



G.G.Tronics
VISUALISING SAFETY SYSTEMS
AN ISO 9001 CERTIFIED

G.G.Tronics India Pvt. Ltd.
www.ggtronics.com

MSDAC-G39

Product Flyer

Multi Section Digital Axle Counter MSDAC-G39

Versatile Axle Counting System Configurable up to 40 DP and 40 Sections

Overview

- MSDAC-G39 is a fail safe, reliable and user friendly 2oo3 architecture-based Axle Counter
- Approved by RDSO & Complies with RDSO/SPN/176/2013 Ver 3.0
- Certified CENELEC SIL-4 standard EN50126, 50128, 50129, 50159 Part A and B and ISA certified by M/s BV Italy
- EMI / EMC tested as per EN61000 and EN55016 standards

Configuration

- MSDAC – G39 Basic chassis (support 12 I/O modules)
- MSDAC – G39 Extended chassis (support 16 I/O modules)
- Detection Point card MDP-G39 supports 2 DP / card
- Section card MSC-G39 supports 1 Section / card

Features

- MSDAC-G39 Supports up to 40 Detection points and 40 sections in station, auto section, IB section, bridges & LC gates
- Configurable also as SSDAC and HA-SSDAC as per RDSO/SPN/177/2012 Version 3.0 with 2oo3 Evaluator and single / dual detection for Block operations
- Works with 24 VDC common power supply, 9 to 36 VDC
- Fault tolerant data communication of V.23 as per CCITT standard and Supports communication on PIJF cable, half quad copper, OFC on voice / data channel, E1 and RF communication with CENELEC 50159 Category A & B
- Supports SSI interface through fail safety telegrams on Modbus protocol and data logger via Ethernet
- Supports train speed up to 250 KMPH
- Supports hot swapping of card modules in Central Evaluator
- Supports both Hardware and Software Reset through VDU software

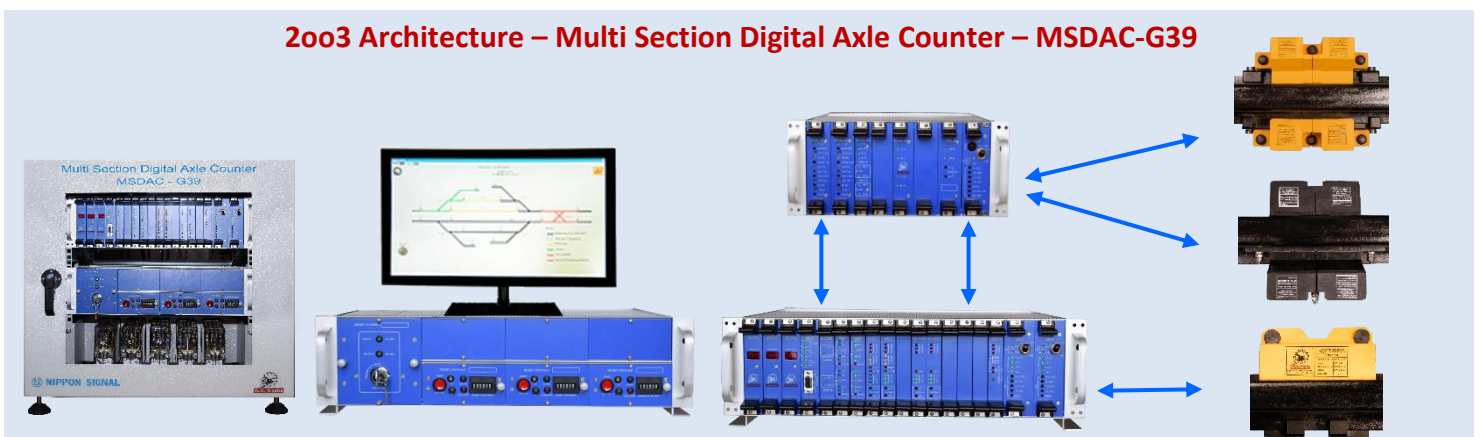
Features continued....

- Self-Diagnostic and configuration checking between CPU's.
- Event logging up to 54000 events, Remote Event Downloading facility available through internet and system monitoring through Internet with IOT technology
- Capable of extending Central Evaluator in daisy chain form with reliable inter-communication of data between the Central Evaluator to Central Evaluator
- Supports 16 numbers of Vital and Non-Vital inputs and outputs for multiplexing reducing cables between stations
- Reliable inter-communication of data between the Central Evaluator to Field units at distances up to **25 km's** with Local Power Supply and 5 Km's with Centralized Power Supply
- MSDAC-G39 can be used in various railway applications like Station Yard, Block Section, Intermediate Block Section, Automatic Section, Level Crossing control, bridge track circuiting etc
- Field DP system can be configured as,
 - 1C1E : Single communication with single Evaluator
 - 2C1E : Dual redundant communication with single Evaluator
 - 2C2E : Dual independent communication with two Evaluators
- Optional Single Sensor can be replaced with FDP to work up to 12 KMs without any Field Electronics in dual communication channel of Quad and RS485 with OFC interface
- Stable operation at -30 to +70 Degree Celsius

Reset (Hardware or software Reset)

- Co-operative — Prep mode with/without piloting
- Direct — With/without Line Verification
- Client operatable Hardware Reset or VDU assisted Software Reset

2oo3 Architecture – Multi Section Digital Axle Counter – MSDAC-G39

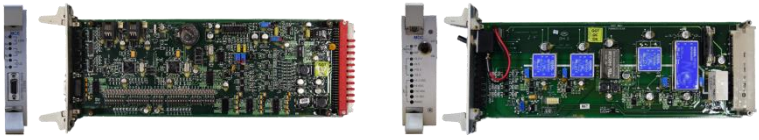
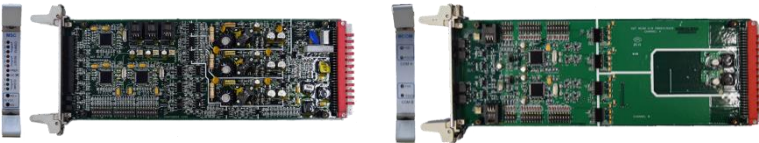
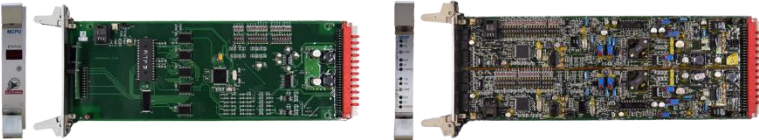


MSDAC – G39 Central Evaluator and Field DP System

Central Evaluator System



- Microcontroller based fail-safe embedded system
- Complete SMT technology, miniaturized 3U card frame
- Fixed pair communication, CRC check with AES128 Cryptography algorithm. Unique addressing of units ensures fail-safety.
- User friendly GUI aids to configure DP's and Sections
- Units can be housed in location boxes near the tracks
- Expandable chassis with Redundant Power Supply to suite DP's and Sections as per customer need with Fail Safe CPU's only in Main Chassis



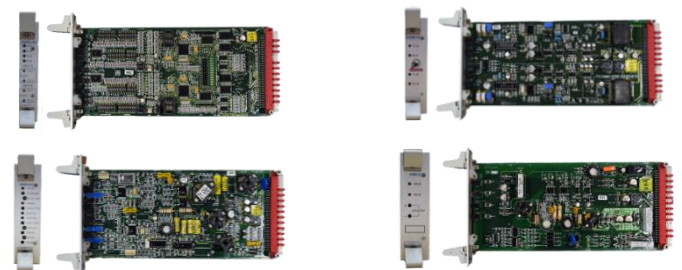
MSDAC – G39 Evaluator System & Card Modules

- MCPU : Central Processing Unit 2003
- MDP : DP card supports 2 DP
- MSC : Vital Section card supports 1 section
- MCE : Communication
- MDC : DC-DC Converter
- MCOM : MSDAC to MSDAC Communication



FDP-G39 & G39A Field DP System & Card Modules

- Microcontroller based fail-safe embedded system
- 2002 CPU based field electronics with V.23 quad interface and direct OFC interface
- Can drive up to 2 Vital Relays at field repeated from Central Evaluator
- Connects to Evaluator System via Quad & Fiber connectivity on hot standby redundant communication. Ideal for long distance communication up to 25 Km's with local Power Supply and short distance up to 5 Km's with centralized Power Supply of 110 VDC



- FCPU : Central Processing Unit 2002
- FCOM : Communication
- FPD1/FPD2 : Wheel Detector
- FRD : Vital Relay Drive Card
- FDC : DC-DC Converter wide range
24 VDC, 9 to 36 VDC
48 VDC, 18 to 72 VDC
110 VDC, 48 to 160 VDC

FDP-G39

FDP-G39A



Client Selectable Wheel Sensors

Tx/Rx Sensor Phase Detection G36-T212503 & G36-T212505

Salient Features

- Web mounted on track and Base Clamp type, works with 90-R, 52Kg, 60Kg rails, Phase detection principle employed
- Signals fed at 21Khz and 25Khz to Tx coils at 60V RMS
- Supports Axles above 330mm and 550mm
- Stable operation at -30 to +70 Degrees Celsius
- Train speed up to 250 Kmph
- Split and Integrated both available

Base Clamp Wheel Sensor



NEW

Web Mount Wheel Sensor



Tx / Rx Sensor Models

- **G36-T212503-S** : Split Sensors
- **G36-T212503-I** : Integrated Sensors

NEW

EWS – G39 Sensor (G39-TR1M00)



Salient Features

- EWS – G39 Sensor works on frequency band of 1.2 MHz as specified in CENELEC Standards EN50617-2 2016 & AC:2016 section 6.2.2 Band 3
- Train speed up to 250 Kmph
- Unique addressing feature for safe operation
- Provision for configuring different types of Trolley wheels for Rejection
- Single pair of Quad copper cable with V.23 CCITT Standard communication with PLCC support
- RS485 Redundant communication to support OFC Fiber connectivity
- Protection against removal of Sensors from Rail section
- Supports both Centralized and Local power supply arrangements with wide Input Voltage range of 18 VDC – 72 VDC. Lower power consumption of 1.2 Watts for Model R1 and 3 Watts for Model R2.
- Stable operation at -30 to +70 Degree Celsius

EWS – G39 Axle Detectors Overview

- EWS – G39 is a fail safe reliable 2oo2 architecture based axle sensing / counting sensor can be used with MSDAC – G39 Evaluator System
- Connects directly to MSDAC – G39 Evaluator without need of any electronics in the Field
- Ideal for medium distance axle sensing / counting up to 12 Km's
- Rail drill free arrangements with base clamp facility

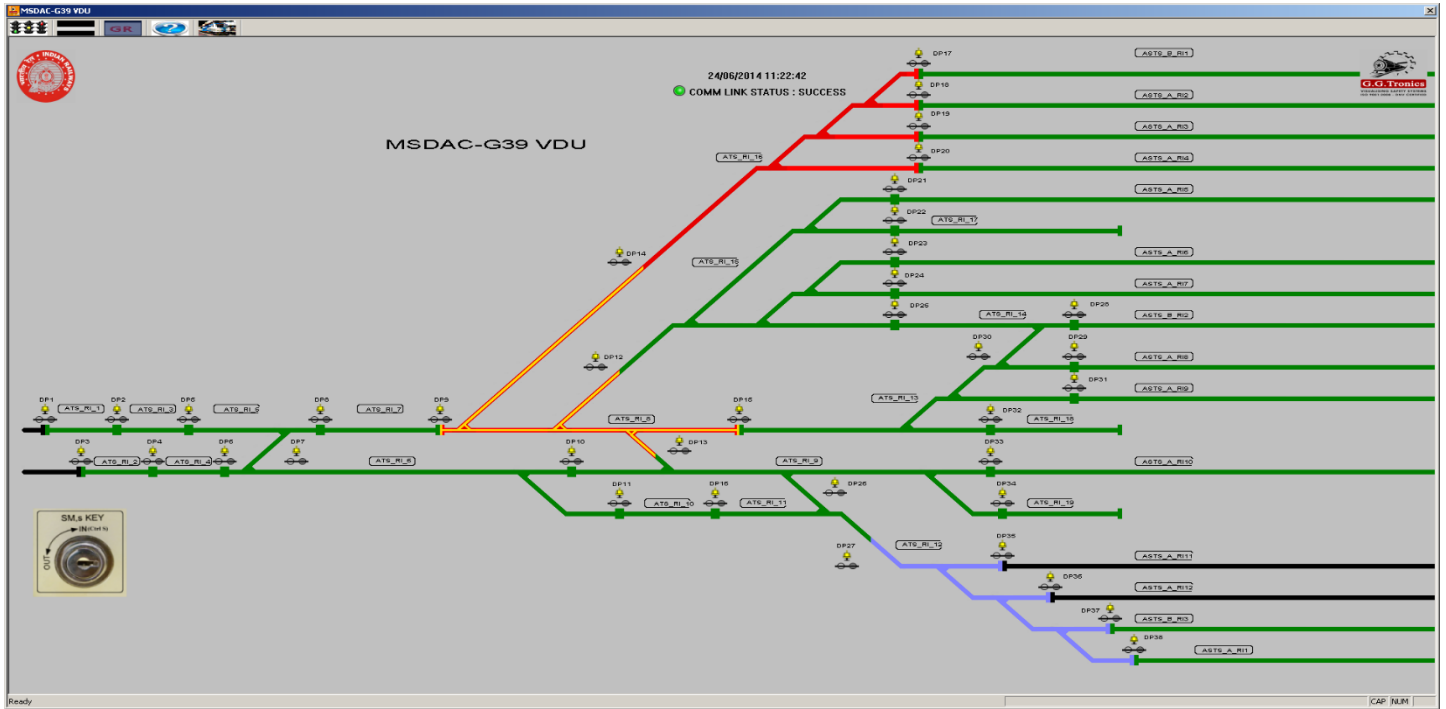
Mechanical Features

- Drill free fixing with Base clamp support.
- Rugged housing with IP68 capability
- Shock free design with Rubber based Resin filling
- Clamp mounting supports 90R, 52 KG and 60 KG standard Rail sections
- Special locking type fool proof bolt fixing arrangements to prevent from sabotage

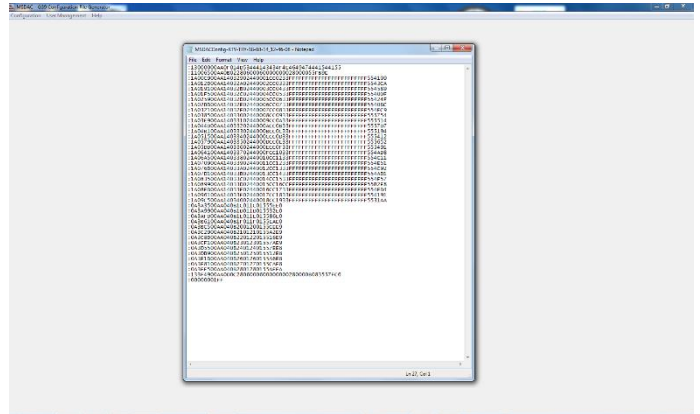
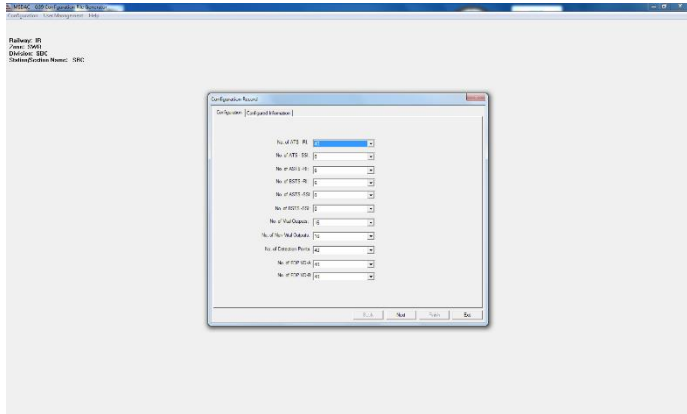
EWS – G39 Models

- **G39-TR1M00-0-R1** : Quad Cable Interface with Single pair for **FSK** V.23 communication. Supports Centralized Power Supply and Local Power Supply
- **G39-TR1M00-0-R2** : Quad Cable Interface with Single pair for **FSK** V.23 communication and RS485 Interface for OFC Fiber communication in Redundant mode. Supports Centralized Power Supply and Local Power Supply

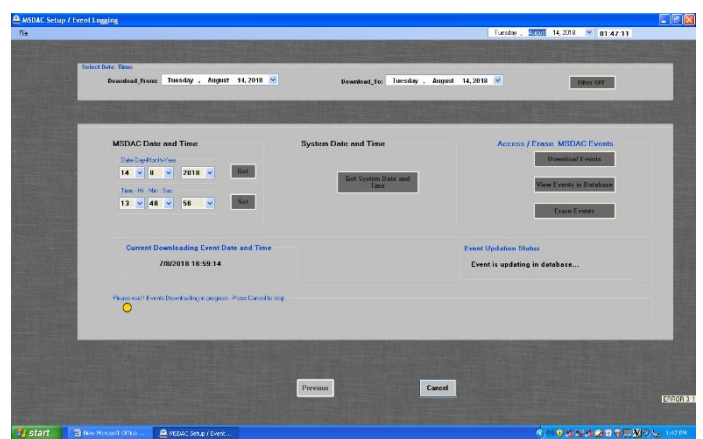
VDU Panel of MSDAC-G39



GUI based DP, Section & Reset Configuration of MSDAC-G39

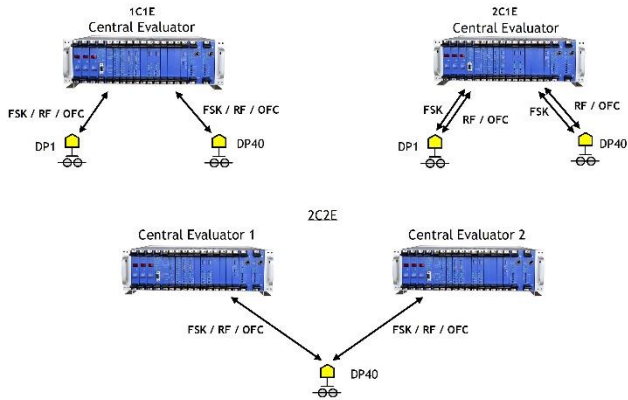


Event Downloading of MSDAC-G39

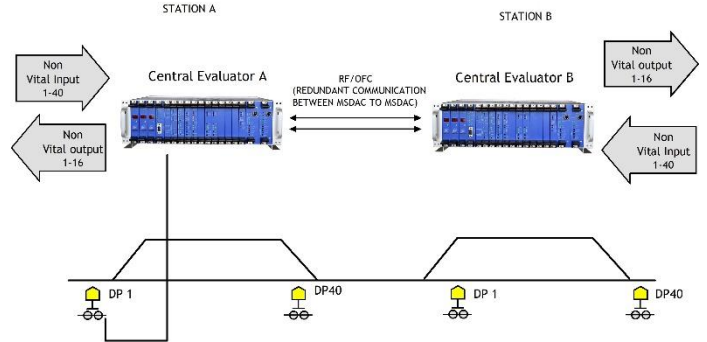


MSDAC-G39 Configurations

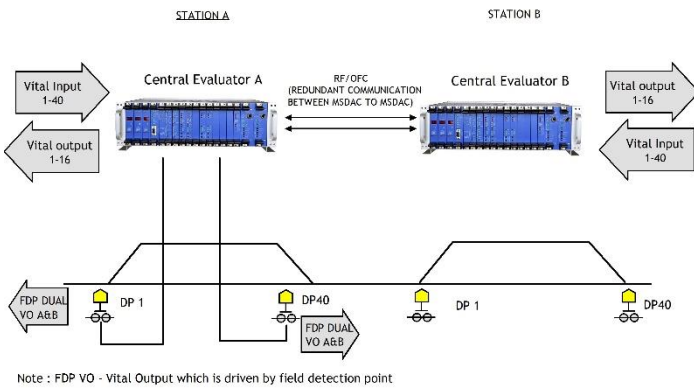
CONFIGURATIONS



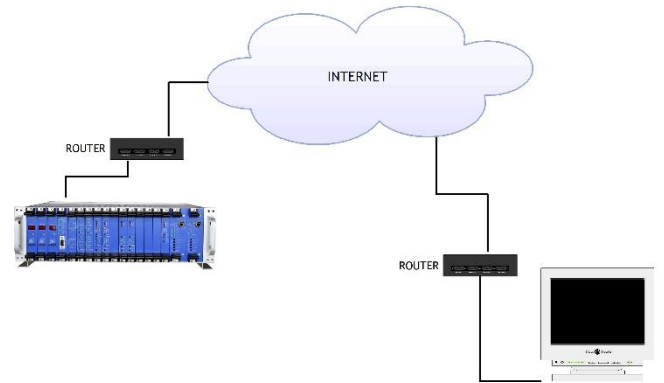
Non Vital Input & Non Vital Output



Vital Input & Vital Output

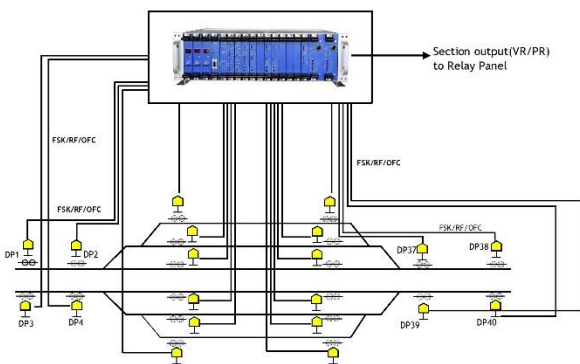


Remote Event Downloading

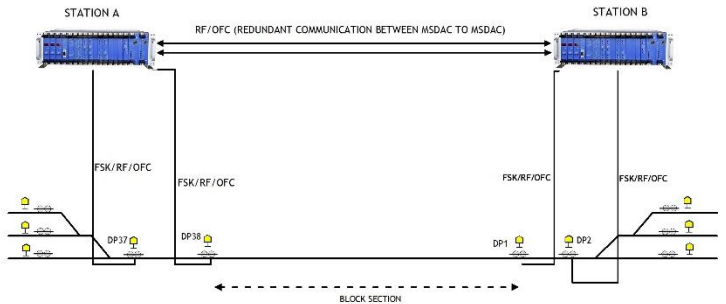


MSDAC-G39 Applications

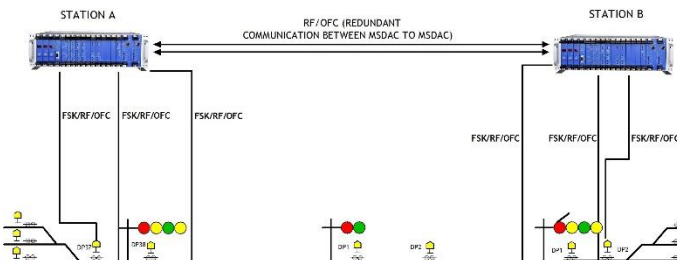
STATION YARD



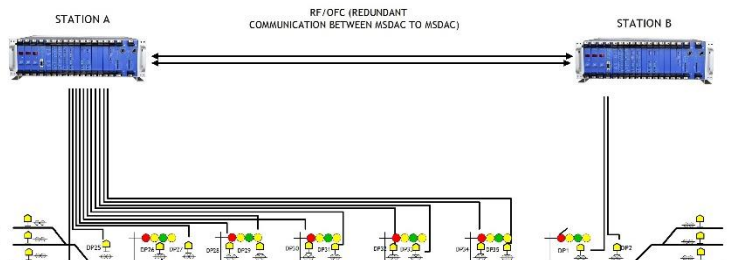
STATION TO STATION OPERATION (BLOCK MONITORING)



INTERMEDIATE BLOCK SECTION



AUTOMATIC BLOCK SECTION



Note : Above schemes are typical. For detailed schemes of various applications like station, Auto Section, Block Section, IB Section contact us.

NOTES

NOTES

Quality policy of the company

"To provide value added products and services to the automation and transport control Sectors by continuously upgrading technology quality and reliability"

Total commitment by management for Quality Assurance right from Design, Development, Production, Supply, Installation and Commissioning Products meet environmental specifications laid by customers



G.G.Tronics India Pvt. Ltd.

Plot No:10, 3rd Phase, 6th Main, Peenya Industrial Area, Bengaluru-560058

+91-80-28372449/50/51 | info@ggtronics.com | www.ggtronics.com