Minutes of the
NMRA DCC Working Group Meeting
Date: Tuesday, January 6, 2007
Location: Nuremberg Toy Fair, Germany

Attendee list follows the minutes
Minutes recorded by Reinhard Müller

Welcome

9:10 Didrik Voss opened the meeting.

Report from the BoD meeting

Didrik Voss reported that only little time of the BoD meeting was devoted to the Standards and Conformance department. However two new RPs have been approved.

0510241 Revision of RP 9.2.2 and **0305051 Decoder Lock Proposal**. RP-9.2.2 has been approved, including the CVs for the Decoder Lock via CVs #15 and 16.Both topics are closed.

0309301 RP-9.3.1
RP-9.3.1 approved and topic 0309301 RP-9.3.1 closed. To get a license from the NMRA only the decoder has to conform, not the locomotive the decoder may be installed in when they are sold together.

Bi-Directional Status

Peter Ziegler gave short report. Rp-9.3.1 has been approved and now the messages have to be defined. So far not much has been done so far, but Zimo will activate decoders to work with the Lenz detector to display the address and to read CVs and other data. The Messages in RP-9.3.2 will be defined based on the experience with these first Messages.

Jürgen Lindner: We got a license and will work on RailCom. Main concern is to keep things compatible. The first use by ESU is the turnout feedback.

Peter Ziegler: Zimo will also have switch decoders with RailCom. Proposal for RP-9.3.2 scheduled for September

Didrik Voss and others: Different command stations shall be used for testing. But e.g. Digitrax does not produce a cut-out, so testing can only be done with external cut-out device.

Jürgen Lindner: ECoS does and boosters will include the cut-out device and the detector, but this will not be enabled before the messages are fixed, to prevent confusing customers. Decoders are prepared for RailCom.

Didrik: Bi-Directional has not been tested as part of the conformance tests, as there is no matching RP-9.3.2. Therefore Gold decoders got a warrant without testing for RP-9.3.1.

Reinhard Müller: Rp-9.3.1 is of little use without RP-9.3.2 as it results in bits without meaning.

New DCC Logo

Didrik Voss: A new DCC logo has been presented at the BoD meeting. The trademark protection of the old logo is running out anyway and the use of the logo has caused confusion. The new logo will be used for DCC items instead of the conformance warrant logo (football), while the "football" will be used for the other (mechanical) Standards and RPs. So a loco with a decoder may have either or both of the logo, depending on which part does conform.

New Test Platform

0603245 PRICOM DCC Test Platform Proposal

Didrik Voss: PRICOM is not represent at the meeting. The message is that Bob Scheffler is 6 months behind schedule. According to the discussion at Philadelphia, the hardware structure has been changed to be more modular allowing to update parts more easily. There was a memorandum available as printout (Appendix A).

0603243 Scripts for DCC Test Platform

Nobody was at this meeting to report the status of the scripts.

New connectors:

0504023 21-Pin_Connector
0603242 22-Pin_Connector

As an introduction Reinhard Müller showed some slides describing the 21 pin connector as introduced by Märklin and ESU (Appendix B), the 22 pin connector as developed by Digitrax and Fleischmann based on the decision taken at the meeting in Göppingen (Appendix C and D), and some reasons for this decision. The presentation by Reinhard Müller was only due to practical reasons, i.e. does not imply any approval by the NMRA, as clarified in the meeting by Frank Grünig.

The 22 pin connector has been named PluX22 to avoid confusion between the two connectors.

The slides shown are distributed as PDF files together with these minutes. Please note that the 6 pin version is only for the transition time to allow a small NMRA plug to be mounted on a PCB for the PluX connector.

Frank Grünig and Hans Peter Förster from Fleischmann and Jürgen Lindner from ESU had a lively discussion about the needs and problems with the new connectors. The main arguments were:

Pro 21 pin connector:

- Long list of manufacturers already using the 21 pin connector: Märklin/Trix, HAG Hobby-Trade, Brawa, Mehano, Liliput, Bachmann, Precision Craft Models, KM1, Kiss for 0 gauge, Lima, Rivarossi and several others.
- Many pins are needed for mechanical reasons (stability).

Pro PluX concept:

- No pins wasted when used with standard DC motors.
- There is the possibility to use only a subset of the pins for N and TT scale and for engines with very limited space.

The need for a smaller connector for smaller scales was agreed by ESU, but there were questions about the mechanical stability and why it has to be a subset of the larger connector.

Arnold Hübsch: The 21 pin connector is established and there are reasons for the extra pins and this connector should stay. But users and some manufacturers are unhappy with the wasted pins and their space especially for N scale. So we should have both connectors. The main problem is the same look. There is a problem when using stuff not agreed upon. The 21 pin connector is just used as there is a need for more pins and nothing else is defined. Like it happened with the usage of some reserved CVs.

All agreed that the main issue was the same size and look which may result in a wrong decoder being inserted, breaking the single pin at the index position.

Didrik Voss: The PluX22 could use the opposite gender with pins at the decoder and a socket in the engine.

Jürgen Lindner: Anything that tells it is different will help.
He agreed with this approach.

Arnold Hübsch: There will be a problem with the height of the connector.

Reinhard Müller: The socket may be either on top or under the PCB in the engine, depending on the location of the PCB within the engine. Both versions of sockets are available.

Hans Peter Förster: That should not be a problem.

Didrik Voss: NMRA may approve both, the 21 pin and the PluX22 connector.

Jürgen Lindner: What is the mechanical solution to support the decoder?

Frank Grünig: There will be a proposal for the mechanical part at the meeting in September.

Torsten Kühn: Time is running.

Reinhard Müller: As long as there is no PluX22 specified the 21 pin connector will be used.

Hans Peter Förster: Before Easter?

Lindner: It should be a topic for Detroit.

Reinhard Müller: Who will be in Detroit?

Result: Mr. Lindner will be there (among others); AJ Ireland will support the PluX approach.

Frank Grünig: We need a name for the 21 pin connector.

Agreement: The PluX22 concept is continued with changed gender. Both connectors will be proposed to be included in RP-9.1.1.

Other Topics from Göppingen

0603241 New Packet Format
Ziegler: Nothing essential has been done, but the topic will be continued. There will be more to tell at the meeting in September.

0408251 In-rush Current Compatibility
For this topic a leader is need. Originally Mark Gurries brought it up.

Jürgen Lindner: Where should it be solved, in the booster or in the decoder?

Arnold Hübsch: It should be solved in the Decoder

Jürgen Lindner: That will define the maximum number of decoders within a booster district.

Peter Ziegler: Both devices have to be designed for this.

Didrik Voss: This question needs to be put out on the mailing list

Peter Ziegler: Solution needs to fit all existing boosters.

Reinhard Müller: That is not possible.

Didrik Voss: Each manufacturer should provide booster specifications.

Jürgen Lindner: Small starter sets have different current needs then e.g. G scale. Therefore a common specification will not work.

Didrik Voss: We need to tell the limits to the users.

Hans Peter Förster: The power dissipation in the decoder is higher when charging with a limited current.

Didrik Voss: Just tell all to deal with the problem.

Georg Fuhs: User will not deal with "internal" numbers, i.e. the technical specifications.

Peter Ziegler: There is just some device needed between the rectifier and the capacitor.

Jürgen Lindner: This is more a US problem, so let discuss it in Detroit.

Arnold Hübsch: There is a current limiter on my light boards.

Lindner: This will not work with **many** cars. To Arnold Hübsch: Will you do it?

Arnold Hübsch accepted the task to continue this topic.

9910241 Analog Output Instruction
Didrik: We should go for it in July, i.e. at the Detroit meeting.

0603244 Location Dependent Control

Peter Ziegler: There has been no real progress, but there are talks within the RailCom group.

Lissy

Hans Peter Förster made an announcement that Fleischmann talked with Uhlenbrock and decided to open the Lissy-Protocol. It is free to be used and the documentation is available in the Internet at the Uhlenbrock home page.

AOB:

Didrik Voss asked for any new topics, but there was no response.

Next meeting is at the NMRA National Convention in **Detroit** on Thursday July 26 2007 at 8 am.

The next meeting in **Europe** will be September 20th to 22nd 2007 in York, GB, hosted by Bachmann UK on invitation of Graham Hubbard. Thursday the 20th will be the day of arrival and for conversation at the hotel. The meeting will continue on Friday all day and Saturday morning at the National Railway Museum. http://www.nrm.org.uk. There will be a tour including the normally closed workshops.

The meeting was closed at 10:50.

Participants:

Name	Company or Organization
Dr. Hans Peter Förster	Fleischmann
Georg Fuhs	Viessmann
Dr. Frank Grünig	Fleischmann
Arnold Hübsch	AMW
Hiroshi Kato	Kato
Richard Kopplinger	Modelleisenbahn GmbH
Torsten Kühn	Kühn digital
Jürgen Lindner	ESU
Gunnar Müller	Brawa
Reinhard Müller	NMRA
Allen Pollock	NMRA
Peter Rapp	Lenz Elektronik
Uwe Riemann	Bachmann-Liliput
H. Lee Riley	Bachmann USA
Andreas Schiek	Brawa
Winfried Seewald	Tillig GmbH
Kersten Tams	Tams Elektronik GmbH
Marcel Thomas	CDF
Rüdiger Uhlenbrock	Uhlenbrock Elektronik
Dr. Thomas Vaupel	Uhlenbrock Elektronik
Didrik Voss	NMRA - Chairman DCCMWG
Dr. Peter Ziegler	Zimo Elektronik

Appendix A: Memorandum from Bob Scheffler

Memorandum

1 January 2007

Subject: PRICOM Status Report

Sorry for my delay. Much has been going on here at PRICOM. For one thing, the workload has risen enough that I now have added a full-time hardware and full-time software engineer to our team. Previously I had only part-time help with these projects. The end result is good news and bad news. The good news is that the backlog of projects can make progress faster with the additional help. The bad news is that it takes time to get these people up to speed on all the projects.

Here is a summary of the NMRA Conformance Tester Project:

Based on the feedback at the July NMRA DCCWG meeting, the tester will be split into 6 separate PCB assemblies. This will allow easier updates to individual functions without having to scrap any hardware. I think this will be an important feature as the NMRA is yet young in the automated testing functions. Given the change to 6 separate PCB's, the project is a couple months behind where I would have expected it at this point.

The main advantage to this new modular approach is that as the standards are evolved, we can add or change functions on a specific module of the system without affecting the others. I believe this will extend the life of the NMRA Test Platform beyond what we could accomplish in a single PCB solution.

We have schematic capture complete on 2 of the 6 boards, with PCB layout beginning shortly for the main 'brain' CPU card.

Once the CPU 'brain' hardware is in, we will begin bring-up of the OS on that card with work continuing on the other 5 PCB's. The new software guy added to our team is very experienced and will really make a great contribution to the end result of this project.

Based on the dates now, my expected first test unit will be in July 2007. This is about 6 months behind the initial schedule I promised you. I realize this could cause some grief with the NMRA and the DCC WG in particular. I am sorry for this delay, but hope that the adjusted and improved NMRA Conformance Test Platform will be worth the wait and exceed the expectations of you and the NMRA BOD.

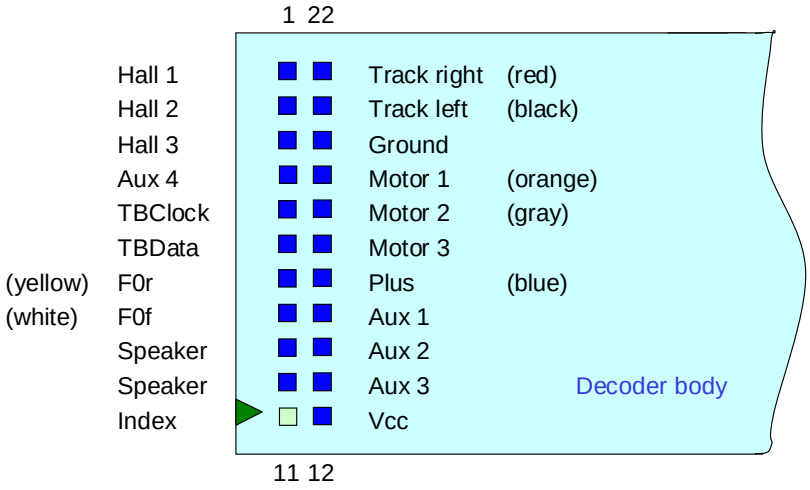
…

Sincerely,

Bob Scheffler
PRICOM Design

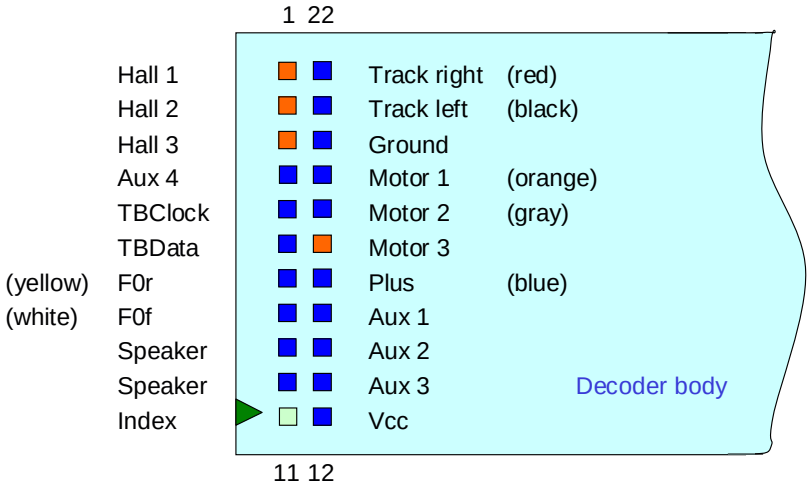
Appendix B: Slides about the 21 Pin Connector

21 Pin Connector



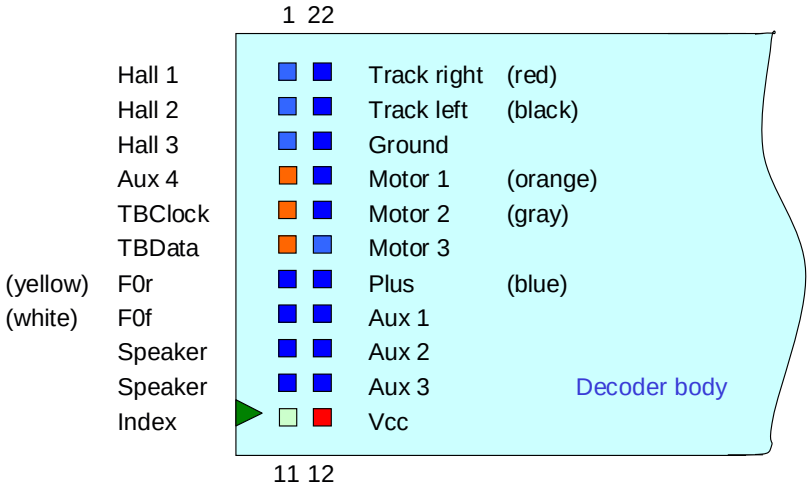
21 Pin Connector

Extra Pins for Brushless Motor



21 Pin Connector

Pins with direct connection to the Controller



Appendix C: Page with PluX key Features

PluX22 / PluX16 / PluX8

Key Features:

Same connector type as used by Märklin.

Pins rated at 1amp.

8 pins (1 INDEX) = minimum N/HO motor/light decoder
16 pins = Sound decoder with 4 functions (f0f/f0r, f1, f2) and storage capacitor and 2 further pins for SUSI
22 pins =Premium Sound decoder with up to 10 functions and SUSI

One recommended orientation within the engine.

Suggested sizes as maximum for decoders and minimum for cavities in the engines will be defined for several configurations in a TN to give manufacturers a guideline.

INDEX is a missing pin on locomotive side [0.050“ 2x11 plug header],
and no hole in matching thru-PCB SMT socket on decoder(s).

Index point has triangular/arrow adjacent on user visible “upper side” of decoder
Loco PCB has visible triangular/arrow adjacent INDEX (missing) pin
>>>USERS align the two arrows<<<

Pin assignment
View from the top on the loco

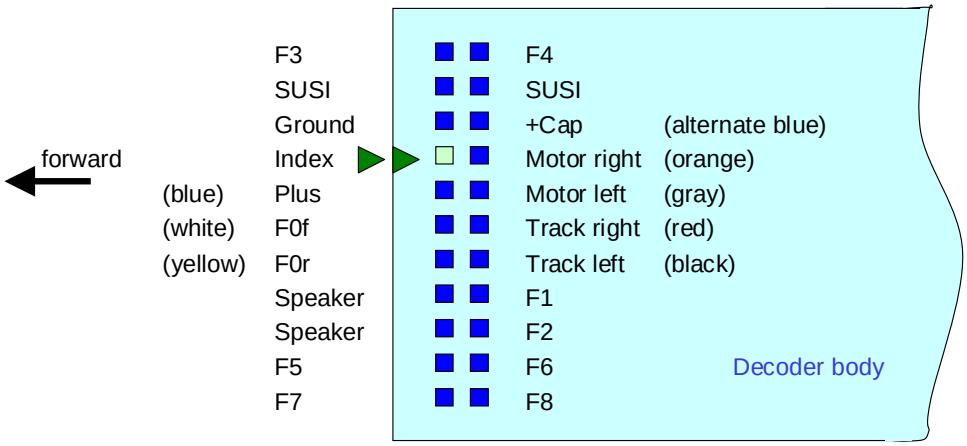
----------right track----------

	F3		o o	F4	
	SUSI(OC)		o o	SUSI (OC)	
	Ground		o o	+CAP	(also alternate Blue)
	Index	>	x o	Motor +	| decoder Body
Edge	plus (blue)		o o	Motor –	|
	F0f (light)		o o	right track	| Orientation same
	F0r (light)		o o	left track	| RP9.1.1/small
	Speaker		o o	F1 (or F0f)	|
	Speaker		o o	F2 (or F0r)	|
loco	F5		o o	F6	loco
front	F7/other		o o	F8/other	rear

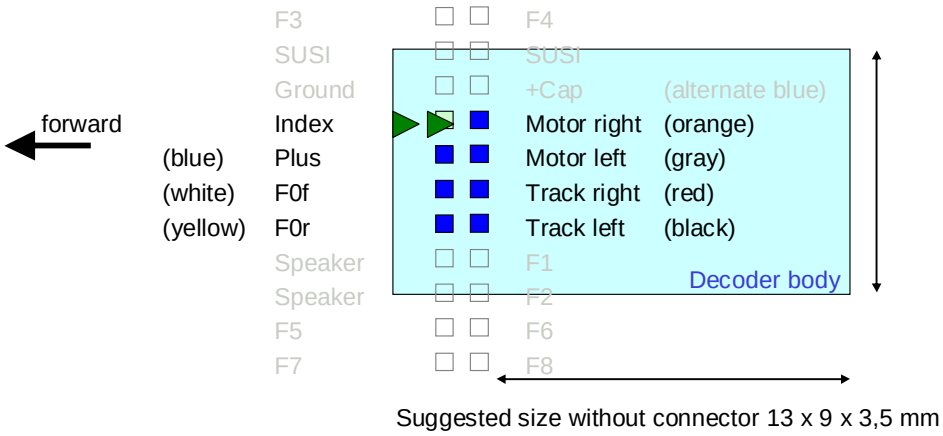
----------left track----------

Appendix D: Slides about the PluX Concept

PluX22 / PluX16 / PluX8 Configurations

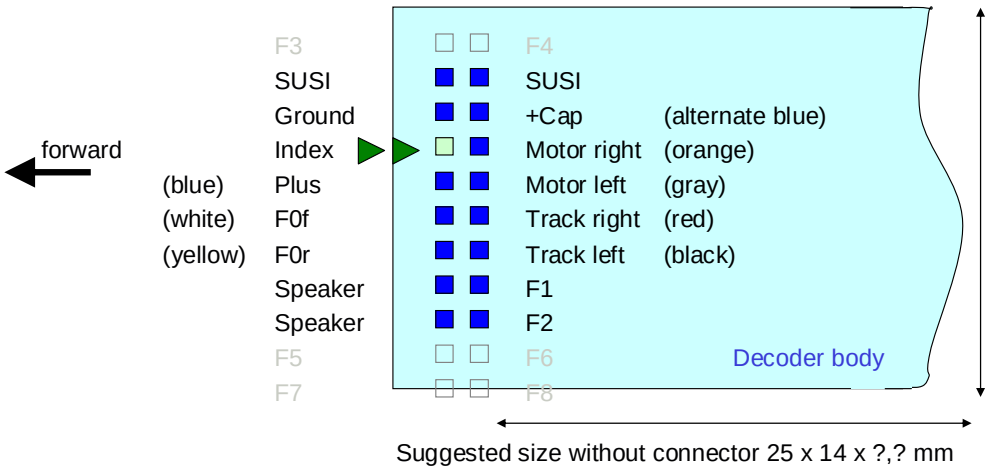


PluX22 / PluX16 / PluX8 Configurations



Suggested size without connector 13 x 9 x 3,5 mm

PluX22 / PluX16 / PluX8 Configurations



PluX22 / PluX16 / PluX8
used with „small“ interface type decoder