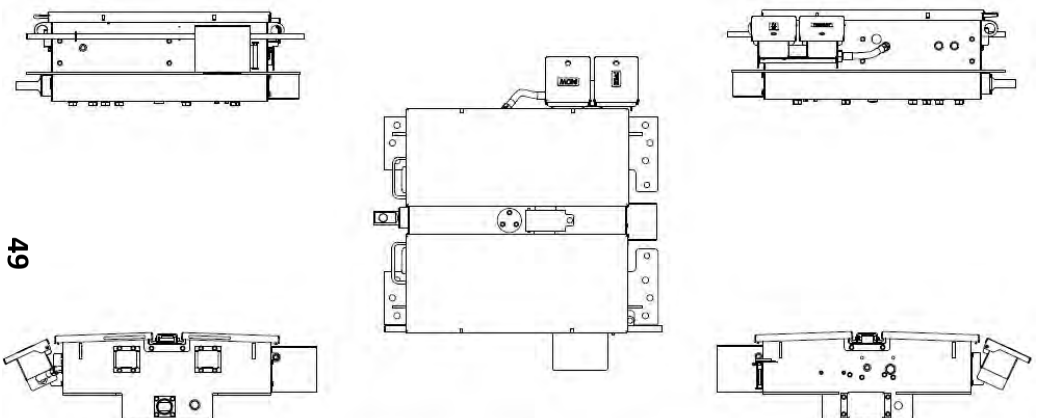




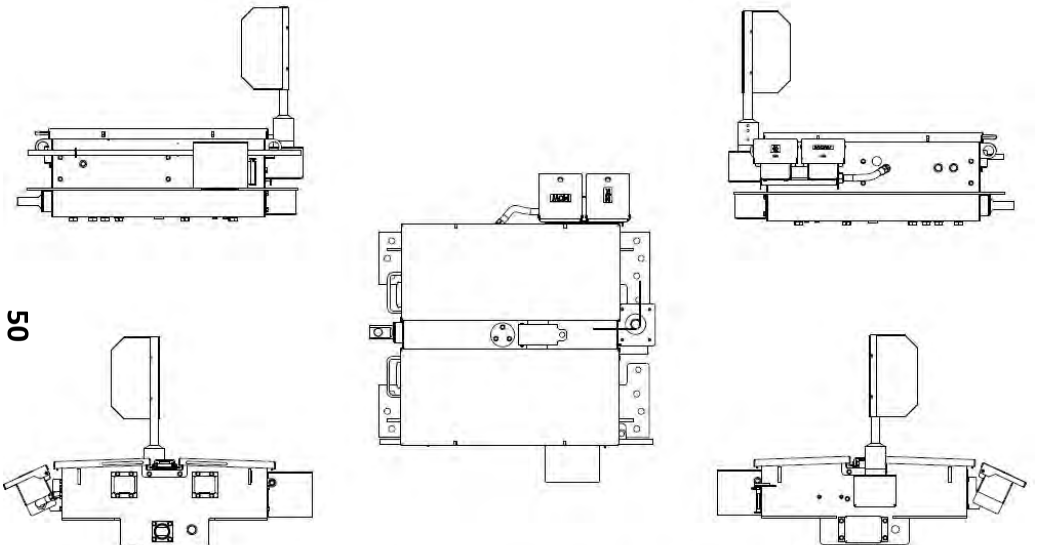




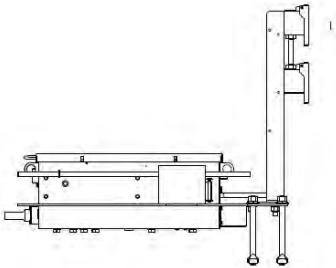
TS4500 SWITCH MACHINE BASE WITH REAR PB & MOW CENTER TARGET

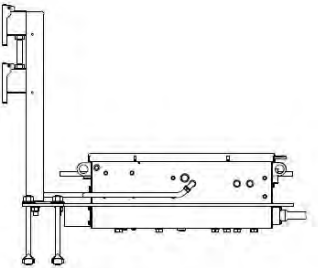


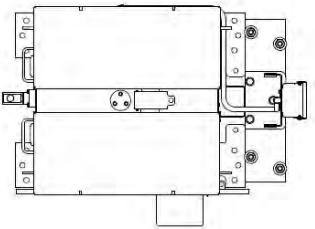
TS4500 SWITCH MACHINE BASE WITH SIDE MOUNTED PB & MOW BOXES

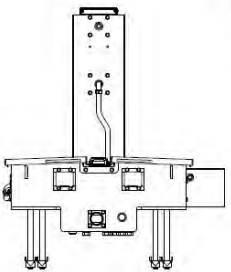


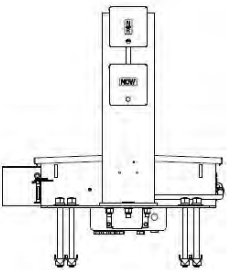
TS4500 SWITCH MACHINE BASE WITH SIDE PB & MOW REAR TARGET





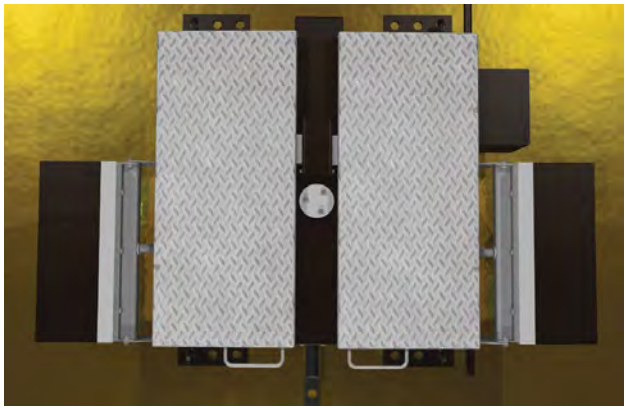




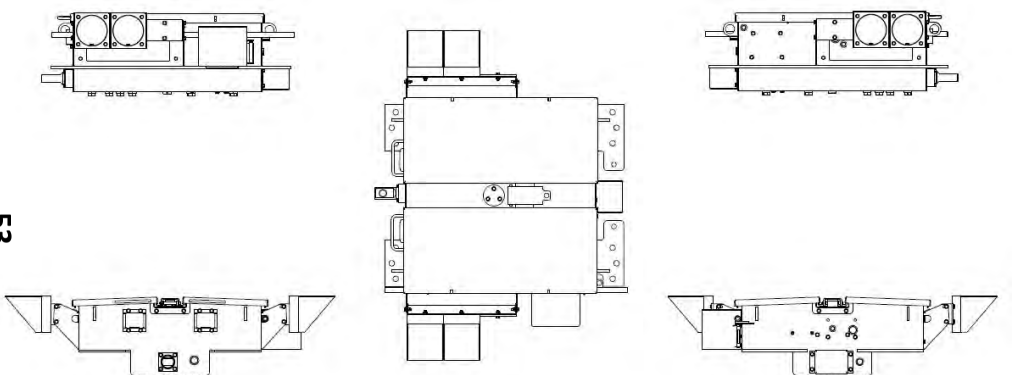


TS4500 SWITCH MACHINE WITH STANCHION MOUNTED PB & MOW BOXES

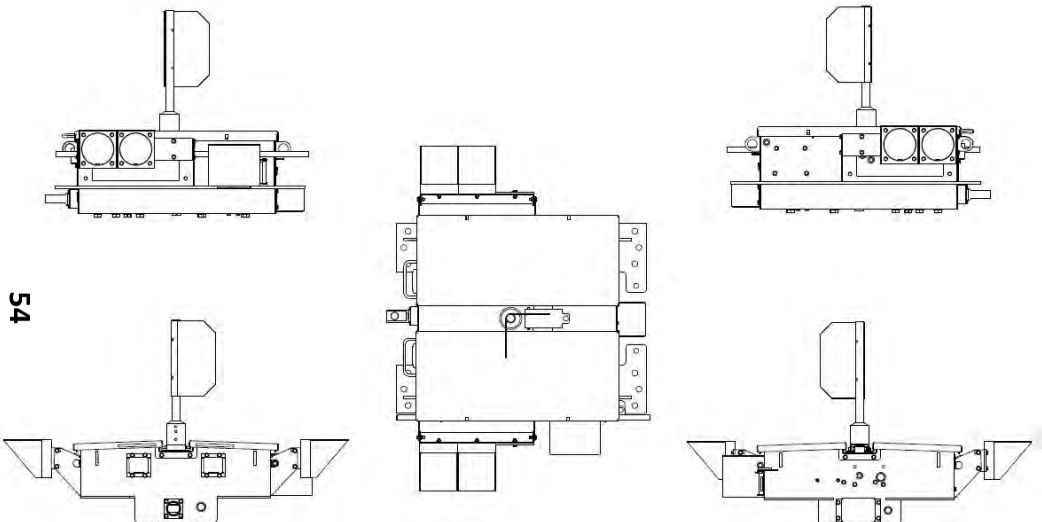
APEX
RAIL AUTOMATION
Yard & Track Automation Solutions



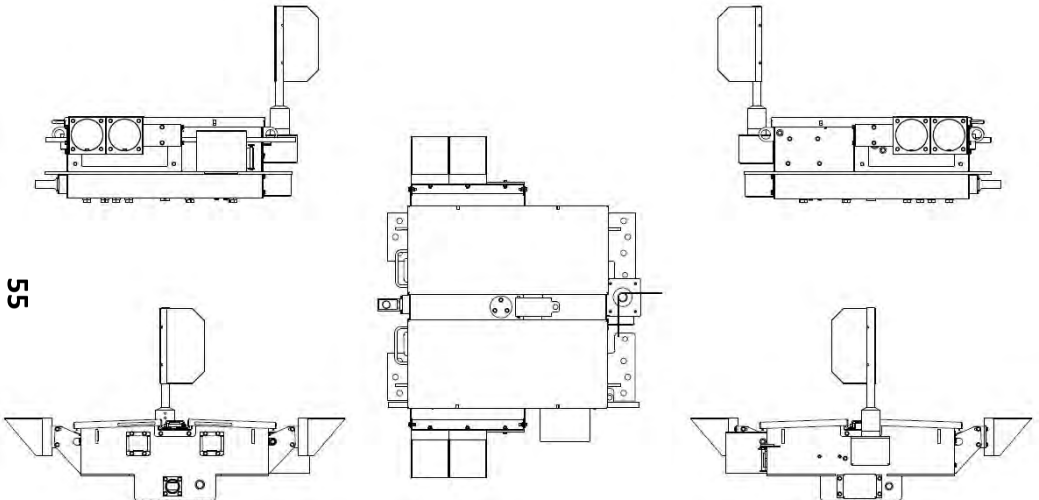
TS4500 Switch Machine
2 Aspect Configurations



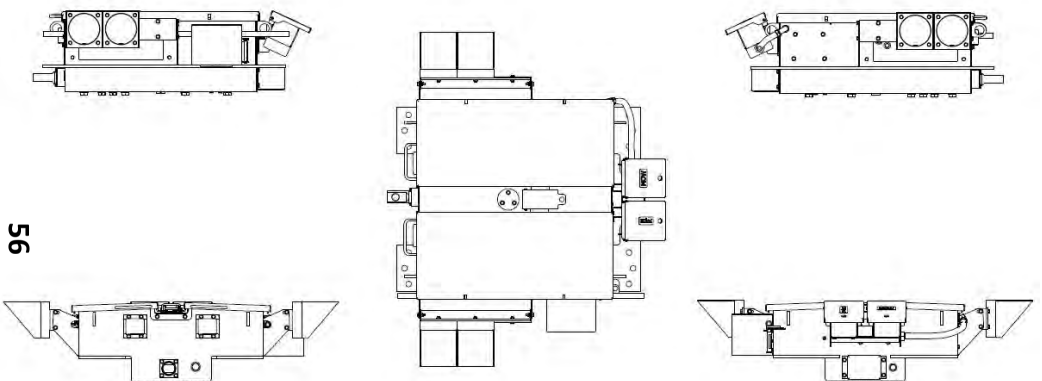
TS4500 SWITCH MACHINE BASE WITH SIDE MOUNTED 2 ASPECT LIGHTS



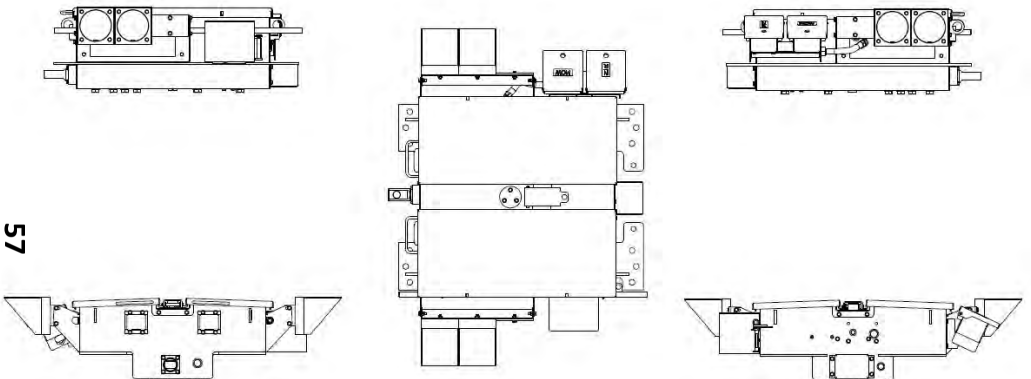
TS4500 SWITCH MACHINE BASE WITH 2 ASPECT & CENTER TARGET



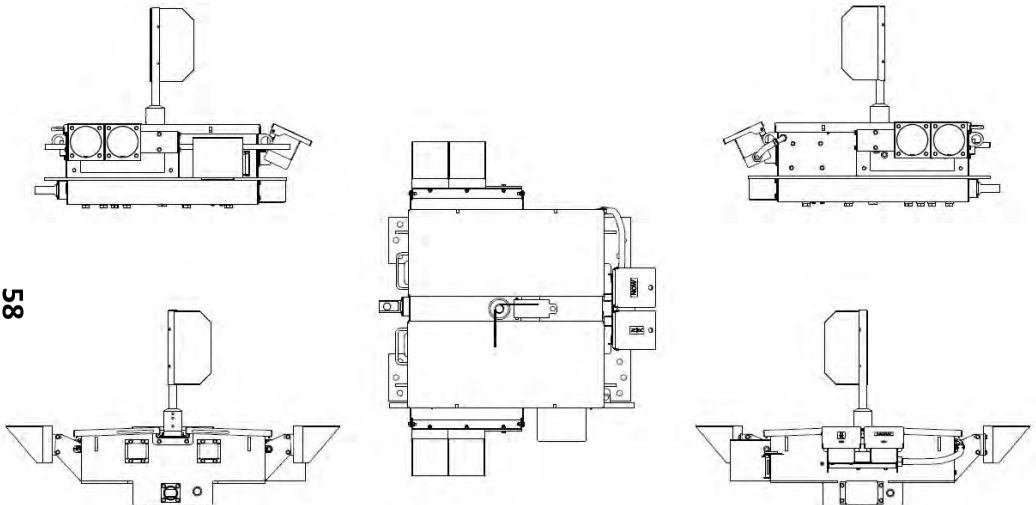
TS4500 SWITCH MACHINE BASE WITH 2 ASPECT & REAR TARGET



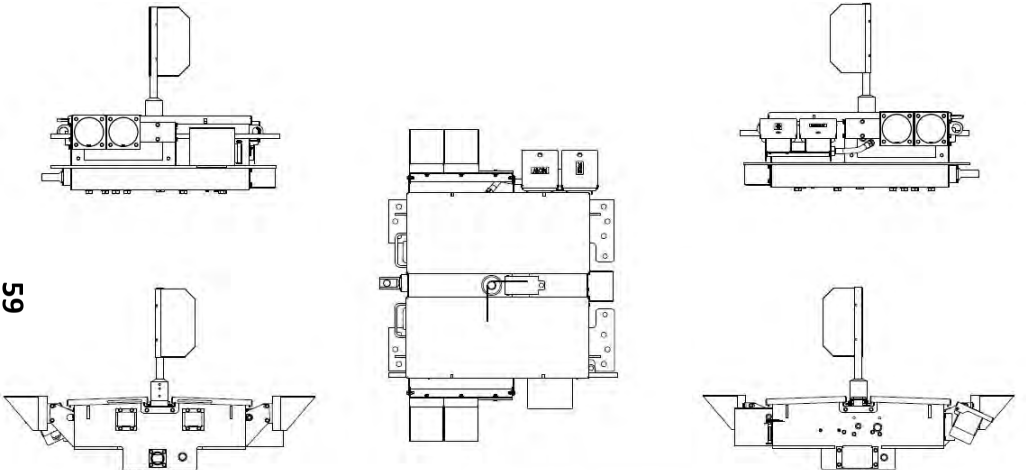
TS450 SWITCH MACHINE BASE WITH 2 ASPECT & REAR PB & MOW BOXES



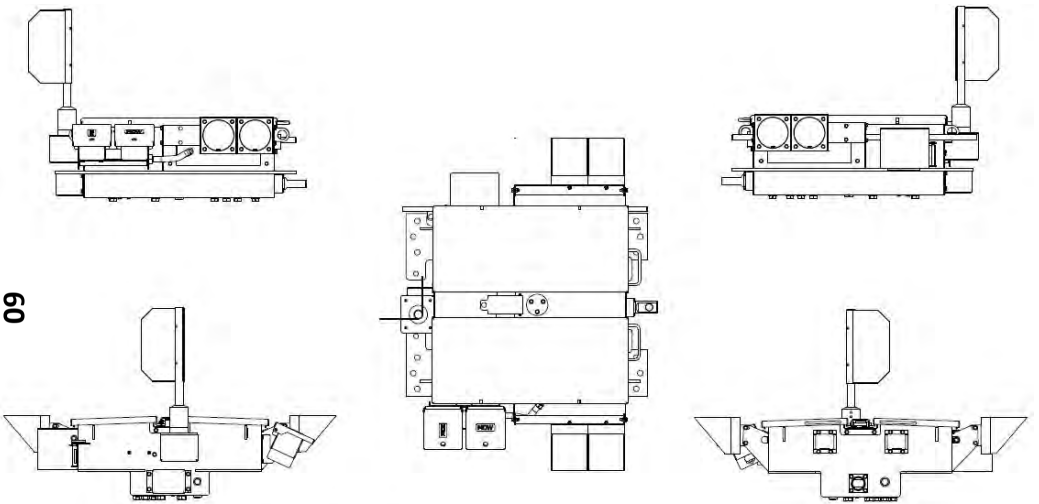
TS4500 SWITCH MACHINE BASE WITH 2 ASPECT & SIDE PB & MOW BOXES



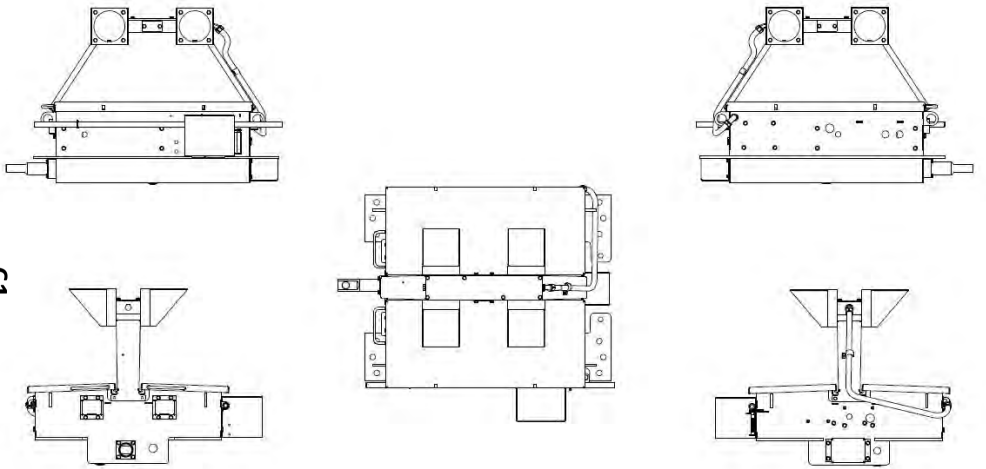
TS4500 SWITCH MACHINE BASE WITH 2 ASPECT, CENTER TARGET, & REAR PB & MOW



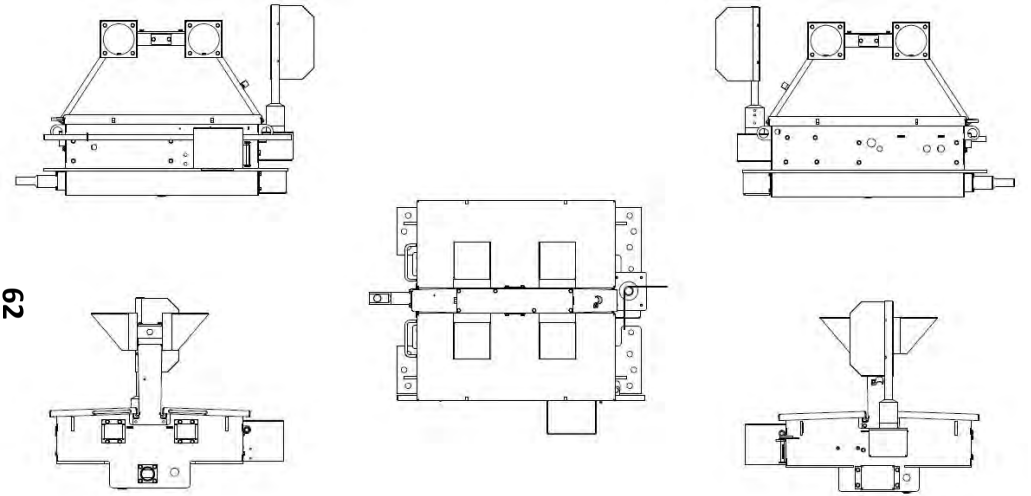
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT, CENTER TARGET, SIDE PB & MOW



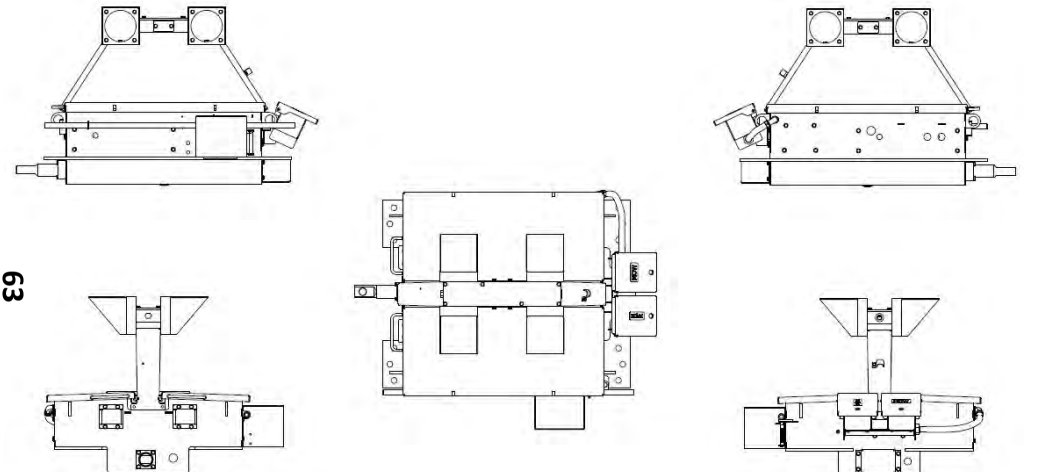
TS4500 SWITCH MACHINE BASE WITH 2 ASPECT, REAR TARGET, & SIDE PB & MOW



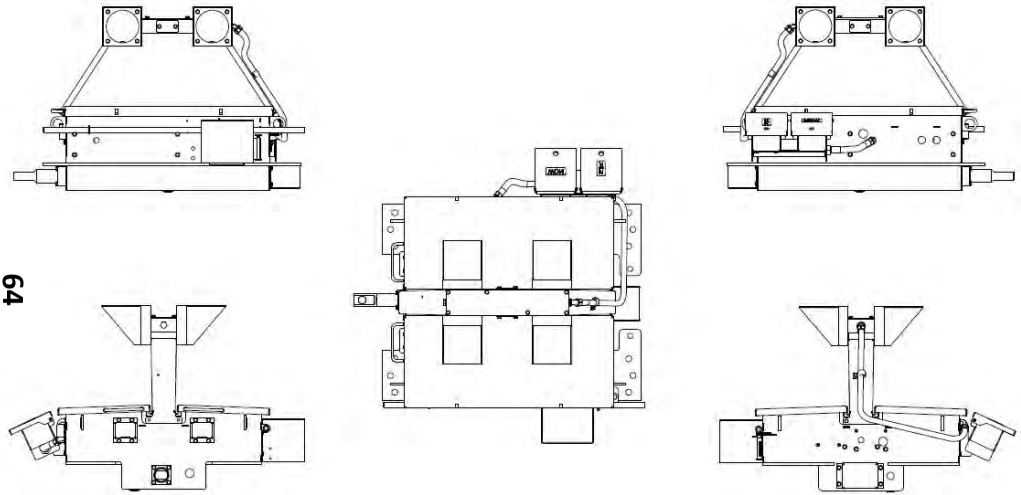
TS4500 SWITCH MACHINE CENTER MOUNT 2 ASPECT



TS4500 SWITCH MACHINE CENTER MOUNT 2 ASPECT WITH REAR TARGET

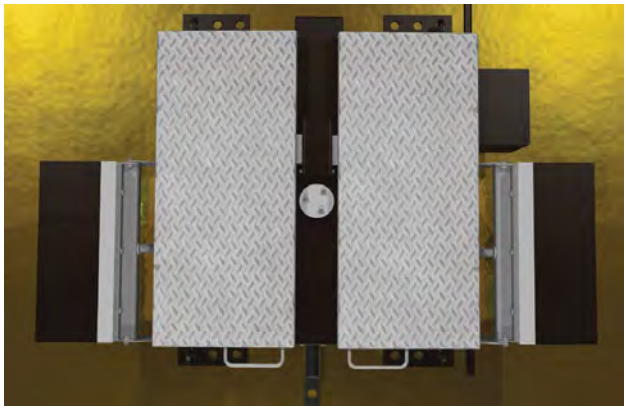


TS4500 SWITCH MACHINE CENTER MOUNTED 2 ASPECT, REAR PB & MOW BOXES

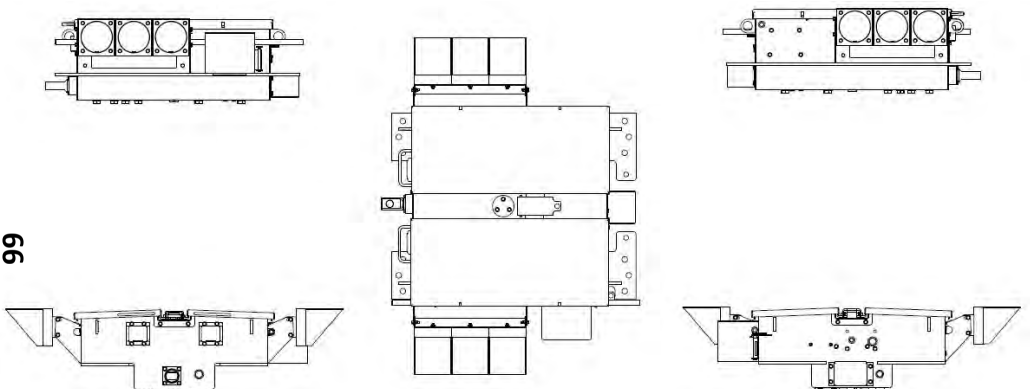


TS4500 SWITCH MACHINE CENTER MOUNT 2 ASPECT WITH SIDE PB & MOW BOXES

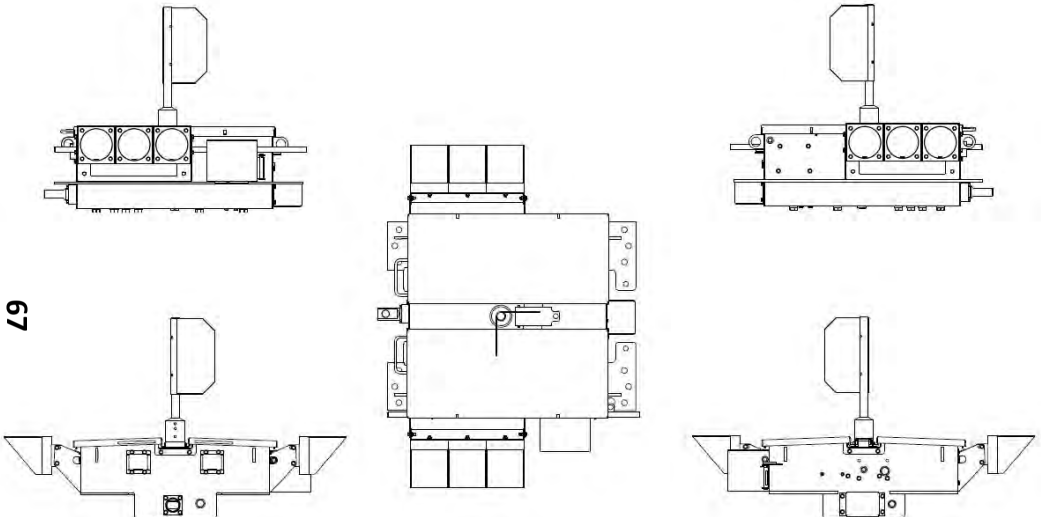
APEX
RAIL AUTOMATION
Yard & Track Automation Solutions



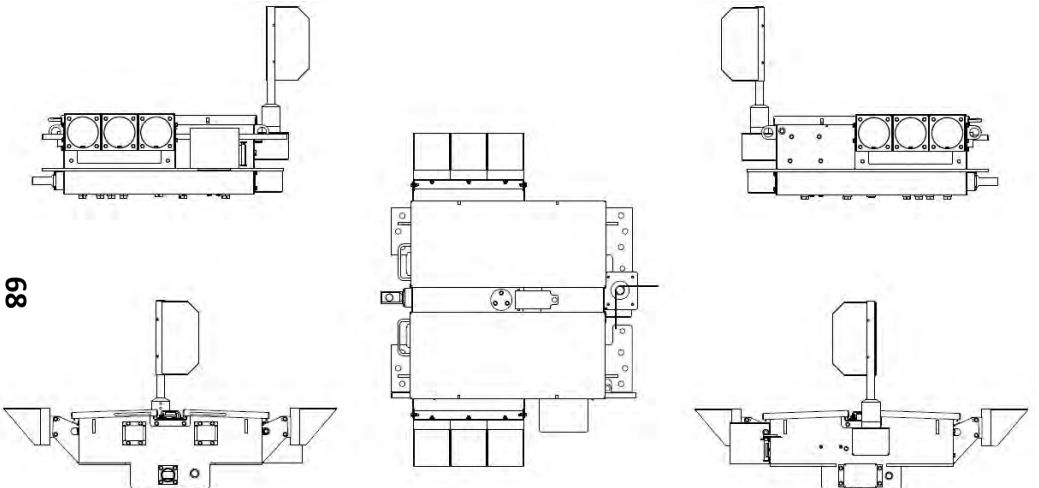
TS4500 Switch Machine
3 Aspect Configurations



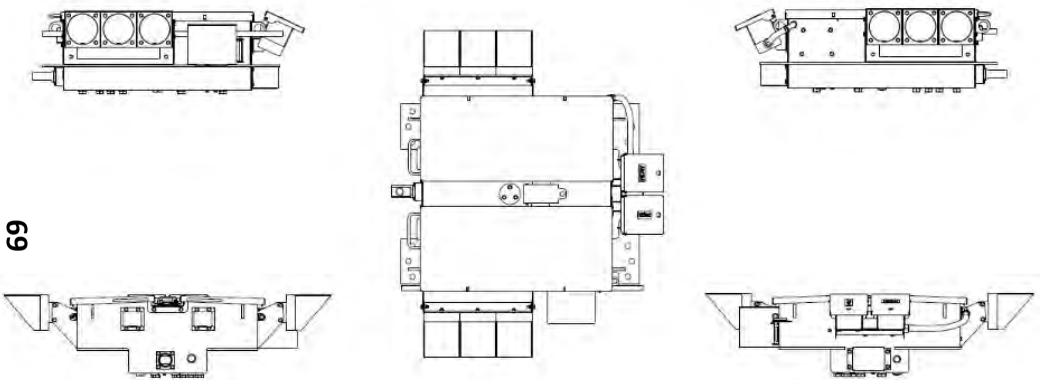
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT LIGHTS



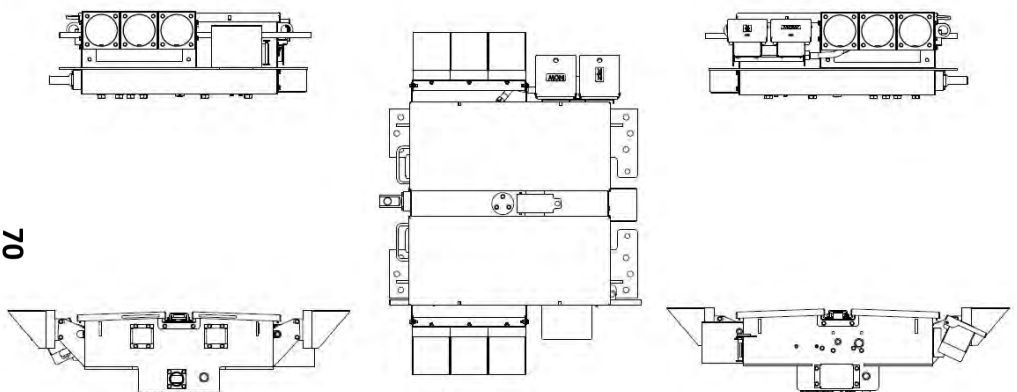
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT & CENTER TARGET



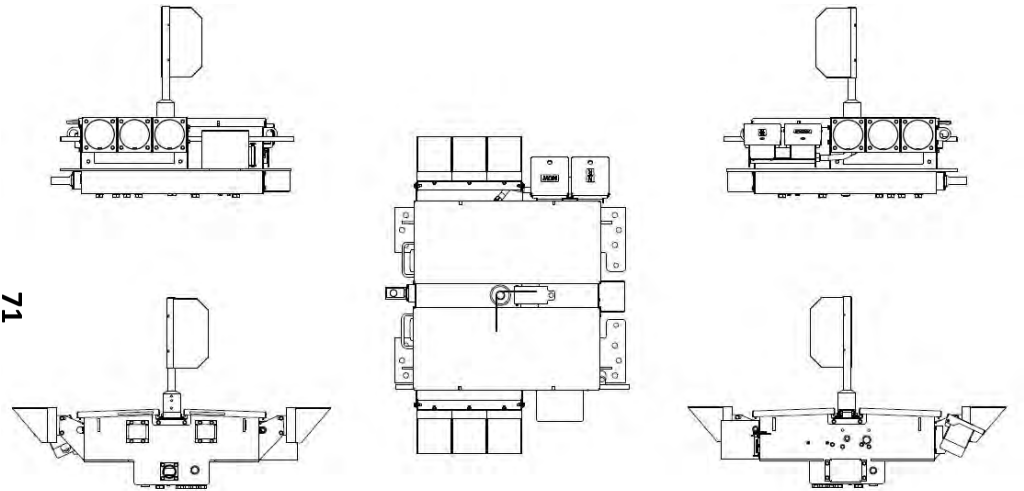
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT & REAR TARGET



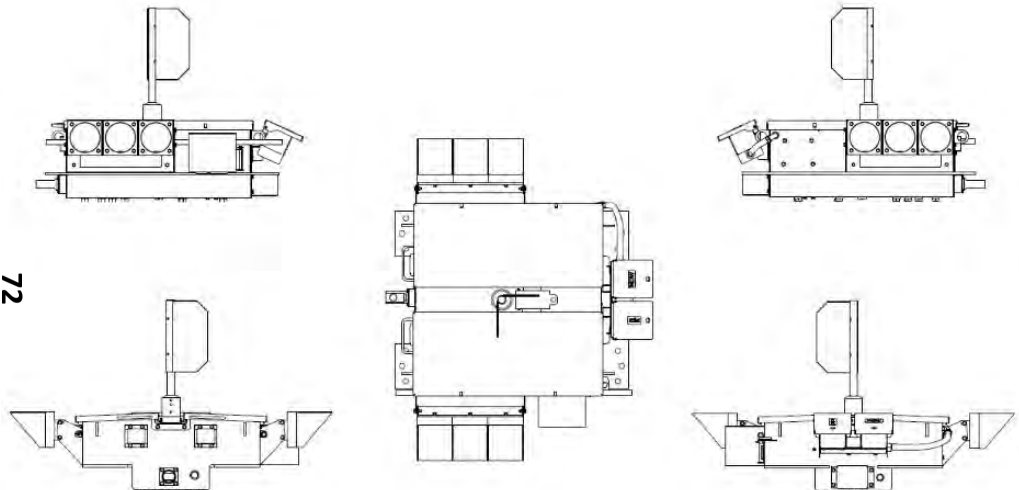
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT & REAR PB & MOW BOXES



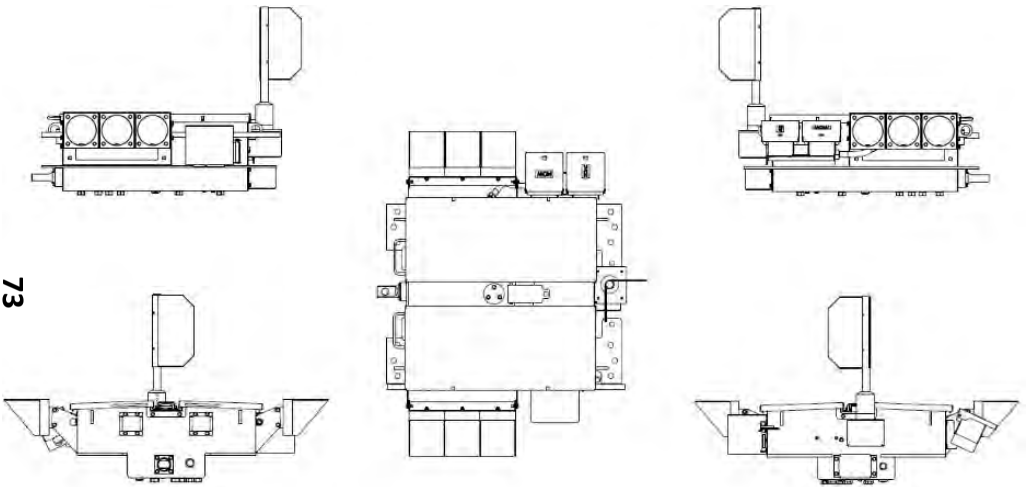
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT & SIDE PB & MOW BOXES



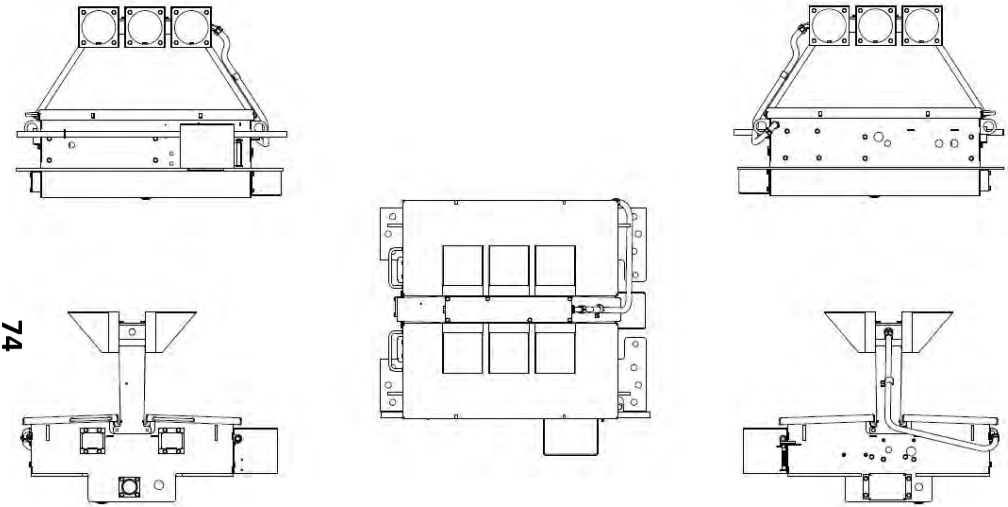
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT, CENTER TARGET, & SIDE PB & MOW



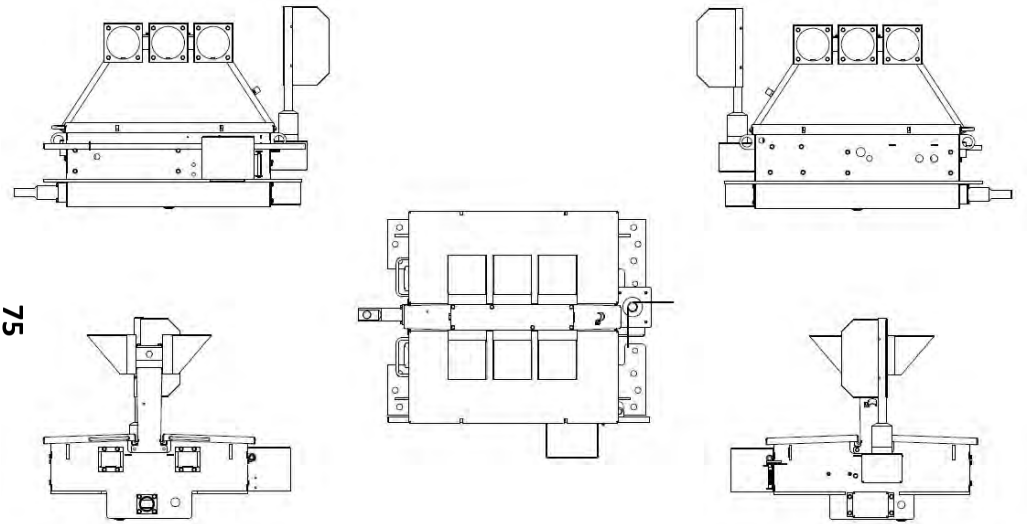
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT, CENTER TARGET, & REAR PB & MOW



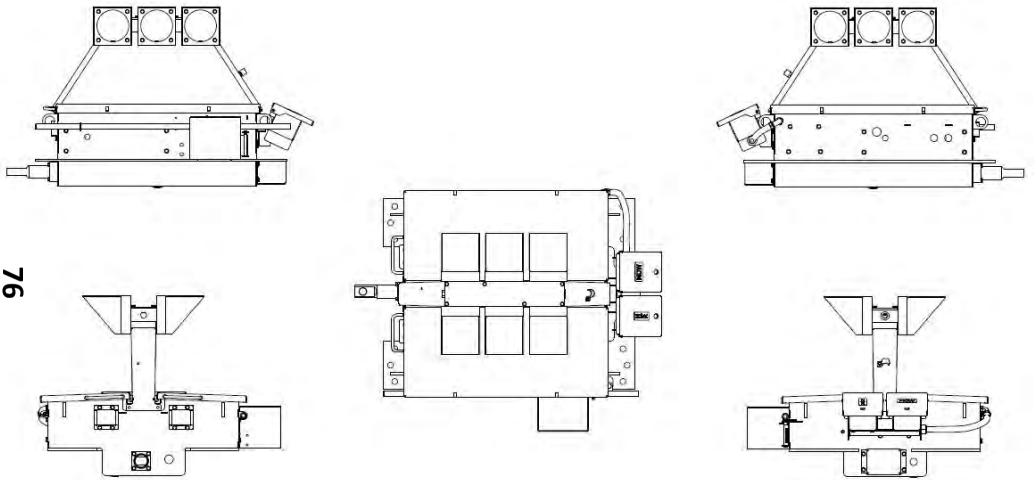
TS4500 SWITCH MACHINE BASE WITH 3 ASPECT, REAR TARGET, & SIDE PB & MOW



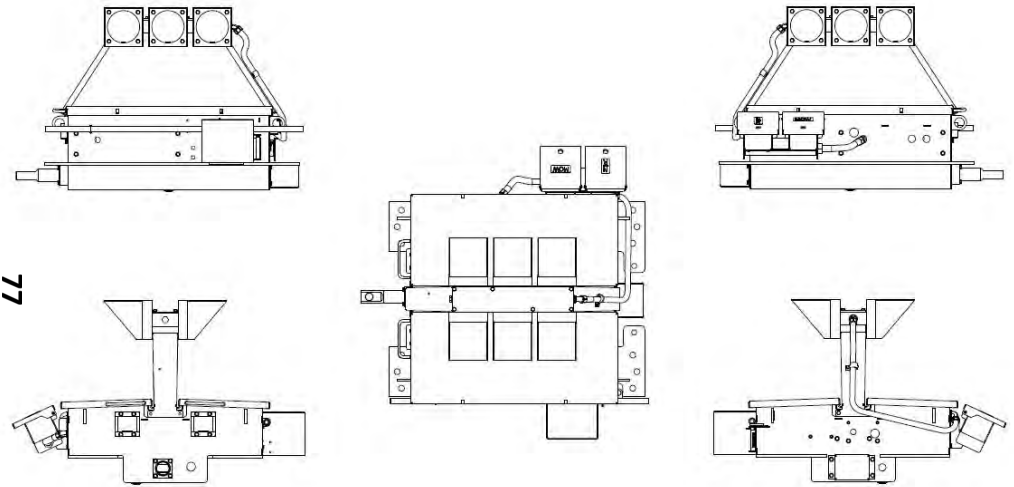
TS4500 SWITCH MACHINE 3 ASPECT MOUNTED CENTER



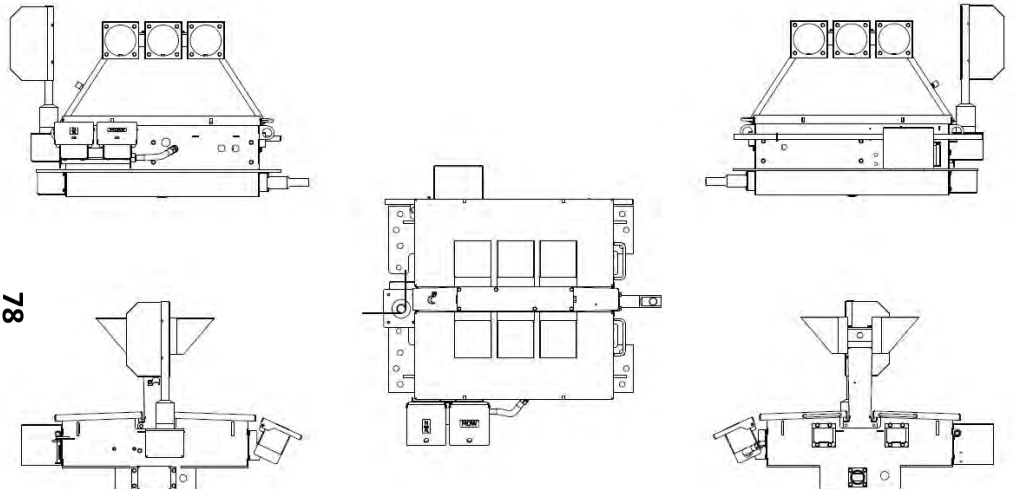
TS4500 SWITCH MACHINE CENTER MOUNTED 3 ASPECT WITH REAR TARGET



TS4500 SWITCH MACHINE CENTER MOUNTED 3 ASPECT WITH REAR PB & MOW BOXES

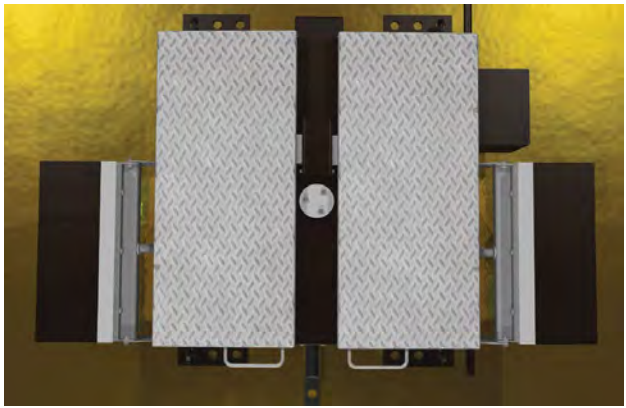


TS4500 SWITCH MACHINE CENTER MOUNTED 3 ASPECT, SIDE PB & MOW BOXES

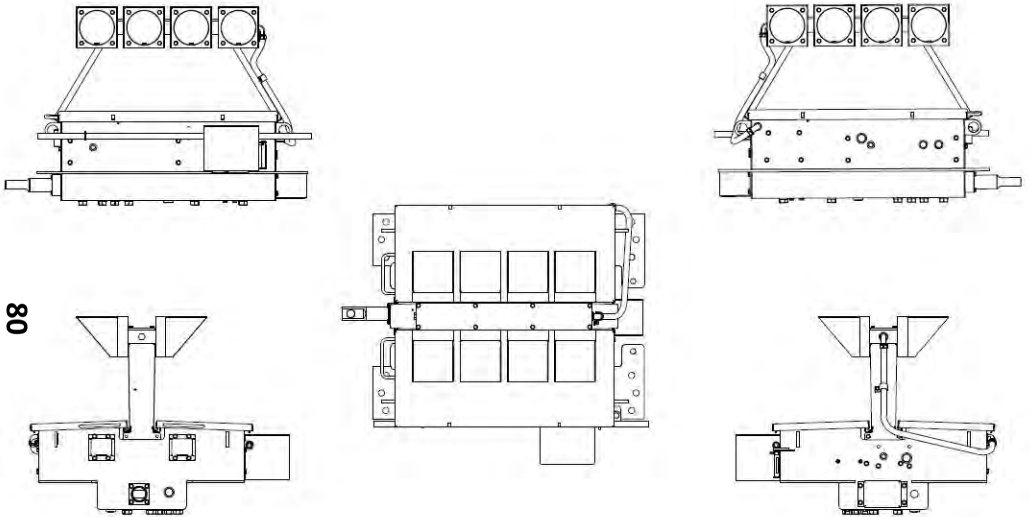


TS4500 SWITCH MACHINE CENTER MOUNTED 3 ASPECT REAR TARGET, SIDE PB & MOW

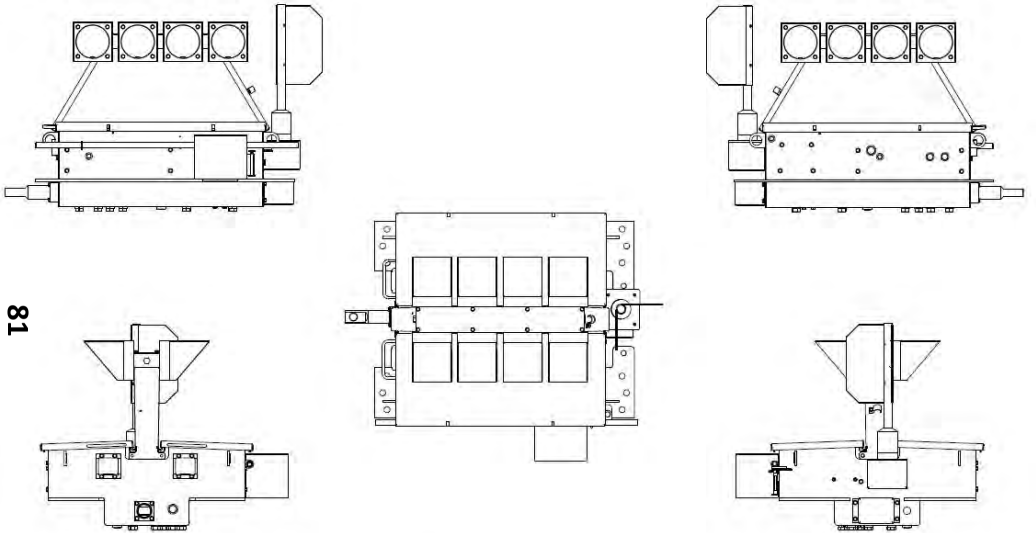
APEX
RAIL AUTOMATION
Yard & Track Automation Solutions



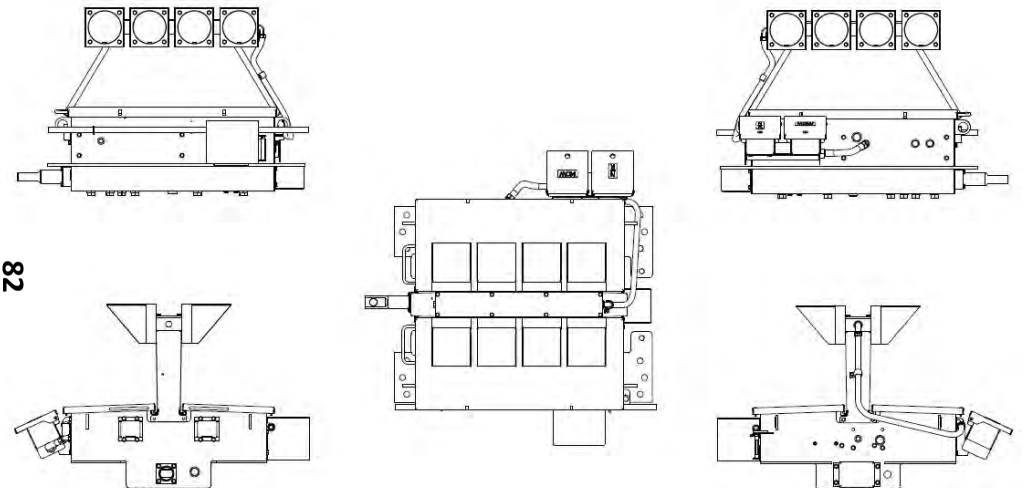
TS4500 Switch Machine
4 Aspect Configurations



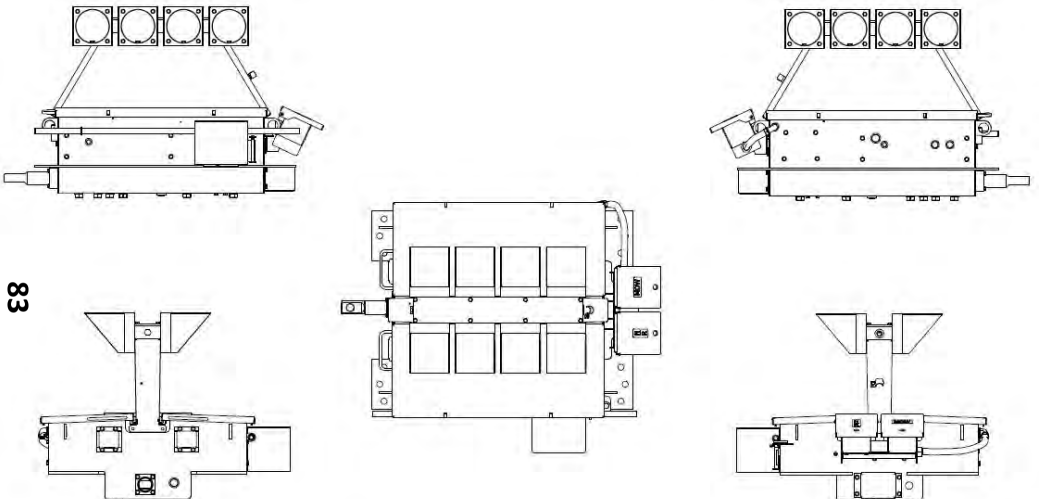
TS4500 SWITCH MACHINE CENTER MOUNTED 4 ASPECT



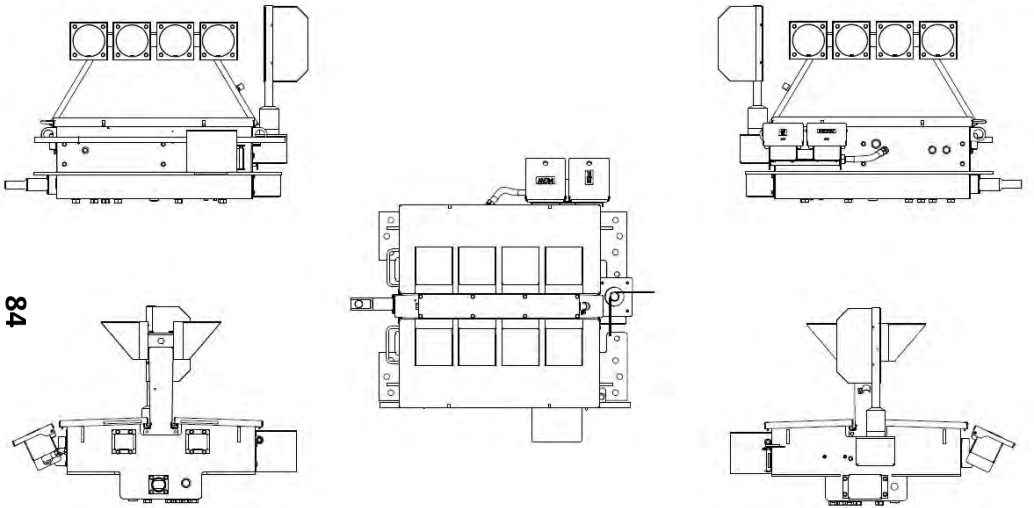
TS4500 SWITCH MACHINE CENTER MOUNTED 4 ASPECT WITH REAR TARGET



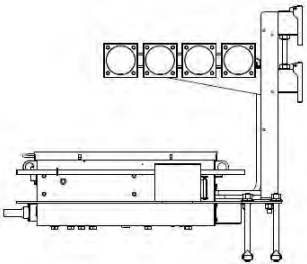
TS4500 SWITCH MACHINE CENTER MOUNTED 4 ASPECT, SIDE PB & MOW BOXES

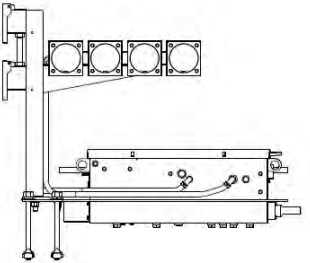


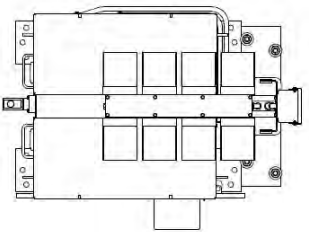
TS4500 SWITCH MACHINE CENTER MOUNTED 4 ASPECT WITH REAR PB & MOW

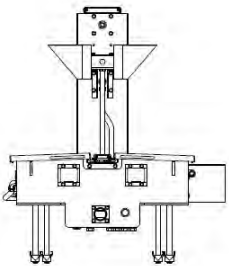


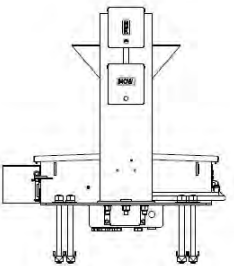
TS4500 SWITCH MACHINE CENTER MOUNTED 4 ASPECT, REAR TARGET & SIDE PB & MOW









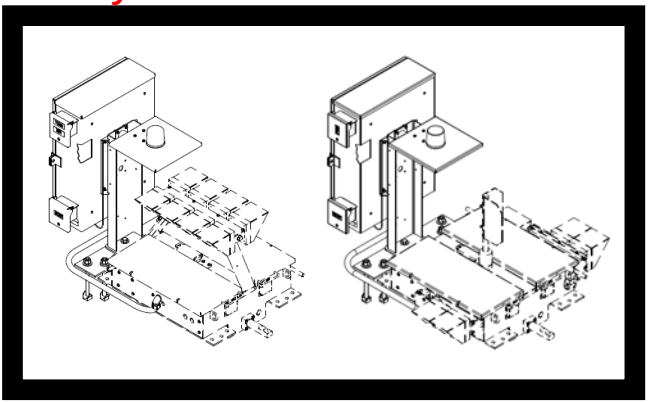


TS4500 SWITCH MACHINE WITH STANCHION MOUNTED 4 ASPECT, PB & MOW BOXES

APEX RAIL AUTOMATION

Yard & Track Automation Solutions

Switch Mounted Wayside Control Assemblies

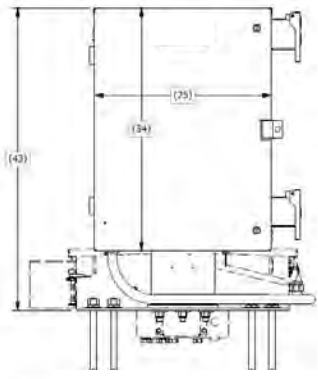


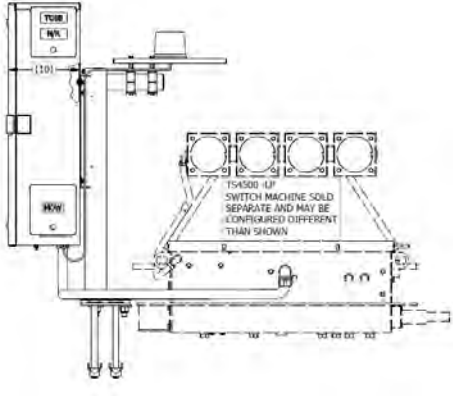
25” (W) X 34” (T) X 10” (D)

Enclosure

WC007006A-11

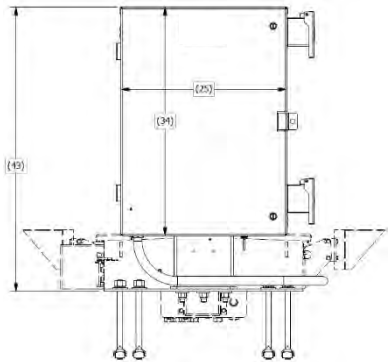
WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND WITH BASE PLATE, MOW/TOBB/PB, VHF ANTENNA

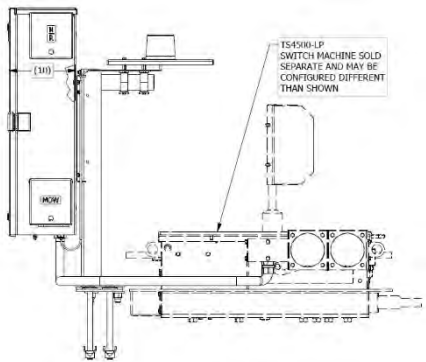




WC007006A-12

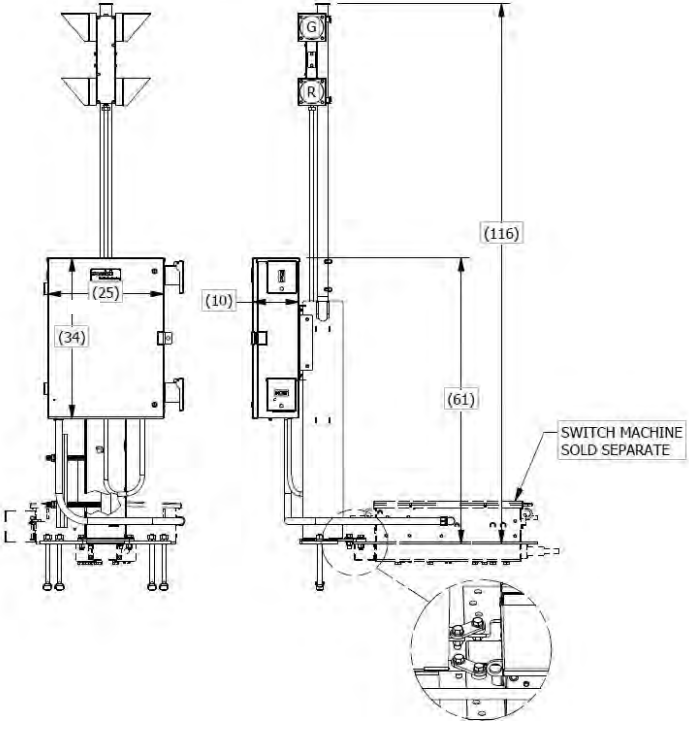
WAYSIDE CONTROL, 25x34x10
MYA BOX, RIGID STAND WITH BASE PLATE,
MOW/PB, VHF ANTENNA





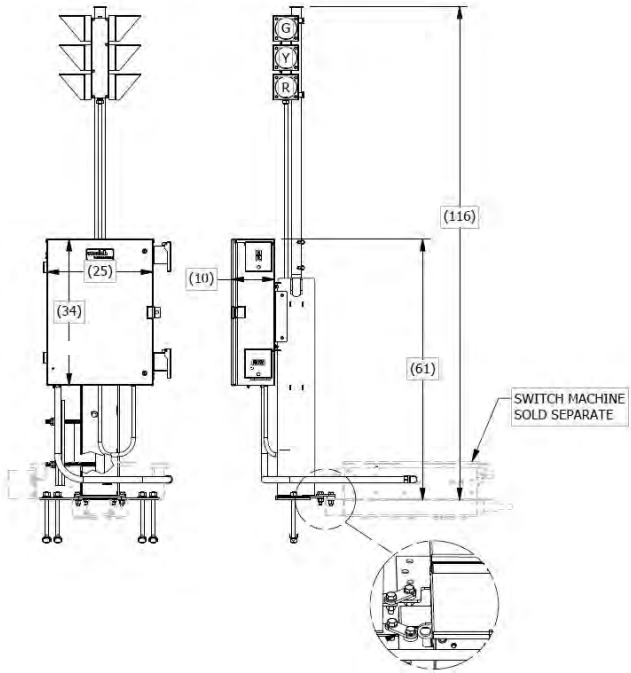
WC007001A-13

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER STAND, WITH 2 ASPECT LIGHTS (G/R TOP/BOTTOM)



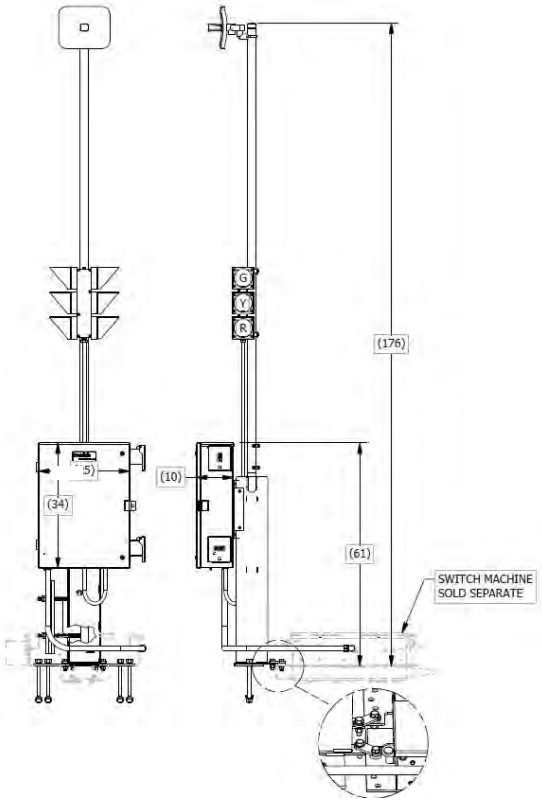
WC007001A-23

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER STAND, WITH 3 ASPECT LIGHTS



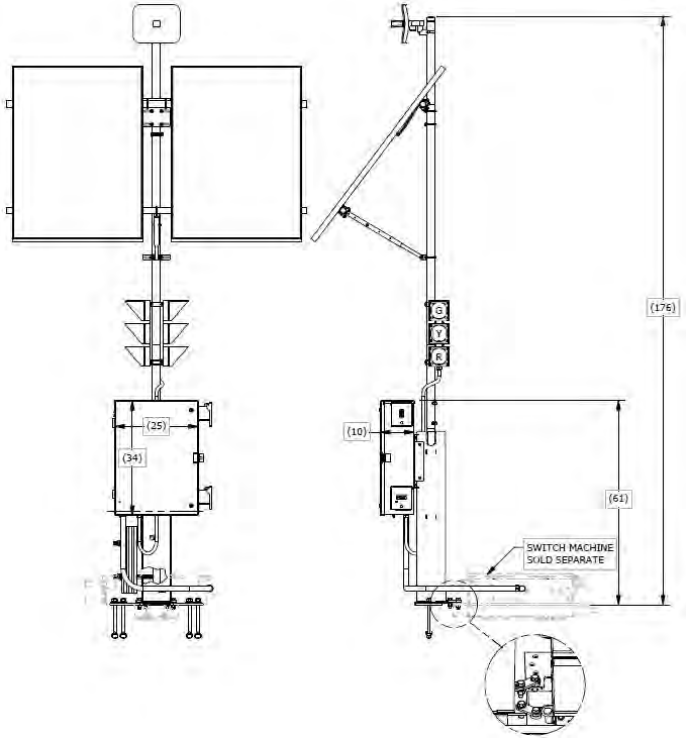
WC007001A-16

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, FOR REMOTE SOLAR, 3 ASPECT LIGHTS, AEI READER AND ANTENNA



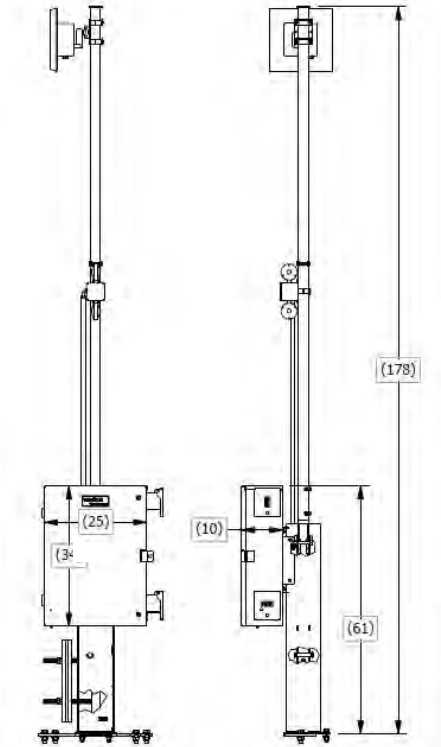
WC007001A-14

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DUAL SOLAR, 3 ASPECT LIGHTS AND RADIO



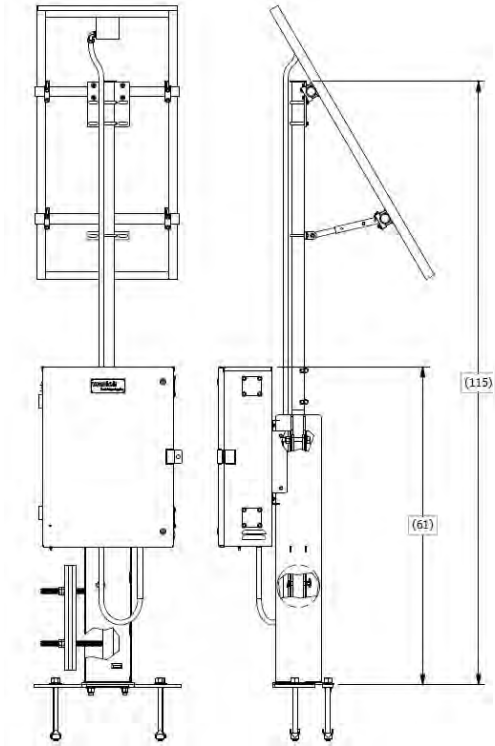
WC007001A-09

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DATA RADIO, PEDESTAL LIGHTS WITHOUT FOUNDATION



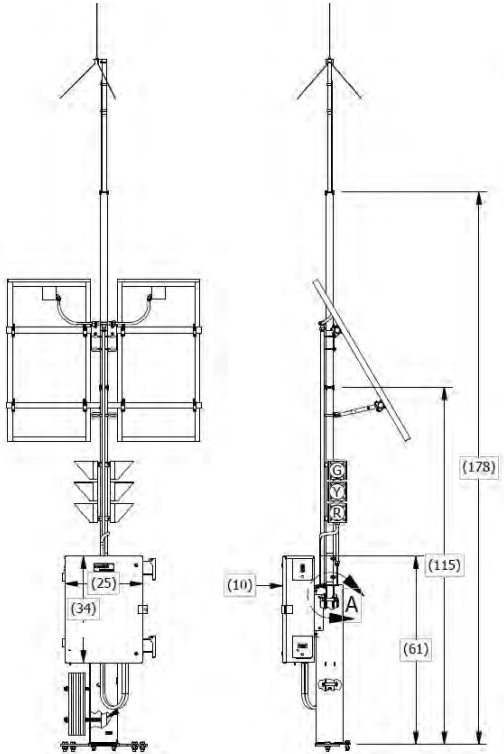
WC007001A-20

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, SINGLE SOLAR PANEL



WC007001A-21

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DTMF ANTENNA, SOLAR AND 3 ASPECT LIGHTS



APEX
RAIL AUTOMATION
Yard & Track Automation Solutions

Stanchion Foundations

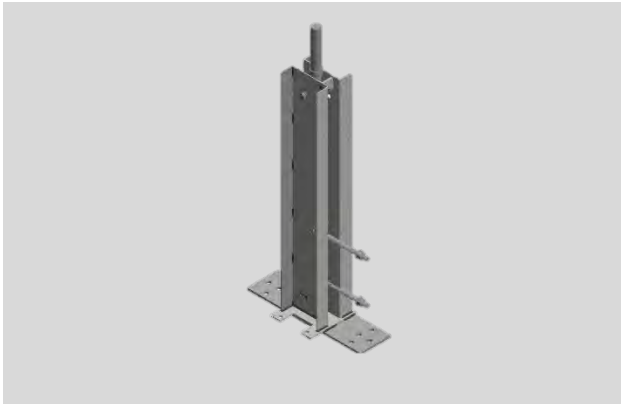
400-100

Tilt-Over Mast
Foundation

400-130

Small Foundation

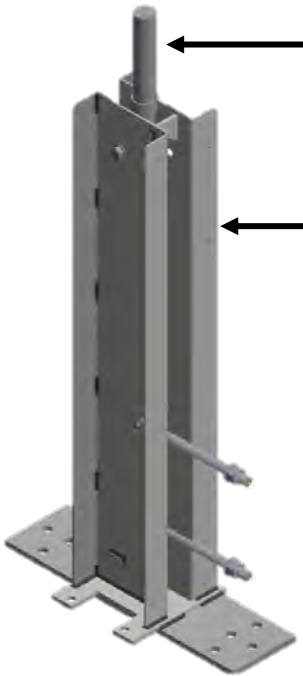
APEX
RAIL AUTOMATION
Yard & Track Automation Solutions



Tilt-Over Stanchion

350-106

Counterweight Post



TMB01001A-02

Tilt-Over Mast Base

350-101

Mast Segment

350-102

Upper Mast Segment

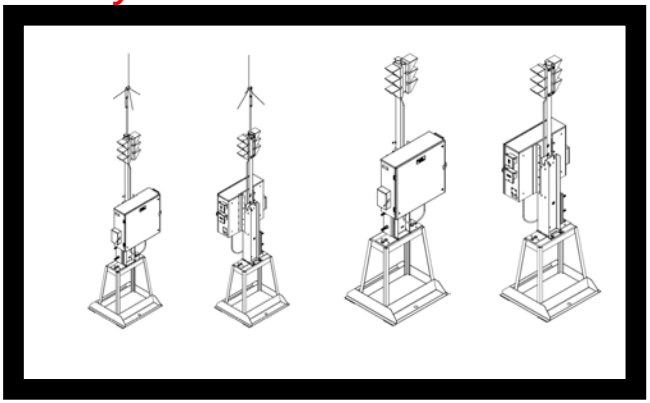
350-103

Mast top Segment

APEX RAIL AUTOMATION

Yard & Track Automation Solutions

Remote Mounted Wayside Control Assemblies

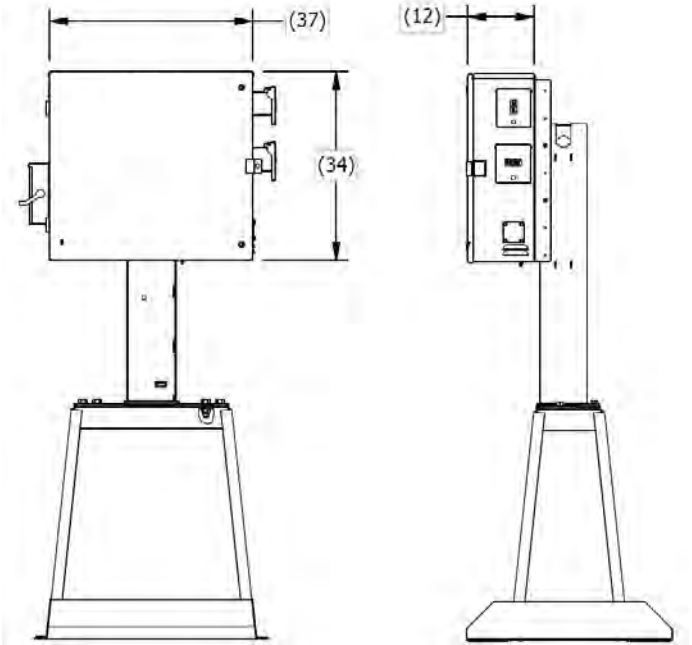


37” (W) X 34” (T) X 12” (D)

Enclosure

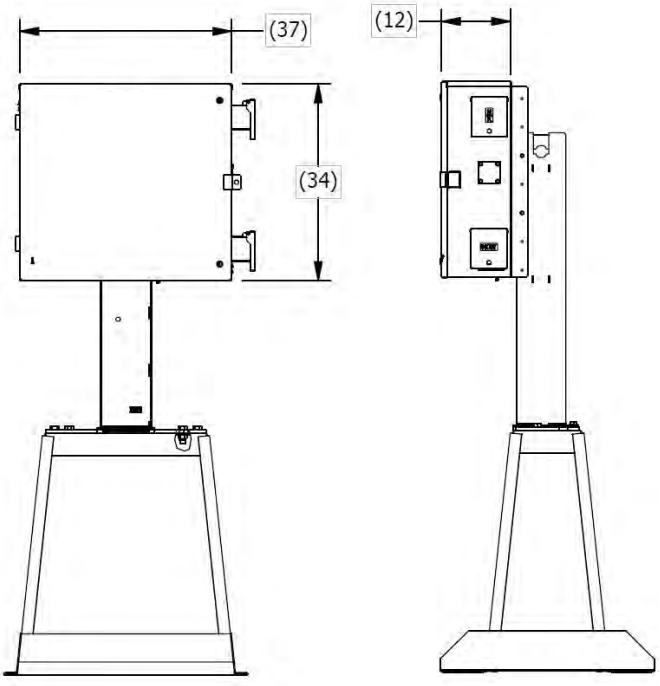
WC003001A-03

WAYSIDE CONTROL, 37x34x12 MYA BOX, TILT OVER STAND WITHOUT MAST, WITH FOUNDATION



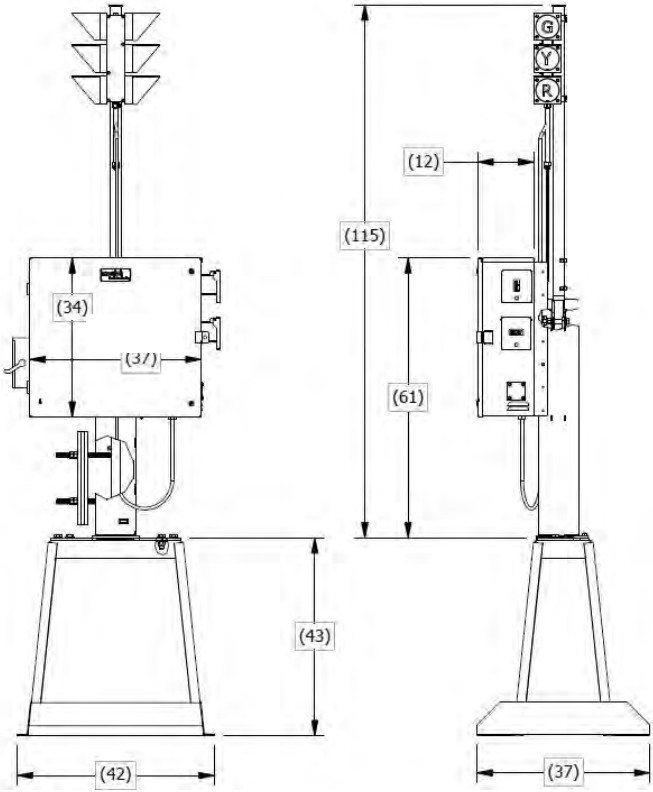
WC003001A-08

WAYSIDE CONTROL, 37x34x12 MYA BOX, TILT OVER STAND, WITHOUT MAST, WITH PB/MOW, WITH FOUNDATION



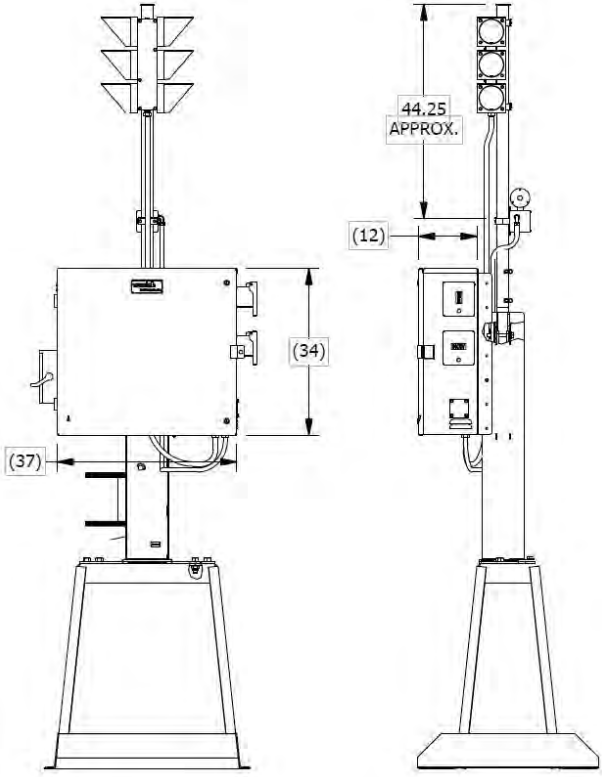
WC003001A-05

WAYSIDE CONTROL, 37x34x12 MYA BOX, TILT OVER, 3 ASPECT LIGHTS WITH FOUNDATION



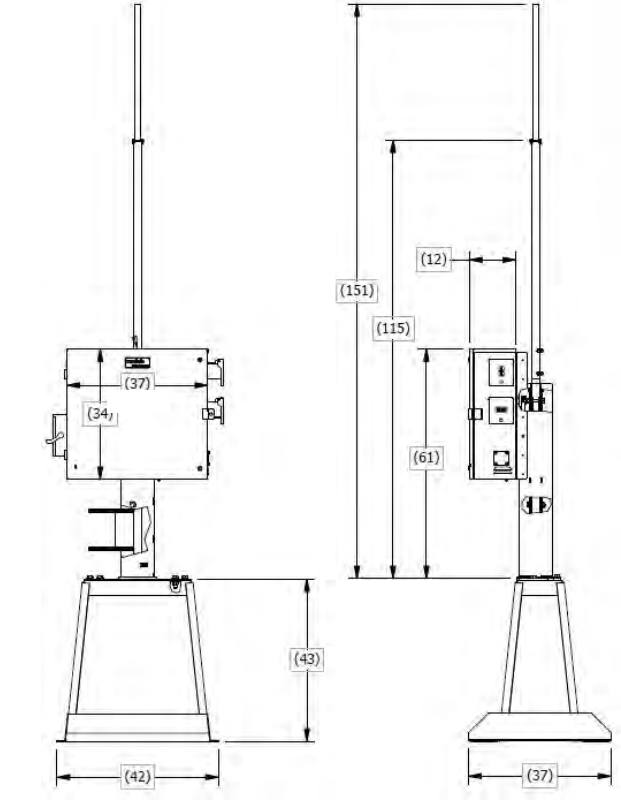
WC003001A-06

WAYSIDE CONTROL, 37x34x12MYA BOX, TILT OVER STAND, PEDESTAL LIGHT, ANGLE MAST, WITH FOUNDATION



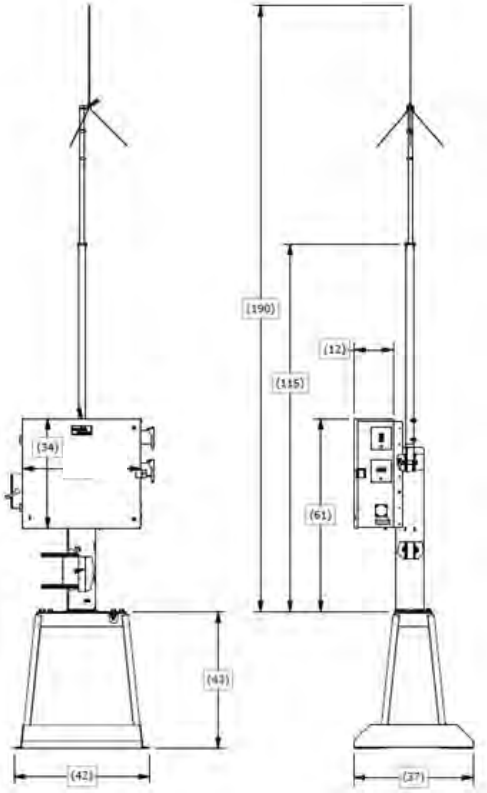
WC003001A-01

WAYSIDE CONTROL, 37x34x12 MYA BOX, TILT OVER STAND,ANGLE MAST WITH FOUNDATION



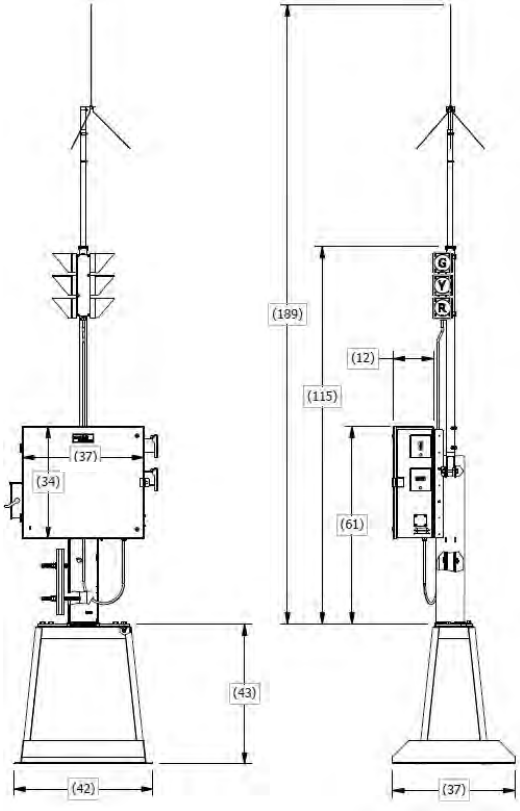
WC003001A-02

WAYSIDE CONTROL, 37x34x12MYA BOX, TILT OVER STAND,ANGLE MAST WITH ANT. AND FOUNDATION



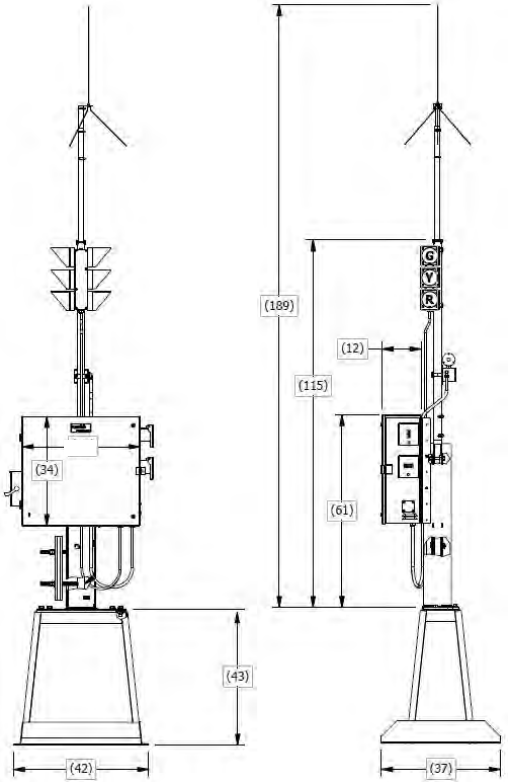
WC003001A-04

WAYSIDE CONTROL, 37x34x12MYA BOX, TILT OVER, 3 ASPECT LIGHTS, ANGLE MAST WITH ANT. AND FOUNDATION

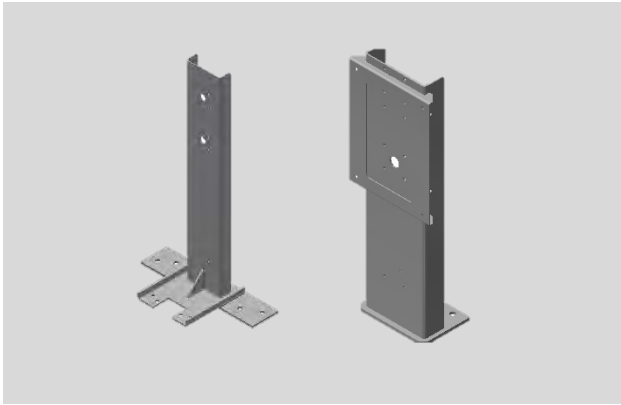


WC003001A-04

WAYSIDE CONTROL, 37x34x12MYA BOX, TILT OVER, 3 ASPECT LIGHTS, ANGLE MAST WITH ANT. AND FOUNDATION



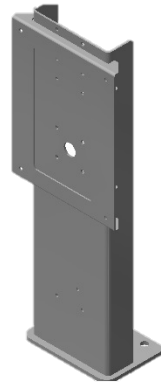
APEX
RAIL AUTOMATION
Yard & Track Automation Solutions



Rigid Stanchions

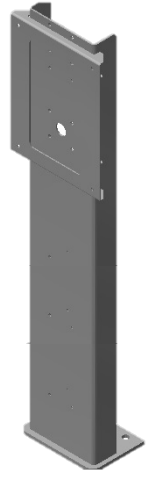
400-300

Short Ridged Stanchion



RS003001A-01

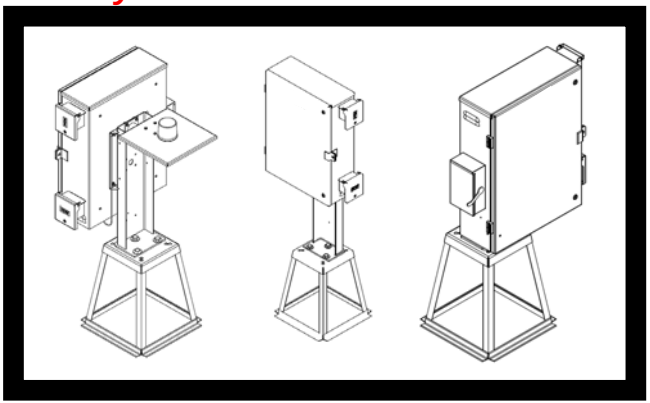
Tall Ridged Stanchion



APEX RAIL AUTOMATION

Yard & Track Automation Solutions

Ridged Stanchion Wayside Control Assemblies

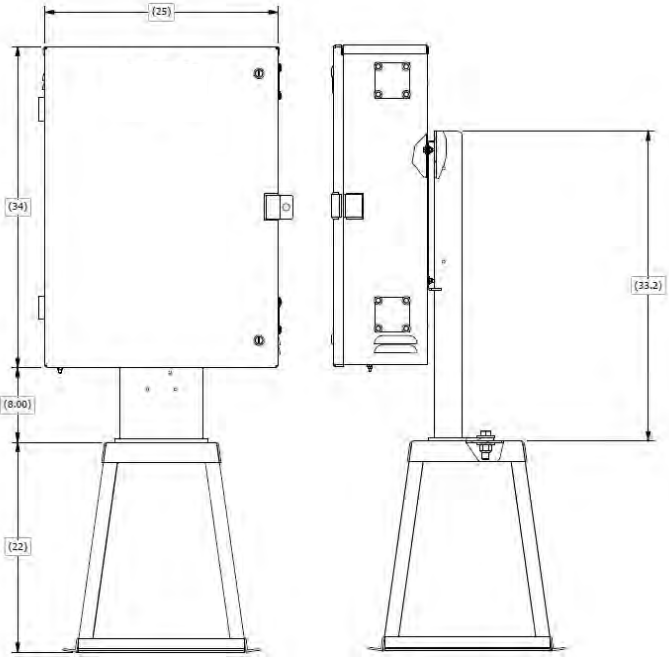


25” (W) X 34” (T) X 10” (D)

Enclosure

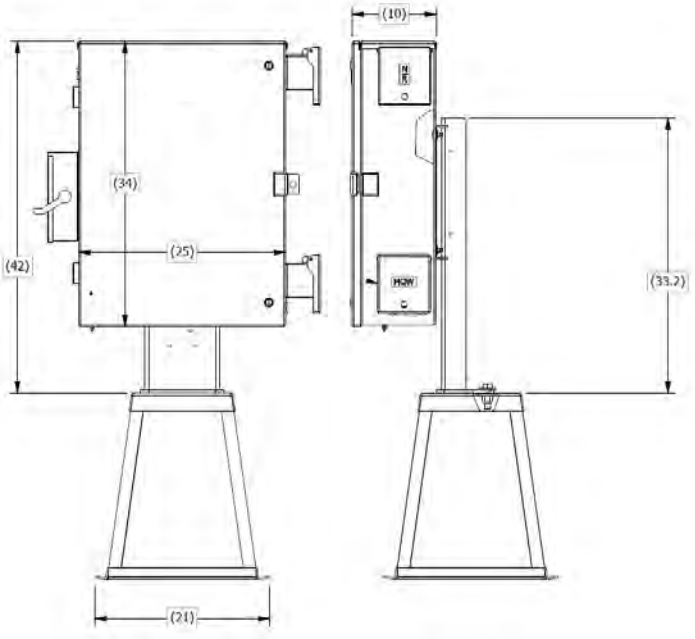
WC007006A-02

WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND WITH FOUNDATION



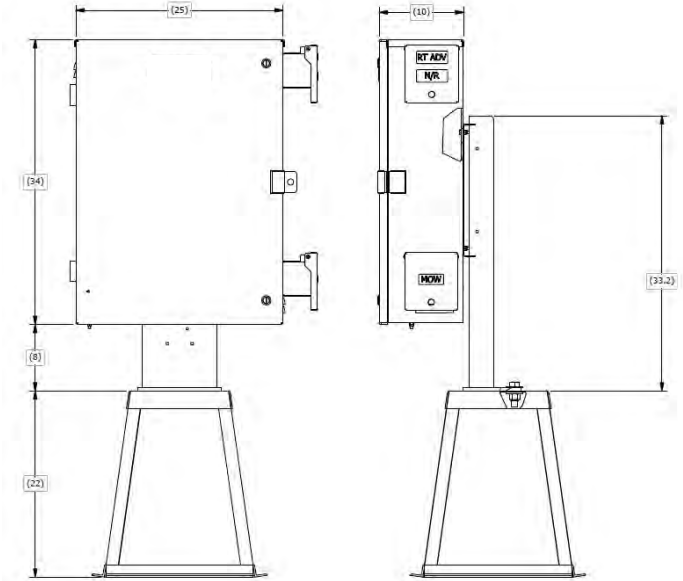
WC007006A-07

WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND, A/C DISCONNECT, WITH MOW & PB BOXES WITH FOUNDATION



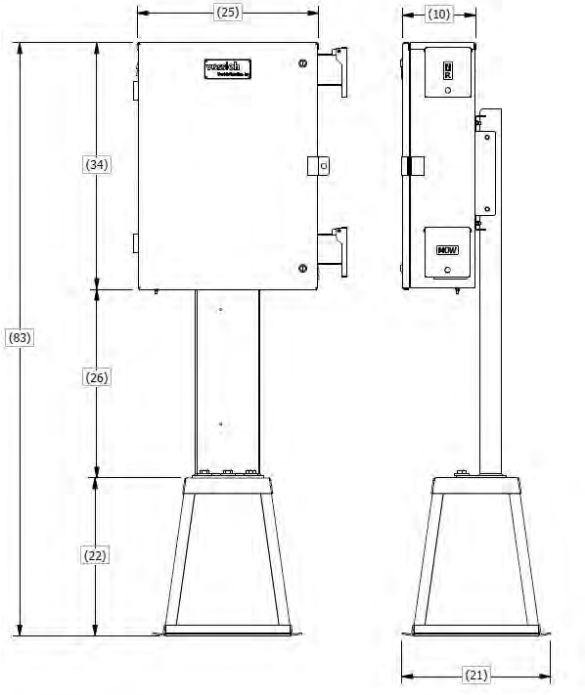
WC007006A-09

WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND, WITH MOW & RT.ADV. WITH FOUNDATION



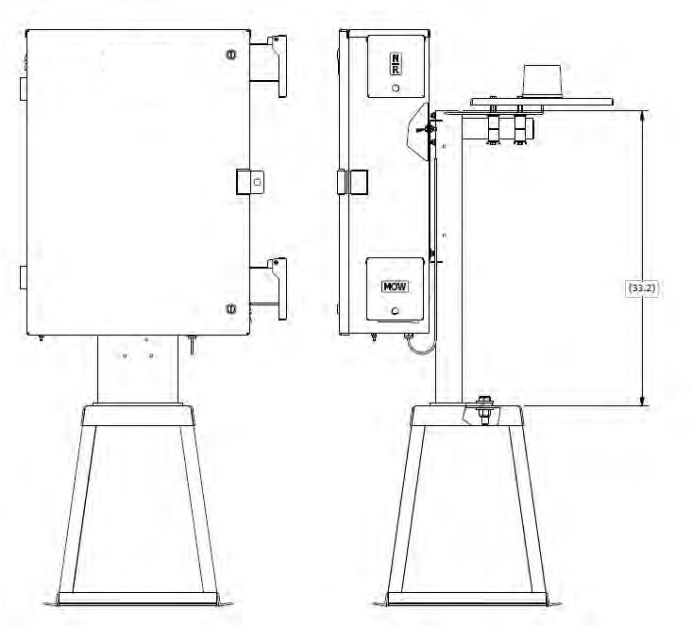
WC007008A-01

WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND WITH FOUNDATION



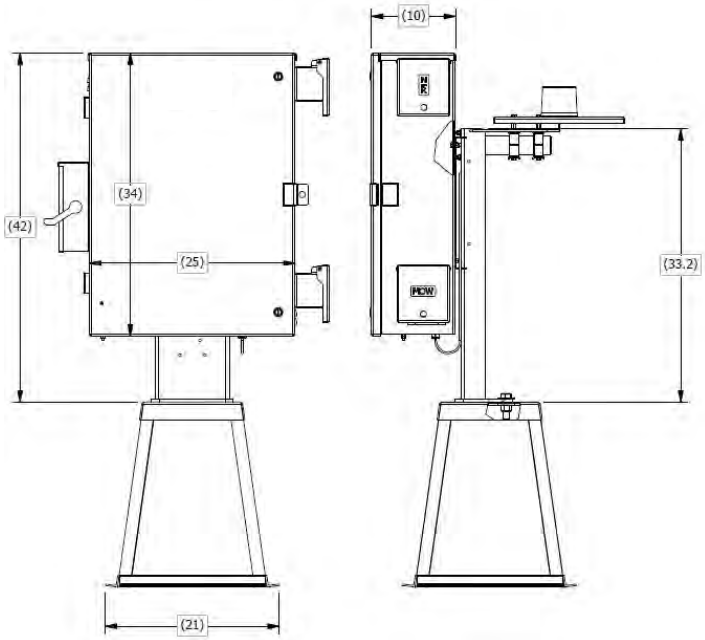
WC007006A-01

WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND, VHF ANTENNA WITH FOUNDATION



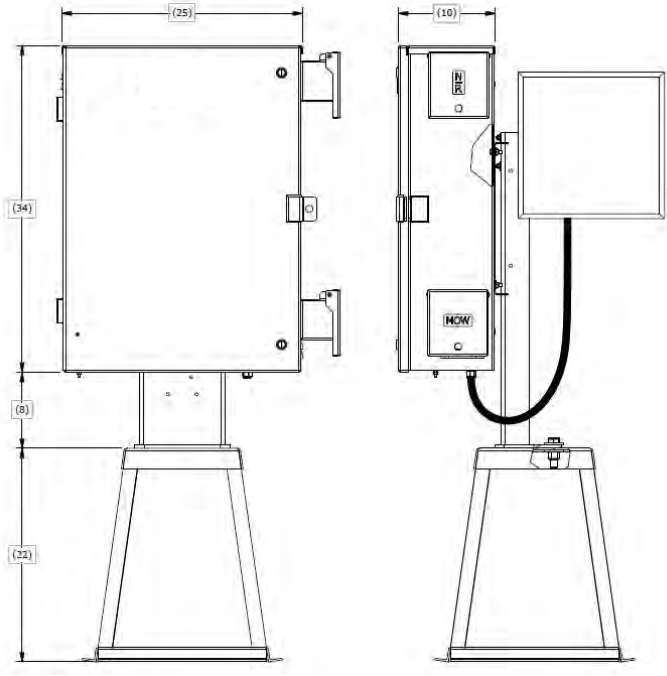
WC007006A-06

WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND,VHF ANTENNA, A/C DICONNECT WITH FOUNDATION



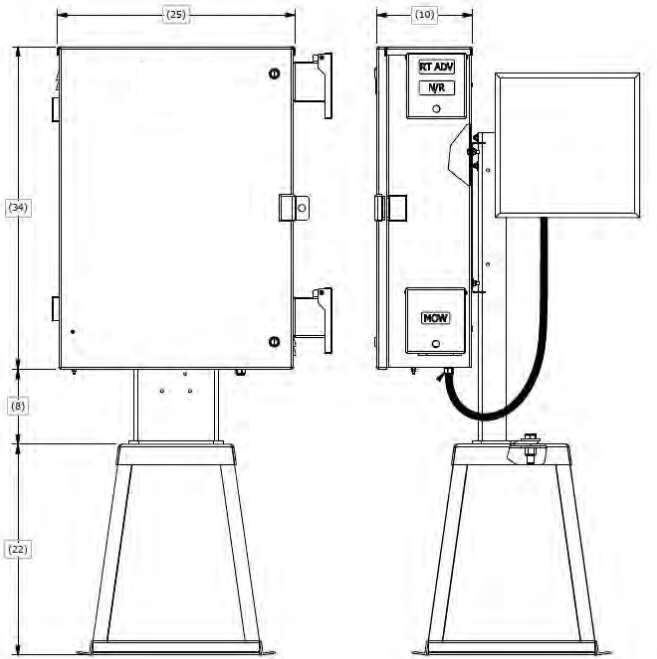
WC007006A-08

WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND,DATA RADIO WITH FOUNDATION



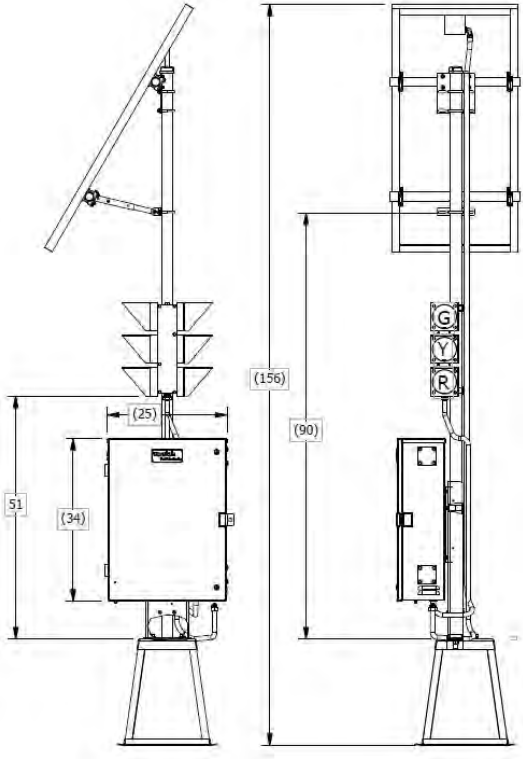
WC007006A-10

WAYSIDE CONTROL, 25x34x10, MYA BOX, RIGID STAND, WITH MOW & RT.ADV.,DATA RADIO WITH FOUNDATION



WC007006A-04

WAYSIDE CONTROL, 25x34x10, MYA BOX, PIPE MOUNT, 3 ASPECT, GYR, SOLAR, ON FOUNDATION



APEX
RAIL AUTOMATION
Yard & Track Automation Solutions

Pipe Mast

PS004003A-01

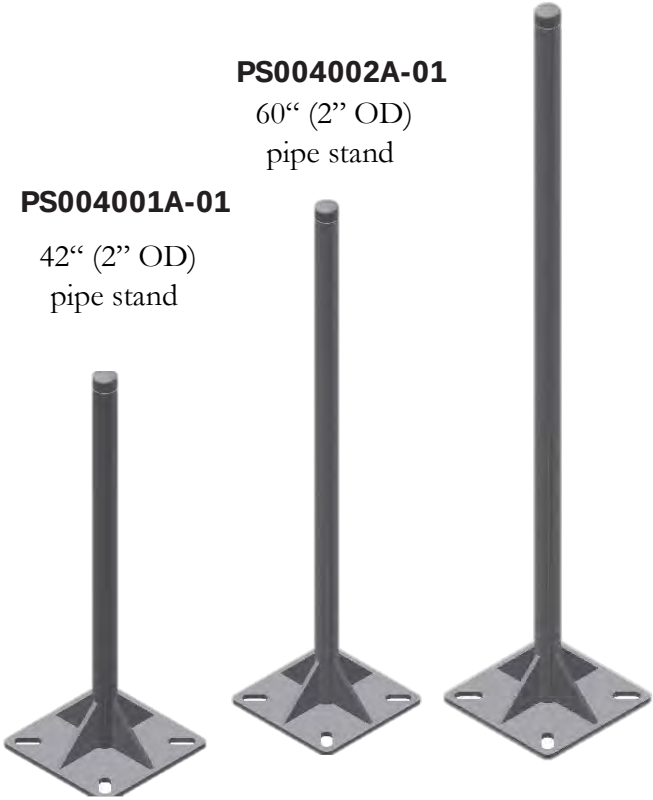
76“ (2” OD)
pipe stand

PS004002A-01

60“ (2” OD)
pipe stand

PS004001A-01

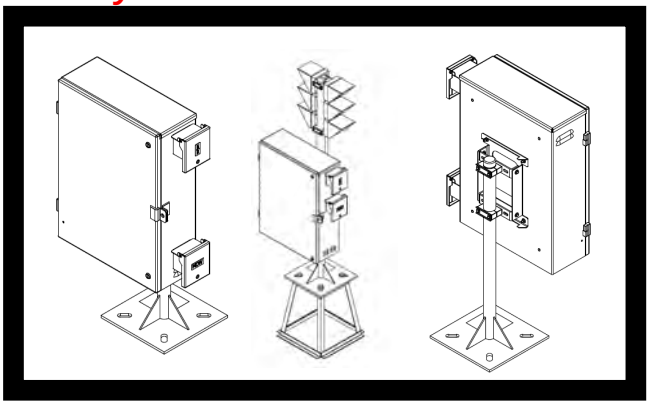
42“ (2” OD)
pipe stand



APEX RAIL AUTOMATION

Yard & Track Automation Solutions

Pipe Stand Mounted Wayside Control Assemblies

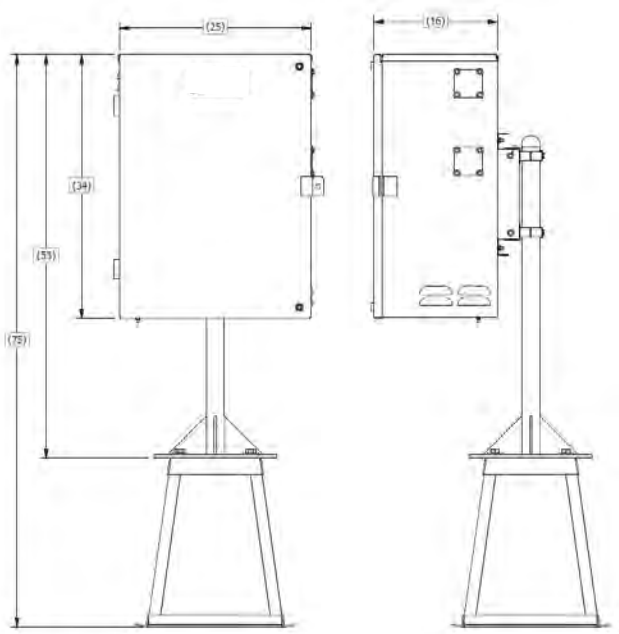


25” (W) X 34” (T) X 10” (D)

Enclosure

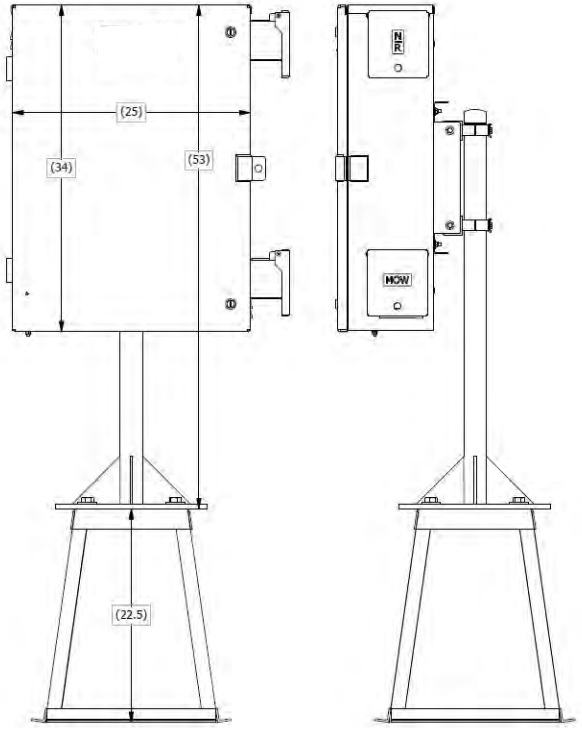
WC006002A-01

WAYSIDE CONTROL, 25X34X16, MYA BOX, 42" PIPE STAND WITH FOUNDATION



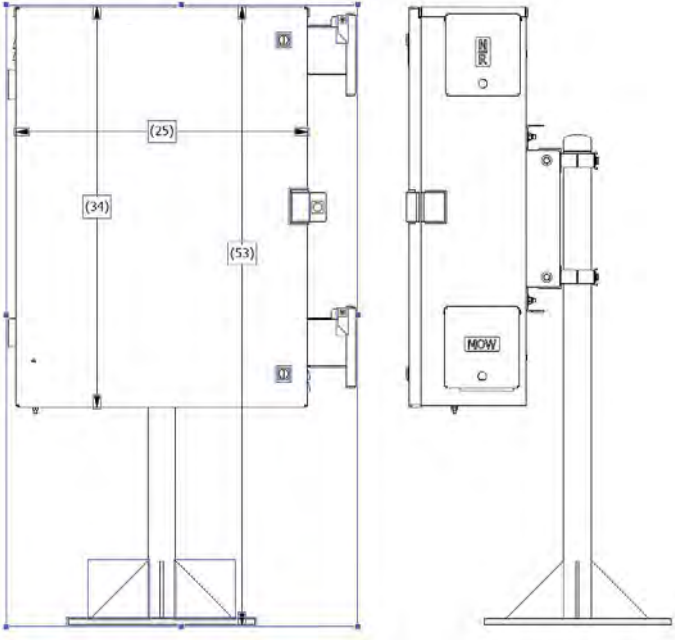
WC007002A-03

WAYSIDE CONTROL, 25x34x10, MYA BOX, 42" TALL PIPE STAND WITH FOUNDATION



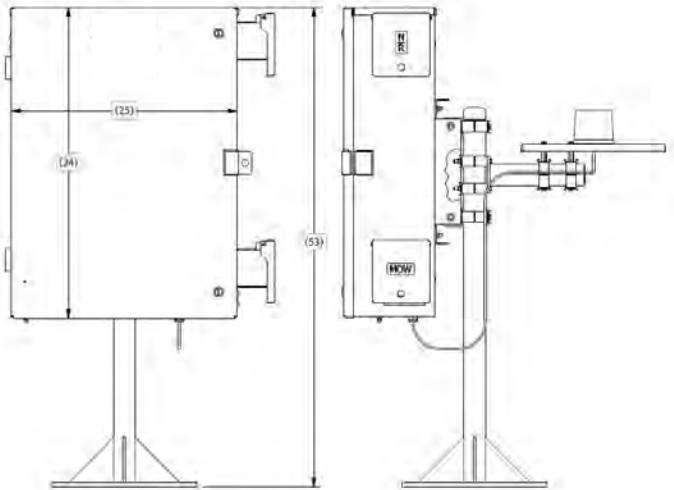
WC007002A-05

WAYSIDE CONTROL, 25x34x10, MYA BOX, 42" TALL PIPE STAND WITHOUT FOUNDATION



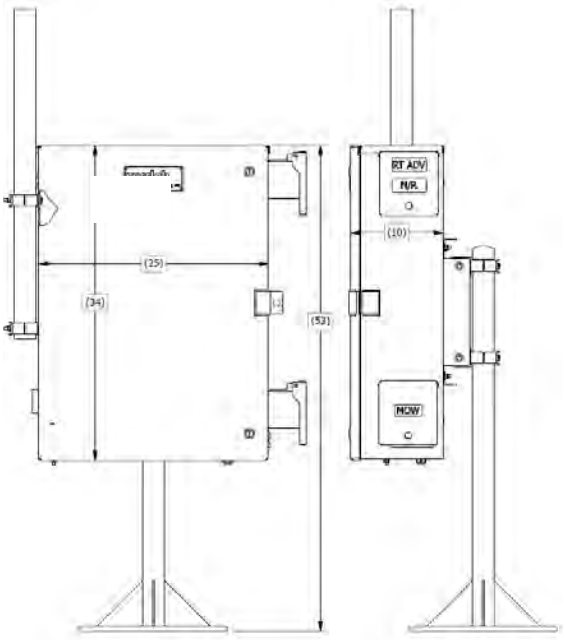
WC007002A-01

WAYSIDE CONTROL, 25x34x10, MYA BOX, 42" TALL PIPE STAND WITH "OIL CAN" ANTENNA, WITHOUT FOUNDATION



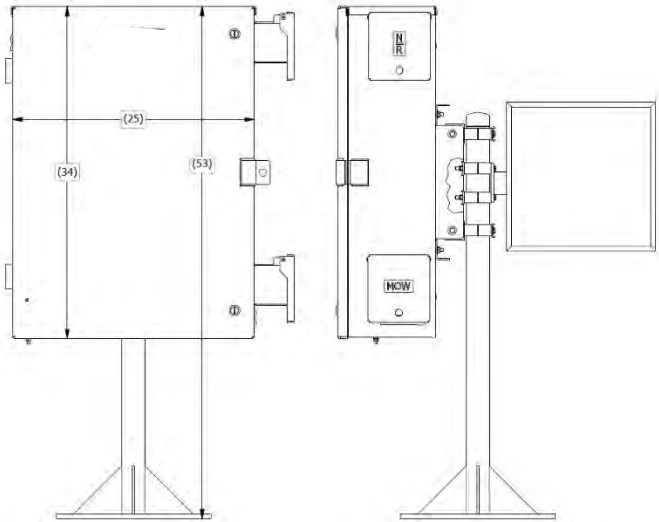
WC007002A-02

WAYSIDE CONTROL, 25x34x10, MYA BOX, 42" TALL PIPE STAND WITH MAST BRACKETS, WITHOUT FOUNDATION



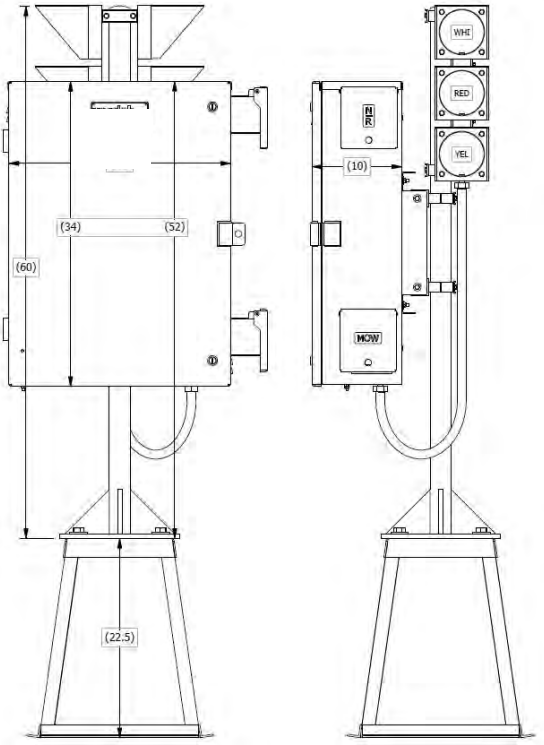
WC007002A-04

WAYSIDE CONTROL, 25x34x10, MYA BOX, 42" TALL PIPE STAND WITH DATA RADIO, WITHOUT FOUNDATION



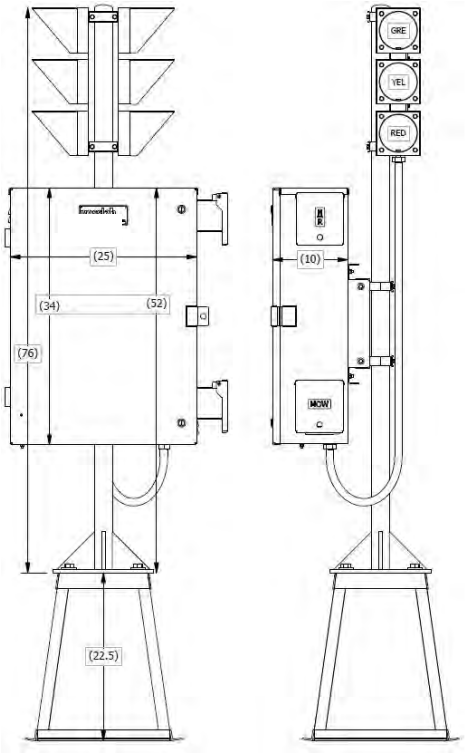
WC007005A-01

WAYSIDE CONTROL, 25x34x10, MYA BOX, 60" TALL PIPE STAND, 3 ASPECT LIGHTS WITH FOUNDATION



WC007015A-01

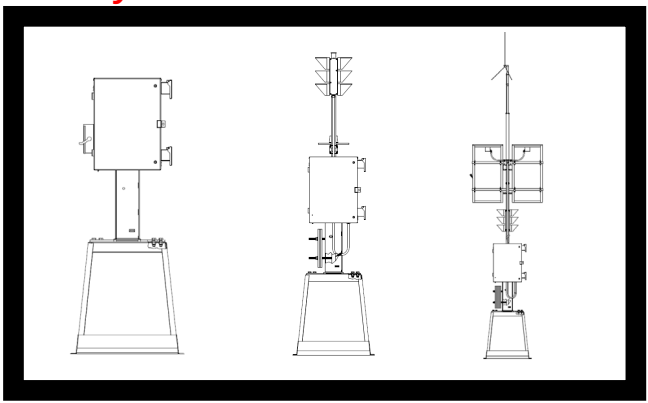
WAYSIDE CONTROL, 25x34x10, MYA BOX, 76" PIPE STAND, 3 ASPECT LIGHTS, (G/Y/R), WITH FOUNDATION



APEX RAIL AUTOMATION

Yard & Track Automation Solutions

Remote Mounted Wayside Control Assemblies

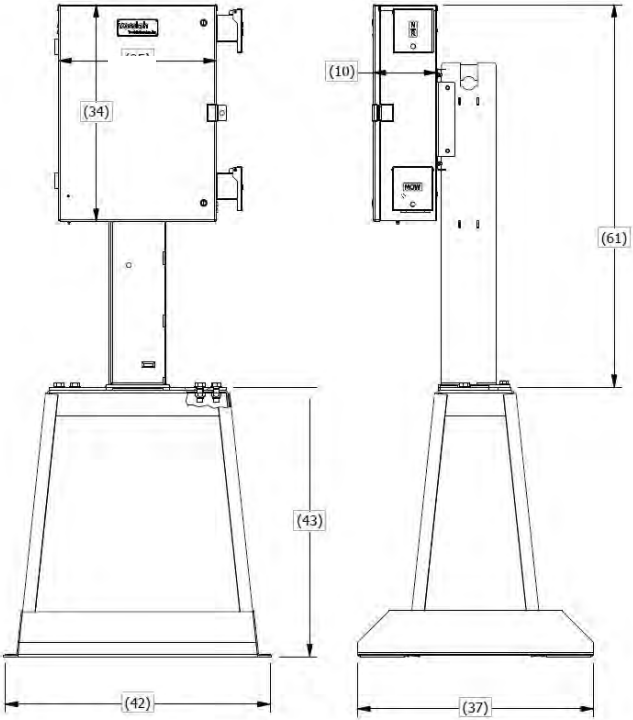


25” (W) X 34” (T) X 10” (D)

Enclosure

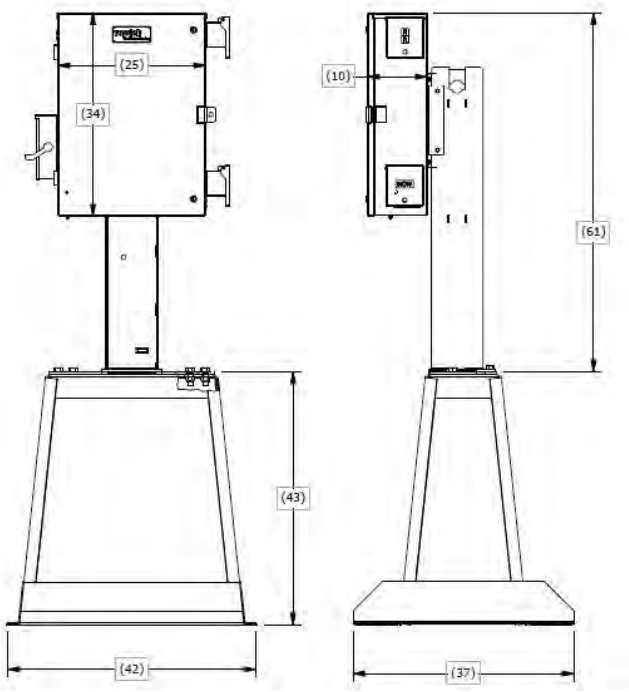
WC007001A-22

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER STAND, PB/MOW AND FOUNDATION



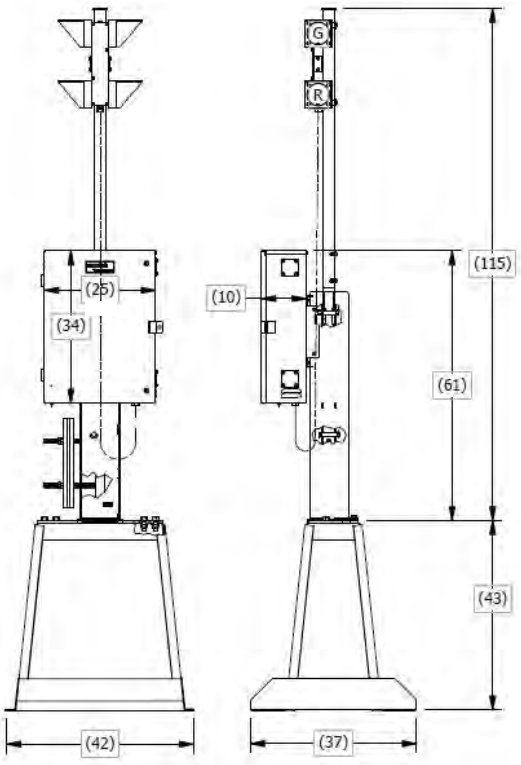
WC007001A-06

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER STAND, PB/MOW A/C DISCONNECT AND FOUNDATION



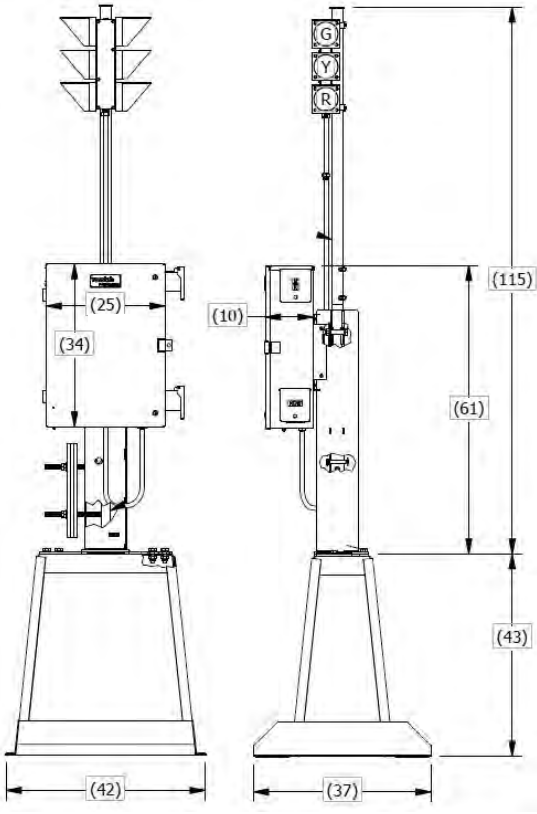
WC007001A-06

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, 2 ASPECT LIGHTS WITH FOUNDATION



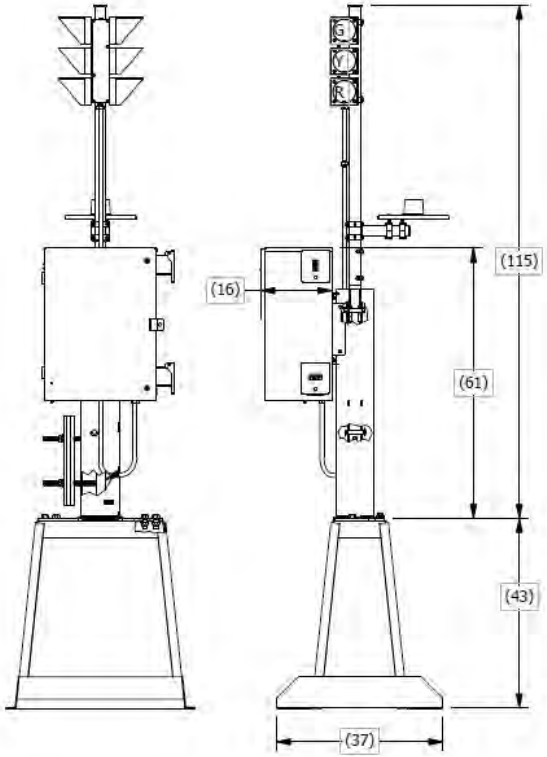
WC007001A-01

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, 3 ASPECT LIGHTS WITH FOUNDATION



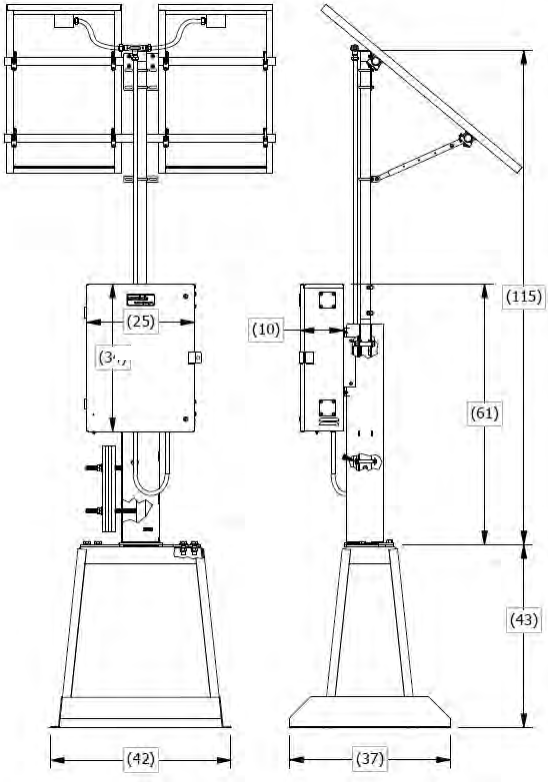
WC006001A-01

WAYSIDE CONTROL, 25X34X16, MYA BOX, TILT OVER, 3 ASPECT LIGHTS, OIL CAN ANT. WITH FOUNDATION



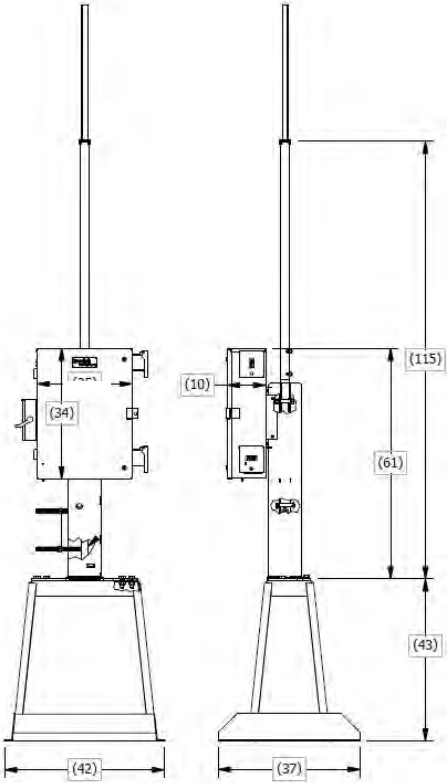
WC007001A-02

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, SOLAR AND FOUNDATION



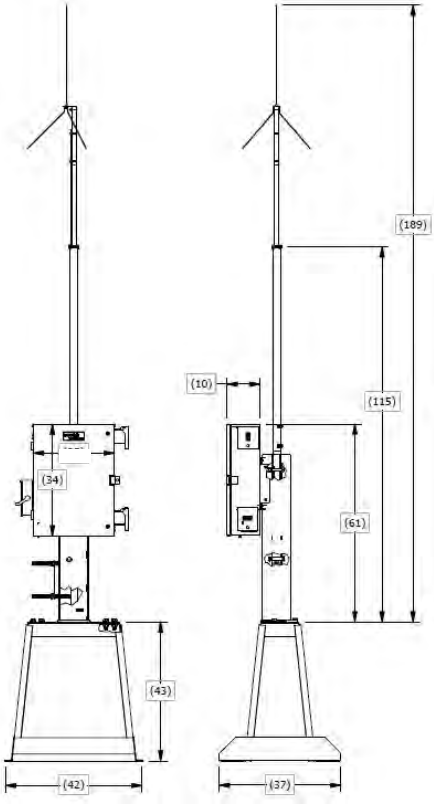
WC007001A-04

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, WITH PB/MOW, ANGLE MAST, A/C DISC. AND FOUNDATION



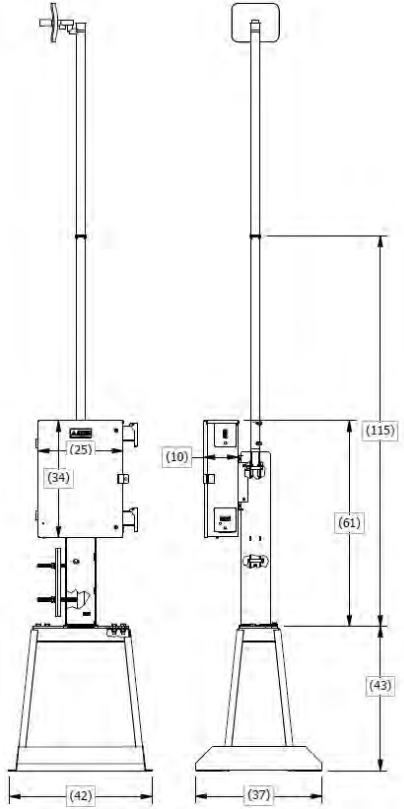
WC007001A-05

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, PB/MOW, DTMF ANTENNA, A/C DISCONNECT AND FOUNDATION



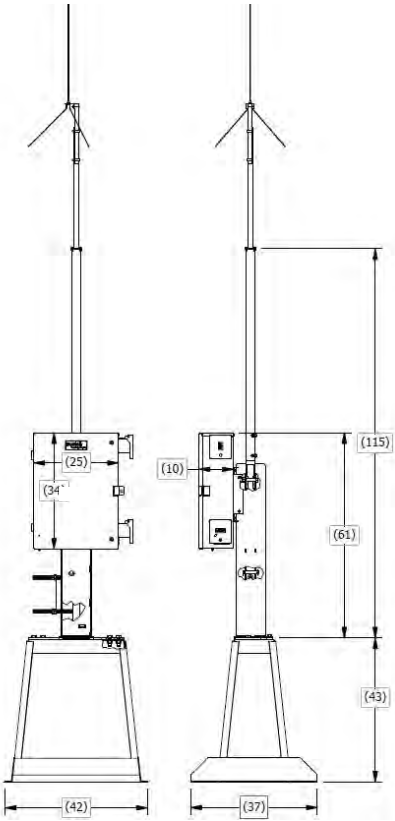
WC007001A-25

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, UBIQUITI RADIO, WITH PB/MOW, AND FOUNDATION



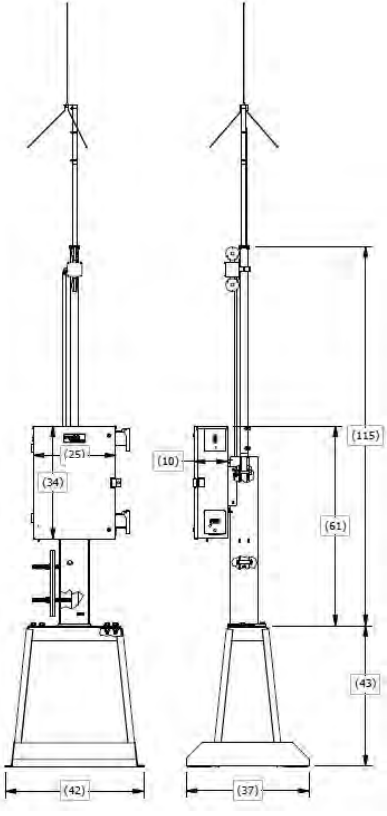
WC007001A-17

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DTMF ANTENNA AND FOUNDATION



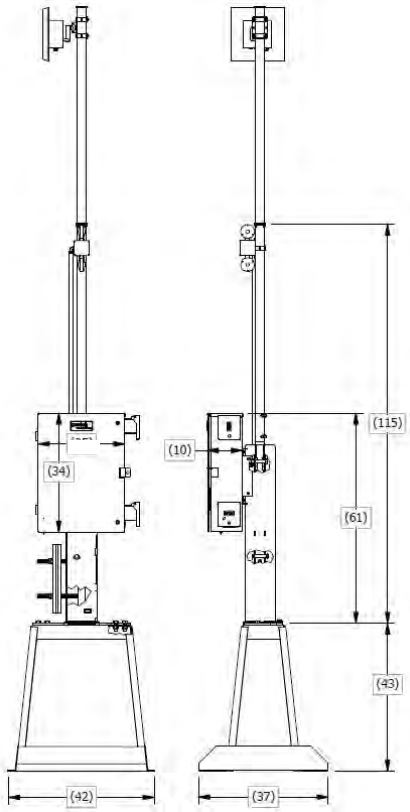
WC007001A-07

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DTMF ANTENNA, PEDESTAL LIGHTS AND FOUNDATION



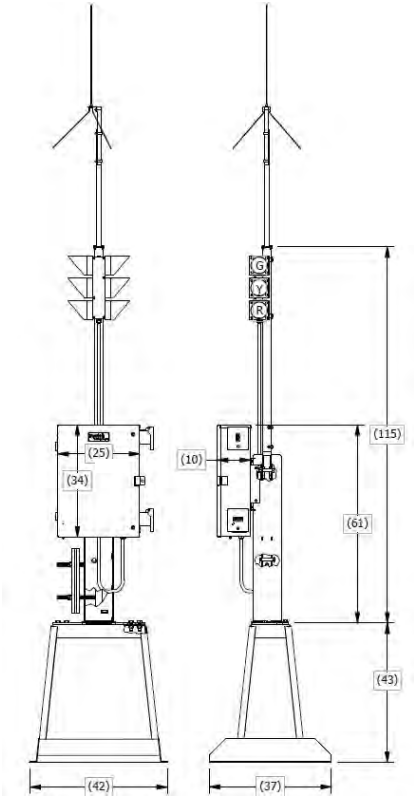
WC007001A-08

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DATA RADIO, PEDESTAL LIGHTS AND FOUNDATION



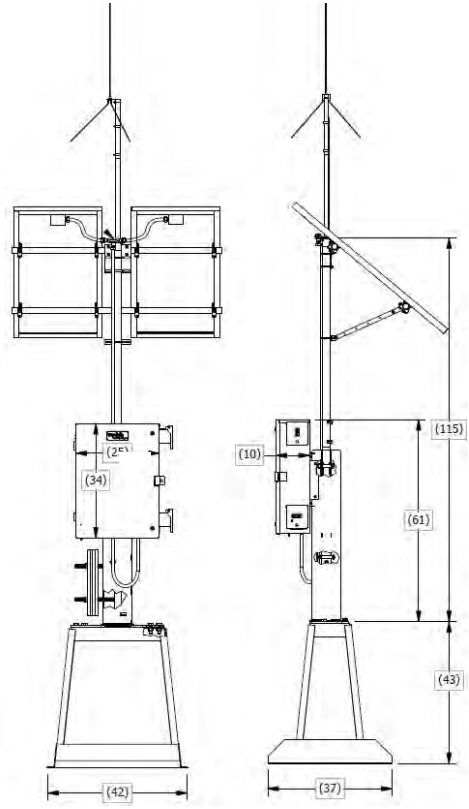
WC007001A-18

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DTMF ANTENNA, 3 ASPECT LIGHTS AND FOUNDATION



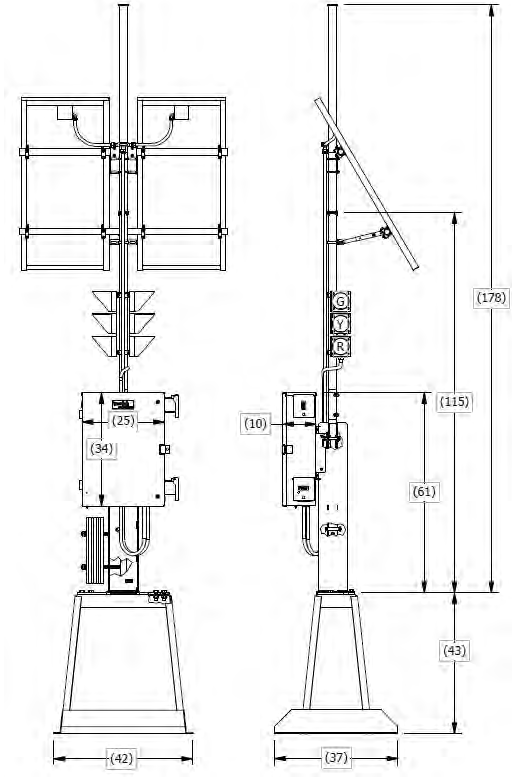
WC007001A-03

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DTMF ANTENNA, SOLAR AND FOUNDATION



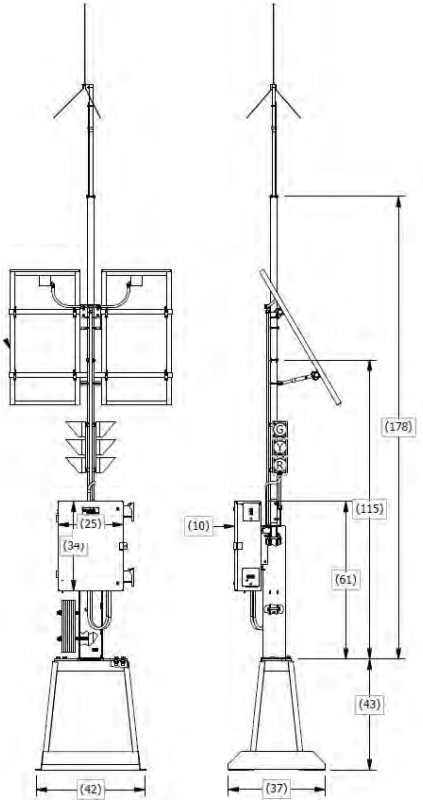
WC007001A-19

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, SOLAR, 3 ASPECT LIGHTS AND FOUNDATION



WC007001A-15

WAYSIDE CONTROL, 25X34X10, MYA BOX, TILT OVER, DTMF ANTENNA, SOLAR 3 ASPECT LIGHTS AND FOUNDATION



APEX

RAIL AUTOMATION

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Electronic Modules

APEX
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Track Circuits

CIP Non-Vital Track Circuits

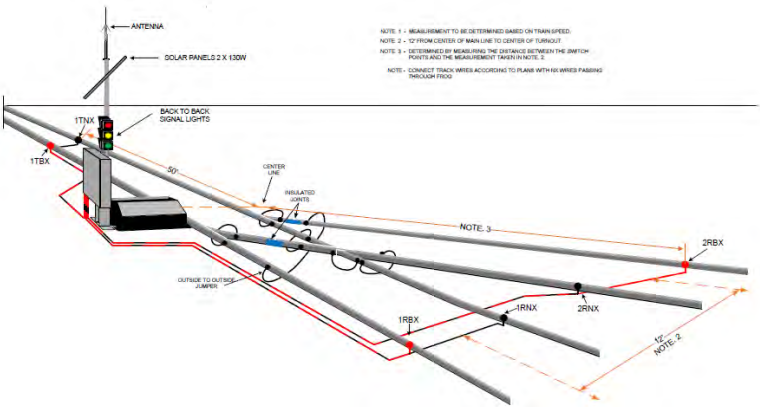
The CIP-1 AFO track circuit is designed to provide reliable presence detection in the harshest railroad environments. It can be used for Circuit Island Protection, Over the Switch (OS) Protection, Shove Track Occupancy Detection, start/stop control of HBD, DED and AEI equipment. The CIP-1 is designed to AREMA standards and is available in both vital and non-vital configurations as a direct replacement for present series overlay or shunt-type island circuits.

CIP-1 Transmitter

CIP-1 Receiver

The key components of the CIP-1 track circuit system are the transmitter (CIP-1T) and receiver (CIP-1R) modules, shown in figure above. Each transmitter and receiver module is packaged in a Phoenix-Type enclosure providing a flexible, compact and lightweight DIN-rail mounted configuration. Plug-coupled, screw type or spring-loaded wire terminals are used for ease of maintenance and replacement.

The CIP-1 is available in any of twelve different transmitter frequencies from 2.6 Khz to 19.2 Khz. Two frequencies are paired in each transmitter to allow maximum flexibility, help reduce inventories and enable quick frequency selection in the field. Transmitter outputs are filtered, can be set for either high or low power and can operate track circuits from 15 feet to 3,000 feet in length. The receivers are matched by frequency to specific transmitters and their relay drive output is easily tuned in the field. Any transmitter/receiver combination can be configured to support either a shunt overlay or series overlay track circuit.



Features

- Accommodates track circuits as short as 15 feet or as long as 3,000 feet.
- Transmitter frequency is easily selected in the field
- Low power consumption is ideal for solar powered applications
- Transmitters and receivers operate independently and need not be co-located
- DIN rail mounting using Phoenix-Type enclosure
- Screw type or spring-loaded, plug-coupled wire terminals (keyed or non-keyed) for easy service

Available Frequencies

CIP Transmitters

Part Number	Frequency
2401020	15.6/10.4Khz CIP Transmitter
2401021	9.6/6.4Khz CIP Transmitter
2401022	14.0/9.3Khz CIP Transmitter
2401023	11.7/7.8Khz CIP Transmitter
2401024	3.9/2.6Khz CIP Transmitter
2401025	19.2/12.8Khz CIP Transmitter
2401026	17.4/5.6Khz CIP Transmitter

CIP Receivers

Part Number	Frequency
2401060	15.6Khz CIP Receiver
2401061	10.4Khz CIP Receiver
2401062	9.6Khz CIP Receiver
2401063	6.4Khz CIP Receiver
2401064	14.0Khz CIP Receiver
2401065	9.3Khz CIP Receiver
2401066	11.7Khz CIP Receiver
2401067	7.8Khz CIP Receiver
2401068	3.9Khz CIP Receiver
2401069	2.6Khz CIP Receiver
2401070	19.2Khz CIP Receiver
2401071	12.8Khz CIP Receiver
2401072	17.4Khz CIP Receiver
2401073	5.6Khz CIP Receiver

ATC Vital Track Circuits

The ATC-1 and ATC-3 products are an evolution of the CIP-1 island protection circuits, expanding the Apex family of audio frequency overlay (AFO) track circuits. Like the CIP-1, they apply a modulated signal to the rail that is decoded by the receiver to provide immediate shunt detection in the harshest railroad signal environments.

ATC-1 Transmitter

ATC-1 Receiver

ATC-3 Receiver

The modulated signal, combined with fixed-impedance rail connections, allows increased receiver sensitivity to control detection distances from transmitter and receiver track wire connections. Additionally, the ATC-1 and ATC-3 incorporates vital post-processing and processor-based decoding of the receiver output to provide a vital output with immediate shunting and very high noise immunity from both false pick-up and false drop-away.

An integrated, user-adjustable loss of shunt (LOS) timer delivers a vital processing function. ATC products are ideally suited for grade crossing applications, with the ATC-3 allowing multiple inputs, performing all vital processing and stick logic functions. Designed to AREMA standards, their unique circuitry takes full advantage of coded and decoded rail signals, and they are a direct replacement for both vital and nonvital shunt-type island circuits.

Features

- Accommodates track circuits as short as 15 feet or as long as 4,000 feet
- Transmitter frequency is easily selected in the field
- Low power consumption is ideal for solar powered applications
- Transmitters and receivers operate independently and need not be co-located
- DIN rail mounting using Phoenix-Type enclosure
- Signaling audio modules, DTMF decoder and programmable controller
- Spring-loaded, plug-coupled wire terminals (keyed or non-keyed) for easy service
- Post processing of output signal provides vitality to the design

Available Frequencies

ATC Transmitters

Part Number	Frequency
2402020	15.6/10.4Khz ATC Transmitter
2402021	9.6/6.4Khz ATC Transmitter
2402022	14.0/9.3Khz ATC Transmitter
2402023	11.7/7.8Khz ATC Transmitter
2402024	3.9/2.6Khz ATC Transmitter
2402025	19.2/12.8Khz ATC Transmitter
2402026	17.4/5.6Khz ATC Transmitter

ATC Receivers

Part Number	Frequency
2402060	15.6Khz ATC Receiver
2402061	10.4Khz ATC Receiver
2402062	9.6Khz ATC Receiver
2402063	6.4Khz ATC Receiver
2402064	14.0Khz ATC Receiver
2402065	9.3Khz ATC Receiver
2402066	11.7Khz ATC Receiver
2402067	7.8Khz ATC Receiver
2402068	3.9Khz ATC Receiver
2402069	2.6Khz ATC Receiver
2402070	19.2Khz ATC Receiver
2402071	12.8Khz ATC Receiver
2402072	17.4Khz ATC Receiver
2402073	5.6Khz ATC Receiver

APEX
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DTMF Modules

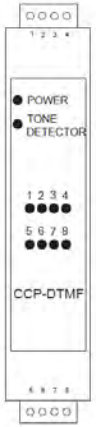
CCP-DTMF – Dual Tine Multiple Frequency Decoder Module

Part Number: A3100110

The CCP-DTMF is an audio DTMF Decoder Module designed to receive strings of tone digits from a locomotive radio at a radio control location. It also contains a data recorder to capture every sequence decode event.

Executive software can be changed in the field with the use of a PC running a serial communications program that supports the Xmodem Checksum file transfer protocol.

The CCP DTMF communicates via a serial bus. The DTMF must be connected to this serial bus via the DIN rail connectors in order to communicate to the SIU.



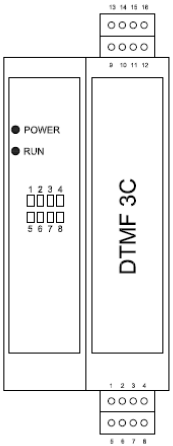
DTMF-3C – Dual Tine Multiple Frequency Decoder Module

Part Number: A9911007C

The DTMF-3C (also referred to in this guide as the DTMF-3) is an audio DTMF Decoder Module designed to receive strings of tone digits from a locomotive radio at a radio control location. It also contains a data recorder to capture every sequence decode event.

Executive software can be changed in the field with the use of a PC running a serial communications program that supports the Xmodem Checksum file transfer protocol.

The DTMF-3C is pin-for-pin compatible with the DTMF-II unit



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Audio Modules

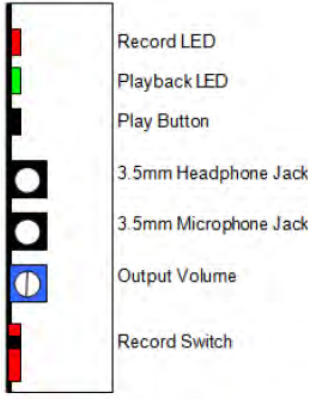
ARM-2 – Audio Module

Part Number: A9911014

The Audio Recording Module (ARM-2) records your specific message and replays it automatically when triggered by a control system or manually when the playback button is pressed. The module is programmed to record a message up to 60 seconds long and will retain the message even if 12VDC power is removed.

Executive software can be changed in the field with the use of a PC running a serial communications program that supports the Xmodem Checksum file transfer protocol.

The recorded message can also be saved to or loaded from a PC.



GUI-ARM8 – Audio Module

Part Number: A3100061

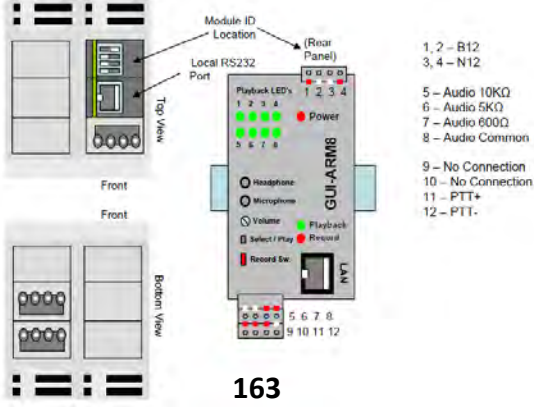
The GUI-ARM8 is connected to the audio input of a radio tuned to a frequency used by railroad locomotive voice radios. Based on a control system trigger, the ARM8 will activate the radio's PTT line and playback the recorded audio to the nearby locomotive.

Audio Recorder Module records up to 8 separate messages and replays them when triggered by a control system or manually when the playback push button is pressed.

The module is programmed to record a message up to 60 seconds long and will retain the message even if 12 VDC power is removed.

Executive software can be changed in the field with the use of a PC running a serial communications program that supports the Xmodem Checksum file transfer protocol.

Messages can be saved to or loaded from a PC.



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Logic Controller

SIU – Switch Interface Unit

Part Number: A9911106

The SIU Non-Vital General-Purpose Controller was designed for yard or other non-vital applications as a switch interface unit or general-purpose controller for a local control system. This system provides an expandable platform with integrated twelve non-vital railroad signal inputs and twelve non-vital railroad signal outputs with two serial data ports and one LAN Ethernet ports (data radio interface and/or maintainer interface). DIN-Rail bus interface is provided for easy expansion.

Front panel indicators provide an immediate visual indication of active integral inputs and outputs, communications port activity and a module power indication. The SIU package size is small and compact for those tight applications. Designed to comply with all.

AREMA recommended practices for non-vital signal system applications, the SIU provides performance and flexibility in system configuration and application.

- Application software design uses the NVP Builder program.
- Easily expandable as a bus master for non-vital UVP modules:
  - CCP-DTMF
  - CCP-L6
  - CCP-NVIO8
  - GUI-ARM8
- High visibility indicator lights for each input, output and power.
- External wiring via connectors for easy unit replacement.

LB105 – Logic Controller

Part Number: A9911105

The LB105 non-vital controller was the predecessor to the SIU controller. Like the SIU the LB105 is designed for yard or other non-vital applications as a switch interface unit or general-purpose controller for a local control system. The LB105 is limited to the twelve non-vital railroad signal inputs and twelve non-vital railroad signal outputs. It comes with two serial data ports (data radio interface and/or maintainer interface).

The front panel indicators provide an immediate visual indication of active integral inputs and outputs and module power indication. The LB105 package size is small and compact for those tight applications.

Designed to comply with all. AREMA recommended practices for non-vital signal system applications.

- 12 inputs with 12 outputs
- Event logging
- Environmetal ratings are -40C to +85C
- Static Voltage rated to 3500 vdc
- High visibility indicator lights for each input, output and power.
- External wiring via connectors for easy unit replacement.

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Mainline Products

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FAS-PAS
Failsafe Audible Signal
Power Assisted Switch

FAS-PAS

The patented FAS-PAS provides a low-cost alternative to implementing full CTC systems when traffic needs to be increased on selected dark territory lines. This allows railroads to gain safety and efficiency levels that would otherwise only be available using CTC solutions, and at a fraction of the cost. The FAS-PAS system provides a vital message back to the train engineer and is therefore suitable for mainline applications. Dark Territory presents challenges to safety, fuel conservation and velocity; all key indicators of a railroad's success FAS-PAS meets these challenges, making it a practical solution to a complex issue.

Benefits

–Switch machine sub-system
–Communication sub-system
–Zone occupancy sub-system
–Indication sub-system
–Control sub-system
–System housing and packaging

Features

–Cost-effective mainline switch control in dark territory
–Increases throughput
–Will help reduce costs and improve operating ratios
–Low cost approach to increasing traffic in dark territory
–Made in the U.S.A.

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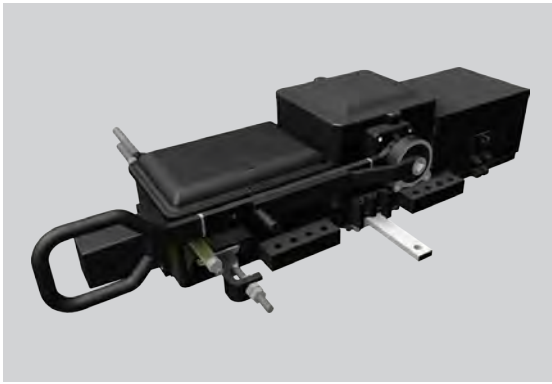


The VSM-24 Mainline Switch Machine:M-23 Replacement

The VSM-24 Mainline Switch Machine: M-23 Replacement

The VSM-24 Mainline Switch Machine is a full OEM replacement unit for the M-23 Switch Machine. It contains the improved Indication Circuit Controller (ICC) which has an indication design to provide lost motion of 010" or less

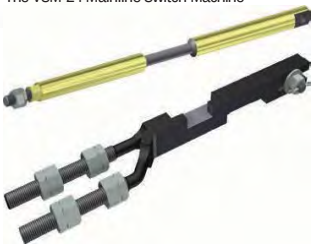
Benefits

The VSM-24 Mainline Switch Machine components are completely interchangeable for use in the OEM switch machines.

Apex Rail Automation Switch Machines are assembled per the customer specifications, such as motor voltage requirements, gear ratios, wiring configurations, etc.

The VSM-24 Mainline Switch Machine

Improved Design ICC



All internal components are also available

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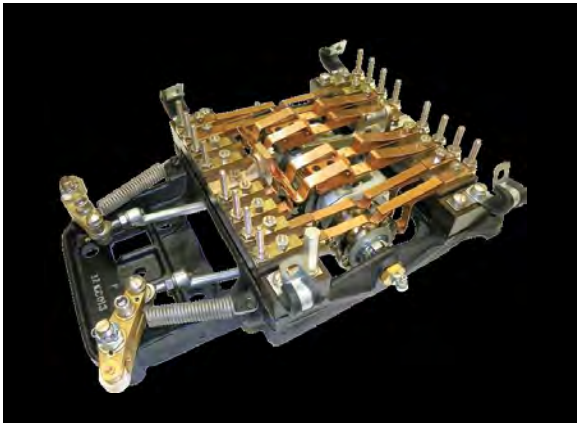


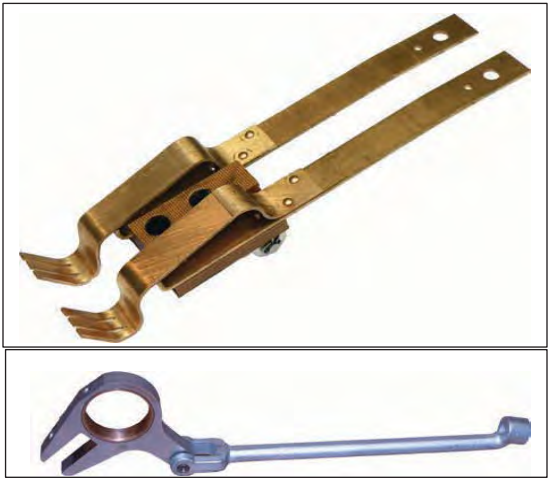
Indication Circuit Controller

Indication Circuit Controller

The ICC is a full OEM replacement unit for use in M-23 Switch Machines The enhanced indication design provides lost motion at 010" or less

Benefits

The ICC components are completely interchangeable to use in OEM ICC.



All critical components are manufactured in such a way that the resulting lost motion is 010 (ten thousandths) or less

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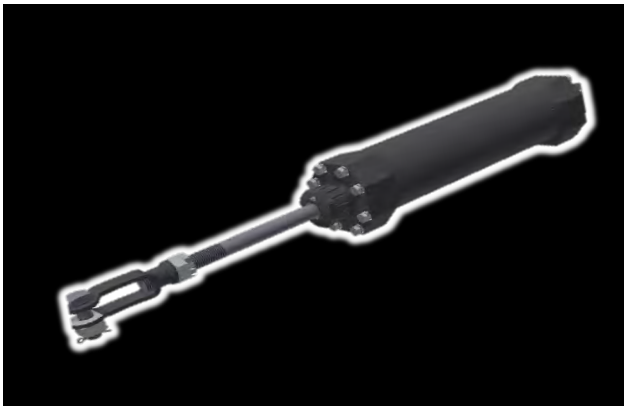


Switchman Buffer

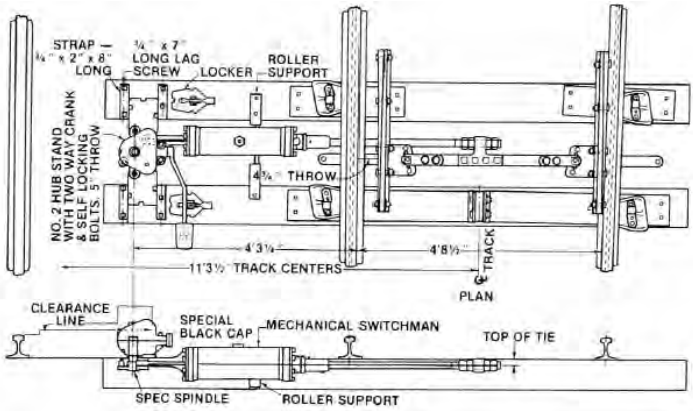
The Mechanical Switchman Buffer

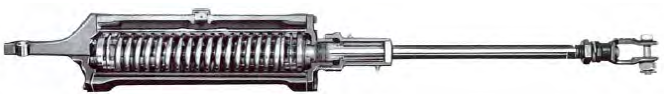
The Mechanical Switchman Buffer converts a hand thrown switch into a spring switch permitting trailing from either track. The Mechanical Switchman Buffer can be used on either open or closed point sides of the track without disturbing installation or adjusting parts. It offers no resistance to the manual operation of the switch stand.

Mechanical Switchman Buffer application varies, the most common being at the ends of passing track, yard entrances/exits, entrances/exits of gauntlet and scale tracks, exits of lap sidings and reduction of double track to single track to eliminate multiple crossings.

The switchman buffer is also of value in mountainous or curve territory were Locomotive Engineers view of the rear of the train is obstructed when leaving a passing track.

The Mechanical Switchman Buffer is connected to the switch stand and the switch in the same manner as a connecting rod. It permits the normally closed switch points to be forced open by a trailing movement, were it remains until the last wheels have passed. Once the last wheels have passed the points are returned to the fully closed normal position.





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Switch Point Slider Mechanism

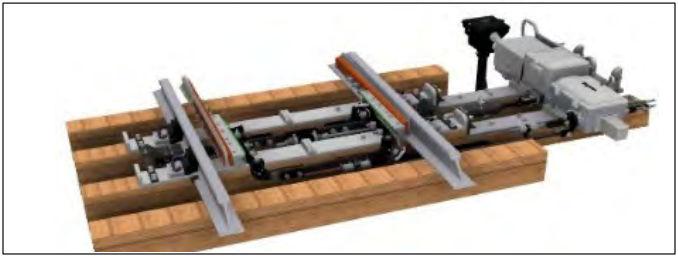
US PAT. NO'S:
9,096,243 B2
9,863,096 B2
11,661,094

Switch Point Slider Mechanism

The Switch Point Slider Mechanism (Patent Pending) is a retrofit-able product which can be installed into the customer's new or existing conventional switch layout. The Switch Point Slider Mechanism allows for all switch machine rods to remain correctly aligned with the switch machine in the presence of running rail. This prevents binding or breaking of the rods or tie damage. The result is continued correct point detection for turnouts affected by running rail.

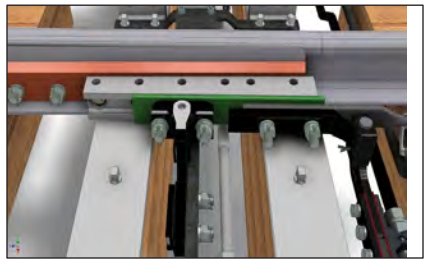
Benefits

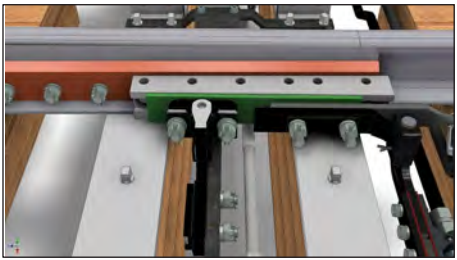
The Switch Point Sliding Mechanism lets the Switch Points run inward and outward along the track rail, while still allowing connecting rods to stay in place.



Switch Point Slider Mechanism

Notice the position of the point in relation to the point lug from left to right. The connecting rods and point lug stays in place as the rail is allowed to run.





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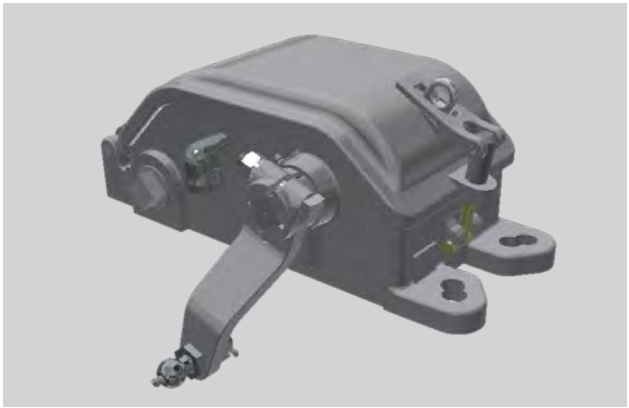
Yard & Track Automation Solutions



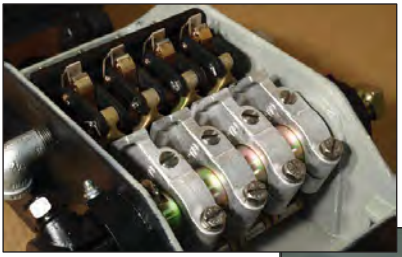
Switch Circuit Controller: A U5 replacement

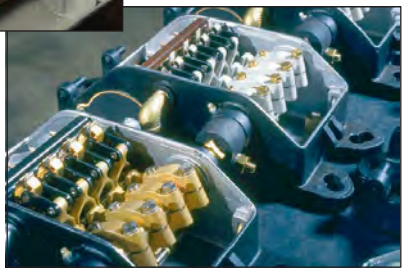
Switch Circuit Controller: U5 replacement

The Switch Circuit Controller is a direct OEM replacement for the U5 with the same features, options and configurations as the OEM. The Switch Circuit Controller gives the customer a high-quality product at a reduced cost.

Benefits

Apex Rail Automation Components are completely interchangeable to use in the OEM U5 Switch Circuit Controllers. All Switch Circuit Controllers can be configured to meet the customer's specific needs.





22

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Rail Mounted Tie Extension

US PAT. NO:
8,480,008 B1

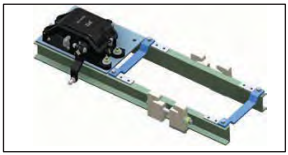
Rail Mounted Tie Extension

The Rail Mounted Tie Extension System provides a retrofit-able solution for mounting a switch circuit controller to an existing tie where tie length would not accommodate conventional installation.

This is particularly well suited to switch point layouts in dark territories that require switch point indication for PTC (Positive Train Control) signaling. This lowers the retrofit cost by eliminating the need to use manpower and machinery to install a new tie.

Benefits

The Rail Mounted Tie Extension benefits include fast and easy field assembly by a single installer, no need to install a new tie, saving time and manpower - an excellent solution for the customer's PTC Signaling needs.



Any Switch Circuit Controller may be mounted onto the Rail Mounted Tie Extension

As shown above, the tie required for mounting a switch circuit controller is too short Conventional installation would require a new tie be installed

Replacing the existing tie with a new, longer tie, is not required when using the Rail Mounted Tie Extension System

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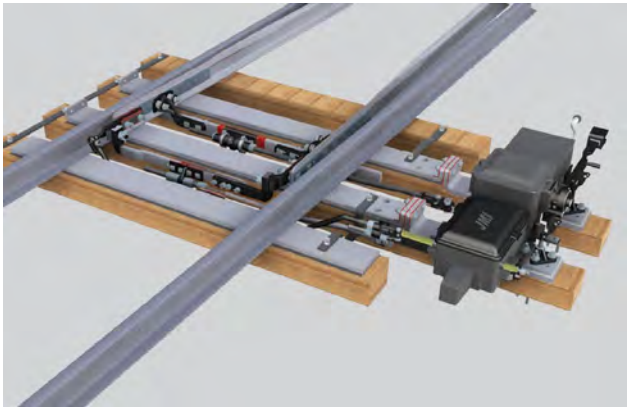


Connecting Rods, Gage Plates, Extension Plates and Full Switch Layout Rodding Packages

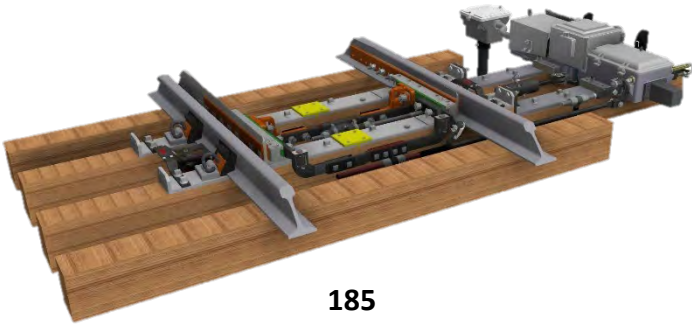
Connecting Rods, Gage Plates, Extension Plates and Full Switch Layout Rodding Packages

Apex provides everything from a single connecting rod or gage plate assembly to full switch rod packages for Power Switches (single point, double slip, equilateral turnouts), hand throws and helper rod assemblies

Benefits

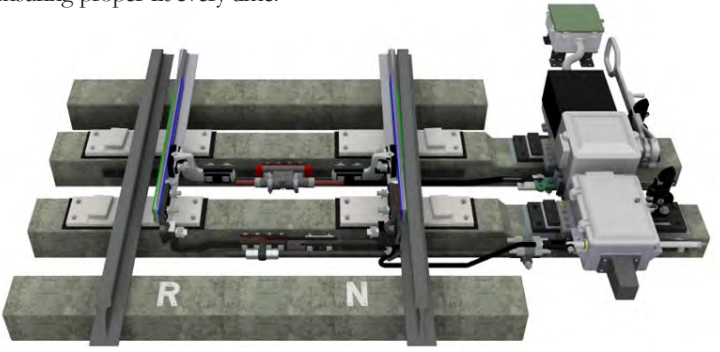
Apex only uses forged connecting rods, front rods and switch rods (engineered to meet AREMA standards) that are machined and assembled to meet railroad customer specifications.

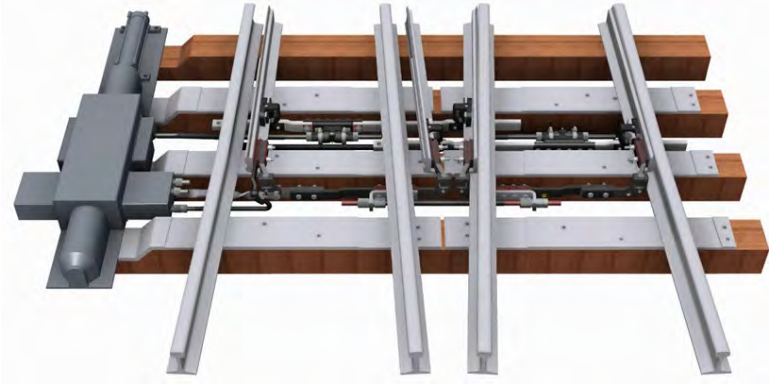
Apex has an on-site engineering staff to design connecting rods, front rods, switch rods, gage and extension plates to meet customers' specific switch layout standards. 3D Modeling Technology is used to verify that all components have proper fit and function.



SWITCH LAYOUT KITS

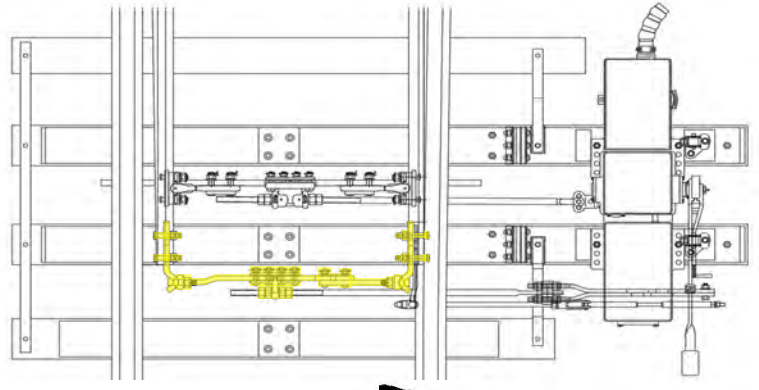
Our fully designed layout kits provide you with all of the components needed to install a mainline switch machine. Each Layout kit is engineered and manufactured to the turnout or standards and specifications of the customer ensuring proper fit every time.





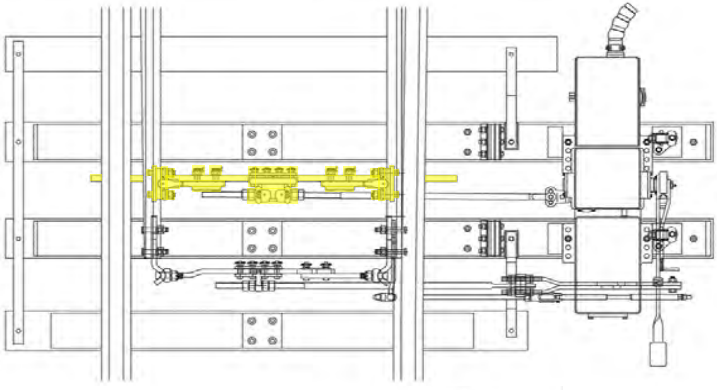
FRONT SWITCH RODS

Are used to connect the front of the switch points to insure both points move in tandem. It also provides a connection point for the lock rod and point detection rod from a power switch machine. Front rods are available in many different configurations.



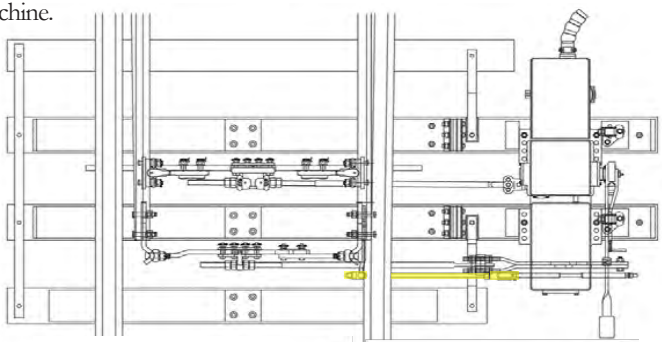
VERTICAL SWITCH & BASKET RODS

Are used to connect the two points of the switch to insure both points move in tandem. It also provides a connection point for the switch machine connecting rod from a power switch machine or hand throw. Front rods are available in many different configurations.



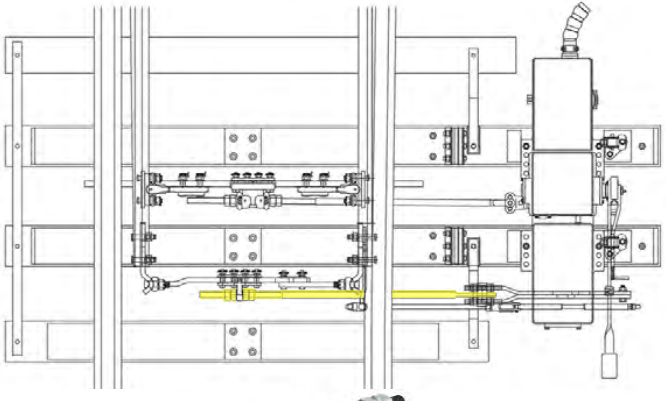
POINT DETECTOR CONNECTING RODS

Are used to connect the switch machine point detection circuit to the switch point. These rods can be designed and manufactured for many different applications and can also be made for far point detection when needed. We can design and manufacture these rods for any standard mainline switch machine.



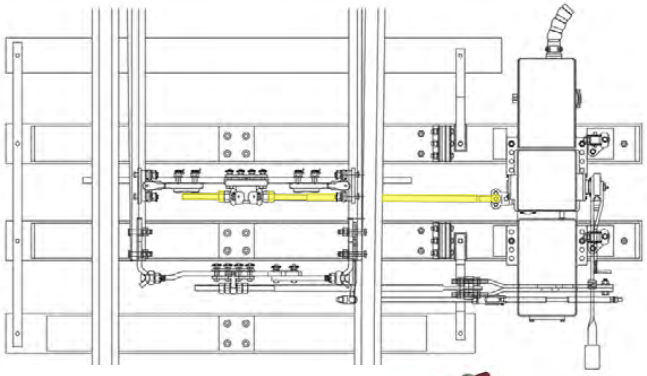
LOCK ROD CONNECTING RODS

Are the rods that physically lock the points into position once a good point is made. It connects the internal lock rod to the front rod on the switch points. The purpose of this rod is to lock the switch into position and prevent any movement of the switch points once they are in position. Lock rods can have many variations in design depending on the layout and type of power switch machine. Apex has the ability to design and manufacture these rods for any industry standard power switch machine for mainline applications.



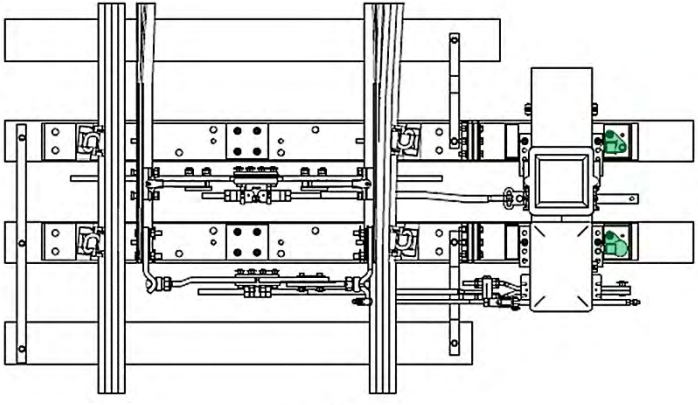
SWITCH OPERATING THROW RODS

Is the rod that allows a power switch machine to move the points from one position to the other. The rod connects to the operating bar on the power switch machine and to the vertical rod on the turnout. The images below show both VSM-24 (Direct replacement for the M-23) or the Apex TS4500 Electro-hydraulic switch machine. These rods can be manufactured to fit other common power switch machines on the market.



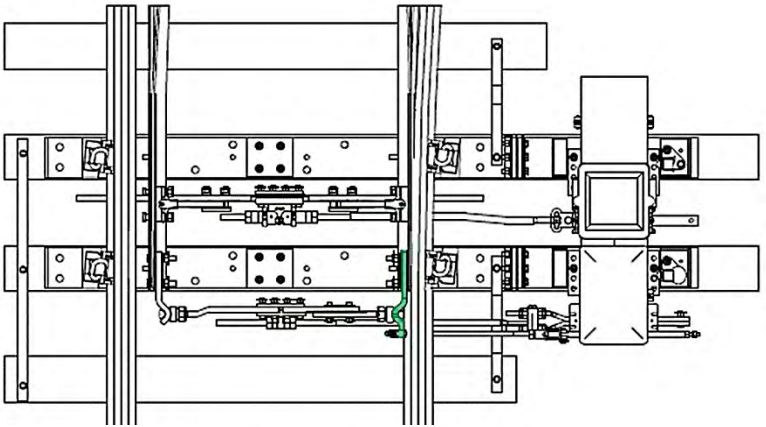
LEVER LATCH STANDS

Lever Latch Stands are used to lock the hand throw and hand throw selector lever on mainline control point to prevent unwanted use of the switch by nonrailroad personnel. We make Lever Latches for the VSM-24, M- 23, and any other Standard Mainline switch Machines.



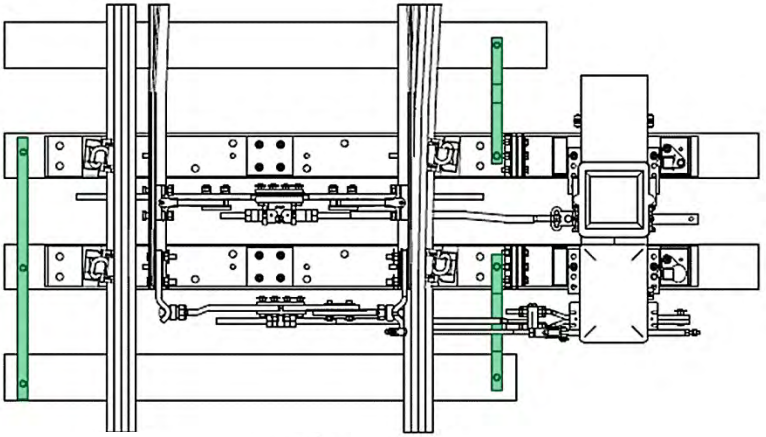
POINT LUGS

The Point Lug is the connection point for the Point Detector rod and can be made with a ball, threaded, or tapered end. Each style of point lug can be designed and manufactured to fit any switch point.



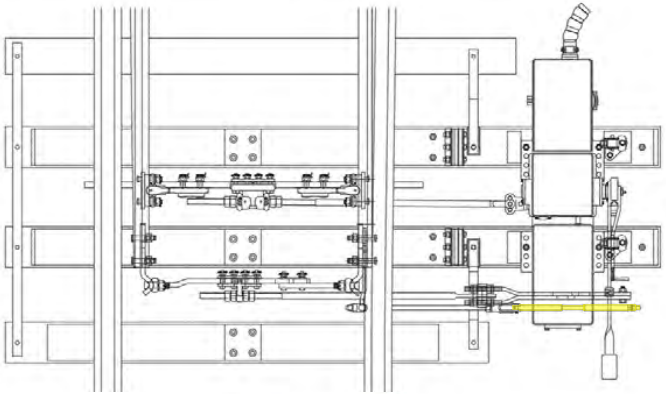
TIE STRAPS

The tie straps are made to help limit the movement of the ties into the crib space between the ties helping to prevent ties from moving into the space where the rods could be damaged or forced out of correct alignment with the switch machine.



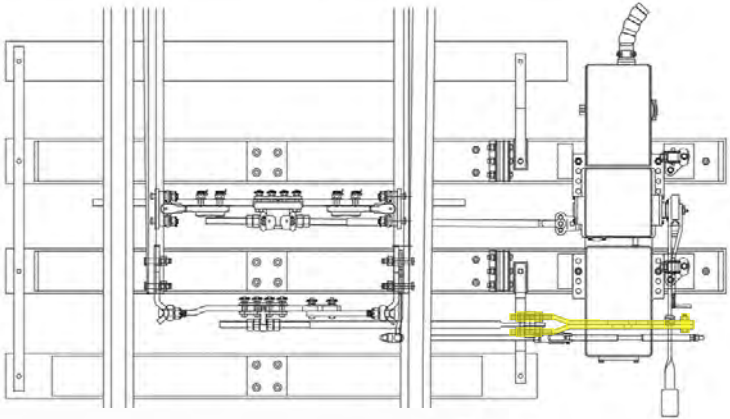
INTERNAL POINT DETECTOR BARS

Are internal to the power switch machine and move back and forth as the switch points are moved by the throw rod. As it moves it operates rollers that are attached to the Internal Circuit Control (ICC) inside the ma- chine. As the rollers move, indication of position of the power switch machine is provided which in turn provides position indication of the switch to the main control system. Internal point detection rods vary by machine and the ones pictured are for the Apex VSM-24 switch machine.



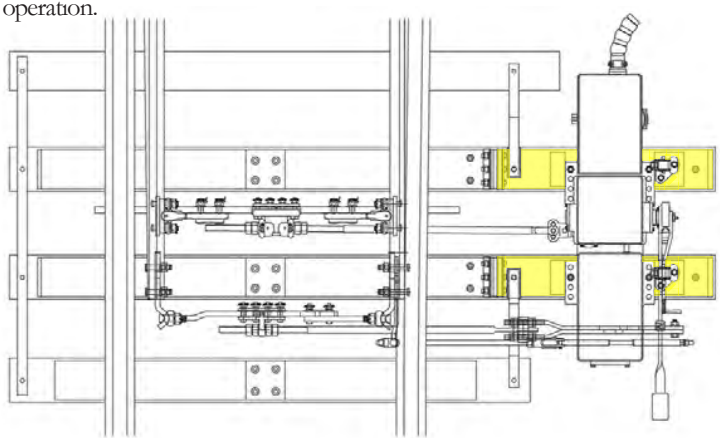
INTERNAL LOCK RODS

Are internal to the power switch machine and lock the switch machine in place once it has reached the de- sired position. The internal lock rod provides a point of connection for the lock rod connection rod and the front rod of the turnout. Internal lock rods vary by machine and the ones pictured are for the Apex VSM-24 switch machine.



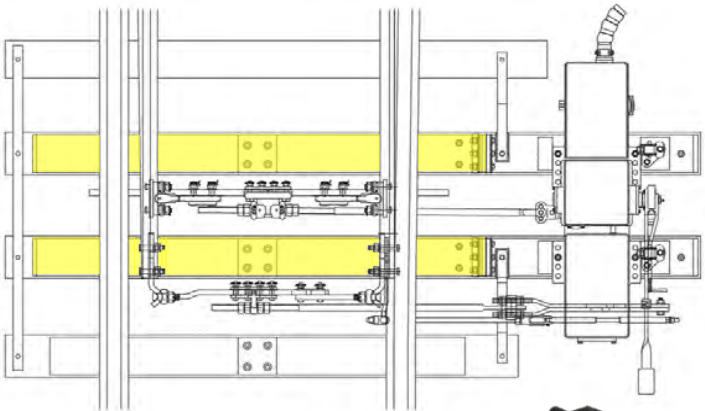
EXTENSION AND SADDLE PLATES

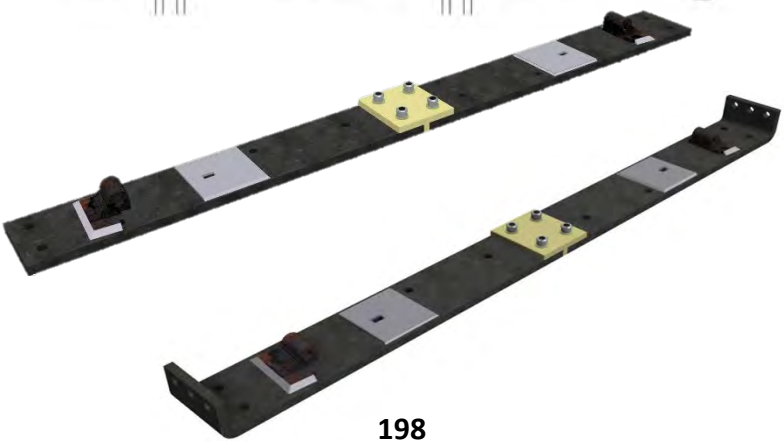
Attaches either directly to the gage plate or independently providing users with an easier way to mount switch machines. They provide improved performance by limiting the movement of the switch and elongation of the mounting holes, which occurs to ties over time, due to the forces exerted during normal switch operation.



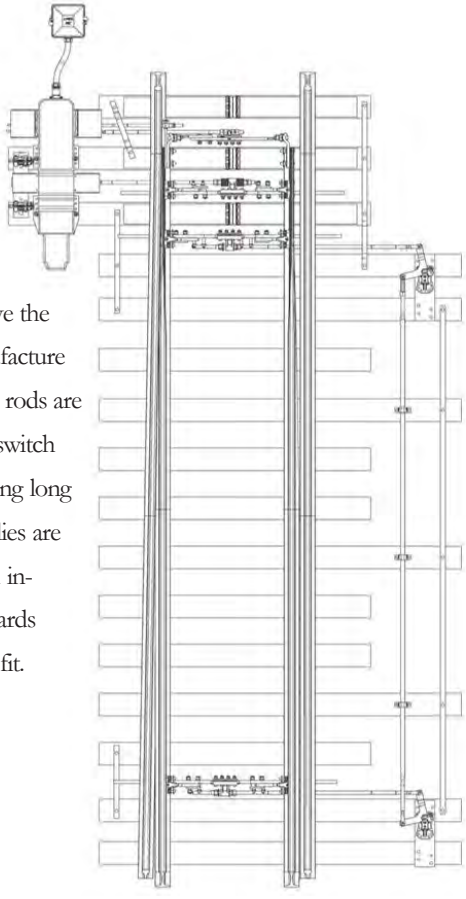
GAGE PLATES

Are secured to the head block ties and help to maintain proper rail gage. Gage plates are available in many different configurations and can be insulated and non-insulated depending on the application.





SWITCH LAYOUT HELPER KITS



For long turnouts we also have the capability to design and manufacture helper rod assemblies. Helper rods are used to provide the mainline switch machine with assistance moving long switch points. Helper assemblies are engineered and manufactured in-house to the turnout or standards specification ensuring proper fit.

Operating Rods

Lock Rod Connecting Rods

SWCC Connecting Rods

Point Detector Connecting Rods

Our rods are forged, not welded

APEX
RAIL AUTOMATION
Yard & Track Automation Solutions

High Water Detector

High Water Detector

The Apex Rail Automation High Water Detector is an innovative device specifically engineered to address the safety challenges posed by flood-prone areas along railroad tracks. Floods can pose a serious threat to railway operations, potentially leading to derailments, track damage, and endangering both passengers and railway staff. This technical write-up provides a comprehensive overview of the design, functionality, and significance of the High-Water Detector in safeguarding railroads against water-related hazards.

The High-Water Detector is meticulously designed to ensure accurate water level monitoring and timely alerts. Its core functionality revolves around water level detection and alert generation. When high water levels are detected, the system will provide an output to a customers existing system.

High Water detectors are strategically positioned in areas where flooding can occur. It precisely measures water levels in real-time and will provide an output when water levels reach a predetermined level. They are engineered to withstand harsh environmental conditions, including extreme temperatures, humidity, and vibration. By constantly monitoring water levels with high precision, the sensors provide critical data for informed decision-making.

High Water Detector

The Apex Rail Automation High Water Detector serves as a critical tool for railway safety and operational continuity in flood-prone regions. Its significance lies in several key benefits:

Preventing Damage

By promptly alerting railway personnel when water levels are nearing or crossing the tracks, the High-Water Detector helps prevent track damage and potential derailments.

Enhanced Safety

Ensure that both on-site staff and train operators are aware of impending danger, minimizing the risk to human life.

Minimized Downtime

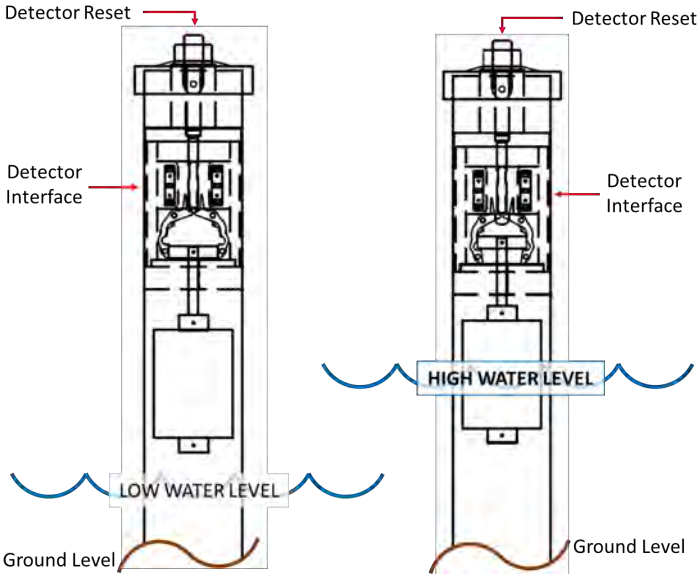
With timely alerts and preventive measures, the device contributes to reduced downtime due to track damage, saving valuable time and resources.

Remote Monitoring

When added to an existing control system, remote monitoring capability allows for centralized oversight. This enables railway control centers to monitor flood-prone areas from a distance.

High Water Detector

In flood-prone regions, the Apex Rail Automation High Water Detector is an invaluable asset, acting as a sentinel that safeguards railway operations against the perils of rising water levels. Through its design, easy of installation, and early warning, the device empowers railway personnel with the information they need to make informed decisions and prevent disasters. By integrating this high-tech solution, railroads can substantially enhance safety, minimize damage, and maintain the integrity of their operations even in the face of nature's challenges.



APEX
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Yard & Track Automation Solutions

Nut Lockout Device

US PAT. NO:
8,783,627

Nut Lockout Device

Railway systems play a critical role in modern transportation, and ensuring their safe and reliable operation is of utmost importance. The Apex Rail Automation Nut Lockout Device is an innovative solution designed for switch point adjusting baskets to address the issue of unauthorized tampering of switch point throw. This technical write-up delves into the design, functionality, and benefits of the Nut Lockout Device in enhancing rail safety and security.

Switch point adjusting baskets are crucial components of railway systems, facilitating the proper alignment of tracks for smooth transitions of trains. However, the potential for unauthorized tampering with these switch point throws poses significant safety risks and operational challenges. The Nut Lockout Device emerges as a novel solution to prevent such tampering and enhance rail safety.

Nut Lockout Device

The Nut Lockout Device is engineered to shield the adjusting sleeve nuts of a switch point adjusting basket, rendering them inaccessible to unauthorized personnel. Its design encompasses the following features:

Enhanced Safety

By preventing unauthorized tampering, the device reduces the risk of incorrect switch point alignment, derailments, and potential accidents, ensuring the safety of both passengers and railway employees.

Operational Efficiency

Unauthorized adjustments can lead to costly disruptions in rail operations. The Nut Lockout Device minimizes downtime by maintaining the intended switch point alignment.

Security

Protecting rail infrastructure from unauthorized access and tampering contributes to the overall security of the railway system.

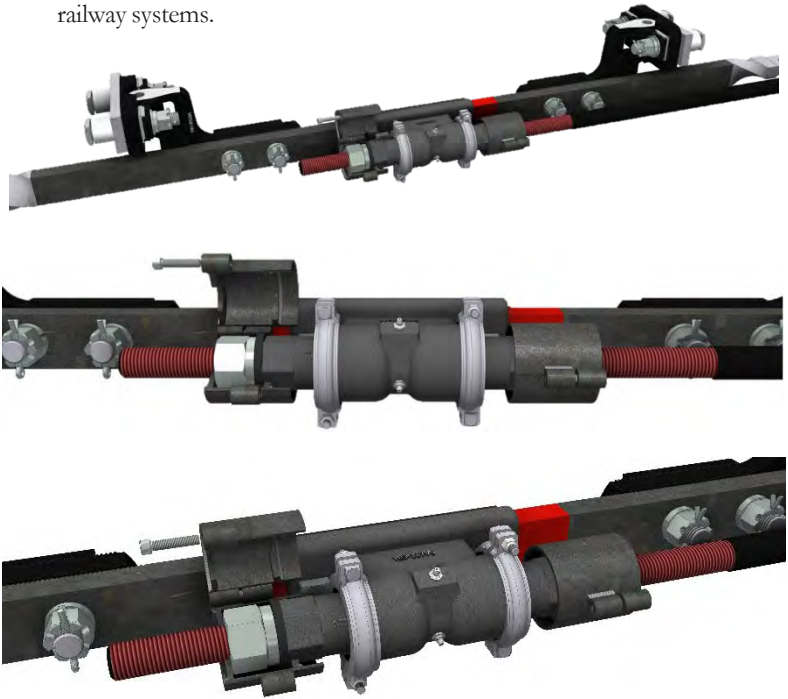
Maintenance Confidence

Maintenance personnel can have greater confidence in the integrity of switch point adjustments, knowing that the Nut Lockout Device safeguards against tampering.

The Nut Lockout Device is designed to be user-friendly, with straightforward installation procedures. It can be designed to fit a wide range of switch point adjusting baskets and switch connecting rods. Integration into existing rail infrastructure is seamless, with minimal modifications required.

Nut Lockout Device

Railway safety and security are paramount concerns, and the Nut Lockout Device provides an effective solution to mitigate the risks associated with unauthorized tampering of switch point adjustments. By enhancing safety, reducing operational disruptions, and bolstering security, this innovative device emerges as an essential tool for modern railway systems.



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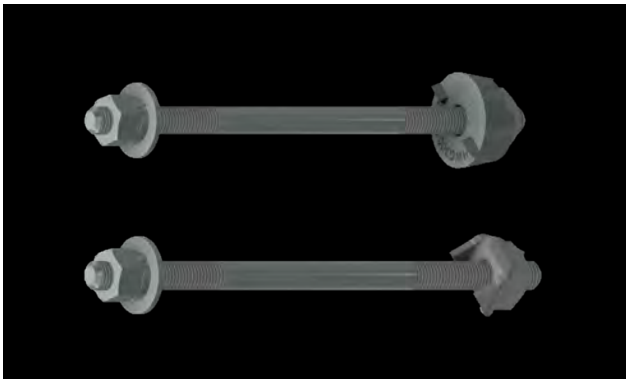

Stud Assemblies Star Grip Washer and Grip Washer

Stud Assemblies and Grip Washers

Railroad stud assemblies play a critical role in securing wayside equipment to wooden ties, ensuring the stability and safety of railway tracks. To prevent stud assemblies from spinning during the tightening process, two innovative components are utilized: the "Star Grip Washer" and the "Grip Washer." This technical document provides an overview of these components, their functions, and their application in railroad stud assemblies.

Star Grip Washer

Star Grip Washer: Is a specialized washer with a unique star-shaped design. It features multiple points that resemble the shape of a star. Two of the points lock on the nut and the other two opposite of them grip into the tie. This design enhances its grip on the surface, reducing the likelihood of stud assemblies spinning during tightening.

Grip Washer

Grip Washer: The Grip Washer is designed with two ridges on the side facing the tie, while the other side provides a indentation to lock on to the nut. The Ridges provide increased friction and grip between the washer and the wood tie preventing rotation during the tightening process.

Both the Star Grip Washer and Grip Washer serve the same primary function which is to prevent stud assemblies from rotating while being tightened into wooden ties. This rotation prevention ensures the secure attachment of wayside equipment, minimizing the risk of loosening and improving overall stability.

The utilization of the Star Grip Washer and Grip Washer in railroad stud assemblies significantly enhances the stability and safety of wayside equipment installations. By preventing rotation during the tightening process, these components contribute to the secure attachment of equipment to wooden ties. Their effectiveness, coupled with the availability of stud assemblies in various sizes and lengths, makes them crucial components in maintaining robust railway track systems.

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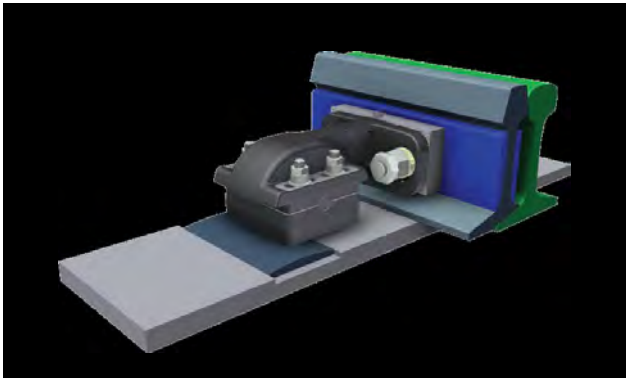


Adjustable Height Switch Point Roller

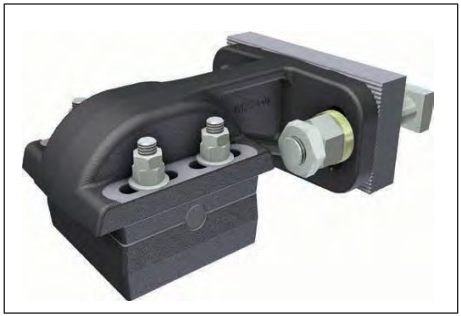
US PAT. NO:
8,684,317 B2

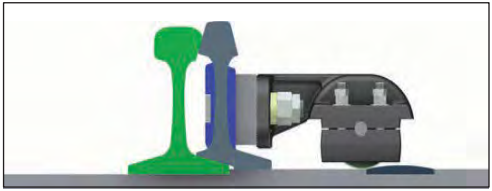
Adjustable Height Switch Point Roller

The Adjustable Height Switch Point Roller (Patent Pending) has rough and fine adjustments utilizing serrations and roller cam functionality, which solve the typical problems associated with the conventional switch point roller systems.

Benefits

The Switch Point Roller allows for fine adjustment, giving the perfect fit and function. It is easily installed into new or existing switch layouts without having to disturb tie placement, unlike roller systems placed under the switch points that require the ties to be lowered.





Attaches to the point utilizing existing point holes

APEX
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Yard & Track Automation Solutions

Dual Switch Point Indication System

US PAT. NO'S:
9,096,243 B2
9,863,096 B2

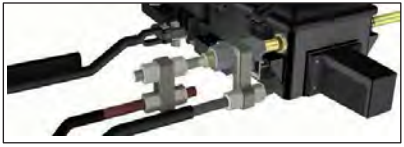
Dual Switch Point Indication System

The Dual Switch Point Indication System (Patent Pending) is a retrofit-able product which can be installed to the customer's new or existing conventional switch layouts and allows for detecting both near and far side switch points simultaneously using a conventional single point indicating switch machine, conventional point lugs and connecting rods indicate only one switch point movement on either near side or far side.

Benefits

The Dual Switch Point Indication System allows indication on both near and far side switch points using a single point indicating switch machine. This saves the cost of purchasing and maintaining a dual point indicating switch machine.

Point lugs are attached to both near and far side points, allowing two connecting rods to be attached



Both Point Detector Connecting Rods are connected to the Dual Point Detector Bar with two drop lugs

Typical Dual Point Detection Layout

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Re-Manufacturing Program

Re-manufacturing Program

Apex re-manufactures switch machines, circuit controllers and switchman buffers. Apex provides re-manufactured products that either meet or exceed, the original OEM specifications. Apex re-manufactured products have the same fit, function, longevity and appearance of new equipment, at a significantly lower price.

Design & Engineering

Apex Engineering utilizes the latest CAD Design, technologies and Geometric Dimensioning & Tolerancing(GD&T) with proven methods of reverse engineering. Apex components meet or exceed OEM specifications, our components are interchangeable with OEM equipment

Quality Control M-1003

Apex has been M-1003 Certified for nearly 20 years.

Warranty/Customer Satisfaction

Apex has been re-manufacturing since 1994 and provides a 5-year warranty on all re-manufactured products.

Core Retrieval

Contact Apex about the details of our Core Retrieval Program; including logistics, lead time and emergency expediting service.

Scope of Work

Scope of work can be submitted upon request of the customer, detailing the re-manufacturing processes.

Just a few of the items we re-manufacture:

Switchman Buffers - Before

Switchman Buffers - After

Switch Circuit Controller - Before

Switch Circuit Controller - After

Indication Circuit Controller - Before

Indication Circuit Controller - After

M23 Switch Machine - Before

M23 Switch Machine - After

12799 Loma Rica Drive
Grass Valley, CA 95945

Office: (530)-272-8194
Fax: (530)-206-6619

www.apexrailautomation.com