

TENDER SPECIFICATION  
NO. CLW/ES/R-27

ALT. NO.	A	B	C	D	E	F	G	H	I	J	
SHEETS	34	34	33	34	36	36	39	39	39	39	
	K	L	M	N	O	P	Q	R	S	T	U
	39	39	39	39	39	50	50	50	50	51	54
	V	W	X	Y	Z						
54	55	55	55	55							

SPECIFICATION OF  
**RELAYS**  
TYPE: SEQUENCE, TIME LAG, PROTECTIVE  
FOR 25 KV. AC. ELECTRIC LOCOMOTIVE

USED ON LOCOS CLASS


1. WAM-4
2. WAP-1 & 4
3. WAG-5
4. WAG-7
5. WCM-6/WCG-3

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

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आरेखित  
जवाब  
CHKD.  
DKN.

SPECIFICATION OF  
RELAYS FOR 25 kv. AC  
ELECTRIC LOCOMOTIVES  
DATE: DEC '86

  
उप. म. वि. न. (अभि.)  
JOY. CEE. (D)

चितरंजन रेल इंजन कारखाना  
पश्चिम बंगाल, भारत  
CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA  
क्रमांक/ NO. CLW/ES/R-27  
पृष्ठ/ALT. F/G/H/I/J/K/L/M/N/O/P/Q/R/S/T/U/V/W/X/Y/Z

ALT No.	Date	Description	Signature	Remarks
T	19-5-03	QLA Relay particulars are added in sht. No.41 to 50	<i>He</i>	
LA	9.12.03	Specification is revised to include the latest type test procedures vide RDSO's letter No.EL/3.2.10/Gen dated 04-12-03. Sheet No.51 to 53 is added.	<i>He</i>	
V	19.7.04	QCON & QSIT included against PC-8 type relay for use in <del>Static</del> Converter Loco!	<i>He</i>	
W	16-10-06	Specification is revised to include the Copper Shorting link plate for DI/DU Relays. Sheet No. 34/A is added by the approval of Dy. CEE/D-I, vide letter NO. ELDD/3245/MK dated -13-09-2006.	<i>He</i>	
X	17.03.10	QVCD included against PC-8 type Relay for VCD in WAG-7 & WAP-4 Locomotive. Included in sheet no-12/A	<i>He</i> 17/3/10	
Y	22.05.10	QVCD is deleted from PC-8 type Relay in sheet no-12/A and is supplied as a accessories along with VCD as per letter no. ELDD/3259/PL dt 11.05.10.	<i>He</i> 24/5/10	
Z	02.03.11	SL. NO. 2A [Inverter Trip Relay (QSIT), PC-8 type Relay] in sheet No. 12/A is deleted and SL. NO. B [Inverter Trip Relay (QSIT), DU type Relay] in sheet No-15 is included against letter No. ELDD/3312/PL dtd. 08.02.11.	<i>He</i> 2/3/11	

जांचा  
CHKD  
पारितोषित  
DRN.

SPECIFICATION OF RELAYS FOR ELECTRIC LOCOMOTIVES

सह -

उप.सु.वि.ज. (अभि.)  
DY. CEE. (D)

चितरंजन रेत इंजन कारखाना  
पश्चिम बंगाल, भारत  
CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA  
क्रमांक/NO. CLM/ES/R-27/V1X/Y/Z  
दिनांक/DATE : 19-5-2003.

SCHEDULE "A"

TECHNICAL PARTICULARS FOR SEQUENCE RELAYS

Sl. No.	Functional Reqmt. of the relay	Sym- bol	Qty/ Loco	Type	Voltage of utilisation in circuit	Minimum pick up voltage	Range of operating voltage	Test vol- tage for one minute.	No. of contacts required	Con- tacts (press- ure.)	Con- tact gap	Re- marks
1.	Interlocking relay.	Q45	One	PC-8ahx or similar	110V D.C.	50V D.C.	70-125V	2KV, 50C/S	4 NO + 4 NC	25 gms ±25%	2.5mm ±10%	
1A.	Inverter control relay	QCON	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	
2.	Relay for control of J, CTF, C145 & DJ.	Q50	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	
<del>2A.</del>	<del>Inverter Trip relay</del>	<del>Q51</del>	<del>One</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>DELETED</del>
3.	Inter locking relay for Aux.ckt.	Q100	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	
<del>3A.</del>	<del>Tap changer regression relay.</del>	<del>QVED</del>	<del>One</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>-do-</del>	<del>(7)</del>
4.	Tap changer regression relay.	QRS	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	
5.	Weight compensation relay.	QWC	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	
6.	Relay for Alarm chain Buzzer.	QHIR	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	ALT. S
7.	H.V. Circuit breaker.	QV60	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	
8.	Relay General for Isolation of Buzzer for flasher light.	QFL	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	
9.	Relay General for auto regression during train parting.	QRR	One	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	

NOTES: 1. Terminals of the plug in type base relays shall be suitable for 2 wires of cross section 2.5/3 Sq. mm.  
 2. Mounting Arrangement: - The fixed socket of relays shall be mounted on panel frame & the plug in upper part of the relays shall be plugged in on the socket as shown in Drawing No. CLW/ES/SK-2/R-27.

19/11/11 SPECN. OF RELAYS FOR ELECTRIC LOCOMOTIVES  
 CLW/ES/CLW/ES/R-27/ST WX  
 DT. DECEMBER, 2001  
 DY. C. E. E. / D  
 CLW / CRJ

SEE SHEET -13/A

SCHEDULE - C  
 TECHNICAL PARTICULARS OF THE PROTECTIVE RELAYS (TYPE DL&DU)

Sl. No.	Functional Reqt. of the Relay	Sym- bol	Loco	Qty/	Last Supplier	Type	Voltage of utilisation in Ckt.	Minimum pickup voltage/ current	Range of operating voltage/ current	Main Ckt. & earth lead	Test voltage between High voltage & low voltage Ckt. & earth Ckt.	No. of Contact Reqd.	Additional Resist- tance	Flag	Reqt. Remarks
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6. Aux. Ckt. earth fault protection relay. QOA One M/s BBC Switzerland. DU OR Similar 0 to 485 Volts, AC Simi- lar momentary 50V DC - 70-125V-3KV-2KV-2KV 2KV 2KV 50 C/S 50 C/S 50 C/S 1min 1min 1min 1min 2 N/C 150 ohm in parallel Yes

7. Instantaneous Volt Relay. Q30 One -do- DU OR Similar 450V, AC, 50 C/S Simi- lar continuous voltage with resistance pickup 215V AC with resistance, Dropout 260V AC with resistance. 2.7 KV 2KV 50 C/S 50 C/S 50 C/S 1min 1min 1min 1min 2 N/O 3900 ohms series resistance. No

8. Inverter Trip Relay. Q51T One -do- DU or Similar 110V DC Contact pressure 70-125V 5KV 50 C/S 50 C/S 50 C/S 1min 1min 1min 1min 2 NC 2 NC 2 NC 150 ohm Yes

NOTE: 1) Contact pressure - The contact gap shall be approx. 0.7 ± 10%.  
 11) Terminal arrangement - The terminals of plug-in type base relays shall be suitable for two wires of cross section 2.5mm<sup>2</sup>/3mm<sup>2</sup>.  
 1v) Mounting arrangement - The relay shall be flush mounted on panel as shown in drg. No. CDI/ES/SK-5/R-27 and CLW/ES/SK-10/R-27.

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CLW/ES/R-27/R-27  
 DATE - DEC 86  
 FOR REE/D