

KMDAX-Multi-Section Digital Axle Counting System

Modular Solution for Efficient Track Occupancy Detection

KMDAX is a MultiSection digital axle counting system which monitors and counts the number of wheels passing over it and when used to supervise a section monitors the track occupation of that section. This information is utilized in safety signaling, route setting and safety interlocking. As an Axle Counter counts the number of wheels, it clears the section only when the last wheel entering the section has exited. The system provides the individual vital relay output for each section / point zone based on the principle of counting of axles. The system can be deployed for simultaneous monitoring of various track sections in a station or yard area. The KMDAX system comprises of a outdoor rail wheel sensor (ZK24 & VUR), an indoor Control Module (BO23), and a RESET BOX PANEL. KMDAX is feature packed along with built in reliability and operability. KMDAX functional hardware is designed into several functional modules which are integrated as required by customer's application.

Technical Characteristics

Rail Sensor ZK24

- RAILWHEEL SENSOR WITH DOUBLE STRUCTURE IS USED FOR RAIL WHEEL PASSAGE DETECTION AS WELL AS DIRECTION.
- DETECTION OF RAILWHEEL TYPES ACCORDING TO UIC510-2, MINIMAL DIAMETER IS 300MM
- POWER SUPPLY 18V—72VDC
- WIDE POWER SUPPLY RANGE ENABLES LONG DISTANCE USE -UPTO 30 KMS WITH CONDUCTOR DIA 01.4MM; UPTO 13KMS WITH CONDUCTOR DIA 0.9MM.
- IP68 PROTECTION AGAINST WATER AND DUST.
- SHOCKS UPTO 200G ACCORDING TO EN50125-3
- OPERATING TEMP -40 TO + 80DEG C ,HUMIDITY 100%
- SENSOR IS MOUNTED ON INNER SIDE OF THE TRACK
- TRACTION CURRENT IMMUNITY ,LIGHTNING ,OVERVOLTAGE PROTECTION
- SENSOR IS TESTED AND VERIFIED ACCORDING TO CURRENT STANDARDS FOR THE RAILWAY SAFETY SIGNALLING SYSTEMS BY ISA, DEPARTMENT OF 'TUV RHEINLAND GROUP'

- MINIMAL RAIL WHEEL DIAMETER 300MM.
- WHEEL FLANGE HEIGHT COMPLIES WITH UIC510-2.
- UNIVERSAL RAIL MOUNTING CLAMP FOR RAIL TYPES S45-- UIC60.
- LED INDICATION OF A CURRENT SENSOR STATE.
- MECHANICAL PROTECTION OF SENSOR WITH SHIELDS.
- TRACTION CURRENT IMMUNITY, LIGHTNING OVERVOLTAGE PROTECTION



Rail Sensor Zk24



VUR

Indoor Equipment Bo23

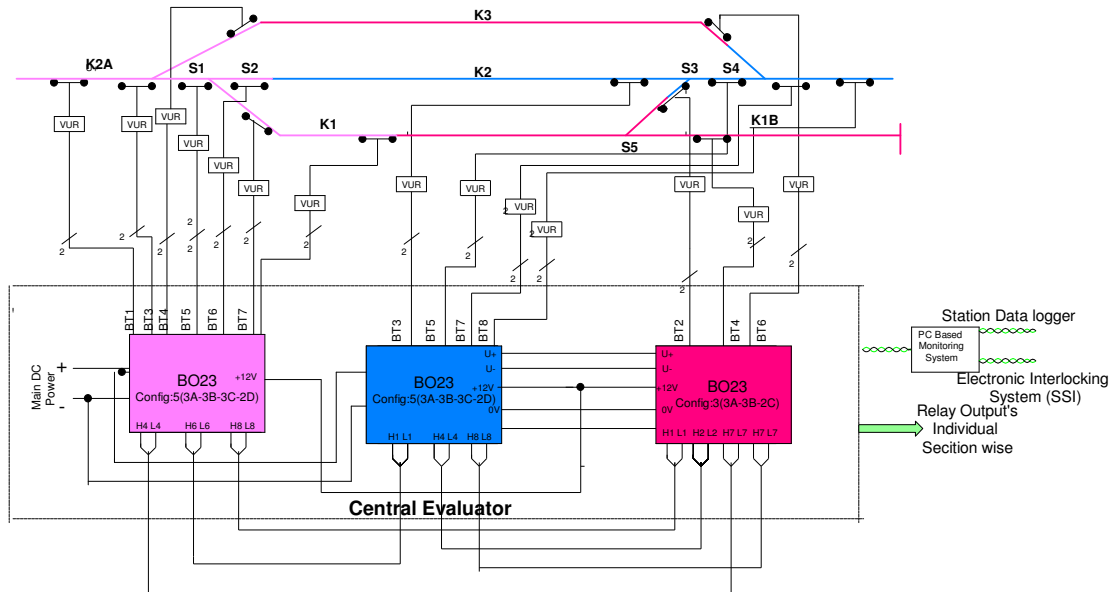
- SUPPLY VOLTAGE 18V TO 80V DC.
- VITAL ELECTRONIC CIRCUITRY IS GALVANICALLY ISOLATED FROM POWER SUPPLY AND FROM OUTDOOR EQUIPMENT.
- OPERATING TEMPERATURE -30 TO +70 DEG C.
- EURO CARD 19" CASE WITH PCB -MODULES ; MODULES ARE PLUGGED IN ACCORDING TO APPLICATION AND NUMBER COUNTING POINTS AND SECTIONS.
- COUNTING CAPACITY UPTO 32767 AXLES.
- DIMENSIONS 240 x 4883 x 133 MM.
- PROCESSOR SOFTWARE IS PROGRAMMED ACCORDING TO CENELEC EN 50159-1 SAFETY PRINCIPLES.
- RAILWHEEL DETECTION, SIGNAL PROCESSING AND TRANSMISSION ACCORDING TO 50129.



BO23

Outdoor Equipment VUR

- SUPPLY VOLTAGE 40V TO 120V DC
- OPERATING TEMPERATURE -40 TO +80- DEG C
- UPTO 100% RELATIVE HUMIDITY.
- PROTECTION AGAINST WATER AND DUST :
 - IP 68 FOR SENSOR AND
 - IP65 FOR ELECTRONIC CIRCUITRY



SEVERAL (BO₂₃'S) IN STATION AREA FOR CONTROLLING SECTION'S (Independent section, consecutive section and neighboring section)

Salient Features

- STATION AREA CONTROL FOR MULTI SECTION COVERAGE.
- SENSOR TECHNOLOGY: WORKS ON INDUCTIVE PROXIMITY PRINCIPLE WITH CURRENT OUTPUT – NOT SUSCEPTIBLE TO INTERFERENCES.
- SECURITY & AVOIDANCE OF EXTRA CABLE WORK : THE EVALUATOR EQUIPMENT IS INSTALLED IN RELAY ROOM – PROTECTION FROM THEFT, VANDALISM, DUST, NOISE, HUMIDITY ETC.,
- DC POWER : THE SYSTEM IS LOCALLY TAKEN FROM A RELIABLE SOURCE IN RELAY ROOM.
- SENSOR FIXATION : SENSORS ARE FIXED ON ONE SIDE OF THE RAIL. EASE OF INSTALLATION AND MAINTENANCE.
- WORKING RANGE : CAN WORK UPTO 31 KMS WITHOUT BOOSTER AND UPTO 49 KMS WITH BOOSTER.
- INTEGRITY & AVAILABILITY OF THE SYSTEM : VERY HIGH AS IT IS NOT SUSCEPTIBLE TO EXTERNAL ENVIRONMENTAL CONDITIONS.
- SCALABILITY & UPGRADEABILITY: SCALABLE AND SYSTEM IS DESIGNED FOR HIGH SPEEDS UP TO 350 KMPH AND UPGRADABLE.

- MICROPROCESSOR BASED: THE TECHNOLOGY IS STATE OF ART AND THE LATEST.
- COST/UNIT: AS AN OVERALL INSTALLATION, COST EFFECTIVE IN RELATION TO OTHER SYSTEMS.
- QUICK INSTALLATION: LESS CUMBERSOME OUTDOOR WORK.
- LIMITED TRACK SIDE EQUIPMENT : HENCE, EASE OF INSTALLATION OF TRACK SIDE EQUIPMENT.
- REMOTE DIAGNOSTICS AND RESET ARRANGEMENTS
- HIGH OPERATING LIFE CYCLE AND HIGH RELIABILITY, RESISTANT TO ATMOSPHERIC CONDITIONS, LIGHTNING, DUST, HUMIDITY ETC.,
- LIFE OF THE SYSTEM: TWENTY FIVE YEARS.
- MAINTENANCE : VERY EASY. NO EFFECT ON SUBMERGENCE UNDER WATER FOR LONG PERIODS. PROVEN FOR EXTREME ENVIRONMENT / CLIMATIC CONDITIONS.
- ACCREDITATIONS: PROVEN AND ACCEPTED BY BRITISH AND OTHER EUROPEAN RAILWAYS.

Advantages over Existing Systems

- INTEGRITY & AVAILABILITY OF THE SYSTEM: HIGH AS IT IS NOT SUSCEPTIBLE TO EXTERNAL ENVIRONMENTAL CONDITIONS.
- REPLACEMENT OF THE SYSTEM: RARE
- SCALABILITY & UPGRADEABILITY: SCALABLE AND SYSTEM IS DESIGNED FOR HIGH SPEEDS UP TO 350 KMPH AND UPGRADABLE.
- MICROPROCESSOR BASED: THE TECHNOLOGY IS STATE OF ART AND THE LATEST.
- COST/UNIT: AS AN OVERALL INSTALLATION, COST EFFECTIVE IN RELATION TO OTHER SYSTEMS.
- QUICK INSTALLATION: LESS CUMBERSOME OUTDOOR WORK.
- LIMITED TRACK SIDE EQUIPMENT. HENCE, EASE OF INSTLLATION OF TRACK SIDE EQUIPMENT.
- REMOTE DIAGNOSTICS AND RESET ARRANGEMENTS
- HIGH OPERATING LIFE CYCLE AND HIGH RELIABILITY, RESISTANT TO ATMOSPHERIC CONDITIONS.
- ACCREDITATIONS: PROVEN AND ACCEPTED BY BRITISH AND OTHER EUROPEAN RAILWAYS.