

# RUPLAN EVU-Module 2020

## Update Information

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## 1 Important Note

With EVU-module 2020 the workflow for wiring material was changed: The reference via position numbers in circuit diagrams to a wiring material table was abandoned: see chapter 6, "New workflow with wiring material".

Plans stemming from previous versions have to be adapted to the new workflow before further processing: see chapter 6.6, "Conversion of a project".

**Plans that were adapted or created anew in EVU-module 2020 cannot anymore be processed in previous versions! Plans in EVU-module 2020 are not downward compatible!**

## 2 New Features in the EVU Module

The most important news in EVU module 2020 are:

### **Abandonment of the references to the wiring material table**

With this version 2020, the workflow for wiring material is changed fundamentally: In the circuit diagrams and the definition symbols, position numbers for wiring material are no longer used, instead the material data itself is entered in these plans and symbols.

Evaluations to convert a project to this new workflow are available.

See chapter no.6, New workflow with wiring material

### **New fitting symbols for reducing jumpers and separating plates**

For constellations where a jumper crossing a partition element is possible, new symbols were made available. If those symbols are used, the QA terminal diagram check does not report such a constellation as an error.

See chapter no. 7.1 and 9.5.1

### **Data transfer TDR → CDR with navigation information**

With the data transfer from TDR to CDR, now terminals in the circuit diagram are supplied with navigation information of the corresponding terminal diagram line, thus enabling specific navigation from the circuit diagram to the terminal diagram without online references for terminals.

See chapter 8.7.1.3

### **QA tools: Check of terminal diagram symbol names**

Two QA checks were upgraded to the effect that they check symbol names for the terminal diagram regarding their conformity with the name rules of the Guidelines, chapter 14.5:

- Captioning of terminals/plugs: see chapter no. 9.3.2
- Terminals CDR ↔ TDR: see chapter no. 9.5.1

### **QA tools: Check for unknown symbols expanded**

The QA check "Unknown symbols" now also checks symbol names in text nodes that are read by evaluations.

See chapter no. 9.1.2

### **Shrink project libraries**

For a project, the shrinking of its libraries can be triggered.

See chapter no. 4.1

### **New potential interruption symbol with complete ib + bb**

With this version, the potential interruption symbol GJ520 with complete identifying and describing bloc is available.

See chapter no. 7.2 and 10.1.1

### 3 RUPLAN environment

#### 3.1 Installation file

##### DEFAULTS FOR NETWORK TEXTS

With EVU-module 2020 the reference to the wiring material table via position numbers is abandoned; see the detailed description in chapter 6.

With the new workflow, the connection lines in the graphic editing do not any longer carry position numbers. Consequently, the 3 text nodes provided at connection lines for the entry of a position number were removed from the default definition in the installation file. The text nodes 'N&POS', 'POS' and 'VPOS' no longer appear in these default definitions:

S0	S1	S2	T	Ang	X-Pos	Y-Pos	La	Co	Height	Ang	V	J	W/H	Fo	S1a	LW	MT
1	1	N&NETNAM	O	0	0.00	1.00	0	1	2.00	0	Y	C	0.81	1	0	0	60
2	1	N&NETNAM	O	90	-1.00	0.00	0	1	2.00	90	Y	C	0.81	1	0	0	60
3	3	N&MAT	O	0	0.00	5.00	0	1	2.00	0	N	L	0.81	1	0	0	60
4	4	N&QUER	O	0	0.00	9.00	0	1	2.00	0	N	L	0.81	1	0	0	60
5	5	N&FARBE	O	0	0.00	13.00	0	1	2.00	0	N	L	0.81	1	0	0	60
6	7	MAT	U	0	0.00	-4.00	0	1	2.00	0	N	L	0.81	1	0	0	60
7	8	QUER	U	0	0.00	-8.00	0	1	2.00	0	N	L	0.81	1	0	0	60
8	9	FARBE	U	0	0.00	-12.00	0	1	2.00	0	N	L	0.81	1	0	0	60
9	11	VMAT		0	0.00	-4.00	0	1	2.00	0	N	R	0.81	1	0	0	60
10	12	VQUER		0	0.00	-8.00	0	1	2.00	0	N	R	0.81	1	0	0	60
11	13	VFARBE		0	0.00	-12.00	0	1	2.00	0	N	R	0.81	1	0	0	60

In the EVU-module installation file delivered with version 2020, the coordinates of the remaining wiring material texts were adapted; but that is of little importance because this information is usually invisible.



Projects transferred from previous version to EVU-module 2020 still contain the old defaults for network texts.

If the text nodes for position numbers have no entries, then in principle this is no problem.

Though, to avoid faulty entries, it is advisable to adapt the user defaults in the project to the state of the installation file of EVU 2020, via reset to these defaults.

In graphic editing, the Icon  leads to the "Defaults":

Menu	Description
1	VERB Default attributes for connections
2	SYMB Default attributes for symbols
3	POLY Default attributes for polygons
4	FREI Default attributes for free graphics
5	NZTX Default attributes for network texts
6	GRTX Defa... <span style="background-color: yellow;">Reset defaults</span> ...roup texts



## 3.2 Standard text files

### Files for standard text form libraries

- In the standard text files ENGNrm\_EVU\_FORM.txt the code \_DOK099 was supplemented.
- In the texts to \_KAB047, \_KAB048, \_QSW009, \_QSW010 and \_QSW011 the quotation marks were replaced by ">" / "<" (necessary for a correct migration to Engineering Base; see also chapter 10.1.2).
- For the pre-set in wire symbols of 'LPOS' with "Wire" resp. "Draht" (see chapter 10.1.2) the code \_VDR163 was supplemented.

## 3.3 RUPLAN Data

### 3.3.1 Sample Project

#### EVU2020E

##### General change

The sample project was converted to the new workflow with wiring material (see chapter 6, "New workflow with wiring material").

With the conversion, a TEC wiring material catalog and an optional wiring material table were created (see chapter 6.6.4, "Conversion of the project").

## 4 Catalog and Catalog User Menu

### 4.1 NEW: Shrink project libraries

Since RUPLAN 4.82 the feature "Shrink" is available in the menu "Library": Via this feature, RUPLAN libraries with little content can be reduced to the size needed for the content. Each library to be shrunk must be marked.

With "Shrink project libraries" in the menu "Project" this feature now can be started on a project: By this, the libraries belonging to the project will be shrunk without the need to mark these libraries themselves.

### 4.2 Update EVU-module-db

#### Change

The update of the EVU-module-libraries was upgraded to the version 2020.

### 4.3 Catalog user menu: start eval. in select. pros

#### Change

When creating the project list for this feature, up to now all marked projects without exception were entered in this list

From now on the following AUCOTEC reference projects are automatically excluded from the list:

X00*	STA*	BSB*	BOB*	FLUID*	PCO*	*BSP*
EVUQS*	SSL*	SPS*	ETI	KBM*	EVU*	KKS*

## 5 Object editing

### 5.1 Evaluations in the object library

#### **TEC: copy TEC into 1<sup>st</sup> db**

#### **New feature:**

To the list of TEC-objects to be copied the catalog object for wiring material was added:  
TEC / W00000W0.

Via project options (see chapter 8.10.1.1) this new catalog object can be excluded from the copy list.

## 6 New workflow with wiring material

### 6.1 Previous workflow

In RUPLAN EVU, wiring material is defined by 3 values: material, cross section and color.

In previous EVU-module-versions a wiring material table was used to assign position numbers to the different wiring material, e.g.:

Wiring Material			
	Material	Cross Section	Colour
Standard	H07V-K	1,5mm <sup>2</sup>	BK
Pos.-No. 1	H07V-K	2,5mm <sup>2</sup>	BK
2	H07V-K	4,0mm <sup>2</sup>	GNYE
3	YV1	0,8mm <sup>2</sup>	BN
4	YV1	1,4mm <sup>2</sup>	BN

In the plans only the position number was entered, and only if required (e.g. wiring material information in the terminal diagram), it was translated via the wiring material table into the actual material information.

This workflow repeatedly led to problems with data exchange, if sender and receiver of data worked with different wiring material tables, or if the wiring material table was not delivered.

### 6.2 New workflow

Therefore, a new workflow it introduced with EVU-module 2020:



For wiring material there no longer references are made via position numbers!

In the plans, the wiring material itself, comprising material, cross section and color, are entered. Depending on the material, not all three values must be entered.

#### Hierarchy for wiring material information

The hierarchy henceforth valid for position numbers was kept and supplemented by an additional hierarchy level:

Hierarchy level	Filing of the information	Kind of information	Text nodes
1	connection	connection texts	VMAT, VQUER, VFARBE
2	connection	sub-network texts	MAT, QUER, FARBE
3	connection	network texts	N&MAT, N&QUER, N&FARBE
4	sheet title block	title block symbol texts	RMAT, RQUER, RFARBE
5	project options	Diagram Processing / Circuit diagram processing	C&STDMAT, C&STDQUE, C&STDFAR

## Different handling of standard wiring material in previous and new versions

The fifth hierarchy level results in a different effect for connections in circuit diagrams, whose material is not laid down, neither at the connection itself nor at the title block of the sheet.

In previous versions, these unlabeled connections got their material information only in the related wiring document, via header entries, especially in the terminal diagram header.

Thereby, inconsistent wiring documents could be created: If there existed a connection between a terminal of terminal strip A and a terminal of terminal strip B, and if the standard material for terminal strip A had a cross section of  $1,5\text{mm}^2$ , whereas the standard material of terminal strip B had a cross section of  $2,5\text{mm}^2$ , then between the two terminal strips, two wires "met" with different cross sections!

Such a discrepancy is not possible anymore with the new workflow.



In plans stemming from a previous version, newly created terminal diagrams should be checked concerning the standard material; there may be discrepancies because of the changes described above.

These discrepancies can be avoided or at least minimized by performing **Data trans. wir. mat. TDR – CDR** (see chapter 6.6.1).

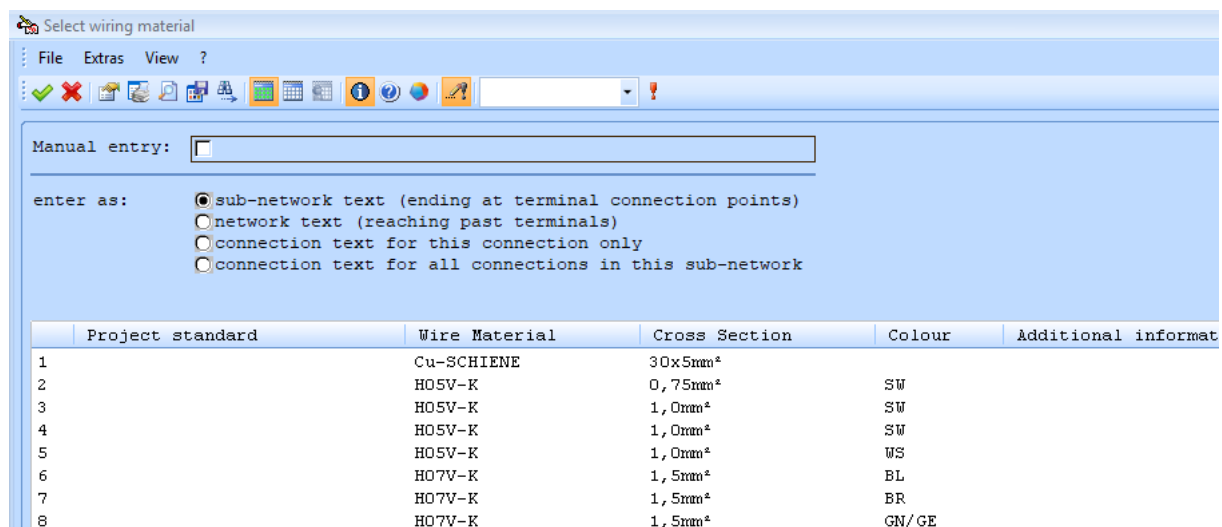
## 6.3 New wiring material selection

During project work, at several spots wiring material is entered at a connection or a symbol. In the past, at these spots the content of the wiring material table was offered in a selection mask.

With the new workflow the system distinguishes:

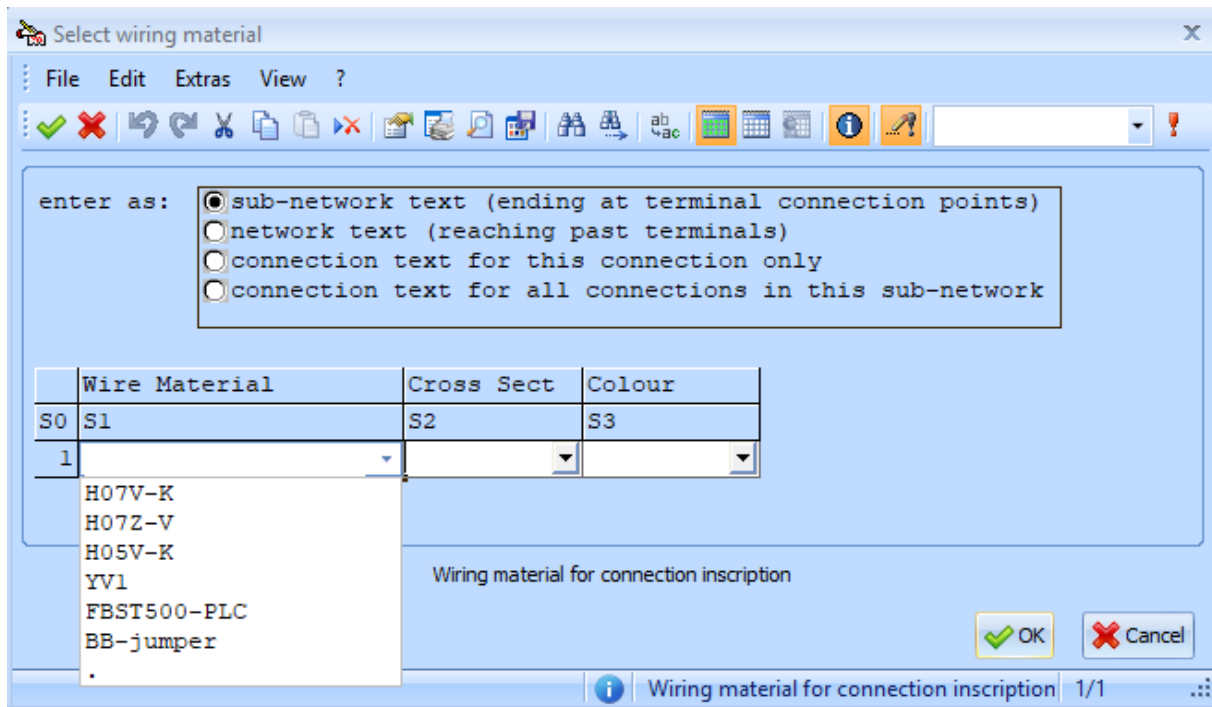
If a wiring material catalog as described below exists in the project, then the content of this catalog is offered in a selection mask.

Example:



As before, a selection can be performed by double click or via the right mouse key.

If a material shall be entered that is not contained in the selection list, one can mark **Manual entry** in the header; then, after confirming the mask, the following window is displayed:



For each of the 3 material attributes, a separate entry field is offered. In each field, a pull-down menu can be opened. If nothing suitable is found in the pull-down menu, the desired entry can be entered manually.



If no wiring material catalog is found in the project, the manual entry mask shown above is opened directly.

## 6.4 Optional addresses: catalog and table

### 6.4.1 Wiring material catalog

For quick and uniform selection, wiring material can be entered into a wiring material catalog.

The catalog is kept as a TEC object: **TEC W00000W0**:

TEC W00000W0                      Wiring material catalog

Wiring Material Catalog			
Material	Gross Section	Colour	Manufacturer
H07V-K	1,5mm <sup>2</sup>	BK	
H07V-K	2,5mm <sup>2</sup>	BK	
H07V-K	4,0mm <sup>2</sup>	GNYE	
YV1	0,8mm <sup>2</sup>	BN	

This table consists of the technical data symbols TJ710 (header) and TJ711 (simple line):

Partial Function Texts for >TJ710< In >W00000W0<

File Edit Extras View ?

Functional Unit:

	Ident	Description	Ident	Text	V	AL	ML
S0	S3		S1	S2	S4	S7	S8
1	(standard-) wiring material	LMAT	H07V-K		<input checked="" type="checkbox"/>	6	20
2	cross section (standard-) wiri	LQUER	1,5mm <sup>2</sup>		<input checked="" type="checkbox"/>	6	10
3	color of (standard -) wiring m	LFARBE	BK		<input checked="" type="checkbox"/>	2	10
4	additional information	ZUS-INFO			<input type="checkbox"/>	0	60
5	manufacturer	FABRIKAT			<input checked="" type="checkbox"/>	0	60
6	type	TYP			<input type="checkbox"/>	0	60
7	text field: left above	LO			<input type="checkbox"/>	0	20



The use of a wiring material catalog is optional!

### 6.4.2 Optional wiring material table

It is possible and permissible to keep an optional wiring material table as a sheet. It looks the same as the previous wiring material table but is placed in a different RUPLAN-function: **WIRING-MATERIAL-2020**.

This optional table is used by the evaluations **Terminal diagram** and **CCD \*previous form\***:

- The **terminal diagram with cable matrix** needs position numbers to refer in the terminal lines to material information in the header symbol.
  - Without optional wiring material table, the position numbers are created anew with the creation of the terminal diagram. Thus, identical wiring material is not necessarily represented by the same position number.
  - If there exists an optional wiring material table, its position numbers are assigned to the material data found in the circuit diagram and is entered in the terminal diagram. In this case, a position number always represents the same material.
- The **cross-connection diagram (CCD) \*previous form\*** can display a position number to each material entry.
  - If no optional wiring material table exists in the project, the corresponding field in the form sheet stays empty.
  - If an optional wiring material table exists, then the evaluation gets the corresponding position number for each material entry from this optional table.

## 6.5 Equalization of wiring material spellings

Occasionally, especially via data transfer, differing spelling sneaks in for identical material information, e.g. for the cross section ("1mm<sup>2</sup>" ⇔ "1,0MM2") or the color ("bl" ⇔ "BU").

The evaluation **Equalize wiring mat. spellings** in the menu **Circuit diagram commands**, submenu **Wiring material**, supports the user with the equalization.

This evaluation lists all wiring material information found in the plans and, if existing, in the TEC wiring material catalog, and groups material likely to be the same.

In the entry mask the data can be modified as required. The modifications are written back to all places concerned.



Entry mask to equalize wiring material spelling:

	Wire type	Cross Sectio	Colour	Cat
S0	S1	S2	S3	S4
61	H07V-K	1,5mm <sup>2</sup>	BK	
62	H07V-K	1,5mm <sup>2</sup>	sw	
63	H07V-K	1.5MM2	SW	X
64				
65	H07V-K	1,5mm <sup>2</sup>	BN	
66	H07V-K	1.5MM2	BR	X
67				
68	H07V-K	1,5mm <sup>2</sup>	BU	
69	H07V-K	1.5MM2	BL	X
70				
71	H07V-K	1,5mm <sup>2</sup>	GN/YE	
72	H07V-K	1,5mm <sup>2</sup>	GNYE	
73	H07V-K	1.5MM2	GNGE	X

If a wiring material catalog (TEC) exists, the spellings derived from this catalog are marked with an **X** in column S4 (Cat).

## 6.6 Conversion of a project

### 6.6.1 Preparative actions



**If, to be on the safe side, you want to create the wiring documents anew, you must do this in the previous EVU-module version!**

In EVU-module 2020, the evaluations to create wiring documents cannot any more interpret position numbers in the plans! Without previous conversion of the project, the wiring document evaluations would produce faulty results!

Before starting the conversion evaluation **Switch: pos. to material** you should perform the following steps:

1. If you can assume that the wiring information in the terminal diagrams is correct, then perform the evaluation **Data transf. wir. mat. TDR->CDR** (in the menu **Terminal diagram**).
2. Check the sheets in the RUPLAN function **WIRING-MATERIAL**. Only the sheet resp. sheets with the valid wiring material data should lie in this function, when the conversion evaluation is started.

If need be, move the sheets that are not relevant to another function, e.g. RES\_WIRING-MATERIAL.



The conversion can only be performed, if an "old" wiring material table is available. If this table is missing, an auxiliary table can be derived from the entries in the existing plans; see below, chapter 6.7.3, "Creating an auxiliary wiring material table".

This auxiliary table possibly is incomplete and/or ambiguous – depending on the quality of the plans the information is taken from.

3. Check the consistency of the wiring material entries with the corresponding evaluation, which is described in the following section: chapter 6.6.2, "Preparative consistency check".

Correct inconsistent entries in your plans.

## 6.6.2 Preparative consistency check

Before starting the conversion, the consistency of the existing wiring material entries with the wiring material table should be checked. For this purpose, a preparative check is available, which is described in this chapter.

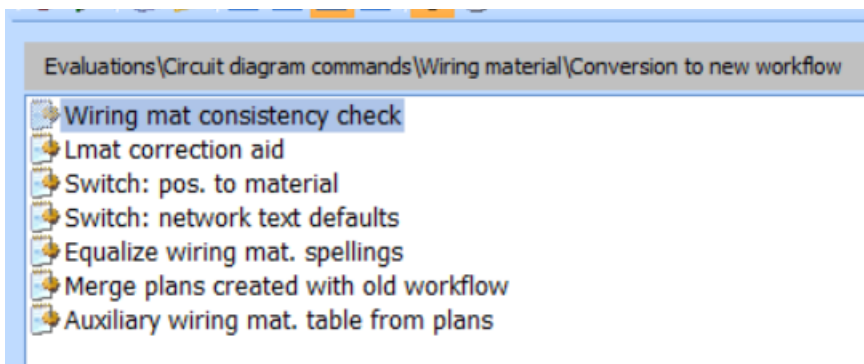


The evaluation mentioned here **cannot** check if the material entries the circuit diagram is consistent with the material entries in the wiring diagrams!

Here only visual control of the plans can help, or – even better – the new creation of the wiring diagrams. Here it is absolutely necessary to observe the following:

**NOTE: The recommended new creation of wiring diagrams must be performed in the old EVU-module version, because the wiring diagram evaluations in EVU-module 2020 no longer evaluate position numbers in the circuit diagram, and therefore produce faulty plans if started before the conversion!**

The **Wiring mat consistency check** can be started in the menu **Circuit diagram commands \ Wiring material \ Conversion to new workflow**:



This check evaluation examines

- if entries of position numbers with material information (e.g. title block entries or entries in some of the derived documents) fit to the entries of the wiring material table,
- if position numbers without material information (e.g. entries at connection lines) are contained in the wiring material table, and
- if in the wiring material table one position number is associated with differing material information.



All the plans in the project are checked, no matter which plans were marked for the start of the evaluation.

If errors are detected, an error list is displayed, with the option to navigate to the error spots:

Project : LTW2020_VOR_UMSTELLUNG							Date : 26.10.2019
Resp. : BNO							Page : 1
Search criteria: WIRING-MATERIAL, *							
Deviation of data for position numbers							

Error 1 - Inconsistency of position number and material 2 - Pos. number / material are not listed in the table 3 - Different wire information for the same pos. number							
--	--	--	--	--	--	--	--

DB	Pos	MAT	QUER	FARBE	Position	Function	Sheet	Error
1	1	HO7V-K	1,5mm <sup>2</sup>	BK	VX400	=E01+S1	CO1	1
-----								
1	2	HO7V-K	2,5mm <sup>2</sup>	RD	1	WIRING-MATERIAL	1	3
1	2	HO7V-K	4,0mm <sup>2</sup>	GNYE	1	WIRING-MATERIAL	1	3
-----								
1	5				subnet text	=E01	MA01	2
-----								

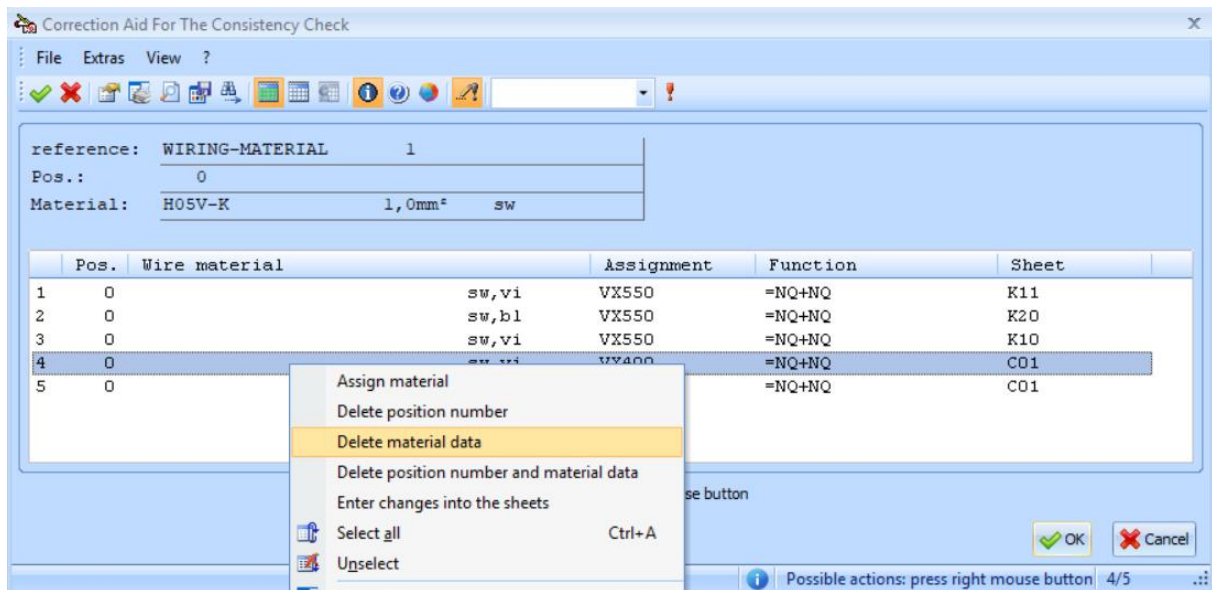


If possible, all errors reported should be fixed before starting the conversion!

### 6.6.3 Correction aid to the consistency check

If the consistency check described in the previous chapter was performed, an evaluation to support corrections is available: **Lmat correction aid**, in the menu directly below the consistency check. This evaluation is designed specially to change big numbers of similar errors.

The evaluation reads the current error file of the consistency check and offers the error lines for correction. In succession, in one window, the lines for one position number are offered for change:



If for the position number currently displayed in this window, an entry exists in the old wiring material table, this entry is displayed in the header. Otherwise, the text "no entry in the wiring mat table" is entered.

For the lines, a multi-select is possible.

Via the context menu, an action can be chosen. This action will then be performed for all marked lines.

- **Assign material:** leads to a selection dialog resp. a supported entry mask for wiring material; the selected material will be written to all marked lines
- **Delete position number:** deletes the entry of the position number in all marked lines
- **Delete material data:** deletes the entries of material, cross section and color in all marked lines
- **Delete position number and material data:** deletes position number, material, cross section and color in all marked lines
- **Enter changes into the sheets:** writes the changes in this window into the marked sheets

In succession, the lines for the next position number are offered for change.

At the end of the evaluation, the error list of the consistency check is deleted, because it doesn't fit any longer to the current state of the plans.



**Note:** It is advisable to start the evaluation **Data transf. wir. mat. TDR->CDR** (in the menu **Terminal diagram**) again after performing the correction aid evaluation.

**Note: Not with RIS-data or copied sheet addresses!**

This is especially important if entries in terminal diagram definition symbols and terminal diagram header symbols have been changed:

Correction Support For The Consistency Check

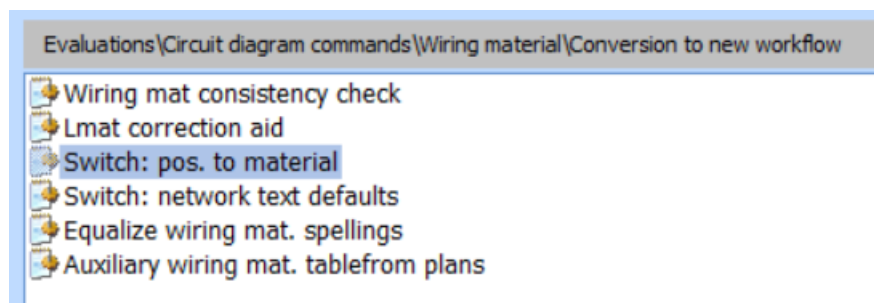
File Extras View ?

reference: WIRING-MATERIAL 1  
 Pos.: 1  
 Material: H05V-K 1 SW

	Pos.	Wire material			Assignment	Function	Sheet
1	1	H07V-K	1	SW	VX560	ZKK203 &EMA	X80.2
2	1	H07V-K	1	SW	VX560	ZKK203 &EMA	X80.1
3	1	H07V-K	1	SW	VX560	VDR	X900.2
4	1	H07V-K	1	SW	VX400	ZKK203 &EMA	C2
5	1	H07V-K	1	SW	VX560	VDR	X900.3
6	1	H07V-K	1	SW	VX560	VDR	X900.1

## 6.6.4 Conversion of the project

To convert a project to the new workflow with the wiring material, the evaluation **Switch: pos. to material** is started in the menu **Circuit diagram commands \ Wiring material \ Conversion to new workflow**:



This conversion evaluation replaces the position numbers in the plans by the material assigned to a position number in the wiring material table:

Connection line before:

Connection line after:

	Ident	Text	V	T	AL	ML
S0	S1	S2	S4	S5	S7	S8
1	N&NETNAM	11+	<input checked="" type="checkbox"/>	0	4	60
2	N&MAT		<input type="checkbox"/>	0	0	60
3	N&QUER		<input type="checkbox"/>	0	0	60
4	N&FARBE		<input type="checkbox"/>	0	0	60
5	MAT		<input type="checkbox"/>	U	0	60
6	QUER		<input type="checkbox"/>	U	0	60
7	FARBE		<input type="checkbox"/>	U	0	60
8	VMAT		<input type="checkbox"/>		0	60
9	VQUER		<input type="checkbox"/>		0	60
10	VFARBE		<input type="checkbox"/>		0	60
11	POS	1	<input type="checkbox"/>	U	2	60

	Ident	Text	V	T	AL	ML
S0	S1	S2	S4	S5	S7	S8
1	N&NETNAM	1L+	<input checked="" type="checkbox"/>	0	3	60
2	N&MAT		<input type="checkbox"/>	0	0	60
3	N&QUER		<input type="checkbox"/>	0	0	60
4	N&FARBE		<input type="checkbox"/>	0	0	60
5	MAT	H07V-K	<input type="checkbox"/>	U	0	60
6	QUER	2, 5mm²	<input type="checkbox"/>	U	0	60
7	FARBE	BK	<input type="checkbox"/>	U	0	60
8	VMAT		<input type="checkbox"/>		0	60
9	VQUER		<input type="checkbox"/>		0	60
10	VFARBE		<input type="checkbox"/>		0	60

If the evaluation comes across discrepancies between position number and material information, the position number wins, i.e. differing material information is overwritten.

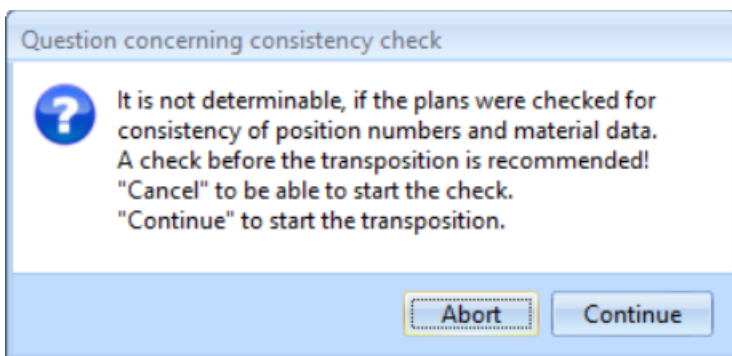
This can only be avoided by starting the consistency check first (see chapter 6.6.2) and correcting the reported errors.



All the plans in the project are converted, no matter which plans were marked for the start of the evaluation.

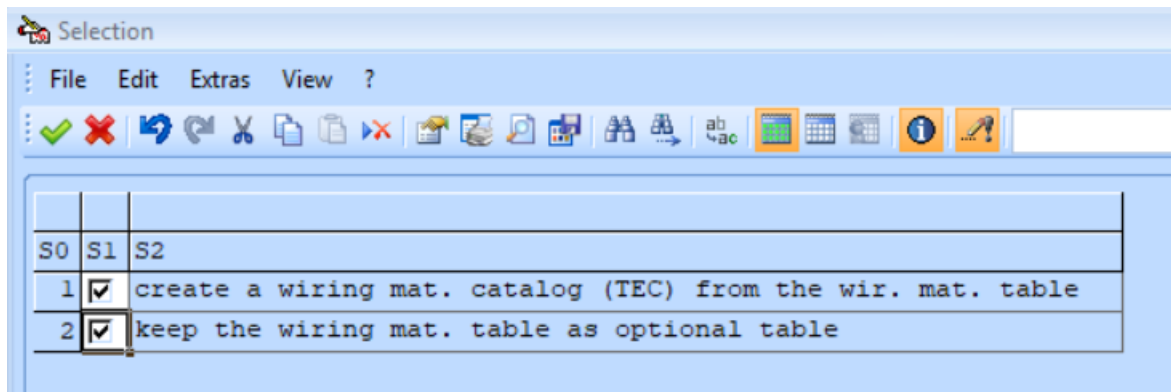
### Action sequence

At the start, the conversion evaluation checks a temporary marker that is set during the run of the consistency check. If the marker is not set, the following hint is displayed:



Depending on the state of the project, at this point you can abort the evaluation to perform the preparatory steps, or you can go on with the conversion by clicking **Continue**.

Before converting, the evaluation inquires if the old wiring material table should be transferred into a wiring material catalog and / or an optional wiring material table:



### Wiring material catalog

The content of the old wiring material table is written into a TEC object W0000W0, leaving out the position number. This TEC object serves as source for the selection of wiring material in the plans, as did the old wiring material table.

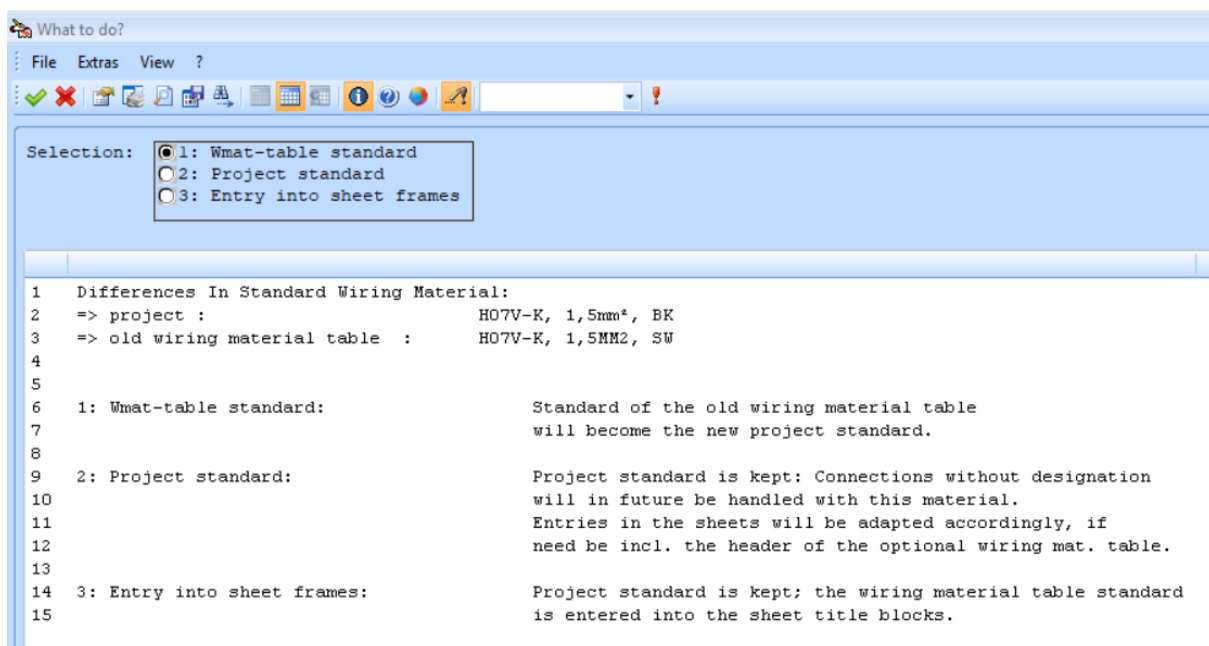
The layout of the object resembles that of the old wiring material table.

### Optional wiring material table

The old wiring material table is moved to the function WIRING-MATERIAL-2020. It serves as a reference for wiring diagrams that contain position numbers; these are terminal diagrams with cable matrix and cross connection diagrams in the previous form.

If no optional wiring material table is found, the position numbers are entered in these sheets by the evaluation via simple counting.

Continuing, the evaluation compares the old standard material in the header of the wiring material table with the standard material that is pinned down in the project options since EVU module 2020. If these standard material entries differ, the user must decide how to proceed:





Usually, the previous standard material should be kept, this decision is met by the default **1: Wmat-table standard**.

If the two terms only differ in spelling, as in the screenshot ("1,5mm<sup>2</sup>" = "1,5mm2"), then the option **2: Project standard** may be chosen: By this option, the standard material entries in the plans are adapted to the standard material of the project options.



If after the conversion the plans shall be transferred to another project, and if the material in the wiring material table header symbol differs from the standard material in the target project, then the option **3: Entry into sheet frames** should be chosen.

With this option, the material of the wiring material table header symbol will be written into the title blocks of the circuit diagrams, into the text nodes 'RMAT', 'RQUER' and 'RFARBE'.

Title block symbols that already carry an inscription in these text nodes, are not altered.

After answering both inquiries, the position numbers in the plans are converted to material information.

Depending on the answers to the selection of replacement addresses (see above), the requested addresses are generated.

If during the conversion the evaluation comes across an error, an error list will be displayed at the end:

```

Project : LMA2020_DIN                               Date : 08.12.2019
Resp.   : BNO                                       Page : 1
Search criteria:      WIRING-MATERIAL, *
Inconsistencies between position numbers and wiring material

```

DB	Pos	MAT	QUER	FARBE	Element	Function	Sheet
2	1	5			sub-network	te=E01	G01
2	1	5			sub-network	te=E02	G01

---



If after the conversion a situation arises, that equal wiring material entries are treated as different just because of a differing spelling, then an equalizing of these spellings may be performed for the project; see chapter 8.4.1, "NEW: Submenu "Wiring material"".



## 6.6.5 Adaption of the defaults for network texts

With the new workflow, the text nodes for position numbers should no longer be available at the connections.

If RUPLAN EVU 2020 is started with the settings of the installation file delivered with version 2020, this state can be settled by the evaluation **Switch: network text defaults** in the menu **Circuit diagram commands \ Wiring material \ Conversion to new workflow**.

Connection edit mask

before evaluation:

	Ident	Text	V	T	AL	ML	
S0	S1	S2		S4	S5	S7	S8
1	N&NETNAM	1L+	<input checked="" type="checkbox"/>	0	3	60	
2	N&POS		<input type="checkbox"/>	0	0	60	
3	N&MAT		<input type="checkbox"/>	0	0	60	
4	N&QUER		<input type="checkbox"/>	0	0	60	
5	N&FARBE		<input type="checkbox"/>	0	0	60	
6	POS		<input type="checkbox"/>	U	0	60	
7	MAT	H07V-K	<input type="checkbox"/>	U	6	60	
8	QUER	2, 5mm2	<input type="checkbox"/>	U	6	60	
9	FARBE	BK	<input type="checkbox"/>	U	2	60	
10	VPOS		<input type="checkbox"/>		0	60	
11	VMAT		<input type="checkbox"/>		0	60	
12	VQUER		<input type="checkbox"/>		0	60	
13	VFARBE		<input type="checkbox"/>		0	60	

after evaluation:

	Ident	Text	V	T	AL	ML	
S0	S1	S2		S4	S5	S7	S8
1	N&NETNAM	1L+	<input checked="" type="checkbox"/>	0	3	60	
2	N&MAT		<input type="checkbox"/>	0	0	60	
3	N&QUER		<input type="checkbox"/>	0	0	60	
4	N&FARBE		<input type="checkbox"/>	0	0	60	
5	MAT	H07V-K	<input type="checkbox"/>	U	6	60	
6	QUER	2, 5mm2	<input type="checkbox"/>	U	6	60	
7	FARBE	BK	<input type="checkbox"/>	U	2	60	
8	VMAT		<input type="checkbox"/>		0	60	
9	VQUER		<input type="checkbox"/>		0	60	
10	VFARBE		<input type="checkbox"/>		0	60	



Leftover position numbers that happen to still stand at connections are not deleted by this setting adaption! They remain at the connection as additional texts and are only moved to the end of the edit mask.



If the evaluation does not produce the described result, you should check the settings of your installation file see chapter 3.1, "Installation file").

## 6.7 Merging old plans in a converted project

### 6.7.1 Preliminary remarks

This chapter describes the proceedings in the case, that data from EVU-module versions before EVU-module 2020 are received from a supplier.

If these data come **in binary form** as a complete project, the conversion is performed as described in the chapter 6.6 "Conversion of a project".

If these data come as RIS-data, there are two possibilities:

1. The data are imported into a newly created, empty project. The step to transfer wiring material data from the terminal diagrams to the circuit diagrams is omitted, otherwise the conversion is performed as described in chapter 6.6 "Conversion of a project".

2. The RIS-data are imported into an already existing and converted project, and one proceeds as described in the following sections.



For **RIS-data**, the step "**Data transf. wir. mat. TDR - CDR**" **cannot** be performed!

This data transfer needs a connection between terminal and circuit diagrams that is lost when sending data via RIS interface.

The same applies for copied plans, no matter, if copied within one sheet library or from one sheet library to another.

### 6.7.2 Conversion of imported plans

If plans from a version before EVU-module 2020 were imported into an already converted project via RIS or via copy from another sheet library, subsequently these plans must be converted too.

#### No data transfer of wiring material from TDR to CDR



The **Data trans. wir. mat. TDT – CDR** in this case is **not possible!** Terminal diagrams that were brought into a sheet library via RIS or copy, do not anymore possess references to the source circuit diagrams, thus the data transfer evaluation cannot derive the spots where to enter the wiring material information.

In this case, it cannot be excluded that connections without wiring information in the circuit diagrams are assigned to different wiring material. Wiring documentation created anew after the conversion must be checked accordingly!

#### Consistency check and corrections

The consistency check and the possibly necessary corrections are performed as described in chapter 6.6.2 "Preparative consistency check" and 6.6.3 "Correction aid to the consistency check".

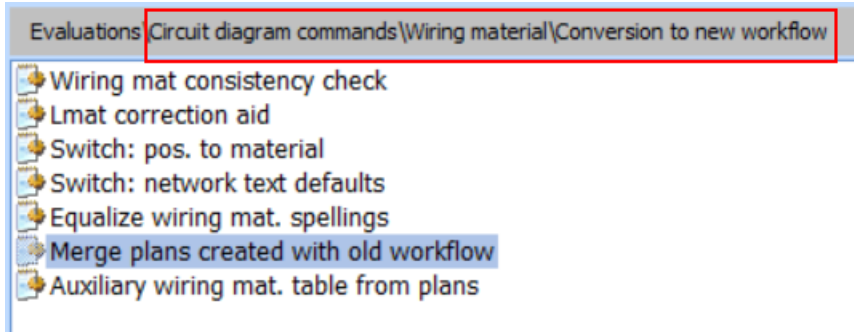


The consistency check is only possible if an old wiring material table is available.

If this table is missing irretrievably in the plans to be adapted, an auxiliary table may be created from the plans themselves (see below, chapter 6.7.3).

## Conversion of the imported plans

The plans to be converted are marked, and the evaluation **Auxiliary wiring mat. table from plans** is started:



If the consistency check did not run error-free immediately before the conversion is started, an inquiry is shown if one wants to continue. Otherwise, the evaluation runs through without further inquiries.



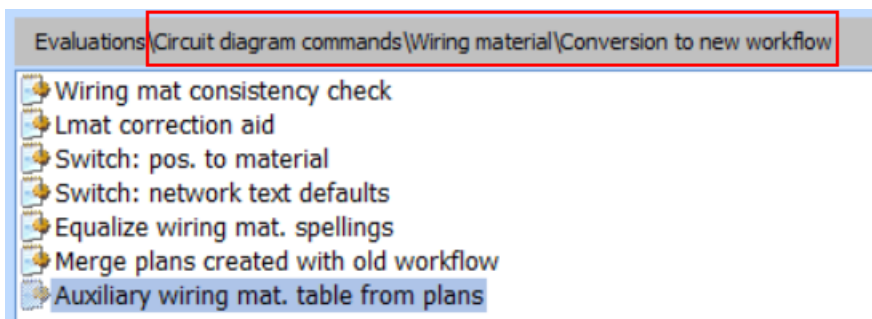
This conversion is only performed for the marked plans!



During this conversion, the evaluation examines the material in the header symbol of the supplied wiring material table. If this header material differs from the standard material of the current project, then the header material is written into the title block symbols of the converted circuit diagrams; of course, this entry is done only if there's no other entry already there.

### 6.7.3 Creating an auxiliary wiring material table

If plans stemming from a previous version must be integrated into an already converted project, and if the wiring material table related to these plans is missing irretrievably, then an auxiliary material table can be created from the existing plans:



This table is filled with information from the plans that carry complete material entries (definition symbols, terminal diagrams etc.), and therefore is possibly incomplete or even inconsistent. But it enables the performance of the conversion.

The auxiliary wiring material table will be created in the function WIRING-MATERIAL, with the sheet name 1, 2, ....

As the header material of the original wiring material table is unknown, the header symbol of the auxiliary wiring material table will be filled by a dummy value "XXXXXXXXXX".



Only the marked sheets are examined.

## 7 Sheet editing

### 7.1 New fittings for the terminal diagrams editing

Since EVU module 4.82 the QS check "Terminals circuit diagram ⇔ terminal diagram" reports as an error, if a jumper crosses separating material like a separating plate or an end cover.

There are cases though in which it is physically possible to do this, so that in this case an error message is not appropriate.

For this reason, additional jumper symbols **EXFQ\*** and separating material symbols **EXTQ\*** are now available; these symbols differ in name and layout from the normally used symbols.

The QS check "Terminals circuit diagram ⇔ terminal diagram" recognizes by the symbol name if the crossing of a jumper over a plate or cover is possible and therefore allowed (see chapter 9.5.1, Term.: circuit diagram ⇔ terminal diagram).

The fittings menu "fix / changeable jumpers" was supplemented with reducing jumpers:

symbol group : fix / loose jumpers; **reducing jumpers**

reducing jumpers

fix / loose jumpers

jumpers for 7-slot-terminals

assembly kit

assembly kit for creating own jumpers

E

EX1

EX2

EX3

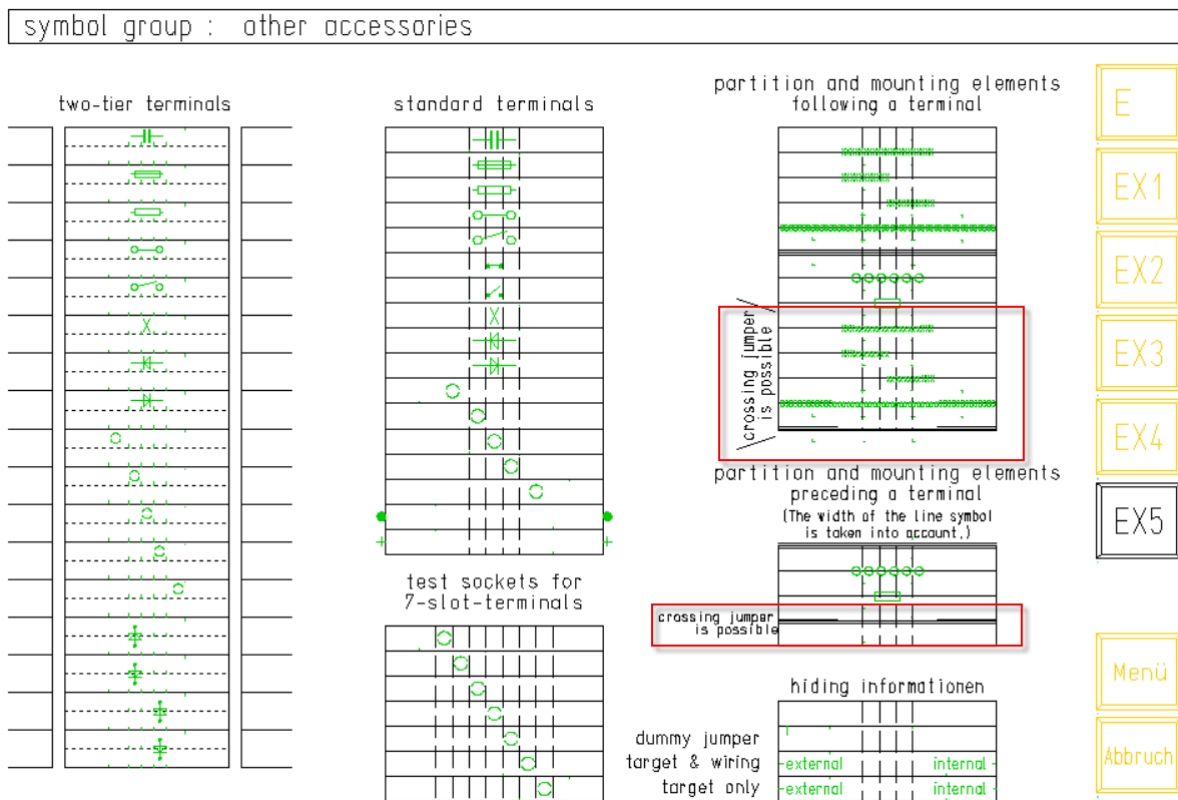
EX4

EX5

Menü

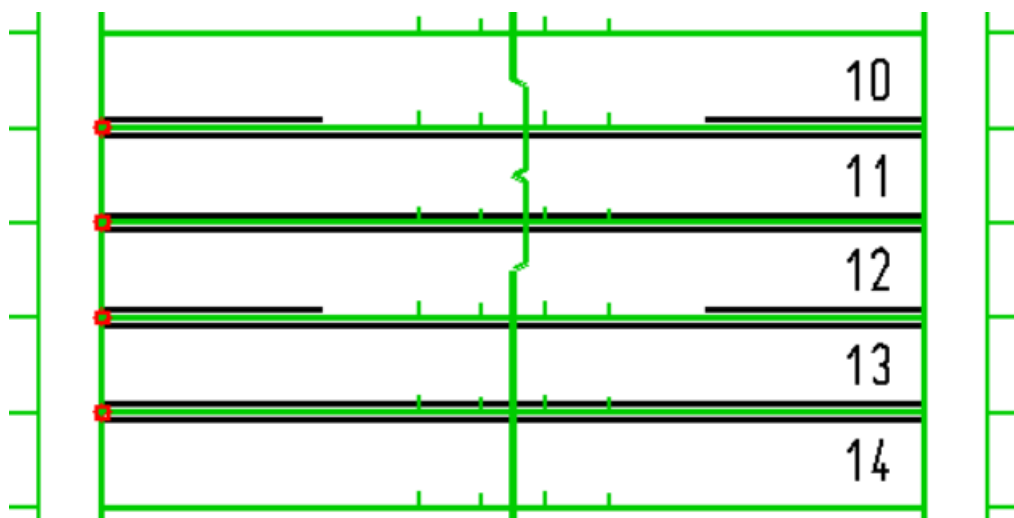
Abbruch

The fittings menu "Diverse material" was supplemented with separating material that may be crossed by jumpers:



To avoid a QS error message, it suffices that one of the two participating symbols in the constellation of a jumper crossing a separating fitting is one of the new symbols.

Examples:

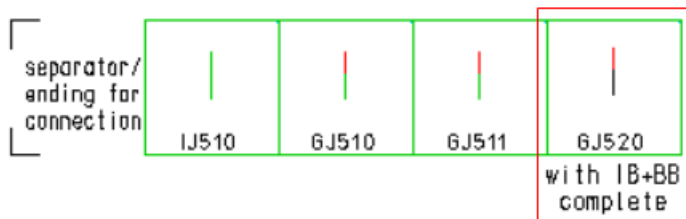


jumper from 11 to 10:	<b>EXTQD1 &amp; EXFQ1</b>	<b>OK</b>
jumper from 12 to 11:	<b>EXTD1 &amp; EXFQ1</b>	<b>OK</b>
jumper from 13 to 12:	<b>EXTQD1 &amp; EXFQ1</b>	<b>OK</b>
jumper from 14 to 13:	<b>EXTD1 &amp; EXFQ1</b>	<b>Error message</b>

## 7.2 New potential interruption symbol

### GJ520 with complete ib + bb

A new additional potential interruption symbol was made available that contains all text nodes of the identifying and the describing block.

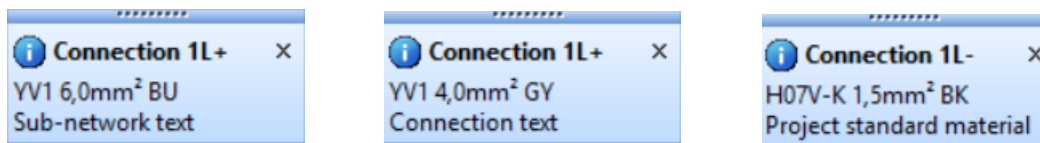


An automatic description is not offered.

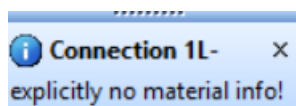
## 7.3 Graphics

### Tooltip at connection lines

The tooltip at connection lines was adapted to the new workflow for wiring material. Examples:



With the entry of a dot "." in 'N&MAT', 'MAT' or 'VMAT' the user can determine that the connection line shall not carry any wiring information:



### Automatic preset of the object class

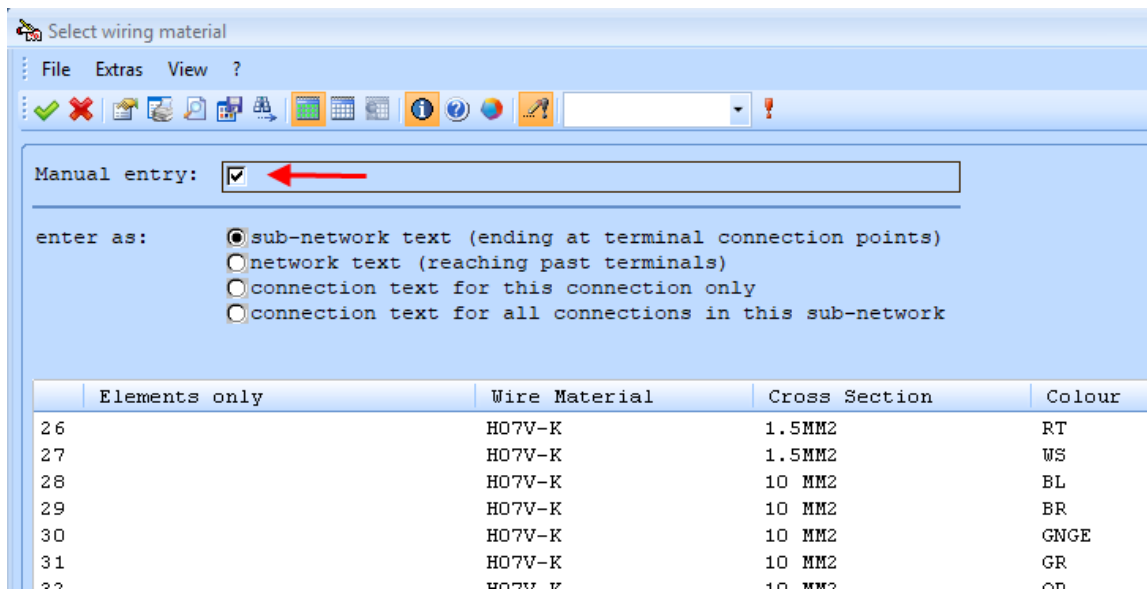
A preset for additional graphic symbols was supplemented: **XXX &NOOBJ**.

## 7.4 Context menus

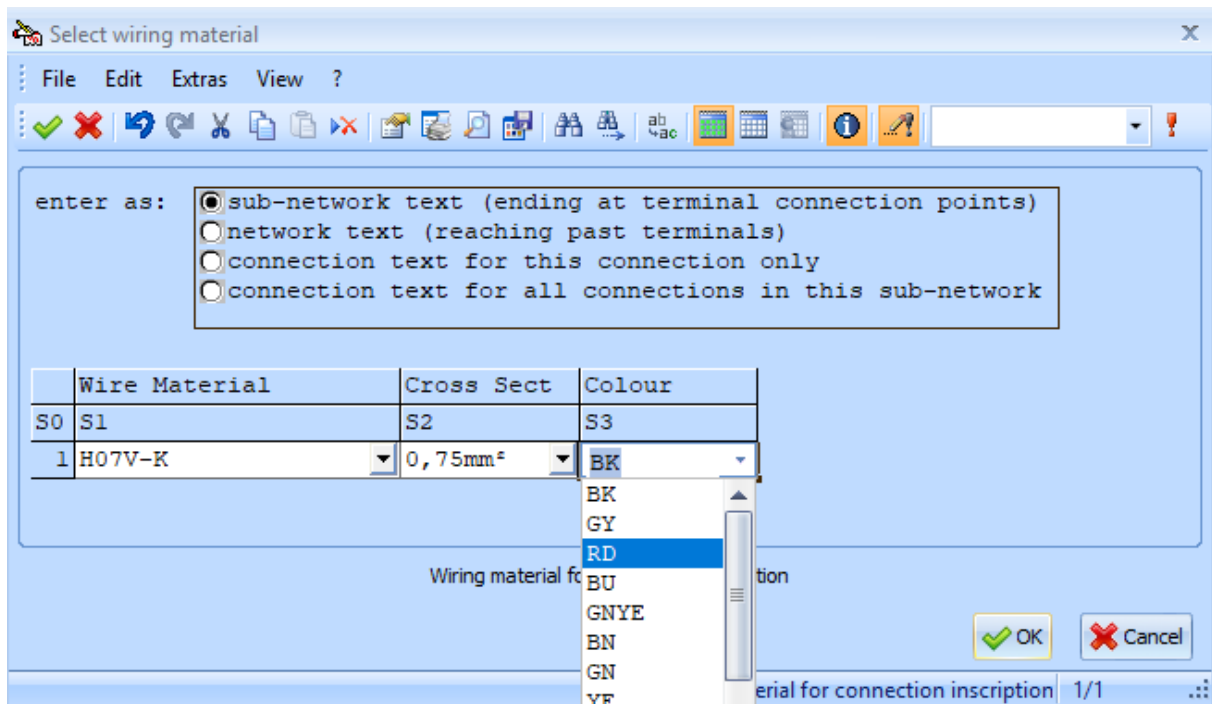
### Connection: Assign wiring material

The source for the selection list is no longer the wiring material table, but instead – if available – a wiring material catalog in the form of a TEC-object; see here chapter 6, "New workflow with wiring material".

As alternative to the selection list, the assignment can be done individually, by a supported manual entry; this manual entry can be called for in the header of the selection mask:







In this mask the user can select suggested values, or manually enter his own values; each of the 3 entry fields is filled on its own.

If no TEC-catalog-object is available, this window is shown immediately.

### Wiring core symbol: Wiring material => connection

This feature now transfers the complete wiring material information (material, cross section and color) to the connections attached to the wire core symbol.

## 7.5 Toolbars and icons

### Toolbar "General" / "Checks": "Connections and cross ref. symbols"

The feature "Unknown position numbers for wiring material" was removed, because with the new workflow (see chapter 6) the plans contain the material information itself, so no consistency check is necessary.

This feature was as well removed from the old side menu "CHE" (see chapter 10.1.2).

### Toolbar "Circuit diagram" / "Frames, groups, tables": "Location polygon, complete sheet"

If in the left bottom corner of the new location polygon a corner symbol GJ512 is left over from a previously deleted polygon, then no new corner symbol is entered.

### Toolbar "Circuit diagram" / "Frames, groups, tables": "Location polygon, partial area"

If in the left bottom corner of the new location polygon a corner symbol GJ512 is left over from a previously deleted polygon, then no new corner symbol is entered.

**Toolbar "Circuit diagram" / "Frames, groups, tables": "Item polygon"**

If in the left top corner of the new item polygon a corner symbol GJ505 is left over from a previously deleted polygon, then no new corner symbol is entered.

**Toolbar "Wiring diagram" / "Terminal diagram": "Online control for terminals"**

If a terminal line in the presently opened terminal diagram was active, only this line symbol was put under online control, the rest of the terminal lines were not altered. This bug was fixed.

## 8 Evaluations

### 8.1 General Information

#### New workflow with wiring material

The new workflow concerning wiring material, described in chapter 6, "New workflow with wiring material", caused a multitude of evaluation modifications. In the following chapters, these modifications will only be described if they affect the workflow or the layout of masks, messages or result lists.

#### Title block inscription: Assignment of wiring material was changed

If wiring material must be assigned as default for a complete sheet, this is no longer started from the text field for the position number, but from the text field for the material:

<input type="checkbox"/>	General Wire Material	RMAT	Select from wiring material catalog	20
<input type="checkbox"/>	General Wire Cross Section	RQUER	Select from wiring material catalog	20
<input type="checkbox"/>	General Wire Colour	RFARBE	Manual entry	20

This applies to the title block inscription on address level and during the graphical editing.

### 8.2 Menu "EVU-module compact"

#### 8.2.1 Modify this menu (compact)

##### Fixed bug

If group-AWTs in the group AWT menus were entered with clear texts > 28 characters, thus in 2 lines, these 2 lines were listed independently and therefore partly confusingly. Now only the 1<sup>st</sup> line of such a 2-line group AWT entry is offered for selection.

### 8.3 Menu "General diagram processing"

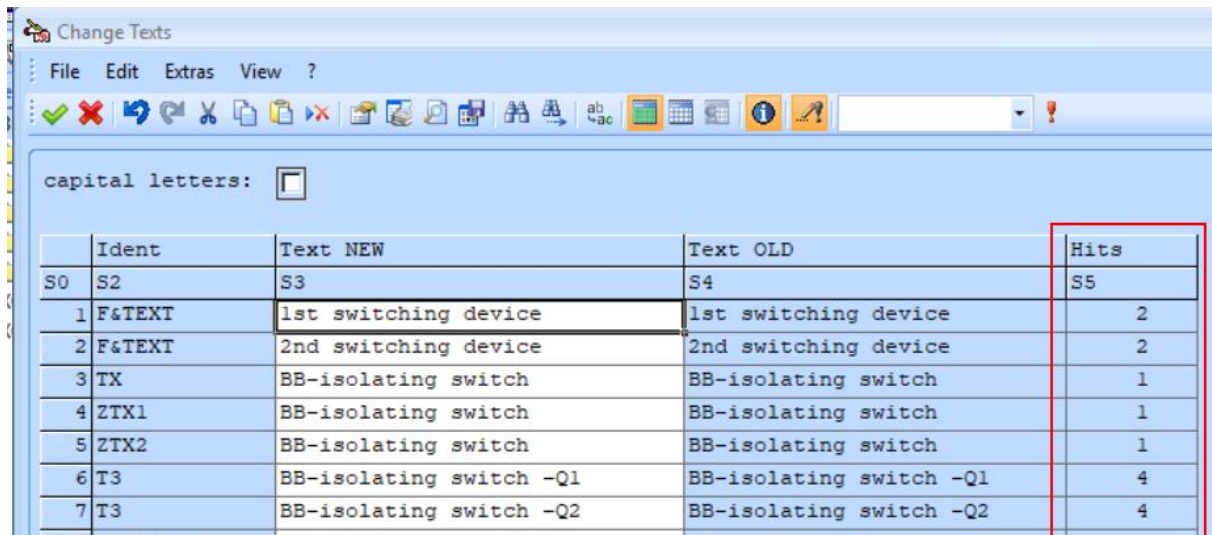
#### 8.3.1 Main menu

##### OLD: Copy sheets incl. merge of the wiring material tables

With the new workflow concerning the wiring material (see chapter 6) this feature does not apply anymore; therefore, it was removed from this menu.

## Change texts

The entry mask was supplemented by the column **Hits**; this column informs, how often a text node/text-combination was found in the marked addresses:



	Ident	Text NEW	Text OLD	Hits
S0	S2	S3	S4	S5
1	F&TEXT	1st switching device	1st switching device	2
2	F&TEXT	2nd switching device	2nd switching device	2
3	TX	BB-isolating switch	BB-isolating switch	1
4	ZTX1	BB-isolating switch	BB-isolating switch	1
5	ZTX2	BB-isolating switch	BB-isolating switch	1
6	T3	BB-isolating switch -Q1	BB-isolating switch -Q1	4
7	T3	BB-isolating switch -Q2	BB-isolating switch -Q2	4

## Form sheets in 1<sup>st</sup> sheet lib

The wiring material table is no longer offered for copying by this evaluation; see chapter 6.

### 8.3.2 Submenu "Edit symbols"

#### Delete multiple symbol entries

This evaluation up to now was only available in the menu "Administration commands", submenu "Administrat. Addresses/files"; it was now as well included in this menu.

7

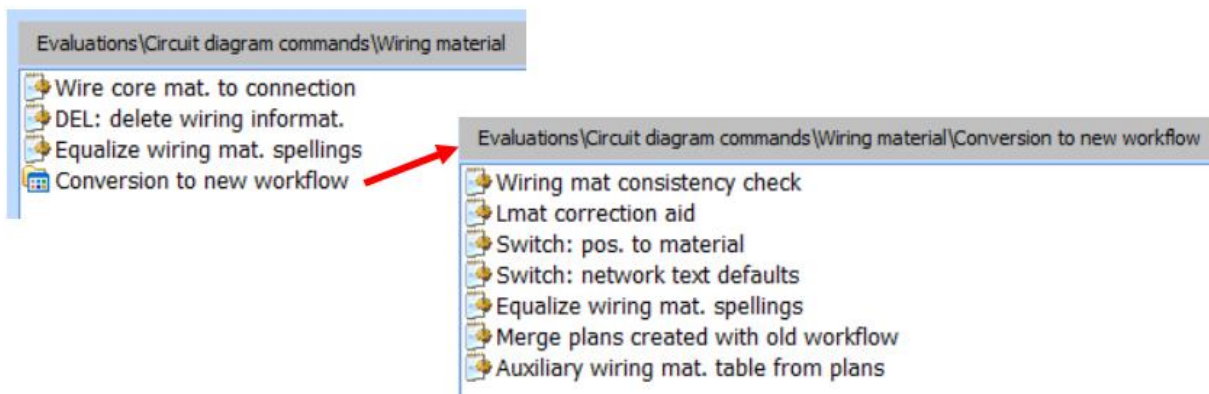
## 8.4 Menu "Circuit diagram commands"

### 8.4.1 NEW: Submenu "Wiring material"

#### Overview

This new menu contains wiring material relevant evaluations that partly are new and partly already are available in other menus.

As well it contains the submenu **Conversion to new workflow**, with the evaluations necessary to convert plans from previous versions:



#### NEW: Equalize wiring mat. spellings

With the new workflow concerning wiring material, the complete material information is contained in the plans, not as before a reference to always the same material information. Thus, there is a likeness that similar material is entered in differing spelling.

To adjust these differences, the evaluation **Equalize wiring mat. spellings** was made available.

This evaluation always examines all the plans in the project, as well as – if it exists – the wiring material catalog in form of a TEC object.

After the start, all information is extracted from plans and catalog, and is sorted by certain criteria into portions. In an entry mask, the user can perform the desired equalization:

S0	Wire type	Cross Sectio	Colour	Cat
	S1	S2	S3	S4
4				
5	H05V-K	1,0mm <sup>2</sup>	BL	X
6				
7	H05V-K	1,0mm <sup>2</sup>	WH	
8				
9	H07V-K	1mm <sup>2</sup>	BU	X
10				
11	H07V-K	1,5mm <sup>2</sup>	BK	
12	H07V-K	1,5mm <sup>2</sup>	black	X
13				
14	H07V-K	1,5mm <sup>2</sup>	BR	
15				

Spellings that stem from the TEC catalog, are marked by an "X" in column S4 ("Catalog information").

Frequent differences will be found with units of measurement and with colors, e.g.:

1,0mm <sup>2</sup>	↔	1mm <sup>2</sup>
1mm <sup>2</sup>	↔	1MM2
SW	↔	BK
RD	↔	rd

After the equalization in this mask, the system inquires if the adapted terms shall be entered in the plans and the catalog.

## NEW: Submenu "Conversion to new workflow"

See chapter 6, "New workflow with wiring material", in there especially "Conversion of a project", chapter 6.6.

## 8.5 Menu "Online control"

### 8.5.1 Submenu "Entries preceding obj. ref."

#### Delete cross refer./G&NAME

Symbols with &NOOBJ or S&A=1 are now excluded from this clearing.

## 8.5.2 Submenu "Checks preceding obj. ref."

### (DIN only) Check: missing location id.

The lines in the form sheet for the device list (VDR\* / GL1) as well as in some cases the lines without designation in '+' in a device list of the documentation were listed as faulty. Now these cases no longer lead to an error message.

### (DIN only) Check: missing '-'/'-KL'

The lines in the form sheet for the device list (VDR\* / GL1) as well as in some cases the lines without designation in '-' in a device list of the documentation were listed as faulty. Now these cases no longer lead to an error message.

## 8.6 Menu "Device documents"

### 8.6.1 Sub menu "Preparation/after-treatment"

#### TEC: copy TEC into 1<sup>st</sup> db

##### New feature:

To the list of TEC-objects to be copied the catalog object for wiring material was added: TEC / W00000W0.

Via project options (see chapter 8.10.1.1) this new catalog object can be excluded from the copy list.

## 8.7 Menu "Terminal diagram"

### 8.7.1 Main menu

#### 8.7.1.1 Create TDR-definition sheets

##### Changes

The new workflow for wiring material (see chapter 6, "New workflow with wiring material") is taken into account.

- The wiring material is selected from the wiring material catalog (TEC-object). If no wiring material catalog is available, a supported manual entry is offered.
- For the definition symbols for the cross-connection diagram (current as well as previous form) no wiring material selection is offered any more: Material information is provided in each line of the cross-connection diagram, and not in the header of the form sheet. Thus, an overall information for the form sheet is unnecessary.

### 8.7.1.2 Create terminal diagram

#### NEW: Changes with the entry of wiring material

With EVU-module 2020 the reference to wiring material via the wiring material table was abolished; the description of this new workflow you find in chapter 6, "New workflow with wiring material".

The terminal diagram evaluation was modified accordingly.

For the header entries of differing wiring material continuing numbers per terminal diagram will be entered.



Thus, the same material might get different numbers on different terminal diagrams!



To assign fix numbers to the different materials, the user can go on and use the wiring material as an option. If a wiring material table is available, the evaluation reads the position numbers for the header entries of differing wiring material from this table.

If material is found in the circuit diagram that has no entry in the wiring material table, then the missing numbers will be created by the evaluation and entered in the header with a preceding question mark:

	Wiring Material	Ø	Colour
Standard:	H07V-K	1,5mm <sup>2</sup>	BK
POS.:	1 H07V-K	2,5mm <sup>2</sup>	BK
	2 H07V-K	4,0mm <sup>2</sup>	GNYE
	?5 H07V-K	2,5mm <sup>2</sup>	BU
	?7 YV1	6,0mm <sup>2</sup>	BU

### 8.7.1.3 Data transfer TDR -> CDR

#### New feature

With the data transfer from the terminal diagram into the circuit diagram, now the navigation information of the terminal diagram line is written at the terminals in the circuit diagram.

Beim Rückschreiben werden jetzt die Navigationsdaten der Klemmenzeile an die Klemmen im Stromlaufplan geschrieben.



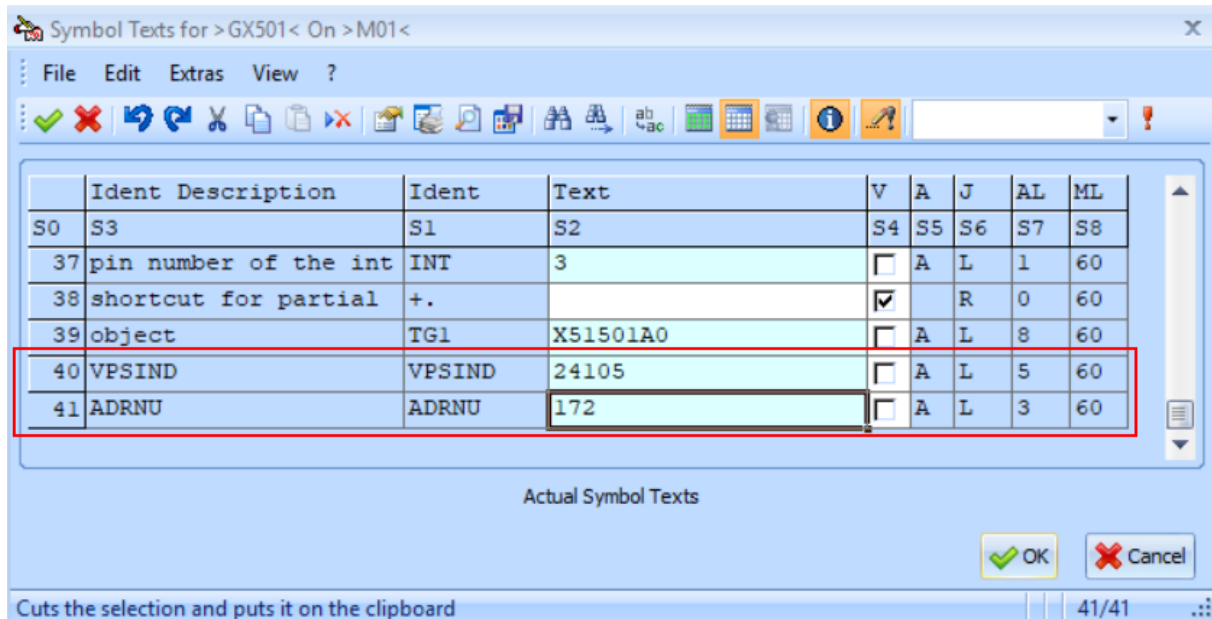
Thus, even without online references, it is possible to navigate from a terminal in the circuit diagram straight to the corresponding line in the terminal diagram!



Via project options, this entry of navigation information can be switched off; see chapter 8.10.1.1, "Project options: "EVU module"".



The navigation information (sheet number of the terminal diagram and symbol index of the terminal diagram line) are written as additional texts to the terminal:



### Fixed bug

The connection information for the internal target was transferred to the circuit diagram only if the terminal already possessed the text field 'INT'.

### 8.7.1.4 Data transf. wir. mat. TDR -> CDR

#### Change

This evaluation was adapted to the new workflow with wiring material: Instead of the position number, now the 3 material information terms material, cross section and color, are transferred back to the circuit diagram.

### Fixed bug

If a circuit diagram was not found by this data transfer evaluation, the corresponding error message was displayed as often as there were sheets marked for the evaluation.

### 8.7.2 Submenu "Special cases of term. dgr."

#### Create repeatable term. dgr.

#### Fixed Bug

The repeatable terminal diagram ignored the information about the internal target in the text node 'INT'. This bug was fixed.

## 8.8 Menu "Cable documents"

### 8.8.1 Main menu

#### 8.8.1.1 NEW: Cable destination editor

##### Fixed bug

If more than one cable plan was selected, only in the first one the old destination entries were deleted.

## 8.9 Menu "Wiring diagrams"

### 8.9.1 Settings for CCD/WD

##### Change

When modifying the sort criteria by "Change sort and new sheet condition", the wiring material position number is no longer an option because it is no longer used as reference to the wiring material table.

### 8.9.2 Cross connection diagram / Wiring list

##### Fixed bug

IEC only: If the 1<sup>st</sup> target on an IEC cross connection diagram does not fit to the designation of the reference designation polygon found in the C-sheet, no reference designation polygon at all is entered into the cross connection diagram – but up to this bugfix the fitting target entries were shortened just as if the reference designation polygon had been entered in the plan.

### 8.9.3 Cross connection diagram (previous form)

##### Change

The following change is valid for all 3 forms of the cross-connection diagram (previous form):

The reference to a wiring material table was abolished, see chapter 6, "New workflow with wiring material". The evaluation "Cross connection diagram (previous form)" was adapted accordingly.

## 8.9.4 Device wiring list (Device connection list)

### Changes

- The reference to a wiring material table was abolished, see chapter 6, "New workflow with wiring material". The evaluation "Device wiring list" / "Device connection list" was adapted accordingly.
- The new potential interruption symbol GJ520 is considered.

## 8.9.5 Plug connection diagram

### Change

The reference to a wiring material table was abolished, see chapter 6, "New workflow with wiring material". The evaluation "Plug connection diagram" was adapted accordingly.

## 8.9.6 Check: faulty networks

### New feature

Up to now this check only produced a list of sheets with faulty networks.

From this sheet list now, a detailed list can be activated that shows all faulty network texts in detail, with the possibility to navigate to the error spot.



Usually the network error stems from a situation when the net carries "hidden" network texts that differ from the network text shown in the designation mask.

Navigation from the list leads to a symbol. One must designate the network connected to this symbol, and repeatedly delete the network text 'N&NETNAM', until either the right text shows up or no text at all; then the right text must be re-entered.

As networks often are quite diversely branched out, often it is enough to correct the faulty network text at one connection in order to get a "Correct"-message with a 2<sup>nd</sup> start of the check.

## 8.10 Menu "Administration commands"

### 8.10.1 Project administration

#### 8.10.1.1 Project options: "EVU module"

##### New option variables

##### Diagram Processing / Circuit diagram processing:

Circuit diagram processing		
Explaining Text	Standard	Customer
Standard wiring material for project	H07V-K	H07V-K
Standard wiring cross section for project	1,5mm <sup>2</sup>	1,5mm <sup>2</sup>
Standard wiring color for project	BK	BK

With EVU-module 2020, in this spot the standard wiring material that is valid for the whole project can be modified.

##### Device Documents / Objects:

TEC into 1st OBJ: copy wiring material catalog as well	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
--	-------------------------------------	-------------------------------------

With the new workflow for the wiring material (see chapter 6) there may exist a catalog object for wiring material (TEC / W00000W0).

With this new project option, the user can decide whether this object should be copied or not with the evaluation "TEC: copy TEC into 1<sup>st</sup> db".

##### Wiring Documents / Terminals and terminal diagram:

Terminals and terminal diagram		
Explaining Text	Standard	Customer
Message box in TDR without data transfer to CDR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Transfer navigation information to terminals in CDR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

For the data transfer from the terminal diagram to the circuit diagram, it was supplemented that the navigation information to the terminal diagram line is written at the terminals in the circuit diagram; see chapter 8.7.1.3, "Data transfer TDR -> CDR".

At this spot in the project options this entry may be switched off.

### 8.10.2 Submenu "Administrat. addresses/files"

#### Form sheets in 1<sup>st</sup> sheet lib

The wiring material table is no longer offered for copying by this evaluation; see chapter 6.

**TEC: copy TEC into 1<sup>st</sup> db****New feature:**

To the list of TEC-objects to be copied the catalog object for wiring material was added: TEC / W00000W0.

Via project options (see chapter 8.10.1.1) this new catalog object can be excluded from the copy list.

**8.11 Menu "Modules"****8.11.1 Cad-Cabel interface****Change**

The reference to a wiring material table was abolished: The wiring material is read directly from the plan, no longer indirectly via a position number. See as well chapter 6, "New workflow with wiring material".

**Fixed bug**

IEC only: Because of a wrong jump address the evaluation aborted.

## 9 QA tools

### 9.1 General data check

#### 9.1.1 Incomplete data

##### Fixed bugs

- Office links / hybrid graphics: If the device entry for a file was faulty, but the correct device contained further files that were checked, then the faulty link was not found.
- A device entry without a file entry was not reported.

#### 9.1.2 Unknown symbols

##### Additional feature: Check content of text fields

This check was enhanced in the following way: Additionally, now symbol names that are stored in text fields to supply symbol information for document creation via evaluations, are checked as well.

Such symbol names are searched for:

- in sheets, at terminals: 'ZEILE', 'BRUECKE' und 'MAT...'
- in sheets, at WD-definition symbols: 'ZEILE', 'BRUECKE', 'TABKOPF', 'FUELLMIT', 'ZEILEKAB' und 'ENDPLATT'
- in TEC-objects, at technical data symbols: 'SSASYMB', 'SSSSYMB', 'SSZSYMB', 'ZEILE' und 'MAT...'

Triggered by this the layout of the error list was modified: Directly beside the columns for the address where the unknown symbol has been detected, the symbol with the text node for the newly integrated error cases are displayed. The unknow symbol is listed in the column "Symb. Name unknown". In the lines with error messages for objects, the partial function number and the version number are supplemented:

Project: QS_SYU		User: BNO							
Date: 02.07.2019		Page: 1							
-----									
Check: Unknown Symbols		Result: Incorrect							
-----									
Address	Symbol	Ident	Symb. Name unknown	S&X	S&Y	S&TNR	S&VNR	Index	
-----									
TEC	X51501A0	TJ415	SSASYMB	BF00050055	88.00	264.00	3	1	1163
=E01+SV30	K00			EXNOOB_KL	44.00	156.00			3469
TEC	F21529A0ACR	TJ100	SSASYMB	G3025	100.00	24.00	101	1	64
TEC	F23539A0ACR	TJ100	SSASYMB	G3063	100.00	24.00	103	1	2172
GER	A10002A0SEA			GA10002A0SEA	30.00	262.10	20	1	762
=E01+E01	C01	VX600	FUELLMIT	N	20.00	284.00			766
TEC	X51501A0	TJ415	ZEILE	VX564SEA	88.00	188.00	22	1	11087

## 9.2 Objects and devices

### 9.2.1 Device check

#### Changes

If via project settings ("Device Documents" / "Resource schedule") error messages concerning TEC-objects are suppressed, then with the common start the marking of this check is removed. If the comment entry field is empty, the text "Project settings: Messages conc. TEC are suppressed!" is entered. (The check can be activated before acknowledging the mask.)

#### Fixed bug

Running in the context of the common start, this evaluation did not generate an additional information file, even if additional information did exist.

## 9.3 Symbols and designation

### 9.3.1 Item captioning

#### New feature

From now on corner symbols GJ512 for location polygons are listed as error if their designation in '=' or '+' differs from the title block resp. from the polygon.

#### Fixed bugs

- Running in the context of the common start, this evaluation did not generate an additional information file, even if additional information did exist.
- If this check was run as part of a common start, and if in the course of the evaluation "common start" an old version of the status form sheets was deleted, the evaluation aborted with this check ("Item captioning").
- A '+'-entry that was invisible and differed from the polygon or the title block, was not reported as an error.
- Like the terminal / plug check the symbols without entry in '+' are reported too; the header for the error number did not provide this information.

## 9.3.2 Captioning of termin./plugs

### New feature

The check of terminals and plugs now also checks entries of symbol names in text nodes like 'ZEILE' or 'MAT1' on observance of the guidelines-rules. Therefore, the new error code "1(0)" was implemented:

Project: SYK-ERWEITERUNG		User: BNO												
Date: 01.11.2019		Page: 1												
Check:	Terminal and plug text entry	Result:	Incorrect											
Error:	1: The text field for the location "+" has no text entries. 2: The text field for the item designation "-" and "-KL", resp., has no text entries. 3: The text field for the pin designation ":1" and ":-1", resp., has no text entries. 4: The terminal type in text field KLART is not allowed. 5: The number of reserve terminals in RESKL is not numerical. <b>1(0): The symbol name in the text field does not meet the demands of the EVU guidelines.</b>													
Search Terms:	K: Entries in text field KLART (terminal type) R: Entries in text field RESKL (number of reserve terminals)													
Search Terms		#Error												
Function	Sheet	Symb. Name	X Y Location (+)	Item (-/-KL) :1 / :-1	K R Item (-1) -AN (Ident content)#	#1	2	3	4	5				
=E01	MA01	GX501	4 C +S1	-X1	15	2	ZEILE	VX312BNO#0						
=E02	G01	GX501	6 A +S1	-X1	2	2	BRUECKE	EXYB1BNO#0						
=E02	G01	GX501	6 B +S1	-X1	4	2	BRUECKE	EXYB1BNO#0						

## 9.4 Connections and potentials

### 9.4.1 Faulty pot./cross ref. symb.

#### Change

References to a wiring material table were abolished (see chapter 6, "New workflow with wiring material"). The check "Faulty pot. / cross ref. symb." was modified accordingly.



## 9.5 Circuit dgr. ↔ accomp. docu.

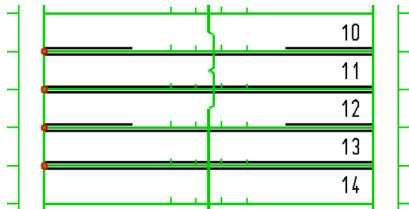
### 9.5.1 Term.: circuit diagram ↔ terminal diagram

#### New feature 1

The terminal diagram check observes new fitting symbols for jumpers and separating material which display that a jumper may cross a plate or a cover (see chapter 7.1, New fittings for the terminal diagrams editing).

If a jumper crosses separating material, then this crossing is not reported as an error if at least one of the two participating symbols is chosen from these new symbols (EXFQ\* for reducing jumpers, EXTQ\* for separating material with gaps).

The following constellation in the terminal diagram:



does result in only one error message:

```

Check:   Terminals Circuit Dgr. <-> Terminal Dgr. Consist. CDG <=> TER. DEF. SH. <=> TER. D. Result:   Incorrect
-----
Error:   1: Terminal definition symbol without terminal diagram
         2: Manually entered texts in the terminal diagram
         3: Reference terminal for the errors listed below
         4: Terminal type (KLMAT) differs from reference terminal
         5: Page make-up (ABBRUCH) differs from reference terminal
         6: Reserve terminal (RESKL) differ from reference terminal
         7: Jumper (BRUECKE) differs from reference terminal
         8: Terminal line (ZEILE) differs from ref. terminal
         9: Remark on terminal (RBEM) differs from ref. term.
        A: Terminal fittings (MAT1..8) differ from ref. term.
        B: Terminal type (KLART) differs from ref. terminal
        C: Additional information for term. fittings incorrect
        A(0): Jumper crossing partition element
        B(0): Error message at line sym. or header in the TDR
        C(0): Terminal found only in CDR or only in TDR
-----
Plant:   =E01      Loc.          +S1
-----
Function  Sheet      Symb. Name  X  Y  Item (-/-KL)  Item (-1)  -AN      :1      MAT*   #Error
-----
=E01+S1  K10              VX512      1  B  -X1          :14        #              0
-----

```



The error message "A(0)" now lists the terminal from which the jumper starts, that is the **lower** of the two connected terminals!

## New feature 2

The terminal diagram now also examines the names of symbols in the terminal diagram and checks these against guidelines-rules. Therefore, the new error code "9(0)" exists in the error list:

Project: AKK-ERWEITERUNG_2		User: BNO	
Date: 01.11.2019		Page: 1	
-----			
Check:	Terminals Circuit Dgr. <-> Terminal Dgr. Consist. CDG <=> TER. DEF. SH. <=> TER. D.	Result:	Incorrect
-----			
Error:	1: Terminal definition symbol without terminal diagram	S:	Remark on terminal (RBEM) differs from ref. term.
	2: Manually entered texts in the terminal diagram	A:	Terminal fittings (MAT1..8) differ from ref. term.
	3: Reference terminal for the errors listed below	B:	Terminal type (KLART) differs from ref. terminal
	4: Terminal type (KLMAT) differs from reference terminal	C:	Additional information for term. fittings incorrect
	5: Page make-up (ABBRUCH) differs from reference terminal	9(0):	Symbol name does not fit rules (EVU-guidelines)
	6: Reserve terminal (RESKL) differ from reference terminal	A(0):	Jumper crossing partition element
	7: Jumper (BRUECKE) differs from reference terminal	B(0):	Error message at line sym. or header in the TDR
	8: Terminal line (ZEILE) differs from ref. terminal	C(0):	Terminal found only in CDR or only in TDR
-----			
Plant:	=E01	Loc.	+KF01
-----			
	Search Terms		
Function	Sheet	Symb. Name	X Y Item (-/-KL) Item (-1) -AN :1 MAT* #1 2 3 4 5 6 7 8 9 A B C
=E01	Q01	GX501	8 D -X1 128 #
=E01+KF01	K10	VX312BNO	1 B -X1 128 #
=E01+KF01	K20	VX100ABC	1 A -X2 #
-----			



In case of illicit line symbol names, in addition the error "C(0)" may be reported because of its name the terminal line is not found as the corresponding line for the terminal in the circuit diagram.

## Fixed bug

For two adjacent terminal lines of different height it often occurred that the error "Jumper crossing partition element" was reported without reason.

## 9.5.2 Item definition ↔ resource schedules

### Fixed bug

Running in the context of the common start, this evaluation did not generate an additional information file, even if additional information did exist.

## 9.5.3 All sheets ↔ list of documents

### Fixed bug

If 2 sheets in a documentation carried identical ambiguity designations in the title block, only one of these sheets was listed in the error list.

## 9.6 QS-tools acc. to previous versions

### 9.6.1 QS-tools acc. to EVU-module 2019

With EVU-module 2020 data can be checked with the state of the QS-tools of EVU-module 2019; to this purpose the AWT library EVUQS2019U0\_2020 was made available.

## 10 Reference data

### 10.1 Symbols

#### 10.1.1 New reference symbols

All reference symbols listed below were newly built for the symbol libraries X002020/X002020\_IEC and X0032 (German) as well as for the symbol libraries X002020E/X002020E\_IEC (English). Form sheet symbols were likewise supplemented in X002020\_FORM\_STX and X002020\_IEC\_FORM\_STX.

EXFQ*	24 new symbols as representations for reducing jumpers in terminal diagrams (see chapter 9.5.1, Term.: circuit diagram ⇔ terminal diagram)
EXTQ*	19 new symbols as representations in terminal diagrams for separating material that allows crossing jumpers (see chapter 9.5.1, Term.: circuit diagram ⇔ terminal diagram)
GJ520	potential interruption symbol with complete identifying and describing block (see chapter 7.2)
TJ710	header symbol for TEC-object W00000W0 (wiring material catalog, see chapter 6)
TJ710B	header symbol for TEC-object W00000W0 (wiring material catalog, see chapter 6), small
TJ711	line symbol for TEC-object W00000W0 (wiring material catalog, see chapter 6)
TJ711B	line symbol for TEC-object W00000W0 (wiring material catalog, see chapter 6), small
VQ400A	new definition symbol for the cross-connection diagram: 'LPOS', 'LMAT', 'LQUER', 'LFARBE' removed (see chapter 6)
VQ500A	new definition symbol for the cross-connection diagram (old form): 'LPOS', 'LMAT', 'LQUER', 'LFARBE' removed (see chapter 6)
VX400A	new definition symbol for the terminal diagram: 'LPOS' removed (see chapter 6)

#### 10.1.2 Changes on reference symbols

If not specified otherwise, the changes listed below were performed for the symbols in X002020/X002020\_IEC and X0032 (German) as well as for the symbols in X002020E/X002020E\_IEC (English). Form sheet symbols were likewise changed in X002020\_FORM\_STX and X002020\_IEC\_FORM\_STX.

GJ522	colored blue (as optical difference to GJ512 = red)
GW701	'LPOS' pre-defined with "Wire", T&MAXTXL=20
GW701P	ditto
GW702	ditto

L002734*	(logic mask for IX505, IX509, IX510) DIN only, no BSB: positions of 'GERAET' and '-AN' were switched; 'GERAET' got an automatic text move-up to '-AN'
LQ010071*	DIN only: 3 <sup>rd</sup> connection point was added, located within the symbol at the position of connection point 2 of the basic connector symbol
LQ010072*	ditto
LQ010073*	ditto
LQ02231*	ditto
LQ022311*	ditto
M_EX4	new symbols EXFQ* for reducing jumpers entered (see chapter 10.1.1)
M_EX5	new symbols EXTQ* entered separating material that allows crossing jumpers (see chapter 10.1.1)
M_W	new potential interruption symbol GJ520 entered (see chapter 7.2)
QR001	text node 'RASGRASC' for a scaling factor supplemented
UJ018	IEC only: reference designation IDs re-arranged: '-' in the left upper corner, 'STE' to the right of '-', '=' and '+' above, outside the rectangle
UJ032	ditto
UJ034	ditto
UJ062	IEC only: reference designation IDs re-arranged: '-' in the left upper corner, 'STE' to the right of '-', '=' and '+' still further to the right
UJ092	ditto
UJ124	ditto
UJ180	ditto
VB281TD	text nodes for network texts removed ('NN*', 'NPOSI*', 'NM*', 'NQ*', 'NF*', 'SICHT')
VQ400	OLD: replaced by VQ400A
VQ500	OLD: replaced by VQ500A
VR560	DIN + IEC/ENG: bothering and unnecessary vertical line in the block for the assignment was removed
VR561	ditto
VR562	ditto
VR563	ditto
VX400	OLD: replaced by VX400A
VX710	new text node supplemented for marking an optional wiring material table (see chapter 6)
VX710B	ditto
WJPRU_*	the feature "wire mat. unknown" was removed from the menu (see chapter 6)

## 10.2 Sheets

### 10.2.1 New sheets

If not specified otherwise, the form sheets listed below were newly created in X002020/X002020\_IEC (German) as well as in X002020E/X002020E\_IEC (English).

VDR2019, VDR2019_KKS	VP, VP_F	QS status sheets for the previous version, usable with EVU-module 2020, were made available
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### 10.2.2 Changes on form sheets

If not specified otherwise, the changes listed below were performed for the sheets in X002020/X002020\_IEC (German) as well as for the sheets in X002020E/X002020E\_IEC (English).

VDR, VDR_KKS	GV1	DIN only: the setting values for network texts (N&NETNAM and wiring material information) were removed; see also 10.1.2, symbol VB281TD.
VDR, VDR_KKS	VL	In the sort symbol the 5 <sup>th</sup> sort was switched from POSI (wiring material position number) to LMAT (wiring material (complete)).
VDRvvv, VDRvvv_KKS	VP, VP_F	QS status sheets for older QS-versions were adapted to EVU-module 2020