

14

TENDER SPECIFICATION

NO. CLW/ES/3/0084

 ALT

ENCLOSURES:

DRG. NOS: i) CLW/ES/3/SK-1/0084

ii) CLW/ES/3/SK-2/0084.

TOTAL NO. OF SHEETS:-- ~~8~~ 9

 ALT. - A

SHEETS 8 9

SPECIFICATION FOR
 PRIMARY CURRENT SENSOR
 WAG-9(COCO) ELECTRIC LOCOMOTIVES

ISSUED BY:
 DY. CHIEF ELECTRICAL ENGINEER/CON/TU
 CHITTARANJAN LOCOMOTIVE WORKS
 P.O. : CHITTARANJAN-713331
 DIST: BURDWAN, WEST BENGAL (INDIA)

DATE: 10.4.97

WAG-9(CO-CO) SPECIFICATION FOR PRIMARY CURRENT SENSOR	DRN. <i>pr</i> CDA	CHKD/REV <i>Shankar</i> AEE/D&D	CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA NO. CLW/ES/3/0084 ALT. A
	APPROVED BY <i>[Signature]</i> DY. CEE/CON/TU-I		

ALTERATION RECORD SHEET

Sheet

SL. NO.	DATE OF AMENDMENT	PAGE NO.	ALTERATION No.	REASON	AUTHORITY
1	3-9-03	6	A	All the non metallic Parts of this item should be Fire retardent /Self extinguishing properties as per IS: 11731 (Part I&II) Or any other equivalent DIN, IEC Standards. This clause has been added in Sheet No. 6	

3-9-03
2/3

PREP BY	CHKD BY	REVIEWED BY	APPROVED BY	WAG-9 (CO-CO)	CENTRE FOR D & D CHITTARANJAN LOCOMOTIVE WORKS CHITTARANJAN-713331
Chakar 26-8		D. K. Shukla 25/2/03	<i>[Signature]</i> 3/3	PRIMARY CURRENT SENSOR	
DY. CEE/ CON./TU-1					NO. :- CLW/ES/3/0084 DATE :-
				ALT.	A

SPECIFICATION FOR PRIMARY CURRENT SENSOR
FOR WAG-9 (CO-CO) ELECTRIC LOCOMOTIVES

I N D E X

01. Scope
02. Climatic & Environmental condition
03. Standard
04. Technical Data
05. Design, Construction and operation
06. Tests
07. Dimensions & Drawings
08. Documents to be supplied by tenderer
09. Documents to be supplied by supplier
10. Quality Assurance
11. Reference

DATE: 10.4.97

WAG-9(co-co)
SPECIFICATION FOR
PRIMARY CURRENT
SENSOR

DRN. CHKD/REV.
Ruz
CDA AEE/D&D

CHITTARANJAN LOCOMOTIVE WORKS
WEST BENGAL, INDIA

APPROVED BY

DY.CEE/CON/TU-I

NO. CAW/ES/3/0084

ALT. A

1. SCOPE:-

This specification applies to PRIMARY CURRENT SENSOR for 3-Phase, 6000 HP WAG-9 class locomotive for 25 kV AC 50 Hz system.

The Primary current sensor is used as following in WAG-9 class electric locomotives:

- i) Primary Current Transformer LEM,
- ii) Current Transformer Harmonic Filter,
- iii) Current Transformer Aux. Converter,

2. Climate and Environment conditions:

- * Maximum Atmospheric temperature : Under Sun : 70°C
in shade : 50°C
- * Humidity : 100% saturation during rainy season
- * Reference site conditions :
 - i) Ambient Temp. : max. 55°C min. 0°C
 - ii) Humidity : 60%
 - iii) Altitude : 160 m above mean sea level
 - iv) Rain fall : Very heavy in certain areas. The locomotive will be designed to permit its running at 10 Km/hr in flood water level of 102mm above rail level.
- * Atmosphere during hot weather : Extremely dusty and desert terrain in certain areas.
- * Coastal area : Locomotive and equipment will be designed to work in coastal areas in humid and salt laden atmosphere
- * Vibration : The equipment, sub-system and their mounting arrangement will be designed to withstand vibrations and shocks encountered in service as specified in corresponding IEC publications unless otherwise prescribed.

DATE :- 10.4.97

WAG-9 (co-co)	DRN.	CHKD/REV.	CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA
SPECIFICATION FOR PRIMARY CURRENT SENSOR	<i>PNZ</i> CDA	<i>Shubh</i> AEE/D&D	
	APPROVED BY <i>huv</i>		NO. CLW/ES/3/0084
	DY. CEE/CON/TU-I	ALT.	A

3. STANDARD: AS per relevant IS/IEC. IS: 11731 (Part I & II) (A)

TECHNICAL DATA:

Nominal Current : 1000 A μ ms
 Measuring range : 0 to \pm 1500 A,
 Measuring resistance: $R_{Mmin.}$ $R_{Mmax.}$
 with \pm 15 V
 at \pm 1000 A max.: 0 ohm 25 ohm
 at \pm 1500 A max.: 0 ohm 5 ohm,

Nominal analog output: 200 mA,

Turns ratio : 1:5000,

Overall accuracy : \pm 0.3 % of nominal current,

Supply Voltage : between primary and secondary,

Zero offset current : max \pm 0.4 mA,

Thermal drift of off-: typical \pm 0.2 mA,
 set current maximum \pm 0.3 mA,

Linearity : better than 0.1 %,

Response time : better than 1 μ s,

di/dt accurately followed-: better than 50 A/ μ s,

Bandwith : 0 to 100 KHZ (-1 db),

Current consumption : 25 mA + output current,

Secondary internal resistance: 40 ohm,

weight : 700 gms.

Fastening : by base plate with 4 slots 7 mm dia.,
 120 x 60 mm between centres,

Connection to:

Primary circuit : through hole 40 mm,

Secondary circuit: on 3 Faston terminals 6.3 x 0.8 mm,

Polarity marking : a positive measuring current is
 obtained on terminal M, when the
 primary flows in the direction DATE: 10.4.97
 arrow.

WAG-9 (co-co) DRN. CHKD/REV. CHITTARANJAN LOCOMOTIVE WORKS
 SPECIFICATION FOR *RM2* *[Signature]* WEST BENGAL, INDIA
 PRIMARY CURRENT CDA AEE/D&D
 SENSOR APPROVED BY *[Signature]* NO. CLW/ES/3/0084
 DY.CEE/CON/TU ALT. A

5. Design, Constructional and Operation:-

The tenderer shall submit design and constructional features of the item quoted in their tender quotation.

6. TESTS:-

The equipment shall be tested as per relevant IS/IEC, which shall be mutually agreed upon.

ISOLATION :

- between primary and secondary : 6 KV rms/50 HZ/1 min.
+ test winding + screen
- between screen and secondary : 1 KV rms/50 HZ/1 min.,
+ test winding
- between secondary and test winding : 500 V rms/50 HZ/1 min.

7. Dimensions & Drawings:

See CLW's Drawing No. CLW/ES/3/SK-1/0084
TO
CLW/ES/3/SK-2/0084.

8. Documents to be supplied by Tenderer :-

The tenderer shall inter alia furnish the following in three copies along with the quotation :-

- i) Clausewise comments on the specification and test programme,
- ii) Detailed drawings,
- iii) Past experience with supporting papers (if any),
- iv) Past test reports (if any)

PM2

Sheet

huc

A

09. Documents to be supplied by the supplier

The following documents shall be supplied by the supplier as part of contract:-

- i) Type test report-10 copies,
- ii) Routine test report alongwith each lot -4 copies,
- iii) Maintenance manual-20 copies,
- iv) Detailed drawings- 8 copies,

10. Quality assurance :-

Quality assurance should be as per ISO 9000.

11. REFERENCE:-

The equipment used by M/s ABB for WAG-9 class electric locomotive:

Supplier : LEM S.A.
 CASE POSTALE 785,
 1212 GRAND-LANCY I,
 GENEVA,
 Switzerland.

Ph : 022 708 11 11,

Telefax: 022 794 94 78.

Schematic position No.: 6.2, 8.5, 42.3.

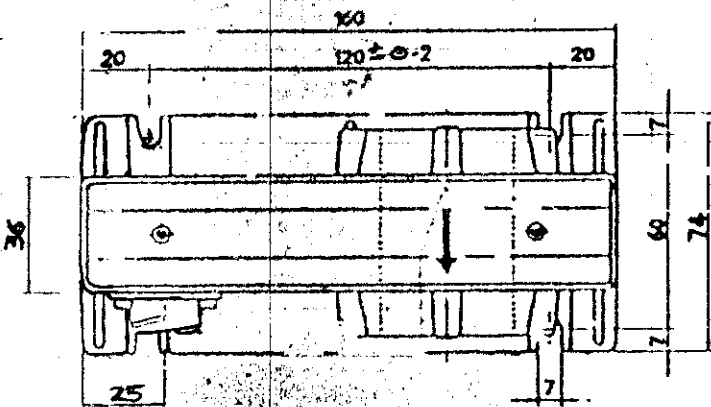
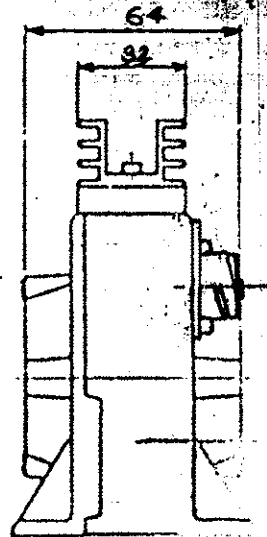
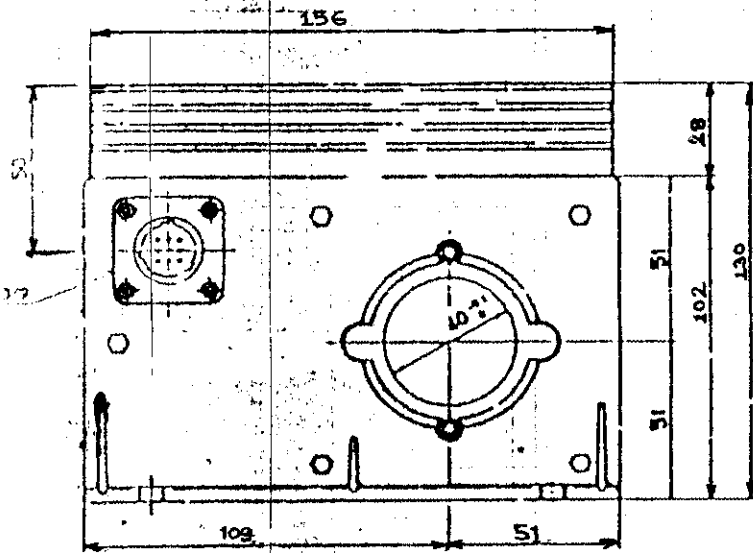
NOTE:- The tenderer should confirm that the item is similar to the item which has been used by for WAG-9 class of electric locomotives manufactured by M/s ABB for Indian Railways.

Note:- All the non metallic parts of this item should be fire retardent/self extinguishing properties as per IS: 11731 (Part I & II) or any other equivalent DIN, IEC standards.

DATE :- 10.4.97

WAG-9 (co-co) SPECIFICATION FOR PRIMARY CURRENT SENSOR	DEN.	CHKD/REV.	CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA
	<i>me</i>	<i>shubh</i>	
	CDA	ARE/D&D	
	APPROVED BY <i>hul</i>		NO. CLW/ES/3/6084
	BY. CEE/CON/TU	ALT.	A

General tolerance ± 0.5 mm

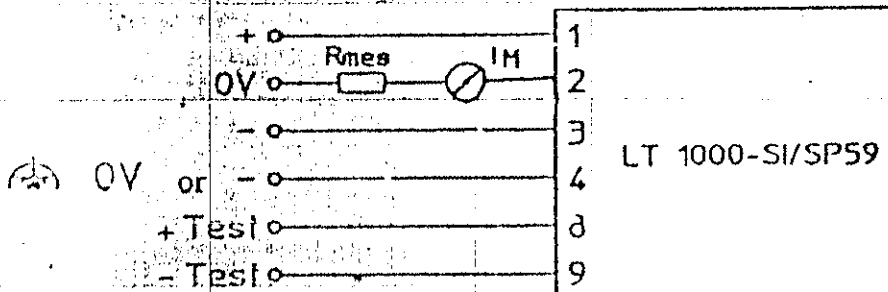


Secondary terminals :

AMP CPC 13/9 connector

- 1 : supply voltage + 15 volts
- 2 : measure
- 3 : supply voltage - 15 volts
- 4 : screen (connected to 0 V or terminal -)
- 5 : NC
- 6 : NC
- 7 : NC
- 8 : + test winding
- 9 : - test winding

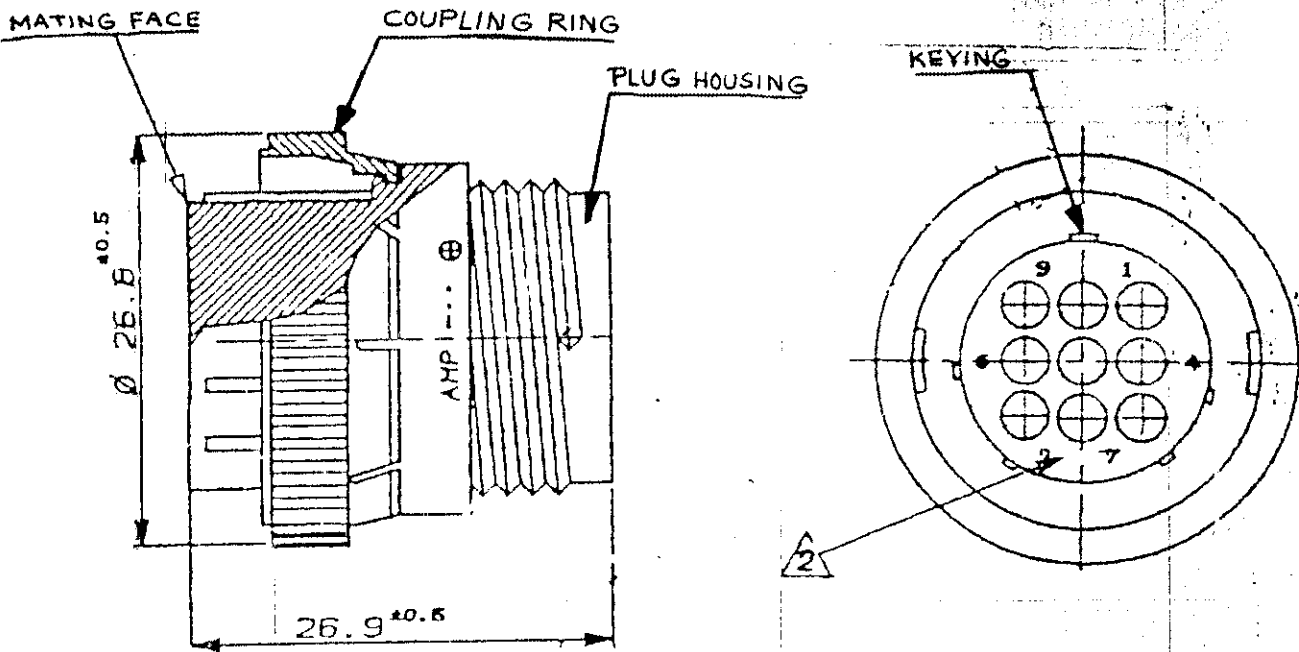
connection:



LT 1000-SI/SP59

DATE: 10.4.97

WAG-9 (Co-Co) SPECIFICATION FOR PRIMARY CURRENT SENSOR	DRN. <i>Rm2</i> CDA	CHKD/REV. <i>dh</i> AEE/D&D	CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA.			
	APPROVED BY <i>hml</i> DY. CEE/CON/TU.		NO. CLW/ES/3/SK-1/0084.			
ALT.		A				



NOTE:

1. MATERIAL: THERMOPLASTIC, BLACK COLOUR,
2. IDENTIFICATION: CONTACT CAVITIES IDENTIFIED BY CHARACTERS ON FRONT AND REAR FACES OF CONNECTOR.
3. The name and year of manufacture of the firm should be embossed on the item.
4. Hardwares are to be used should be of (i) M/S Umbrako (Precision Fasteners) (ii) Laxmi Precision (LPS) (iii) Sundaram Fasteners (TVS) (iv) All spring washers of Forbes Gokak Limited, Moka, Mumbai only.

DATE: 10.4.97

WAG-9(CO-CO) SPECIFICATION FOR PRIMARY CURRENT SENSOR	DRN. Ruz CDA	CHKD/REV. <i>[Signature]</i> AEE/D&D	CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA			
	APPROVED BY <i>[Signature]</i> DY. CEE/CON/TU		NO. CLW/ES/3/SK-2/0084.			
			ALT.	A		