WTR 0306A
Retrofit Yaw 0° sensor MM

Service urgency: **C: During the next scheduled maintenance**

Wind turbine type:	MM
Subassembly:	27.0 Yaw
Component:	
Release date:	2017-05-XX

SENVION
wind energy solutions

Doc no.: DE-LCNP-F-13.3.1.2-A-EN
2016-04-01

Table of Contents

1 Change history

Version	Edited chapter	Change
A		

2 Related documents

Document number	Document name	Note
Q-2.1-GP.00.01-A*	MM series safety manual	
TO 055	North alignment with REguard Control B _Bachmann_ Rev A	
DE-QHS-I-14.2.11.46*	Occupational health and safety means for operational workplaces on a WTG	
DE-QHS-I-14.2.3.4	HSE risk assessment	For preparing the risk assessment
DE-QHS-F-14.2.3.1*	Risk assessment, template	For preparing the risk assessment
DE-QHS-O-14.2.3.1*	Overview of existing risk assessments	For preparing the risk assessment, current version on the intranet
Q-2.1-GP.00.01-A*	Safety manual	Pictogram, signal words
DE-QHS-I-14.2.11.49*	Work on electrical components	
DE-QHS-I-14.2.6.4-C*	Lockout Tagout	

3 List of abbreviations

Abbreviation	Explanation

4 Chapter illustrations

Pictogram	Division/department
	Production
	Logistics
	Project management/erection
	Project management/commissioning (COM)
	Service/maintenance

5 List of figures

6 List of tables

There is no list of tables available.

7 Safety

This document only contains the work-related risk assessments of individual working steps. Risk assessments adapted to the countries or locations in accordance with applicable safety requirements of the WTG or production sites are not taken into consideration. For this reason, local technical support and service management at the Senvion subsidiaries are responsible for adhering to the national and location-specific safety notes.

This obliges local technical support and service management to determine the locally applicable safety requirements, include them in the valid workplace-related risk assessment, and distribute them independently within their area of responsibility.

7.1 Signal words

Signal words are used to indicate the activity-related risks of the individual working steps.

⚠ DANGER	Indicates an immediately hazardous situation which, if not avoided, will result in death or severe injury.
⚠ WARNING	Indicates a potentially hazardous situation, which, if not avoided, could result in death or severe injury.
⚠ CAUTION	Indicates a potentially hazardous situation, which, if not avoided, may result in minor to moderate injury.
NOTICE	Indicates a potentially hazardous situation, which, if not avoided, may result in material damage.

NOTE: Indicates additional information.

7.2 General safety notes

The general safety notes are valid for all the work activities specified in the following.

⚠ DANGER

Type and source of the danger!

Consequences of the danger!

- Measure 1 for avoiding the danger
- Measure 2 for avoiding the danger
- …

7.3 Risk assessment

The manager has to decide whether the activity is already covered by an existing risk assessment or whether an additional risk assessment or a supplement to the existing risk assessment is required. The QHS templates and instructions must be used for this purpose. The activity-related risks of the individual working steps described in this document form the basis of a possible risk assessment or a supplement to it. The direct manager must add all the regional and special requirements. In addition, the supervisor must brief or train the employee responsible in the new working steps. This training must be documented.

8 Preview

State prior to the WTR measure

No sensor installed.

State following the WTR measure

Sensor 0° nacelle position installed.

Figure 1: Sensor 0° nacelle position

9 Scope

This instruction represents an urgent measure within the scope of Senvion quality management. A full inclusion in Senvion standard documentation will not be realized.

10 Technical background

A reliable Nacelle position is necessary for the good functioning of the following software functions: Load management, Sound Management (with a wind sector criteria), Yaw parking in case of ice, shadow management With the former design of the nacelle position measurement, important shifting of that position have been observed. In 2013-2014 a proximity sensor was added in the yaw brakes area in order to give a 0° position. This enables a more reliable measurement by setting an alarm (status code 6350) in case of shifting and an easier recovery of the 0° position of the nacelle.
This WTR shows how to add the 0° nacelle position proximity switch in the older WECs which are not equipped with it.

11 Affected WTGs/components

WECs with Bachmann Control and Topbox Drawing number older or equal to E-1.1-EL.ST.01-C-H (version E-1.1-EL.ST.01-D-A (MM) and newer are equipped with the 0° sensor).
In some WECs installed in 2013-2014 with Topbox E-2.1-EL.ST.01-C-A , the cable from the topbox to the sensor is already laid down but the sensor & holder are missing.

The WTR has to be carried out if one of the above mentioned function is activated.

Note: The affected WTGs are listed in the release and accompanying document.

But the availability of the Sensor has to be checked for the WECs installed in 2013 & 2014, as it depends of the construction date of the nacelle.

As the activation of options may change over time, the effective use of one of the following options : Load management, Sound Management (with a wind sector criteria)**, Yaw parking in case of ice, shadow management has to be checked before carrying out this WTR. On the other way, it might be necessary to do the WTR in other WECs which are not listed in the accompanying document but have an active option which uses the nacelle position.**

12 Material

Generally, there are two material types at Senvion. Direct materials are installed on or in the WTGs and remain there. They are usually procured by the operational purchasing department (GNO). Indirect materials (such as tools, tarps, and personal protective equipment) or services do not remain at the WTGs and are normally procured via the indirect purchasing department (SCI).

Material for production (procured via SAP ZNAC order)

No.	SAP no.	Quantity	Material description	Description

Material for COM (procured via the material manager)

No.	SAP no.	Quantity	Material description	Description

Material for service (is procured via the Service Purchasing department)

No.	SAP no.	PG	Quantity	Material description	Description
	73028		1	WTR 0306A - Retrofit Yaw 0° sensor,MM,3M	Retrofit Kit
The Retrofit Kit contains the following materials:					
1	47255	604 / 42 days	1	Cable S1.1314, MM	
2	44367	604 / 21 days	1	Proximity switch M18	
3	32324	654 / 40 days	1	Sensor holder	
4	20026	601 / 21 days	1	Screw M10x 16	
5	11123	601 / 14 days	1	ScrewM10x 20	
6	11289	601 / 14 days	2	Washer 10-ISO7089-tZn	
7	40258	601 / 15 days	1	Magnet	
8	36669	601 / 7 days	1	Sticker 'Magnet marking north'	
9	36670	601 / 7 days	1	Sticker ‘North’	
Other potentially necessary material (see 18.4.5):					
	67819			magnetic switch	
Other necessary material:					
	19588			Cable strips	
	10142			Blue Wire 1.5mm²	
	10143			Red Wire 1.5mm²	
	10007			Cable sleeves 1.5 mm²	

13 Tools

A tool is any standard, commercially available machine or device required for installation or as an aid. A tool is ideally available at all places of implementation and is usually procured independently as “indirect material” by the relevant department via Simple System. Tools, tarps, PPE and services do not remain at the WTGs and are normally procured by the indirect purchasing department (SCI).

Tools for production (procured via production)

Quantity	SAP no.	Manufacturer no.	Trade name	Figure

Tools for erection (provided by the contracted assembly team)

Quantity	SAP no.	Manufacturer no.	Trade name	Figure

Tool for the COM (will be provided by the relevant assembly team; the COM itself is possibly responsible or a material manager is to be named)

Quantity	SAP no.	Manufacturer no.	Trade name	Figure

Tools for service (procured via the service centers)

Quantity	SAP no.	Manufacturer no.	Trade name	Figure

Standard Tools for service are available.

14 Production

Not relevant

15 Logistics

Not relevant

16 Erection

Not relevant

17 COM (commissioning)

Not relevant

18 Service and maintenance

18.1 Changed maintenance requirements

Execution of WTR 0306A does **not** result in any changed maintenance requirements

18.2 Special employee qualifications

skilled electrician, 3-20 access to activate status code 6350.

18.3 Time requirement

overall requirement: 2 hours with 2 employees

18.4 Procedure

18.4.1 De-energize the top-box and secure it against reconnection

DANGER

Electrical accident!

Injury of all kinds, death!

The 5 safety rules for work on electrical systems must be observed at all times.

1. Disconnect
2. Secure against reconnection (LoTo)
3. Check for the de-energized state
4. Ground and short-circuit
5. Cover adjacent live components or shield them.

1. Disconnect powersupply 690 V.
2. Secure against reconnection powersupply 690 V.
3. Disconnect powersupply 400 V.
4. Secure against reconnection powersupply 400 V.
5. Disconnect powersupply UPS.
6. Verify that the components are in the de-energized state using a certified, approved and suitable testing device.

18.4.2 Modification of the Topbox wiring (E-1.1-EL.ST.01-C-x)

1. Disconnect the wire H20 from Terminal –X2:434 (Figure 2).
2. Connect the wire H20 to terminal–X2:571 Figure 4).
3. Connect the terminal–X2:569 to 24V-IN-1.3 with a red wire (Figure 4).
4. Connect the terminal–X2:570 to GND-IN-3 with a blue wire (Figure 4).
5. Lay down the cable S1.1314 between Terminal X2 and the sensor holder in the yaw area (Figure 3 and Figure 5) and connect to the terminal (including shield).

NB : For E-2.1-EL.ST.01-C-A cubicles, the cable S1 1314 is already laid down, no action is necessary.

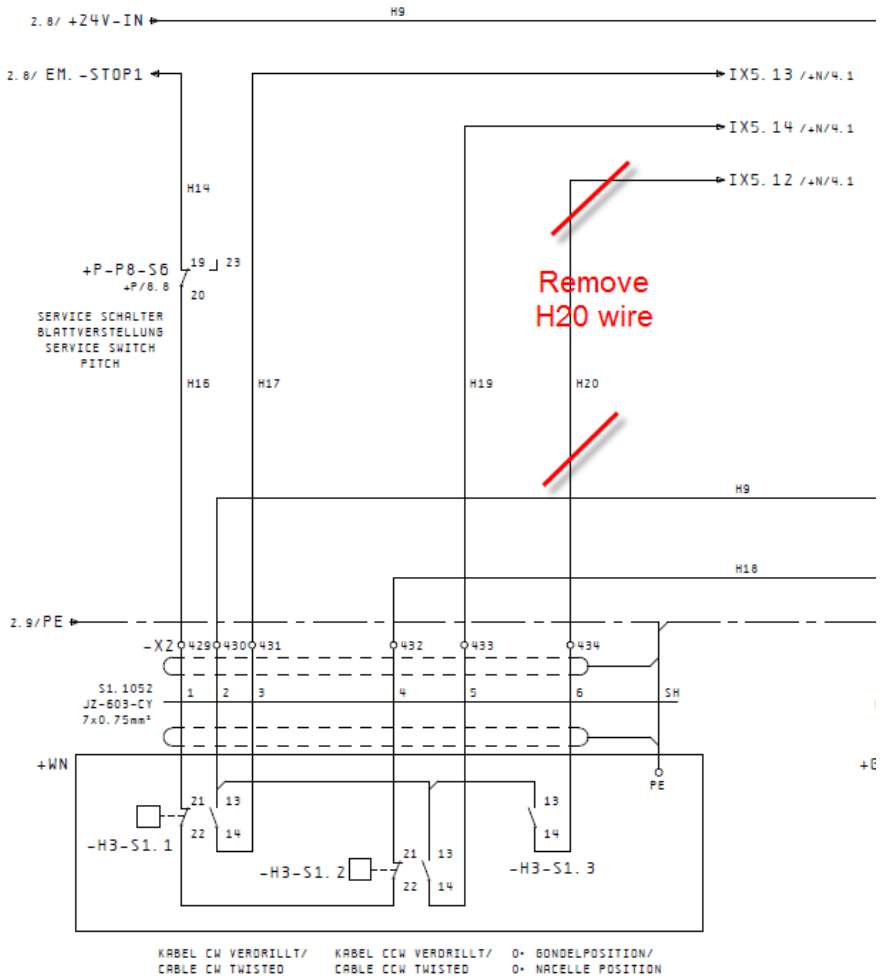

Figure 2: Topbox Drawing E-1.1-EL.ST.01-C-H page H3

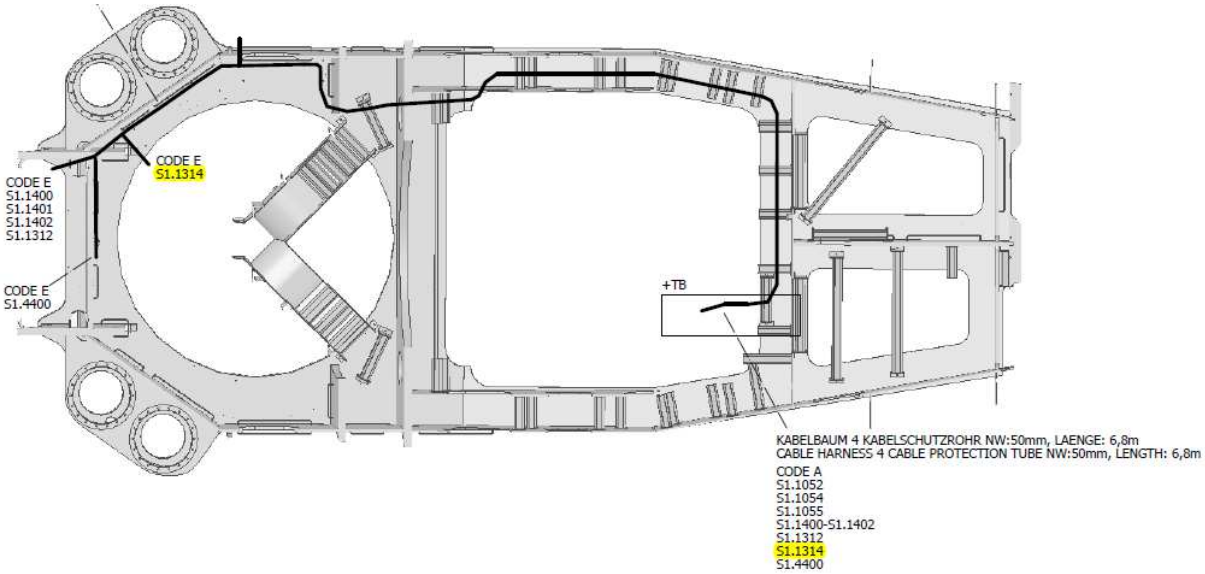

Figure 3: Cable S1.1314 way

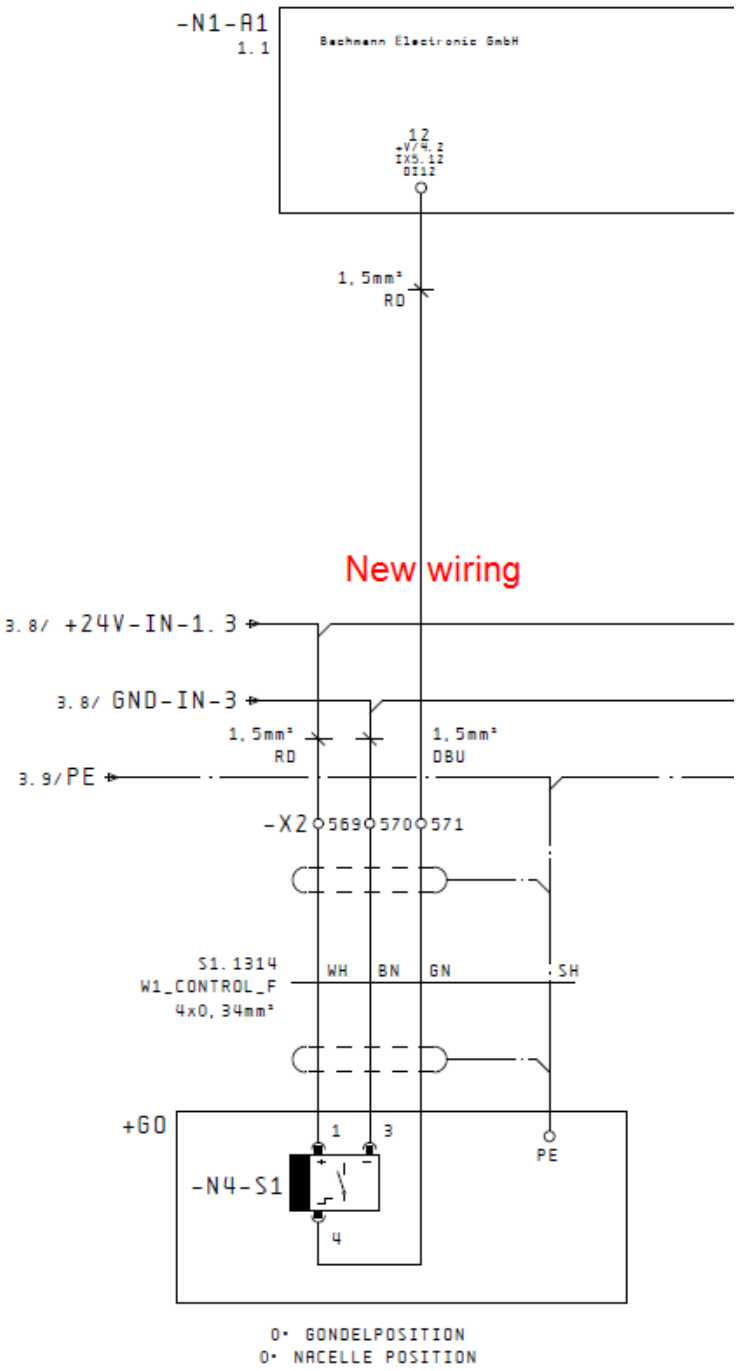

Figure 4: Wiring of the new sensor "0° Nacelle Position"

18.4.3 Installation of the sensor

DANGER **Risk of fall!**

Injury of all kinds!

1. Dismount the grease receptacle holder, install the sensor holder on the yaw brake and reinstall the grease receptacle holder (Figure 5).
2. Install the proximity switch.
3. Place the magnet in a provisory position in front of the sensor and set the distance between magnet and sensor to 5mm.
4. Connect the sensor to the plug of the cable S1.1314.

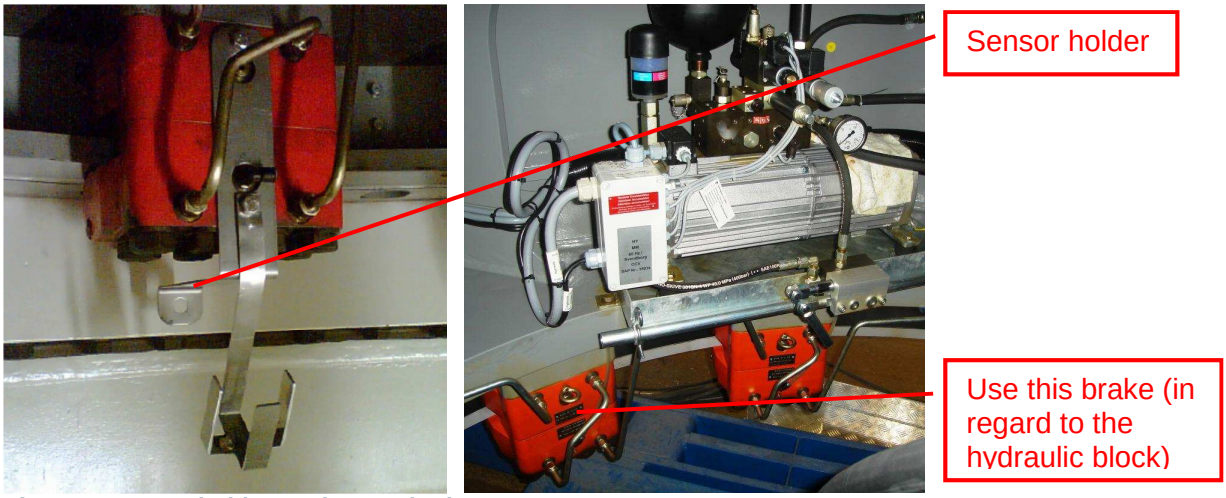

Figure 5: sensor holder on the yaw brake

18.4.4 Adjustment of the North position

1. Determine the north position with the TO 055 and drive the nacelle to the north position.
2. Mark the North position with the sticker 'North' (clean the surface before laying the sticker) and a vertical line on the yaw brake disk (Figure 6) in the longitudinal axe of the nacelle.
3. Mark the magnet position with the sticker 'Magnet marking north' (clean the surface before laying the sticker) positioned in front of the sensor (Figure 6). Put the magnet on the sticker.

Figure 6: Positioning of the stickers

18.4.5 Inspection

1. Move the yaw and check that the digital Input 5.12 « Nacelle Position North » in eye\Yaw\Digital Input changes to activated when the nacelle is in the north position and changes to deactivated when the nacelle leaves that position.

2. Check that the status code 6350 Check Nacelle Position is enable (Pen\Yaw\status code).

3. Make a complete yaw turn (check that the cable twist doesn't go over the limit) and make sure that there is no interference with the earthing strips (Fig.7), which could also activate the sensor. If a earthing strip is loose, attach it so that it cannot activate the sensor (Fig.8).
   If the activation cannot be avoided because the earthing strip goes down until the magnet area (Fig.9), it's better to use the magnetic switch (SAP 67819) instead of the proximity switch (44367).

   Status code 6350 should not appear after a complete yaw turn.

Figure 7: loose earthing strip

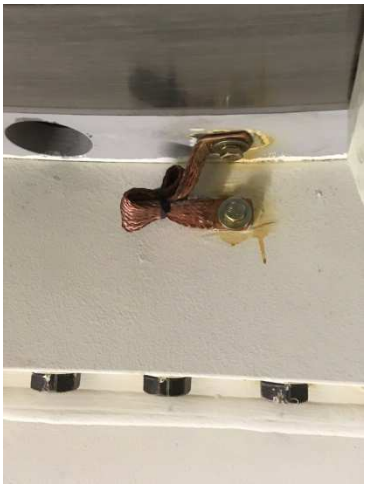

Figure 8: attached earthing strip.

Figure 9: earthing strip going down in the magnet area.

18.5 Handling removed material

☐	Reprocessing by manufacturer, return to service logistics	☐	Scrapping in the country
☐	Back to service logistics via faulty part processing	☐	No material removed
☐	Collect for assessment: _ _ _ _ _ _		
☐	Collect to preserve evidence: _ _ _ _ _ _		
☐	Collect for R&D follow-up: _ _ _ _ _ _		

18.6 Documentation

Update the Topbox drawing : strike the wire H20 on page H3 like in Figure 2.
Page N4 : draw manually the sensor like on Figure 4.

All work carried out must be posted using the SAP feedback. The following uniform confirmation text (necessary for later evaluation) must also be entered for the various items of information in a confirmation (see table).

Action	Status	Operation text in SAP
Carried out	ZABG	
Carried out without material or hours	ZABG	
Checked according to WTR; no further action necessary	ZABG	No further action necessary
Not carried out	NDGF	(Enter reason)
Not carried out because not relevant to this WTG	NDGF	Not relevant

If it is not possible to send feedback via SAP, the completed return sheet must be sent to the email address **WTR@senvion.com**.

18.7 Contact persons

Nicolas DAEL
email: nicolas.dael@senvion.com
Tel: +33 624681078

18.8 Costs

SAP nonconformity management:

To record all processes of this WTR, a quality notification has been created in SAP (see *accompanying document part 2*).

Orders for WTGs that have not yet been created must be created identically to the already initiated orders after the fact.
To do this, the order is entered as follows:
Tab “Upgrade” with R (“Retrofit/WTR”)
The necessary code catalog is listed in *accompanying document part 1*.

The cost center specified in *accompanying document part 1* is to be used as the billing date (error cost collector).

In general, the instructions on using order type in SAP must be observed (GE-OMHF-I-03-*); see Senvion intranet.

18.9 Dealing with costs for third-party arrangements with customers

In accompanying document part 1, the contractual relationships for which the measures will be at no charge for the customer are listed. For contractual relationships that are not listed, the measure is therefore offered to the customer for a fee. The statements refer to standard contractual relationships.
Special arrangements in individual contracts that entitle or obligate Senvion to deal with costs differently must be checked by the Senvion subsidiaries. In case of doubt, consultations must be held with “Strategic Customer Management” (OSOPC) at Senvion GmbH Service HQ. The table below lists the corresponding abbreviations in the accompanying document part 1:

Senvion/customer contractual relationship*	**Abbreviation**
Wind turbines that are still subject to the warranty certificate (**GWL**)	GWL
Wind turbines with **ISP/ISK** agreements or similar full-service agreements	ISK/ISP
Wind turbines with expired warranty certificate but existing **maintenance agreement** with monitoring by the Turbine Control Center	WSV with TCC
Wind turbines with expired warranty certificate but existing **maintenance agreement** without monitoring by the Turbine Control Center	WSV without TCC
Wind turbines which no longer have a warranty certificate and **do not have a service agreement**	Without GWL without service

*Contract names in SAP:
ISK=ZWK
ISP=ZWP
WSV with TCC=ZWX
WSV without TCC=ZWW

19 Annex

19.1 Risk assessment

SENVION wind energy solutions	**Risk Assessment WTR 0306A** **Disclaimer: This evaluation shows only a first assessment like an example. It must be checked by a line executive.** **The personal responsibility and the responsibilty for the appropriateness of the information is up the the line executive.**	Dok.: DE-QHS-F-14.2.3.9-A-EN Valid from: 2015 July 28th

Risk matrix

SEVERITY		
Classification	Injury	Occupational disease / mental stress
1 Minor	No injury (discomfort)	No disease / consequence of stress
2 Moderate	Injury without lost time	Disease / consequence of stress without lost time
3 Serious	Lost Time Inury	Disease / consequence of stress with lost time
4 Major	Serious injury resulting in permanent disabilities	Disease / consequence of stress with irreversible damage / disability
5 Catstrophic	Fatality	Disease / consequence of stress with fatality

LIKELIHOOD	
0 Not possible	Risk has been eliminated
1 Very unlikely	Very unlikely, improbable, practically impossible
2 Unlikely	Unlikely, remote, unexpected or surprise event
3 Moderately likely	Possible, could happen but not often or regularly
4 Likely	Probable, possible on occasions, not a surprise
5 Very likely	Almost certain, expected, possibility of repeated events

SEVERITY \ LIKELIHOOD	0	1	2	3	4	5
0	0	0	0	0	0	0
1	0	1	2	3	4	5
2	0	2	4	6	8	10
3	0	3	6	9	12	15
4	0	4	8	12	16	20
5	0	5	10	15	20	25

Severity X Likelihood	RISK LEVEL	COMMENT
15 TO 25	HIGH RISK	There is a mandatory requirement to reduce the risk to a reasonable level.
5 TO 12	MEDIUM RISK	There is a requirement to reduce the risk further if reasonably practicable.
1 TO 4	LOW RISK	There is no requirement to reduce the risk further. Please note that additional cost effective control measures that can further reduce risk might be appropriate.
0	NO RISK	The hazard was eliminated. (Through protective measures or change of working method)

kann individuell angepasst werden

Site/Business Area			**Occupation / Location/ Site:**		**Internal number:**
Date of initial assessment:	07.03.2017	**Patricipant:** Signature	**Patricipant:** Signature	**Patricipant: Signature**	**working tools or site:** / **Type of WEC (if applicable):**
Name:					**related to area of work:**
Position:					**related to activity:**
Date of revision:		**Prepared by:** Signature	**Checked by:** Signature	**Approved by:** Signature	**Comments:**
Name:		**Nicolas DAEL**			
Position:					

Item No.	Reason for assessment	Location of hazard	Date of assessment	Area/Operation/Task	Hazard factor (No. from the list)	Existing hazards	persons or Processes at risk	Existing control measures	Initial Assessment: Severity	Likelihood	Risk (SxL)	1) Eliminate	2) Substitute	3) Technical measures	4) safe working methods	5) PPE	Proposed further controls an reassessment: Details of further control	Severity	Likelihood	Risk (SxL)	Implementation of controls: Control implemented and effective Date	Name	Signature
1	First assessment	Top box	07.03.2017	Disconnecting the working area	2.1 2.6	Electric chock	Employee	Adhere to the 5 safety rules, skilled electrician	5	1	5			X	X	X							
2	First assessment	Top box	07.03.2017	Installing the sensor	1.6	Fall	Employee	Work carefully	5	3	15												
3	First assessment	Top box	07.03.2017	Reconnecting the working area	2.1 2.6	Electric chock	Employee	Adhere to the 5 safety rules, skilled electrician	5	1	5												
4																							
5																							

No valid risk assessment

19.2 Top Box replacement pages

REVISIONSUEBERSICHT / REVISION OVERVIEW /

AUSTAUSCHSEITE WTR0306A
REPLACEMENT PAGE WTR0306A

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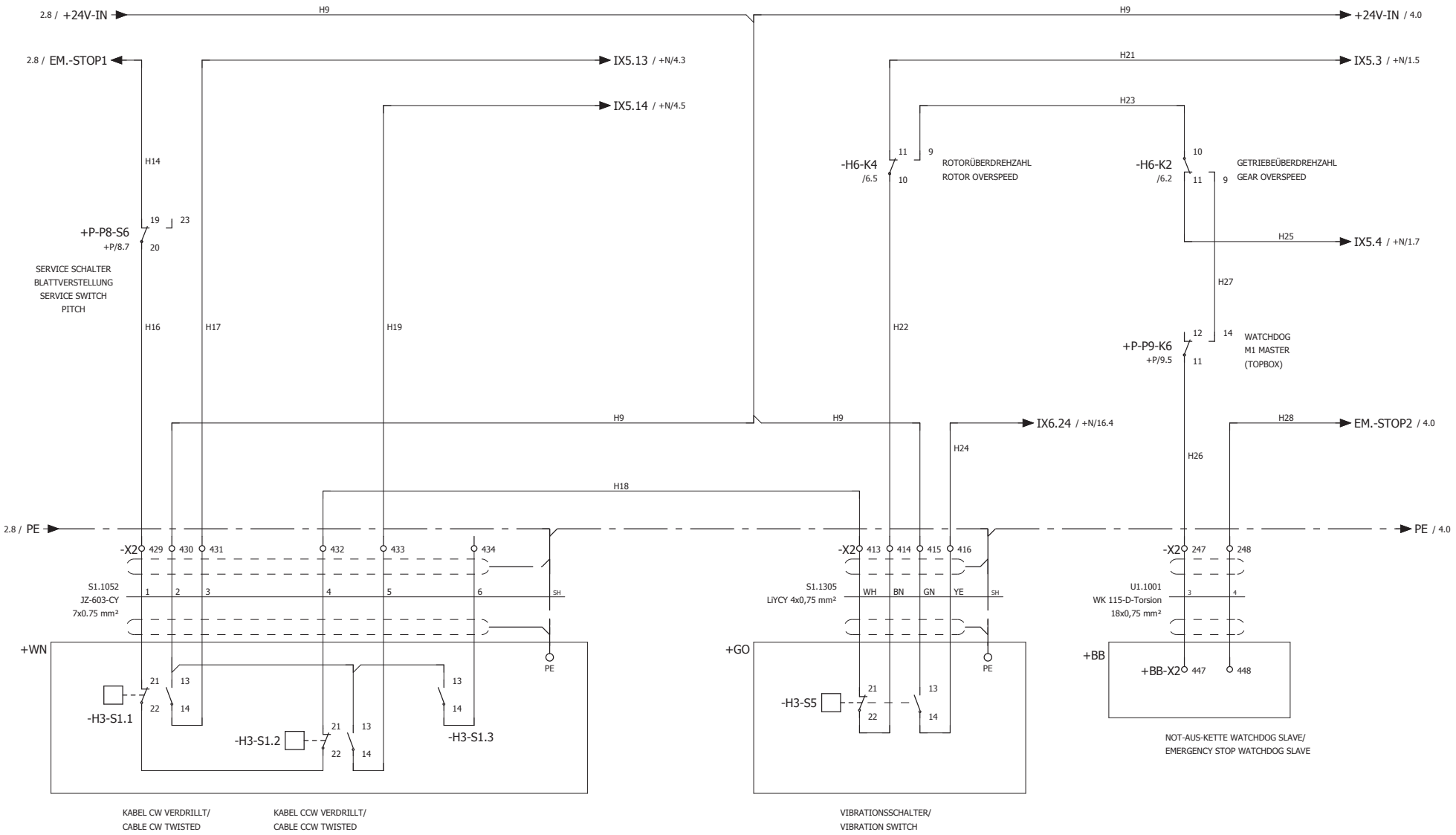
NR. NO.	DATUM DATE	BEARBEITER EDITOR		REVISIONSBESCHREIBUNG REVISION DESCRIPTION	SEITE SIDE
				4.) EINSTELLWERT DREHZAHLWÄCHTER H6-K4 GEÄNDERT	A8
				ADJUSTMENT SPEED MONITOR H6-K4 CHANGED	
				5.) TYPEN EXTERNE KABEL GEÄNDERT	
				TYPES OF EXTERNAL CABLES CHANGED	
WTR0306A	14.06.2017	Santosh Kumar Sunagar	SKS	KABEL H20 ENTFERNT UND AZIMUT 0° SENSOR MIT EINGANG IX 5.12 VERBUNDEN	A14,H3,N4,S11,S17, T5,Y1
				REMOVED CABLE H20 AND GAVE INPUT FROM YAW ZERO DEGREE SENSOR TO IX 5.12	

			DATE	14.06.2017	SENVION	Topbox 690V 50Hz MD70/77, MM70/82/92	REVISIONSINFORMATION / REVISION INFORMATION	
			EDITOR	SKS				=TB +A
			CHECK.					E-1.1-EL.ST.01-C-H+WTR0306A DE SEITE / PAGE 14 VON / OF 134
REVISION	DATE	NAME	ORIG.					

AUSTAUSCHSEITE WTR0306A
REPLACEMENT PAGE WTR0306A



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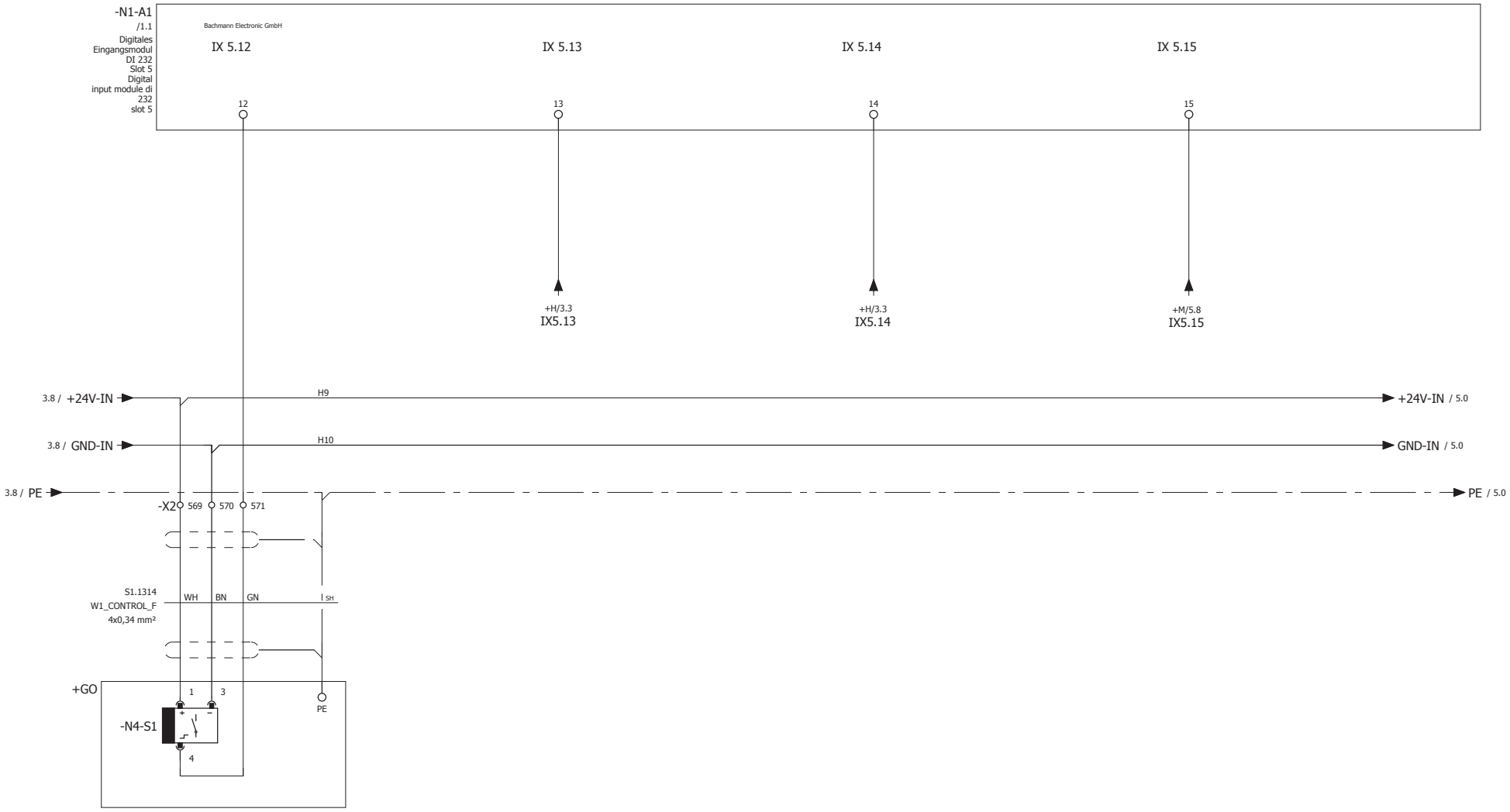

0° GONDELPOSITION/
0° NACELLE POSITION

KABEL VERDRILLT CW/
TWISTED CABLE CW

KABEL VERDRILLT CCW/
TWISTED CABLE CCW

SYSTEMFEHLER SCHWINGUNGSSENSOR/
OSCILLATION SENSOR ERROR

			DATE	14.06.2017	SENVION	Topbox 690V 50Hz MD70/77, MM70/82/92	FUNKTION DIGITALEINGANG / FUNCTION DIGITAL INPUT
			EDITOR	SKS			=TB / +N
			CHECK.				E-1.1-EL.ST.01-C-H+WTR0306A DE
REVISION	DATE	NAME	ORIG.				SEITE / PAGE 4 / VON / OF 134

KLEMMENPLAN / TERMINAL DIAGRAM /

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REPLACEMENT PAGE WTR0306A

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FUNKTIONSTEXT FUNCTION TEXT					S1.1052 JZ-603-CY	S1.1300 ÖLFLEX CLASSIC 115CY	S1.1305 LiYCY	S1.1511 ÖLFLEX CLASSIC 110	KABELNAME CABLE NAME / KABELTYP CABLE TYPE	KLEMMENLEISTE / TERMINAL STRIP / -X2 SIGNALE/SIGNALS: ZIELBEZEICHNUNG TARGET DESIGNATION	ANSCHLUSS CONNECTOR	KLEMME TERMINAL	BRUECKE JUMPER	KLEMMENTYP TERMINAL TYPE	ZIELBEZEICHNUNG TARGET DESIGNATION	ANSCHLUSS CONNECTOR	KABELNAME CABLE NAME / KABELTYP CABLE TYPE					SEITE/PFAD PAGE/PATH
PITCH BACK (ONLY MM92)								11		+SR-XSR2.2	11	411			+P-P8-K8	14						=TB+P/8.8
PITCH L&B-CONTROLLER OK (NUR MM92) PITCH L&B-CONTROLLER OK (ONLY MM92)								12		+SR-XSR2.2	12	412			+N-N16-F1	1						=TB+N/16.1
VIBRATIONSSCHALTER/ VIBRATION SWITCH							WH			+GO-H3-S5	21	413										=TB+H/3.5
=							BN			+GO-H3-S5	22	414			+H-H6-K4	10						=TB+H/3.5
=							GN			+GO-H3-S5	13	415			+H-H4-K7	A1						=TB+H/3.5
=							YE			+GO-H3-S5	14	416			+N-N11-A1	24						=TB+H/3.6
VERFÜGBAR/ AVAILABLE												417										=TB+Y/1.6
=												418										=TB+Y/1.6
=												419										=TB+Y/1.6
=												420										=TB+Y/1.6
BREMSE SCHLIESSEN/ CLOSE BRAKE						1				+GO-N2-S2	1	421			+N-N2-S3	2						=TB+N/2.2
=						2				+GO-N2-S2	2	422										=TB+N/2.2
NOT-AUS GONDEL/ EMERGENCY STOP NACELLE						3				+GO-H2-S31	1	423			+H-H2-S3	2						=TB+H/2.3
=						4				+GO-H2-S31	2	424			+H-H2-K7	A1						=TB+H/2.4
=						5				+GO-H2-S31	3	425			+H-H2-S3	4						=TB+H/2.4
=						6				+GO-H2-S31	4	426			+N-N11-A1	31						=TB+H/2.5
=												427										=TB+H/2.5
VERFÜGBAR/ AVAILABLE												428										=TB+Y/1.7
KABEL CW VERDRILLT/ CABLE CW TWISTED					1					+WN-H3-S1.1	21	429			+P-P8-S6	20						=TB+H/3.1
=					2					+WN-H3-S1.1	13	430			+H-H4-K7	A1						=TB+H/3.1
=					3					+WN-H3-S1.1	14	431			+N-N1-A1	13						=TB+H/3.1
KABEL CCW VERDRILLT/ CABLE CCW TWISTED					4					+WN-H3-S1.2	21	432										=TB+H/3.2
=					5					+WN-H3-S1.2	14	433			+N-N1-A1	14						=TB+H/3.2
=					6					+WN-H3-S1.3	14	434										=TB+H/3.3
VERFÜGBAR/ AVAILABLE												435										=TB+Y/1.7

KLEMMENPLAN / TERMINAL DIAGRAM /

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REPLACEMENT PAGE WTR0306A

KLE_ALL_01DE

FUNKTIONSTEXT FUNCTION TEXT								S1.1314	KABELNAME CABLE NAME	KLEMMENLEISTE / TERMINAL STRIP / -X2 SIGNALE/SIGNALS						KABELNAME CABLE NAME						SEITE/PFAD PAGE/PATH
								W1_CONTROL_F	KABELTYP CABLE TYPE	ZIELBEZEICHNUNG TARGET DESIGNATION	ANSCHLUSS CONNECTOR	KLEMME TERMINAL	BRUECKE JUMPER	KLEMMENTYP TERMINAL TYPE	ZIELBEZEICHNUNG TARGET DESIGNATION	ANSCHLUSS CONNECTOR	KABELTYP CABLE TYPE					
VERFÜGBAR/ AVAILABLE												547	,		+N-N1-A1	29						=TB+N/9.7
=												548	,		+N-N1-A1	30						=TB+N/10.2
=												549	,									=TB+Y/1.5
=												550	,									=TB+Y/1.6
VERFÜGBAR (POTENTIALFREI)/ AVAILABLE (POTENTIAL FREE))												551	,		+P-P5-K6	11						=TB+P/5.5
=												552	,		+P-P5-K6	14						=TB+P/5.6
=												553	,		+P-P5-K8	11						=TB+P/5.7
=												554	,		+P-P5-K8	14						=TB+P/5.8
=												555	,		+P-P6-K2	11						=TB+P/6.2
=												556	,		+P-P6-K2	14						=TB+P/6.2
VERFÜGBAR/ AVAILABLE												557	,		+P-P1-A1	21						=TB+P/6.4
=												558	,									=TB+Y/1.6
=												559	,		+P-P1-A1	22						=TB+P/6.6
=												560	,		+P-P1-A1	24						=TB+P/7.2
=												561	,									=TB+Y/1.6
=												562	,									=TB+Y/1.7
=												563	,									=TB+Y/1.7
=												564	,		+P-P1-A1	31						=TB+P/9.3
=												565	,									=TB+Y/1.7
=												566	,									=TB+Y/1.7
=												567	,									=TB+Y/1.8
=												568	,									=TB+Y/1.8
								WH		+GO-N4-S1	1	569										=TB+N/4.1
								BN		+GO-N4-S1	3	570	,		+N-N6-F4	A2						=TB+N/4.1
0° GONDELPOSITION/ 0° NACELLE POSITION								GN		+GO-N4-S1	4	571	,		+N-N1-A1	12						=TB+N/4.1

			DATE	14.06.2017
			EDITOR	SKS
			CHECK.	
REVISION	DATE	NAME	ORIG.	

SENVION

Topbox 690V 50Hz MD70/77, MM70/82/92

KLEMMENPLAN / TERMINAL DIAGRAM -X2

=TB +S

E-1.1-EL.ST.01-C-H+WTR0306A DE

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KABELUEBERSICHT / CABLE OVERVIEW /

SORT.-ID:
O= OPTION / OPTION /
S= SYSTEMLIEFERANT / SYSTEM SUPPLIER /
T= TURM / TOWER /

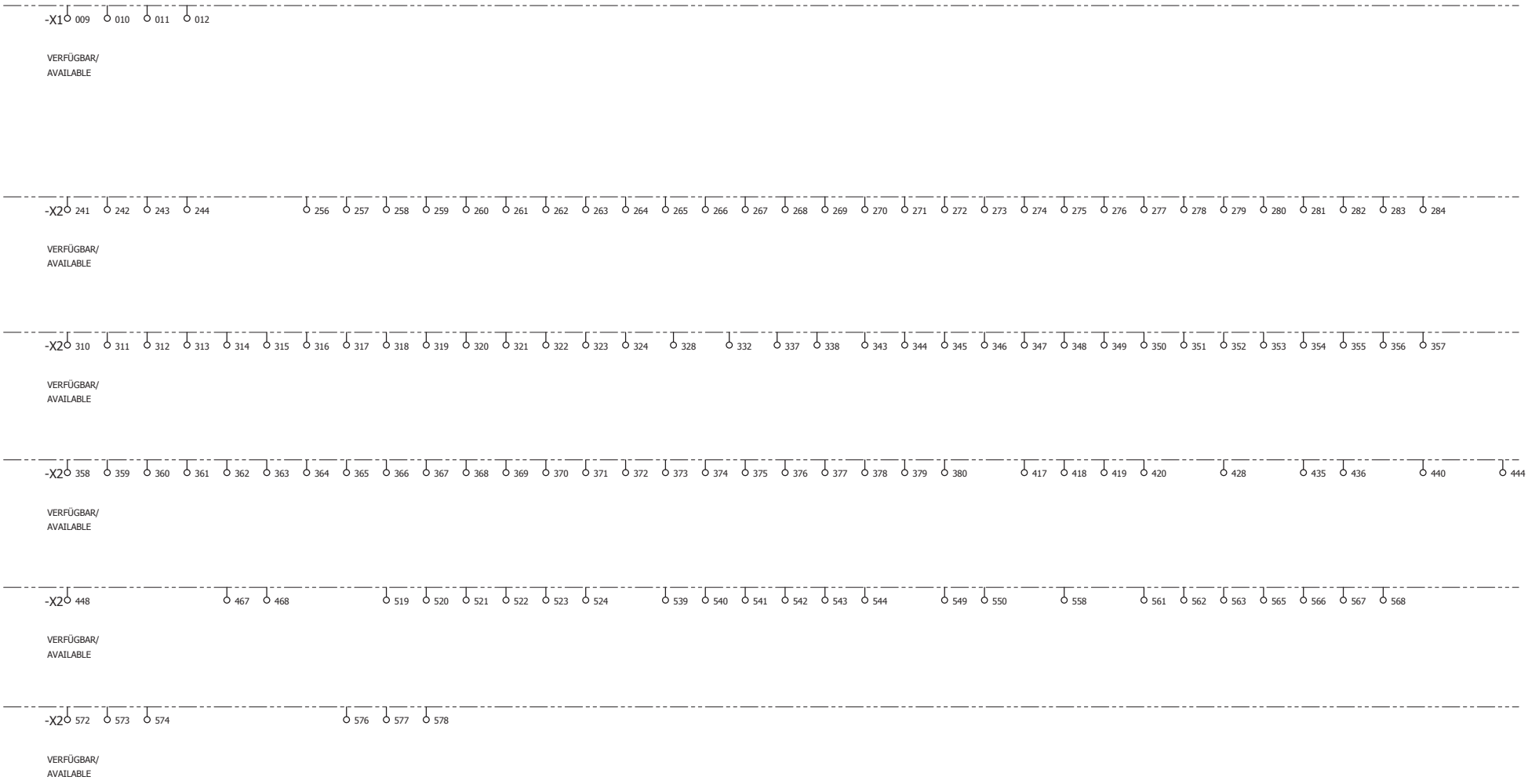
AUSTAUSCHSEITE WTR0306A
REPLACEMENT PAGE WTR0306A

KAU_ALL_01DE

KABELNAME CABLE NAME	QUELLE (VON) SOURCE (FROM)	ZIEL (BIS) TARGET (TO)	KABELTYP CABLE TYPE	MONTAGEORT MOUNTING SITE	KABELBAHN CABLE TRACK	ADERZAHL NO. OF CONDUCTORS	QUERSCHNITT CROSS SECTION [mm² / AWG / KCM]	SORT.-ID	LAENGE LENGTH [m]	BEMERKUNG REMARK	FUNKTIONSTEXT FUNCTION TEXT	SE-SAP:
S1.1302/2	-XM1-B5	+WM-M1-B5	LiYCY			6+SH	0.5	-			WINDGESCHWINDIGKEIT 2/WIND SPEED 2	
S1.1304/1	-X2	-XM2-B1	LiYCY			6+SH	0.75	-			WINDRICHTUNG/WIND DIRECTION	
S1.1304/2	-XM2-B1	+WM-M2-B1	AWG 24 C UL sw			7+SH	-	-			WINDRICHTUNG/WIND DIRECTION	
S1.1309/1	-X2	-XM2-B5	LiYCY			6	0.75	-			Option Ultrasonic	
S1.1309/2	-XM2-B5	+WM-M2-B5	LiYCY			6	0.5	-			Option Ultrasonic	
S1.1301/2.1	-XM1-B1	+WM-M1-B1	LiYCY			1	0.5	-			WINDGESCHWINDIGKEIT 1/WIND SPEED 1	
S1.1302/2.1	-XM1-B5	+WM-M1-B5	LiYCY			1	0.5	-			WINDGESCHWINDIGKEIT 2/WIND SPEED 2	
U1.1001	-X2	+BB-X2	WK 115-D-Torsion			11	0.75	-			NOT-AUS UMRICHTER/EMERGENCY STOP CONVERTER	
U1.4052	-X14	+UM-X8	WK 115-Torsion			3/PE	1.5	-			EINSPEISUNG 230V/N/PE USV	
U1.4505	-X14	+SR-XSR2.1	ÖLFLEX CLASSIC 100			3/PE	1.5	-			VERSORGUNG PITCH 230V 50Hz USV/SUPPLY PITCH 230V	
U1.4050/1	-X11	+TU-X1	WK 115-Torsion			5/PE	16	-			EINSPEISUNG 690V, 50HZ/SUPPLY 690V, 50HZ	
U1.4051/1	-X12	+TU-X1	WK 115-Torsion			5/PE	16	-			EINSPEISUNG 400V, 50HZ/SUPPLY 400V, 50Hz	
U1.4053/1	-X14	+TU-X1	WK 115-Torsion			3/PE	1.5	-			LICHTNETZ 230V/50Hz/LIGHTS 230V/50Hz	
S1.1314	-X2	+GO-N4-S1	W1_CONTROL_F			4	0.34	-			0° GONDELPOSITION/ 0° NACELLE POSITION	

AUSTAUSCHSEITE WTR0306A
REPLACEMENT PAGE WTR0306A

unbelegte Klemmen:



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SENVION

Topbox 690V 50Hz MD70/77, MM70/82/92

RESERVEKLEMMEN /
SPARE TERMINALS

=TB +Y

E-1.1-EL.ST.01-C-H+WTR0306A DE

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