SMCV

Vertical load measurement system

SMCV is a weighing system capable of measuring the vertical load exerted by each individual wheel of rolling stock running on a track with installed measuring devices.

The purpose of the system is to monitor rolling stock passing on a certain section of the line or departing from a station. This allows the identification of cases of excessive and/or disproportionate vertical load and the assessment of wheel geometry. The use of the SMCV system is a guarantee of quality control and increased safety in rail freight services.

ALARMS
Visual and acoustic signaling in one or more remote alarm stations relating to the train journey or to the state of self-diagnostics of the SMCV system.

REPORTS
The option of printing a report on a train which completed a course, inducing alarms. The report provides the number of axes to which the alarms relate, together with details of those non-conformities.

CLIENT
Through a relevant user interface and on the basis of the authorizations granted to the user concerned, each SMCV client will be able to refer to current or past data and alarms, execute commands or change system settings.

FUNCTIONALITY
The SMCV system may obtain the following information on the status of individual transiting rolling stocks in real time:

- Measurement of dynamic or quasitatic vertical loads applied by each wheel of the passing rolling stock;
- Measurement of the speed of the passing rolling stock on each axle;
- Measurement of the distance between two consecutive axles of the passing rolling stock;
- Assessment of excessive axle load compared to the set threshold value;
- Assessment of the load distribution between two wheels of the same axle compared to the set threshold value;
- Assessment of wheel geometry.

PARAMETERS OF INTEREST	NOMINAL VALUE
Data capture unit (UAD) electrical features	
Input power supply	24 Vdc (±25%)
Firmware connection	• Baud rate: 400 MBaud (about 50 MByte/s) • Maxium current: 1,5 A • MAximum lenght connection: 5 m
Maximum current asorption	1,6 A
Measurement channels	• Nominal carrier frequency: 4800 Hz • Precision class: ≤0,03 • Cable lengt (from strain gauge to UAD): maximum 100 m • Frequency measurement field (settable frequency): ≥900 Hz • Maximum common mode voltage allowed: ±6V
Carriage Transit Anomaly Warings (SATR) electrical features	
Input powers supply	24 Vdc (±25%)
Firmware connection	• Baud rate: 400 MBaud (about 50 MByte/s) • Maxium current: 1,5 A • MAximum lenght connection: 5 m
Maximum current asorption	1,6 A
Serial interface	RS-232
MODEM electrical features	
Input powers supply	24 Vdc (±25%)
Output relay contacts	• Per contact: maximum load (static andimpulsive) 100 VA • Maximum interruption voltage: 110 V • Maximum interruption current: 1 A • Avalible contacts - 2 normally closed (NC) - 2 normally opened (NO)
Starting point and stsndard use maximum current absorption	2 A max (starting point) 1 A max (standard use)
LAN speed	100 Mbps
Serial interface	RS232, RS485, RS422
GPS electrical features	
Input powers supply	24 Vdc (±25%)
Maximum absorbed power	3 W
Serial interface	RS232
Serial connection	• Fixed speed: 4800 bps • Transmission type: 8N1

PARAMETERS OF INTEREST	NOMINAL VALUE
Firmware converter - Optic fibre electrical converter features	
Input power supply	24 Vdc (±25%)
Maximum absorbed power	45 W
Firmware port	• 1394b, supplying bus power (1500 mA) • Transfer speed: 100, 200, 400, 800 Mbps • Bandwidth: 100/80/64 MByte/s at 800 Mbps
Optical port	• Low form factor • Laser emission optical transmitter (VCSEL) @ 850 nm • Transfer modes: S800 Beta / Beta S400 / S200 Beta / S100 Beta
Power supply electrical features	
Input	88-264 Vac @ 3,0 A - 50/60 Hz
Output	24 V ±4% @ 4,2 A
Transformer features	
Main transformer input voltage	230 Vac @ 50/60 Hz
Auxiliary transfoormer input voltage	230 Vac @ 50/60 Hz
Power	400 VA
Coil relation	1:1
Mechanical features	
SMCV Cabinet Height	1500 mm
SMCV Cabinet Width	560 mm
SMCV Cabinet Depth	450 mm
Installation environment according to IS 402 regulation: SMCV	A7

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