



सत्यमेव जयते

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No. EL/ 4.2.15/Gen

Date: 28.11.2018.

प्रमुख विद्युत अभियंता,	Principal Chief Electrical Engineers,
1. मध्य रेलवे, मुंबई सीएसटी-400 001	1. Central Railway, Mumbai, CST-400 001.
2. पूर्व मध्य रेलवे, हाजीपुर- 844 101	2. East Central Railway, Hazipur-844 101.
3. पूर्व तटीय रेलवे, चन्द्रशेखरपुर, भुवनेश्वर-751 017	3. East Coast Railway, Chandrashekharpur, Bhubaneswar -751 017.
4. पूर्व रेलवे, फेयर्ली प्लेस, कोलकाता-700 001	4. Eastern Railway, Fairlie Place, Calcutta-700 001.
5. उत्तर मध्य रेलवे, ब्लॉक ए-2, सुबेदारगंज इलाहाबाद- 211 033	5. North Central Railway, Block-A, Subedarganj, Allahabad- 211 033.
6. उत्तर रेलवे, बड़ौदा हाऊस, नई दिल्ली-110 001	6. Northern Railway, Baroda House, New Delhi-110 001.
7. उत्तर पश्चिम रेलवे जयपुर- 302006	7. North Western Railway, Jaipur- 302 006
8. उत्तर पूर्व रेलवे गोरखपुर- 273001	8. North Eastern Railway, Gorakhpur-273001
9. उत्तर पूर्व फ्रंटियर रेलवे मालीगोंव गुवाहाटी-781011	9. North East Frontier Railway, Maligaon, Guwahati- 781011
10. दक्षिण मध्य रेलवे, रेल निलायम, सिकंदराबाद-500 371	10. South Central Railway, Secunderabad-500 071.
11. दक्षिण पूर्व मध्य रेलवे, बिलासपुर- 495 004	11. South East Central Railway, Bilaspur-495 004.
12. दक्षिणपूर्वरेलवे, गार्डनरीच, कोलकाता-700 043	12. South Eastern Railway, Garden Reach, Kolkata-700 043.
13. दक्षिण रेलवे, पार्क टाउन, चेन्नई-600 003	13. Southern Railway, Park Town, Chennai-600 003.
14. दक्षिण पश्चिम रेलवे हुबली-580020	14. South Western Railway, Hubli- 580020
15. पश्चिम मध्य रेलवे, जबलपुर-482 001	15. West Central Railway, Jabalpur-482 001.
16. पश्चिम रेलवे, चर्चगेट, मुंबई- 400 020	16. Western Railway, Churchgate, Mumbai-400 020
17. वित्तरंजन रेल इंजन कारखाना, वित्तरंजन- 713 331	17. Chittaranjan Locomotive Works, Chittaranjan-713 331
18. डीजलरेलइंजनकारखाना, वाराणसी-221004	18. Diesel Locomotive Works, Varanasi-221 004.

Sub: Amendment no. 2 of Technical circular no. RDSO/2012/ EL/ TC/119 Rev-1 dated 20.3.2013 for Setting of number of pulse/revolution and wheel diameter with Microprocessor based Control & fault diagnostic System (MPCS) V3 for correct indication of speed.

1. Some of the Railways had reported mismatch in the speed indicated on MPCS V3 and speedometer provided in the locomotive.
2. MPCS V3 does not use separate pulse generator (PG) for speed indication, rather pulse from junction box of microprocessor based **Electronic Speed cum energy MONitoring system (ESMON)** is used by MPCS V3 for calculating the speed.
3. Speed indicated by the MPCS will depend up on the number of pulses per revolution & wheel diameter of the locomotive.

Amendment-2 of TC119 Rev-1

[Signature]

Page 1 of 3

4. Number of pulses/ revolution & wheel diameter is configurable system parameters, which can be configured in settings of MPCS V3 by authorised users.
5. If there is mismatch in the actual number of pulses generated by pulse generator (PG) of ESMON and number of pulses/ revolution specified in the system parameters, or between the wheel diameter setting in ESMON & MPCS the speed indicated by the MPCS will not match the speed indicated by ESMON.
6. Minimum & maximum range of number of pulses/ revolution had been specified as 60 to 120 in clause 6.8 of Technical circular No. TC-119, and range had been implemented in MPCS V3 software accordingly.
7. Number of pulses/ revolution generated by pulse generator, of different makes of ESMON are given below.

S.n.	ESMON Make	Nos. of pulses per revolution
1.	M/s Medha	60
2.	M/s Stesalit	60
3.	M/s Laxven	30
4.	M/s AAL	200

8. It is observed that number of pulses/ revolution generated by pulse generator of M/s AAL and M/s Laxven make ESMON are outside the range specified for number of pulses/ revolution in MPCS version-3. Thus there is difference in speed indicated in MPCS version-3 and ESMON of M/s AAL & M/s Laxven make.
9. To overcome the problem, range of the number of pulses/ revolution, specified at s.no. 12 in system parameter setting screen shown on page no. 79 of 85 of technical circular no. RDSO/2012/ EL/ TC/119 Rev-1 dated 20.3.2013 is modified as given below;

S. No.	Parameter	Existing Value (As per TC 119 rev-1)	Modified Value (Modified by this amendment)
12	Number of pulses/ revolution		
	Minimum	60	30
	Maximum	120	200
	Default	120	60

10. Modified screen of system parameter setting which replaces the existing system parameter setting screen at page no. 79 of 85 of technical circular no. RDSO/2012/ EL/ TC/119 Rev-1 dated 20.3.2013 is given below;

System Parameter setting									
Sl. No.	Description	units	Value	Min	Max	Default			
1	QCVAR pickup	Volts	162	140	180	160			
2	QCVAR dropout	Volts							
3	Q20 pickup	Volts	865	820	900	865			
4	Q20 dropout	Volts	760	720	800	760			
5	Q30 pickup	Volts	265	240	280	265			
6	Q30 dropout	Volts	215	200	250	215			
7	QD pickup	Volts	150	120	200	150			
8	QD dropout	Volts	50	40	100	50			
9	QF pickup	Volts	860	720	900	860			
10	QF dropout	Volts	760	700	800	760			
11	Wheel Diameter	mm	1024	800	1200	1024			
12	Number of Pulse/Rev		60	30	200	60			
1	2	3	4	5	6	7	8	9	0

11. All other clauses of Technical circular no. RDSO/2012/EL/TC/119 Rev-1 and its amendment-1 dated 25.08.2018 remains unchanged.
12. Technical circular no. RDSO/2012/ EL/ TC/119 Rev-1 dated 20.3.2013 along with amendment-1 & 2 specifies the technical details of MPCS version-3 with specification no. ELRS/SPEC/MPC-FDS/0001 Rev.-3 of Apr 2013.
13. It is advised to modify the software and implement the modification in range of number of pulses/ revolution at the earliest.

(P. K. Saraswat)

For Director General/Elect.

Encl: as above

Copy to:

1. **Secretary (Elect.), Railway Board, Rail Bhawan, New Delhi- 110 001**
(Kind attention: **Sri A. K. Goswami DEE/RS/RB**): For kind information please.
2. M/s. Medha Servo Drive Pvt. Ltd, P-4/5B, IDA Nacharam, Hyderabad – 76
3. M/s. IC Electricals Company (P) Ltd., 156, DSIDC, Okhla Industrial Area, Phase-1, New Delhi – 110 020
4. M/s. Stone India Limited, 16, Taratalla Road, Kolkata – 88
For information & necessary action please.

(P. K. Saraswat)

For Director General/ Elect

Encl – NIL