

Title (en)

TRAIN TRAFFIC CONTROL SYSTEM AND METHOD FOR SAFE DISPLAYING A STATE INDICATION OF A ROUTE AND TRAIN CONTROL SYSTEM

Title (de)

ZUGVERKEHRSLEITSYSTEM UND VERFAHREN ZUR SICHEREN ANZEIGE EINER ZUSTANDSANZEIGE EINER STRECKE UND ZUGVERKEHRSLEITSYSTEM

Title (fr)

SYSTÈME DE CONTRÔLE DU TRAFIC FERROVIAIRE ET PROCÉDÉ DE SÉCURISATION DE L'AFFICHAGE D'UNE INDICATION D'ÉTAT D'UN SYSTÈME DE CONTRÔLE DES ITINÉRAIRES ET DES TRAINS

Publication

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Application

**EP 18177217 A 20180612**

Priority

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Abstract (en)

[origin: EP3549842A1] The inventive train traffic control system comprises a route and train control system (RTCS), an operator workstation (OW) with a display (D), wherein the operator workstation (OW) comprises at least one basic integrity indication component (BIC) with safety level SIL0 for indicating information with a basic integrity on the display (D), and a safe state indication component (SSC) with safety level SIL>0, in particular SIL4, for indicating safety-related information concerning the state of elements of the route and train control system (RTCS) on the display of the operator workstation (OW), wherein the safe state indication component (SSC) is functionally independent of the operator workstation (OW), and a safe channel (C) connecting the safe state indication component (SSC) and the display (D) for safe transmission of safety-related information about the state of elements of the route train control system (RTCS). The inventive train traffic control system realizes the required high safety level for safe state indication and allows considerable cost reduction and flexibility.

IPC 8 full level

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Citation (opposition)

Opponent : GTS Deutschland GmbH

- BÜCKER CHRISTOPH, HEUER VOLKMAR: "Traffic Management System (TMS) in großen Betriebszentralen Traffic Management System (TMS) in large operations control centres", SIGNALLING + DATACOMMUNICATION, vol. 108, no. 1-2, 1 February 2016 (2016-02-01), pages 51 - 57, XP093119205
- ENGELBART PATRICK: "Hochrüsten von ESTW Hochrüsten von ESTW für die Anbindung an eine Betriebszentrale", SIGNAL + DRAHT, vol. 93, no. 7-8, 1 August 2001 (2001-08-01), pages 22 - 26, XP093119208

Opponent : Siemens Mobility GmbH

- EP 1750988 B1 20081217 - BALFOUR BEATTY PLC [GB]
- EP 3040862 A1 20160706 - AUCHMANN MATTHIAS [AT]
- WO 03093999 A2 20031113 - ALSTOM FERROVIARIA SPA [IT], et al
- US 2009254986 A1 20091008 - HARRIS PETER WILLIAM [GB], et al
- EP 2551787 A1 20130130 - DEUTA WERKE GMBH [DE]
- EP 1942041 A2 20080709 - WESTINGHOUSE BRAKE & SIGNAL [GB]
- DE 102014201551 A1 20150730 - SIEMENS AG [DE]
- US 2014088802 A1 20140327 - KNOLLMANN VOLKER [US], et al
- US 2016379381 A1 20161229 - KRUTSCH ROBERT CRISTIAN [DE], et al
- US 2016379331 A1 20161229 - KRUTSCH ROBERT CRISTIAN [DE], et al
- EP 3082127 A1 20161019 - FREESCALE SEMICONDUCTOR INC [US]
- DE 102012207439 A1 20131107 - CASSIDIAN AIRBORNE SOLUTIONS GMBH [DE]
- US 2011157222 A1 20110630 - MORLEC CECILE [FR]
- DE 102015209448 A1 20161124 - BAYERISCHE MOTOREN WERKE AG [DE]
- US 2011199308 A1 20110818 - NATIVEL DANY J [FR], et al
- US 2011057951 A1 20110310 - BOGENBERGER FLORIAN [DE], et al
- US 2016267885 A1 20160915 - MEILINGER JUERGEN [DE], et al
- US 2010271194 A1 20101028 - MASUI TERUHISA [JP], et al
- US 2015277838 A1 20151001 - GYLLENSWARD ERIK [SE]
- EP 2244188 A1 20101027 - THALES DEUTSCHLAND HOLDING GMB [DE]
- DE 4306470 A1 19931104 - INTEGRA SIGNUM AG WALLISELLEN [CH]
- DE 102011005188 A1 20120913 - SIEMENS AG [DE]
- LAUMEN HEINZ, HENNING STEFFEN: "Das Stellwerk ZSB2000 für die Anwendung ESZB", SIGNAL + DRAHT, EURALPRESS, HAMBURG, vol. 96, 1 January 2004 (2004-01-01), pages 32 - 36, XP093028931
- INA BLEICHER: "Herausforderungen des neuen integrierten Bediensystems bei der DB Netz AG", SIGNAL UND DRAHT: SIGNALLING & DATACOMMUNICATION, EURALPRESS, DE, vol. 106, no. 4, 1 April 2014 (2014-04-01), DE , pages 30 - 33, XP001587950, ISSN: 0037-4997
- SPEISER NORBERT: "Ein Bedien-kommando im ESTW mit besonderer Bedeutung", BAHNPRAXIS, 1 May 2007 (2007-05-01), pages 6 - 9, XP093028937
- RUDOLF GANZ: "Sichere Anzeige und Bediensysteme Sicherheit schafft Vertrauen", EB- ELEKTRISCHE BAHnen, DIV-DEUTSCHER INDUSTRIEVERLAG, DE, vol. 109, no. 3, 1 March 2011 (2011-03-01), DE , pages 131 - 134, XP001526115, ISSN: 0013-5437
- VIEIRA PAULO, QUARESMA MANUEL, JERONYMO, OSVALDO-SENIOR: "An Ergonomic Design for a HMI of Locomotives in a CBTC System", 9111 INTERNATIONAL HEAVY HAUL CONFERENCE, 1 January 2009 (2009-01-01), pages 689 - 695, XP093028948

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HU E059058 T3 20230128; KR 102536023 B1 20230523; KR 20200140860 A 20201216; LT 3549842 T 20220725; PL 3549842 T3 20220822;  
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