

**Reasoned documents for Key lock checking relay with DC Neural Relay  
(A.C Immunized/Non A.C Immunized) for Railway Signalling purposes)**

Clause No.	RDSO/SPN/219/2016 version 1.0 d.0	M/s Siemens	M/s IEIL	Railways' comments (WCR)	RDSO's views
2.1	General Description: Key Lock Checking Relay (KLCR) is used at level crossing Gate and also for transmitting the control key from ASM's office to Crossover location besides many other applications. In KLCR a common key with a specific ward controls the entry of Crank handle in group of point Machines. In KLCR, assembly of bare relay in Metallic Enclosure is being done, along with this 1 No. key and 1 No. Ward plate any one from A to Z, as applicable.	M/s Siemens-ward plate for J&Y are not available (all except J&Y)	In M/s Integra ward plate I and X are not available	Key Lock Checking Relay shall be suitable for, (a) Point Crank Handle Interlocking, (b) level crossing Gate control transfer, (c) Ground Frame Control Transfer.	Agreed. This clause covers both the firms as clause (2.1) have A to Z as applicable. Railways' comments incorporated in the spec. as under:- "Key Lock Checking Relay (KLCR) is used at level crossing Gate for control transfer, Point Crank Handle Interlocking, Ground Frame Control Transfer .....as applicable."
4.6	The cover and base plate of the Relay when assembled shall be dust proof.	Cover and base plate should be dust free or avoid dust deposition as far as possible			Agreed with following stipulations:- "dust proof is replaced by dust free"
4.7	Surface leakage distances shall not be less than 3.0 mm internal and 6.0mm external parts.	Surface leakage distance internal 2.1 mm minimum & external 6.0 mm	Internal surface leakage distance 3.08 mm observed. External = 3 mm with insulation sleeve on contact knife. <u>Note:-</u> External parts surface leakage distance is less than 6 mm. However, due to use of insulation sleeve on contact knife suffice the purpose of maintaining distance of 6 mm.		Agreed. As per clause 3.4.1 of IRS:S 46/74, internal surface leakage distance is specified as 1.8 mm, but is recommended to specify as 2.1 mm.

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4.9	The locking assembly shall be chrome plated / Zinc plated mild steel or Brass material having adequate strength.	Zinc/Nickel plated			Agreed "The locking assembly shall be chrome plated/Zinc/ Nickel plated..... strength"
4.10	The locking notch/face on the locking drum / sector shall be sharp square cut		Add lock plate		Agreed "The locking notch/ lock plate face on ..... cut"
4.16	The mounting screw, if any, shall be of M4/ size rust free material (The mounting screw, if any, shall be of rust free material & suitable size)		Add Any suitable size		Agreed "The mounting screw, if any, shall be of M4/ any suitable size rust free material.....size)"
5.1	i) Key& ward shall be as per Appendix A1 and ii) Dimension of Key lock Relay shall be as under : L=162.5 mm H=92 mm W=66 mm tolerance of (+/- 2mm) or L=170.5 mm, H=173 mm, W= 77 mm. (+/- 2mm)	dimension – or L= 175 mm , H=173 , W =78 mm	Add Excluding pin in length		Agreed with following stipulation. The dimensions of box of KLCR is always without pin.The dimensions of key lock relay shall be as under:- L = 175 mm (Max.) H = 175 mm (Max.) W = 80 mm (Max.)
5.2	A KLCR shall include ward plates minimum 3 Nos., one with KLCR and two spares.			Supply of ward plates (minimum 3 Nos.) should be included with each KLR for fixing on point machines.	This comment of WCR is incorporated in the specification.
6.1	The locking armature shall be positively located so as to prevent any displacement other than that required for the proper operation of the Contacts. The Locking plunger shall be of non-magnetic material and lift by at least 3.5 mm before key gets unlocked. The width of locking area on plunger shall not be less than 5mm.		In Integra design, lift is 3.8 mm. the width of loading area on lock plate is 6 mm. The lock plate is non-magnetic material i.e. stainless steel.		Agreed. in the third line of the clause "The Locking plunger/Lock plate .....5 mm".
6.4	In Key Lock Relay fitted with pivot bearings, the armature pivots and bearings shall be cylindrical, and the bearings shall be not less than 0.05 mm or more than 0.1 mm larger in diameter than the pivots. The endplay of the armature shall be in line with K-50 Relay as per IRS : S: 46/74.	Bearing shall not be less than 0.01 mm.	Bearing to be replaced with Ball. Add pivot/lever holder		Agreed. Clause is amended as "In Key Lock Relay fitted with pivot bearings the armature pivots/pivot holder and bearings/ball shall be cylindrical."

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9.1	The rated life of the Relay shall be taken as 20,00,000 cycles under specified conditions of operations where one cycle consists of an operation to release the key followed by its relocking in the relay.	life-maximum 3,00,000 operations (per day max. 4 operations x 30 days x365 x7 years)			Agreed. The rated life of the Relay shall be taken as <b>7 years or 3,00,000</b> operations under specified conditions of operations where one cycle consists of an operation to release the key followed by its relocking in the relay.
13.1 (a)	The operating values shall be as follows:- (a) Working Voltage The relay shall be suitable for operation on nominal supply voltages of either 24 or 60V DC as specified by purchaser. The relay shall also be suitable to use on un-smoothed rectified A.C. supplies having the same nominal voltages.			It shall be suitable for 24V DC & 60VDC both as per Railway requirement preferably 24VDC for universal application.	This comment of WCR is already incorporated in the specification.
13.4.1	The test circuit for Immunity to industrial supply alternating current at 50 Hz shall be as per IRS:S-60 or AC immunity is done 750VAC & 300VAC as per SIF 1468 Ver.1			It's immunization should be at par with other m-m relays.	This comment of WCR is already incorporated in the specification.
16.1 (iv)	A nameplate/stamp giving the following information shall be attached to the Relay in a conspicuous position:- i) Manufacturer's name. ii) Type of relay with Specification Reference number. iii) Serial number of the Relay. iv) Rated voltage. v) Contact arrangement. vi) Date tested, (month and year is sufficient).	Rated voltage if not 60 V.			Not agreed, as specifying the rated voltage in the equipment is essential.