



Kraftfahrt-Bundesamt

DE-24932 Flensburg



MITTEILUNG

ausgestellt von:

Kraftfahrt-Bundesamt

über die Genehmigung
eines Typs eines elektrischen/elektronischen Bauteiles nach der
Regelung Nr. 10

COMMUNICATION

issued by:

Kraftfahrt-Bundesamt

concerning approval granted
of a type of electrical/electronic sub-assembly with regard to
Regulation No. 10

Nummer der Genehmigung: **047216**
Approval No.:

Erweiterung Nr.: --
Extension No.:

1. Fabrikmarke (Handelsname des Herstellers):
Make (trade name of manufacturer):
Westermo Teleindustri AB

2. Typ:
Type:
SDW-550

Handelsbezeichnung(en):
General commercial description(s):
entfällt
not applicable

3. Merkmale zur Typidentifizierung, sofern am Bauteil vorhanden:
Means of identification of type, if marked on the component:
Typbezeichnung
type designation



Kraftfahrt-Bundesamt

DE-24932 Flensburg

2

Nummer der Genehmigung: 047216

Approval No.:

- 3.1 Anbringungsstelle dieser Merkmale:
Location of that marking:
auf der linken Seite des Gehäuses
on the left side of the housing

4. Klasse der Fahrzeuge:
Category of vehicle:
entfällt
not applicable

5. Name und Anschrift des Herstellers:
Name and address of manufacturer:
Westermo Teleindustri Aktiebolag
SE-640 40 Stora Sundby

6. Bei Bauteilen und selbständigen technischen Einheiten, Lage und Anbringungsart des ECE-Genehmigungszeichens:
In the case of components and separate technical units, location and method of affixing of the ECE approval-mark:
Typschild auf der linken Seite des Gehäuses
type plate on the left side of the housing

7. Anschrift(en) der Fertigungsstätte(n):
Address(es) of assembly plant(s):
Westermo Teleindustri Aktiebolag
SE-640 40 Stora Sundby

8. Zusätzliche Angaben (erforderlichenfalls):
Additional information (where applicable):
siehe Anlage
see appendix

9. Für die Durchführung der Prüfungen zuständiger technischer Dienst:
Technical service responsible for carrying out the tests:
Typprüfstelle Fahrzeuge/Fahrzeugteile der TÜV Rheinland Kraftfahrt GmbH
DE-51105 Köln

10. Datum des Prüfprotokolls:
Date of test report:
02.12.2013

11. Nummer des Prüfprotokolls:
Number of test report:
138KP0001-00



Kraftfahrt-Bundesamt

DE-24932 Flensburg

3

Nummer der Genehmigung: 047216

Approval No.:

12. Gegebenenfalls Bemerkungen:

Remarks (if any):

siehe Anlage
see appendix

13. Ort: **DE-24932 Flensburg**

Place:

14. Datum: **28.02.2014**

Date:

15. Unterschrift: **Im Auftrag**

Signature:

Mario Quade



16. Das Inhaltsverzeichnis der bei den zuständigen Behörden hinterlegten Typpgenehmigungsunterlagen, die auf Antrag erhältlich sind, liegt bei.

The index to the information package lodged with the approval authority, which may be obtained on request is attached.

1. Anlage zur ECE-Typpenehmigungs-Mitteilung
Appendix to the ECE type-approval communication
2. Inhaltsverzeichnis zu den Beschreibungsunterlagen
Index to the information package
3. Beschreibungsunterlagen
Information package

17. Grund oder Gründe für die Erweiterung der Genehmigung:

Reason(s) of extension of approval:

entfällt
not applicable



Nummer der Genehmigung: 047216
Approval No.:

Anlage Appendix

zur ECE-Typgenehmigungs-Mitteilung Nr. **047216** betreffend die Typgenehmigung einer elektrischen/elektronischen Unterbaugruppe nach der Regelung Nr. 10
to ECE type-approval certificate No. **047216** concerning the type-approval of an electric/electronic sub-assembly under Regulation No. 10

1. Ergänzende Angaben:
Additional information:
 - 1.1. Nennspannung des elektrischen Systems:
Electric system rated voltage:
12 V bzw. - resp. 24 V
 - 1.2. Diese EUB kann für jeden Fahrzeugtyp mit folgenden Einschränkungen verwendet werden:
This ESA can be used on any vehicle type with the following restrictions:
alle Fahrzeugtypen mit einem 12 V bzw. 24 V - Bordnetz und Batterie(-) an der Karosserie
all vehicle types with a 12 V resp. 24 V - electrical wiring and battery(-) at the body
 - 1.2.1. Einbauvorschriften (gegebenenfalls):
Installation conditions, if any:
die Einbauvorschriften sind der Einbauanleitung zu entnehmen
the installation conditions have to be gathered from the installation instructions
 - 1.3. Diese EUB kann nur für die folgenden Fahrzeugtypen verwendet werden:
This ESA can only be used on the following vehicle types:
entfällt
not applicable
 - 1.4. Angewandte(s) spezielle(s) Prüfverfahren und Frequenzbereiche zur Ermittlung der Störfestigkeit:
The specific test method(s) used and the frequency ranges covered to determine immunity were:
siehe Prüfbericht Nr.: 138KP0001-00 vom 02.12.2013
see technical report



Kraftfahrt-Bundesamt

DE-24932 Flensburg

5

Nummer der Genehmigung: 047216

Approval No.:

- 1.5. Nach ISO 17025 akkreditiertes und von der (gemäß dieser Richtlinie zuständigen) Genehmigungsbehörde anerkanntes Prüflabor, das für die Durchführung der Prüfungen zuständig ist:
Laboratory accredited to ISO 17025 and recognised by the Approval Authority (for the purpose of this Directive) responsible for carrying out the test:
Typprüfstelle Fahrzeuge/Fahrzeugteile der TÜV Rheinland Kraftfahrt GmbH
DE-51105 Köln

2. Bemerkungen:
Remarks:
entfällt
not applicable



Kraftfahrt-Bundesamt

DE-24932 Flensburg

Inhaltsverzeichnis zu den Beschreibungsunterlagen Index to the information package

Zum ECE-Genehmigungsbogen Nr.: **047216**

To ECE approval certificate No.:

Ausgabedatum: **28.02.2014**
Date of issue:

letztes Änderungsdatum: --
last date of amendment:

1. Nebenbestimmungen und Rechtsbehelfsbelehrung
Collateral clauses and instruction on right to appeal
2. Beschreibungsbogen Nr.: Datum:
Information document No.: Date:
2013/SDW-550 **02.12.2013**
letztes Änderungsdatum: --
last date of amendment:
3. Prüfbericht(e) Nr.: Datum:
Test report(s) No.: Date:
138KP0001-00 **02.12.2013**
4. Beschreibung der Änderungen:
Description of the modifications:
entfällt
not applicable



Kraftfahrt-Bundesamt

DE-24932 Flensburg

Nr. der Genehmigung: 047216

Approval No.:

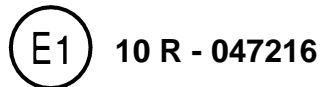
- Anlage -

Nebenbestimmungen und Rechtsbehelfsbelehrung

Nebenbestimmungen

Jede Einrichtung, die dem genehmigten Typ entspricht, ist gemäß der angewendeten Vorschrift zu kennzeichnen.

Das Genehmigungszeichen lautet wie folgt:



Die Einzelerzeugnisse der reihenweisen Fertigung müssen mit den Genehmigungsunterlagen genau übereinstimmen. Änderungen an den Einzelerzeugnissen sind nur mit ausdrücklicher Zustimmung des Kraftfahrt-Bundesamtes gestattet.

Änderungen der Firmenbezeichnung, der Anschrift und der Fertigungsstätten sowie eines bei der Erteilung der Genehmigung benannten Zustellungsbevollmächtigten oder bevollmächtigten Vertreters sind dem Kraftfahrt-Bundesamt unverzüglich mitzuteilen.

Verstöße gegen diese Bestimmungen können zum Widerruf der Genehmigung führen und können überdies strafrechtlich verfolgt werden.

Die Genehmigung erlischt, wenn sie zurückgegeben oder entzogen wird, oder der genehmigte Typ den Rechtsvorschriften nicht mehr entspricht. Der Widerruf kann ausgesprochen werden, wenn die für die Erteilung und den Bestand der Genehmigung geforderten Voraussetzungen nicht mehr bestehen, wenn der Genehmigungsinhaber gegen die mit der Genehmigung verbundenen Pflichten – auch soweit sie sich aus den zu dieser Genehmigung zugeordneten besonderen Auflagen ergeben - verstößt oder wenn sich herausstellt, dass der genehmigte Typ den Erfordernissen der Verkehrssicherheit oder des Umweltschutzes nicht entspricht.

Das Kraftfahrt-Bundesamt kann jederzeit die ordnungsgemäße Ausübung der durch diese Genehmigung verliehenen Befugnisse, insbesondere die genehmigungsgerechte Fertigung sowie die Maßnahmen zur Übereinstimmung der Produktion, nachprüfen. Es kann zu diesem Zweck Proben entnehmen oder entnehmen lassen. Dem Kraftfahrt-Bundesamt und/oder seinen Beauftragten ist ungehinderter Zutritt zu Produktions- und Lagerstätten zu gewähren.

Die mit der Erteilung der Genehmigung verliehenen Befugnisse sind nicht übertragbar. Schutzrechte Dritter werden durch diese Genehmigung nicht berührt.



Kraftfahrt-Bundesamt

DE-24932 Flensburg

2

Nummer der Genehmigung: 047216

Approval No.:

Rechtsbehelfsbelehrung

Gegen diese Genehmigung kann innerhalb eines Monats nach Bekanntgabe Widerspruch erhoben werden. Der Widerspruch ist beim **Kraftfahrt-Bundesamt, Fördestraße 16, DE-24944 Flensburg**, schriftlich oder zur Niederschrift einzulegen.

- Attachment -

Collateral clauses and instruction on right to appeal

Collateral clauses

All equipment which corresponds to the approved type is to be identified according to the applied regulation.

The approval identification is as follows: - see German version -

The individual production of serial fabrication must be in exact accordance with the approval documents. Changes in the individual production are only allowed with express consent of the Kraftfahrt-Bundesamt.

Changes in the name of the company, the address and the manufacturing plant as well as one of the parties given the authority to delivery or authorised representative named when the approval was granted is to be immediately disclosed to the Kraftfahrt-Bundesamt. Breach of this regulation can lead to recall of the approval and moreover can be legally prosecuted.

The approval expires if it is returned or withdrawn or if the type approved no longer complies with the legal requirements. The revocation can be made if the demanded requirements for issuance and the continuance of the approval no longer exist, if the holder of the approval violates the duties involved in the approval, also to the extent that they result from the assigned conditions to this approval, or if it is determined that the approved type does not comply with the requirements of traffic safety or environmental protection.

The Kraftfahrt-Bundesamt may check the proper exercise of the conferred authority taken from this approval at any time. In particular this means the compliant production as well as the measures for conformity of production. For this purpose samples can be taken or have taken. The employees or the representatives of the Kraftfahrt-Bundesamt may get unhindered access to the production and storage facilities.

The conferred authority contained with issuance of this approval is not transferable. Trade mark rights of third parties are not affected with this approval.

Instruction on right to appeal

This approval can be appealed within one month after notification. The appeal is to be filed in writing or as a transcript at the **Kraftfahrt-Bundesamt, Fördestraße 16, DE-24944 Flensburg**.

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

PRÜFBERICHT / TEST REPORT

gemäß ECE-Regelung
according to ECE-Regulation

**Einheitliche Bedingungen für die Genehmigung der Fahrzeuge hinsichtlich
der elektromagnetischen Verträglichkeit**

Prüfung einer elektrischen/elektronischen Unterbaugruppe (EUB)
**UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH
REGARD TO ELECTROMAGNETIC COMPATIBILITY**

Testing of an electrical/electronic sub-assembly (ESA)

ECE-R10 einschließlich Änderungsserie 04, Ergänzung 02
ECE-R10 including supplement 2 to the 04 series of amendments

Genehmigungsstand / approval status

ECE Genehmigung / ECE approval : --

Gliederung des Prüfberichts / Structure of the Test Report

Absatz Nr. / Item No.

- | | |
|----|--|
| 0. | Allgemeine Angaben / General |
| 1. | Prüfobjekt(e) / Test object(s) |
| 2. | Prüfprotokoll / Test record |
| 3. | Anlagen / Appendices |
| 4. | Schlussbescheinigung / Statement of conformity |
-

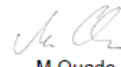
Dieser Prüfbericht darf nur vom Auftraggeber und nur in vollem Wortlaut vervielfältigt weitergegeben werden. Eine auszugsweise Vervielfältigung und Veröffentlichung des Prüfberichtes ist nur nach schriftlicher Genehmigung des Technischen Dienstes zulässig.

The Test Report shall be reproduced and published in full by the client only. It shall however be reproduced partially with the written permission of the Technical Service only.

Typ / Type : SDW-550
 Hersteller / Manufacturer : Westermo Teleindustri AB

0. Allgemeine Angaben / General

- 0.1. Fabrikmarke / Make : Westermo Teleindustri AB
 - 0.2. Typ / Type : SDW-550
 - 0.2.1. Ggf. Ausführungsformen : Entfällt
Versions, if applicable
 - 0.3. Merkmal zur Typidentifizierung : Typ-Bezeichnung
Means of identification of type Type description
 - 0.3.1. Anbringungsstelle des Merkmals : Auf der linken Seite des Gehäuses
Location of that marking Left side of enclosure
 - 0.5. Name und Anschrift des Herstellers : Westermo Teleindustri AB
Name and address of the manufacturer 640 40 Stora Sundby Sweden
 - 0.5.1. Ggf. Name und Anschrift des bevollmächtigten Vertreters : ~~Westermo Research and Development AB~~
Name and address of representative, if applicable Svalgängen 1 724 81 Västerås Sweden
 - 0.7. Lage und Anbringungsart des Genehmigungszeichens : Aufgedruckt auf dem Typenschild auf der linken Seite des Gehäuses
Location and method of affixing of the approval mark Printed on the name plate on the left side of enclosure
 - 0.8. Name und Anschrift der Fertigungsstätte(n) : Westermo Teleindustri AB
Name and address of the assembly plant(s) 640 40 Stora Sundby Sweden
 - 0.9. Beschreibungsmappe / Beschreibungsbogen :
Information folder / Information document
- Nr. / No. : 2013/SDW-550
- Ausgabedatum / Date of issue : 02.12.2013
- Letztes Änderungsdatum : ---
Date of last change

Bevollmächtigter gestrichen

 M.Quade 28.02.2014

Typ / Type : SDW-550
 Hersteller / Manufacturer : Westermo Teleindustri AB

1. Prüfbjekt(e) / Test object(s)

- 1.1. Repräsentative EUB : Die Bestimmung des worst case erfolgte gemäß QMA
Representative ESA 1.301.005, Abschnitt 6.2.2.2.
The determination of worst case scenario was done according QMA 1.301.005, section 6.2.2.2.
- 1.2. Beschreibung der EUB : Der Typ SDW-550 ist ein industrieller Ethernet 5-Port Switch.
Description of the ESA
- 1.3. Bemerkungen / Remarks : Blockschaltbild des Prüfaufbaus allgemein siehe Anlage 2,
 Abbildung 4

Übersicht des verwendeten Hilfsequipments (Schnittstellenbelastung):

Equipment	Typ	Hersteller	Bemerkung
PC	PC	HP ProBook 4510s	
AE-1	Lynx DSS / L208-F2G-S2	Westermo	S/N 7950
AE-2	Lynx / L210-F2G		S/N 7957
AE-3	Lynx / L210-F2G		S/N 7959
AE-4	Lynx / L210-F2G		S/N 7958
AE-5	Lynx / L210-F2G		S/N 7956
AE-6	Lynx / L210-F2G		S/N 7940
24 VDC	DLP75-24-1/E	LAMBDA	Output: 24VDC 3.1A

Typ / Type : SDW-550
Hersteller / Manufacturer : Westermo Teleindustri AB

2. Prüfprotokoll / Test record

- 2.1. Ort der Prüfung / Place of test : Wiehl
- 2.2. Datum der Prüfung / Date of test : 06. bis 07.08.2013
- 2.3. Mess- und Prüfeinrichtungen : Die Prüfungen wurden auf Anlagen durchgeführt, die den Anforderungen der Regelung entsprechen.
Equipment for measuring and testing The equipment on which the tests were carried out, fulfilled the requirements of the Regulation.
- 2.4. Angaben zur Prüfung / Details of test
- Nennspannung / Nominal voltage : 12VDC und 24VDC
- Betriebszustand / Operating state : 24VDC Versorgungsspannung, Prüfaufbau gemäß Ziffer 1.3., ständiges ansprechen aller verbundenen Geräte mithilfe einer Software auf dem PC

Folgende Prüfungen wurden durchgeführt / The following tests were carried out:

- Messungen von gestrahlten breitbandigen elektromagnetischen Störungen aus elektrischen/elektronischen Unterbaugruppen gemäß Punkt 6.5 der Regelung
Measurement of radiated broadband electromagnetic emissions from electrical/electronic subassemblies according to item 6.5 of the Regulation
- Messungen von gestrahlten schmalbandigen elektromagnetischen Störungen aus elektrischen/elektronischen Unterbaugruppen gemäß Punkt 6.6 der Regelung
Measurement of radiated narrowband electromagnetic emissions from electrical/electronic subassemblies according to item 6.6 of the Regulation
- Prüfung der Störfestigkeit von elektrischen/elektronischen Unterbaugruppen gegenüber eingestrahlten elektromagnetischen Feldern gemäß Punkt 6.7 der Regelung
Testing for immunity of electrical/electronic subassemblies to electromagnetic radiation according to item 6.7 of the Regulation
- Prüfung der Störfestigkeit gegen leitungsgeführte transiente Störungen von elektrischen/elektronischen Unterbaugruppen gemäß Punkt 6.8 der Regelung
Testing for immunity to transient disturbances conducted along supply lines of electrical/electronic subassemblies according to item 6.8 of the Regulation
- Prüfung über leitungsgeführte Störungen von elektrischen/elektronischen Unterbaugruppen gemäß Punkt 6.9 der Regelung
Testing for the emission of conducted disturbances of electrical/electronic subassemblies according to item 6.9 of the Regulation

Typ / Type : SDW-550
 Hersteller / Manufacturer : Westermo Teleindustri AB

- 2.4.1. Messung von gestrahlten breitbandigen elektromagnetischen Störungen:
Measurement of radiated broadband electromagnetic emissions:
 - 2.4.1.1. Messverfahren : Spitzenwert-Detektor
Measurement procedure Peak detector
 - 2.4.1.2. Messaufbau / Measurement setup : Mit Absorbermaterial ausgestatteter abgeschirmter Raum.
Absorber line shielded enclosure (ALSE).
 - 2.4.1.3. Messergebnisse : Die Anforderungen der Prüfgrundlage werden erfüllt.
Measurement results Messergebnisse siehe Anlage 1.
The requirements are fulfilled. For results see Appendix 1.
 - 2.4.1.4. Fotodokumentation des Messaufbaus (sofern erforderlich) : Siehe Anlage 2.
Photo documentation of the measurement setup (if applicable) See Appendix 2.
 - 2.4.1.5. Bemerkungen / Remarks : ---

- 2.4.2. Messung von gestrahlten schmalbandigen elektromagnetischen Störungen:
Measurement of radiated narrowband electromagnetic emissions:
 - 2.4.2.1. Messverfahren : Mittelwertdetektor
Measurement procedure Average detector
 - 2.4.2.2. Messaufbau / Measurement setup : Mit Absorbermaterial ausgestatteter abgeschirmter Raum.
Absorber line shielded enclosure (ALSE).
 - 2.4.2.3. Messergebnisse : Die Anforderungen der Prüfgrundlage werden erfüllt.
Measurement results Messergebnisse siehe Anlage 1.
The requirements are fulfilled. For results see Appendix 1.
 - 2.4.2.4. Fotodokumentation des Messaufbaus (sofern erforderlich) : Siehe Anlage 2.
Photo documentation of the measurement setup (if applicable) See Appendix 2.
 - 2.4.2.5. Bemerkungen / Remarks : ---

- 2.4.3. Prüfung der Störfestigkeit gegenüber eingestrahlten elektromagnetischen Feldern:
Testing for the immunity to electromagnetic radiation:
 - 2.4.3.1. Prüfverfahren / Test procedure : 20 to 200 MHz BCI method
 200 to 2000 MHz free field testing method

Frequency range MHz	Testing method	Immunity test levels	Modulation
20 - 200	BCI; Distance bulk current injection probe – ESA: 15 cm	60 mA	AM 1kHz 80%
200 – 800	Polarisation of antenna: Vertical	30 V/m	AM 1kHz 80%
800 - 2000	Polarisation of antenna: Vertical	30 V/m	PM 577µs

2.4.3.2. Prüfaufbau / Test setup : ---

Typ / Type : SDW-550
Hersteller / Manufacturer : Westermo Teleindustri AB

- 2.4.3.3. Prüfergebnisse / Test results : Während der Prüfung trat keine Beeinträchtigung der Leistung von „Funktionen im Zusammenhang mit der Störfestigkeit“ (gem. 2.12 der Prüfgrundlage) auf.
During the test no degradation of performance of „immunity-related functions“ were observed.
- 2.4.3.4. Fotodokumentation des Prüfaufbaus (sofern erforderlich) : Siehe Anlage 2.
Photo documentation of the test setup (if applicable) See Appendix 2.
- 2.4.3.5. Bemerkungen / Remarks : ---
- 2.4.4. Prüfung der Störfestigkeit gegen leitungsgebundene transiente Störungen:
Testing for the immunity to conducted transient disturbances:
- 2.4.4.1. Prüfergebnisse / Test results : Die Anforderungen der Prüfgrundlage werden erfüllt.
Messergebnisse siehe Anlage 1.
The requirements are fulfilled. For results see Appendix 1.
- 2.4.4.2. Fotodokumentation des Prüfaufbaus (sofern erforderlich) : Siehe Anlage 2.
Photo documentation of the test setup (if applicable) See Appendix 2.
- 2.4.4.3. Bemerkungen / Remarks : ---
- 2.4.5. Messung von leitungsgebundenen transienten Störgrößen:
Measurement of conducted transient disturbances:
- 2.4.5.1. Messergebnisse : Die Anforderungen der Prüfgrundlage werden erfüllt.
Measurement results Messergebnisse siehe Anlage 1.
The requirements are fulfilled. For results see Appendix 1.
- 2.4.5.2. Fotodokumentation des Messaufbaus (sofern erforderlich) : Siehe Anlage 2.
Photo documentation of the measurement setup (if applicable) See Appendix 2.
- 2.4.5.3. Bemerkungen / Remarks : ---

Typ / Type : SDW-550
Hersteller / Manufacturer : Westermo Teleindustri AB

3. Anlagen / Appendices

- Anlage 0 / Appendix 0 : Liste der Änderungen / List of modifications
Anlage 1 / Appendix 1 : Prüfergebnisse / Test results
Anlage 2 / Appendix 2 : Fotodokumentation / Photo Documentation

4. Schlussbescheinigung / Statement of conformity

Der unter Ziffer 0.9. bezeichnete Beschreibungsbogen und der darin beschriebene Typ entsprechen der auf Seite 1 genannten Prüfgrundlage.

Die verwendeten Prüfmuster waren im Hinblick auf das erforderliche Leistungsniveau für den zu genehmigenden Typ repräsentativ. (siehe Ziffer 1.2.).

Die Prüfungen wurden entsprechend den relevanten Anforderungen der EN ISO/IEC 17020:2012 durchgeführt.

The in point 0.9. mentioned information folder and the type described in that comply with the requirements mentioned on page 1.

With regard to the required level of performance to be achieved, the tested items were representative for the type to be approved (see point 1.2.).

The tests were carried out in accordance with the relevant requirements of EN ISO/IEC 17020:2012.

Köln / 02.12.2013

Cologne / 2013-12-02

Freigabe der Vorlage: 2011-07-01

Release of template: 2011-07-01

OG



Oliver Gladziewski

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Liste der Änderungen / List of modifications

Anlage / Appendix 0

Es wird berichtigt / Correction of : ---

Es wird geändert / Modification of : ---

Es wird hinzugefügt / Addition of : ---

Es entfällt / Deletion of : ---

Typ / Type : SDW-550

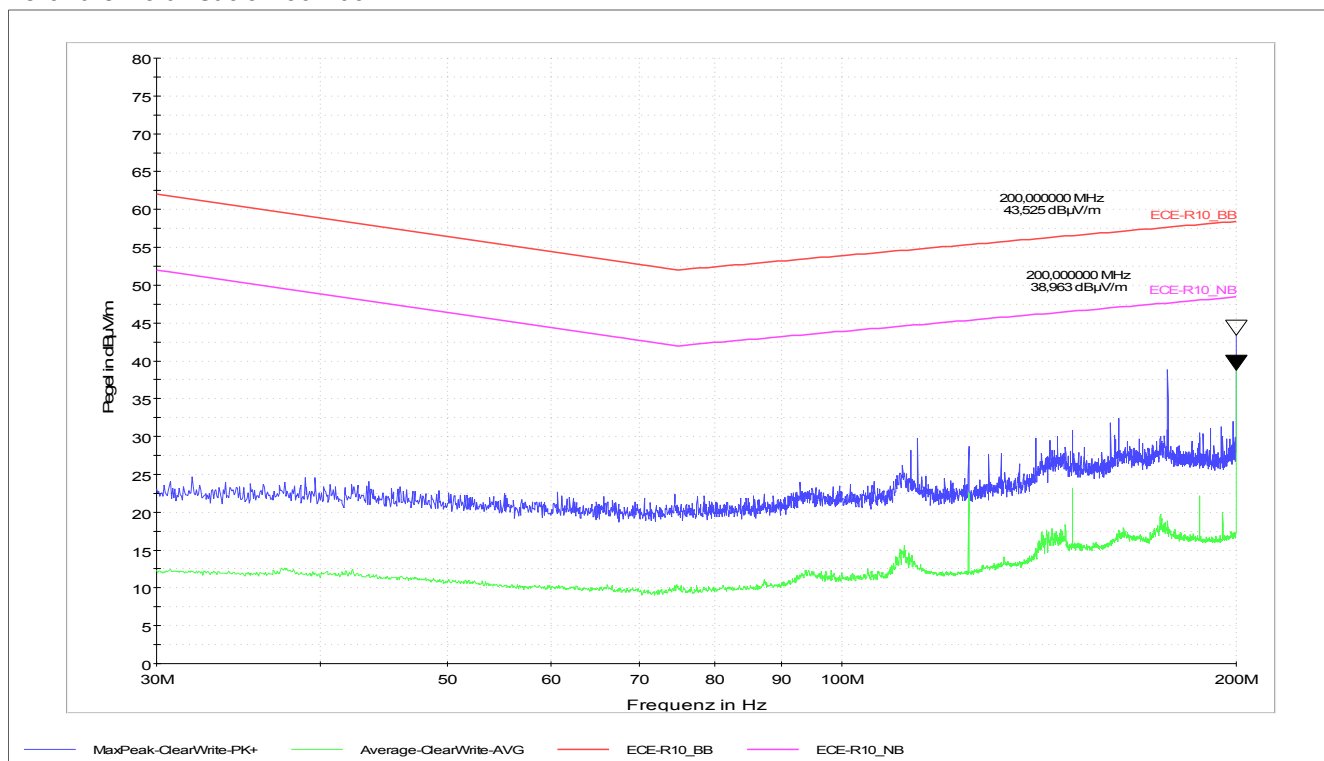
Hersteller / Manufacturer : Westermo Teleindustri AB

Prüfergebnisse / Test results

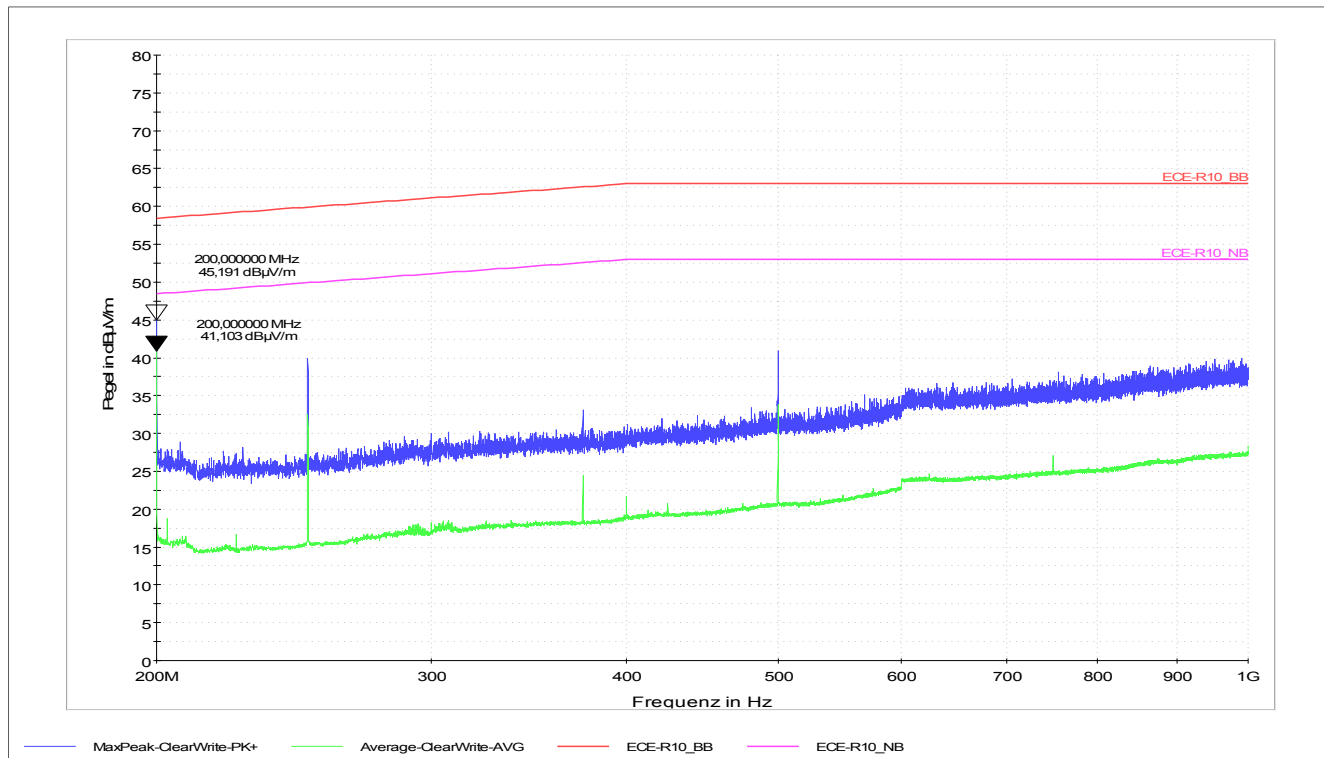
Anlage / Appendix 1

Messung von gestrahlten breitbandigen und schmalbandigen elektromagnetischen Störungen:
 Measurement of radiated broadband and narrowband electromagnetic emissions:

Vertikale Polarisation 30-200 MHz



Vertikale Polarisation 200-1000MHz



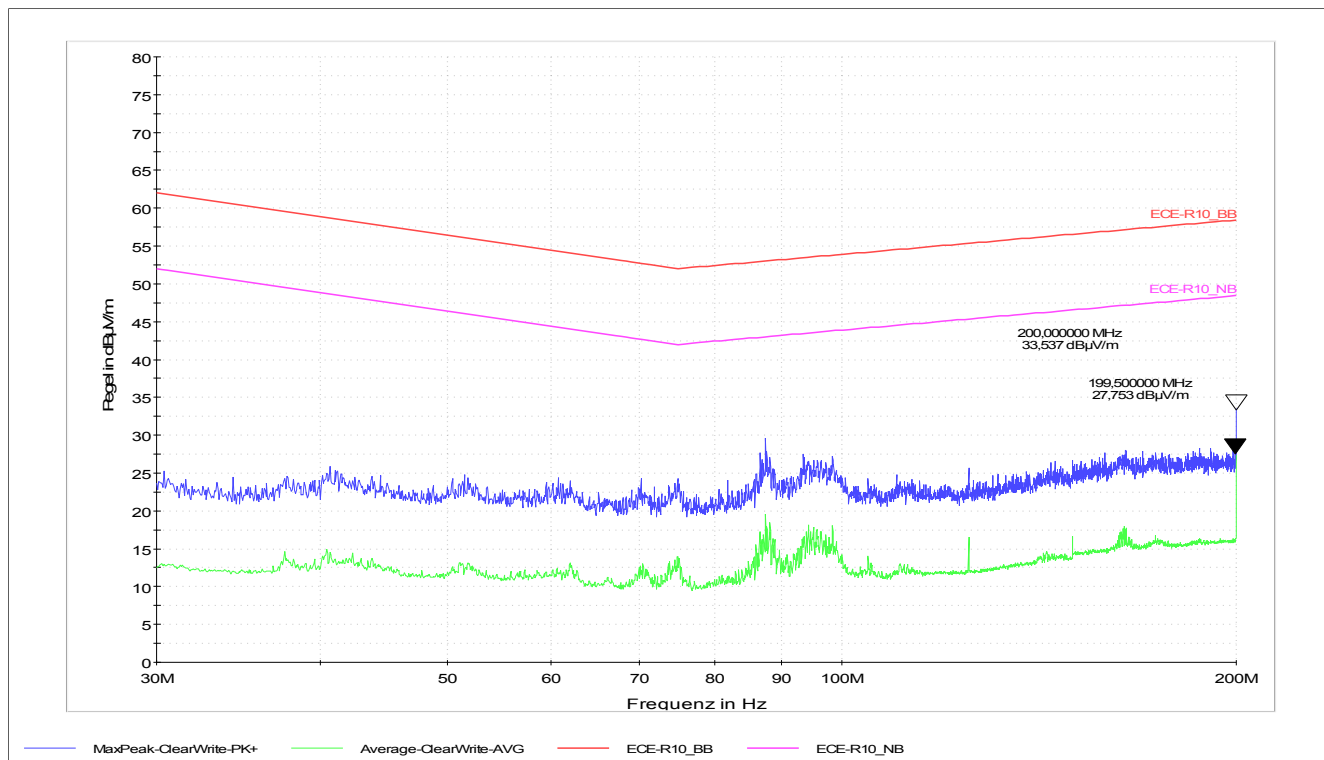
Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

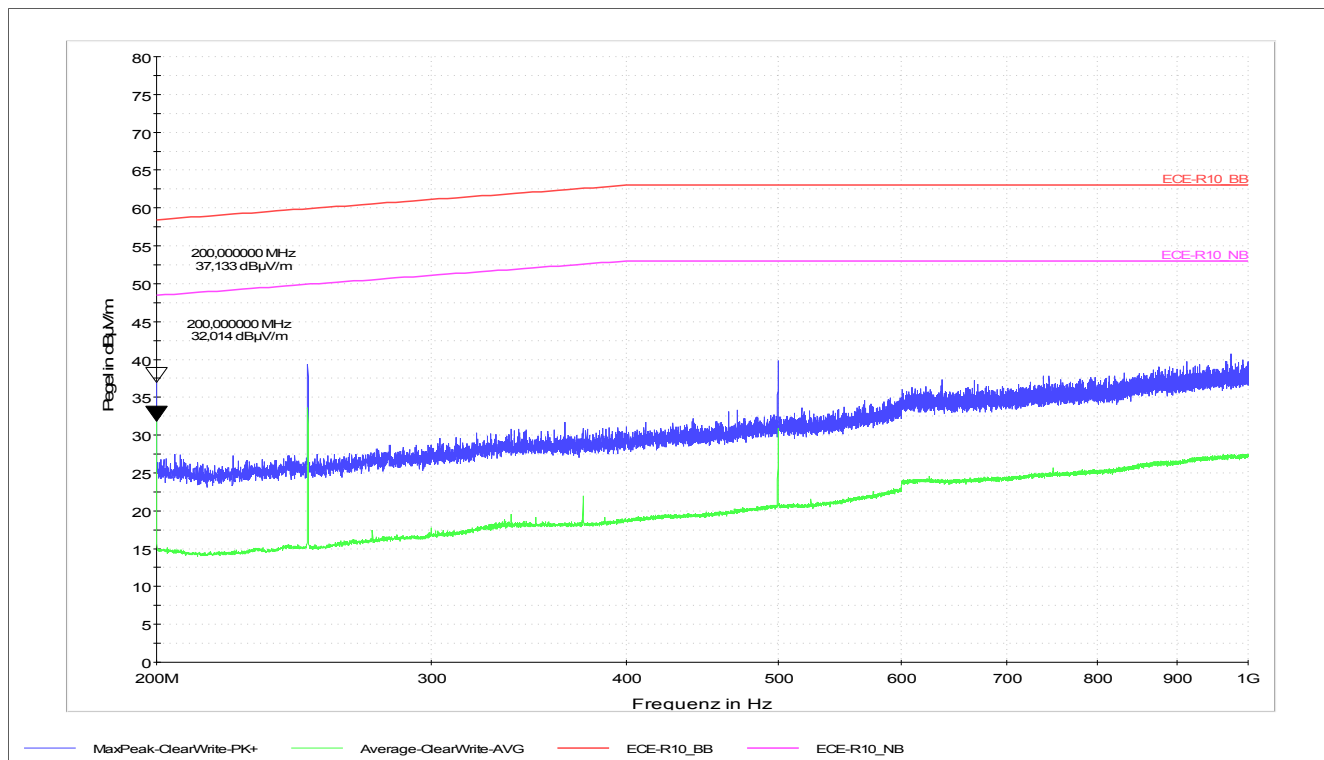
Prüfergebnisse / Test results

Anlage / Appendix 1

Horizontale Polarisation 30-200 MHz



Horizontale Polarisation 200-1000MHz



Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Prüfergebnisse / Test results

Anlage / Appendix 1

Prüfung der Störfestigkeit gegen leitungsgebundene transiente Störungen:
 Testing for the immunity to conducted transient disturbances:

Prüfimpulsnummer <i>Test pulse number</i>	Testwerte Störfestigkeit <i>Immunity test level</i>	Geforderter Mindestfunktionszustand Soll <i>Rated functional status</i>	Funktionszustand Ist <i>Actual functional status</i>
1	III	C	C
2a	III	B	A
2b	III	C	C
3a	III	A	A
3b	III	A	A
4	III	C	A

Messung von leitungsgebundenen transienten Störgrößen:
 Measurement of conducted transient disturbances:

Polarität der Impuls- Amplitude	Höchstzulässige Impuls-Amplitude für Fahrzeuge mit 24 V-Systemen <i>Maximum allowed pulse amplitude for vehicles with 24V-systems</i> Soll / rated value	Gemessene Impuls-Amplitude für Fahrzeuge mit 24 V-Systemen <i>Measured pulse amplitude for vehicles with 24V-systems</i> Ist / actual value
Positiv / <i>positive</i>	+ 150 V	+34,9V
Negativ / <i>negative</i>	- 450 V	-12,5V

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Fotodokumentation / Photo Documentation

Anlage / Appendix 2



Abbildung 1, Prüfobjekt



Abbildung 2, Prüfobjekt

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Fotodokumentation / Photo Documentation

Anlage / Appendix 2



Abbildung 3, Prüfobjekt

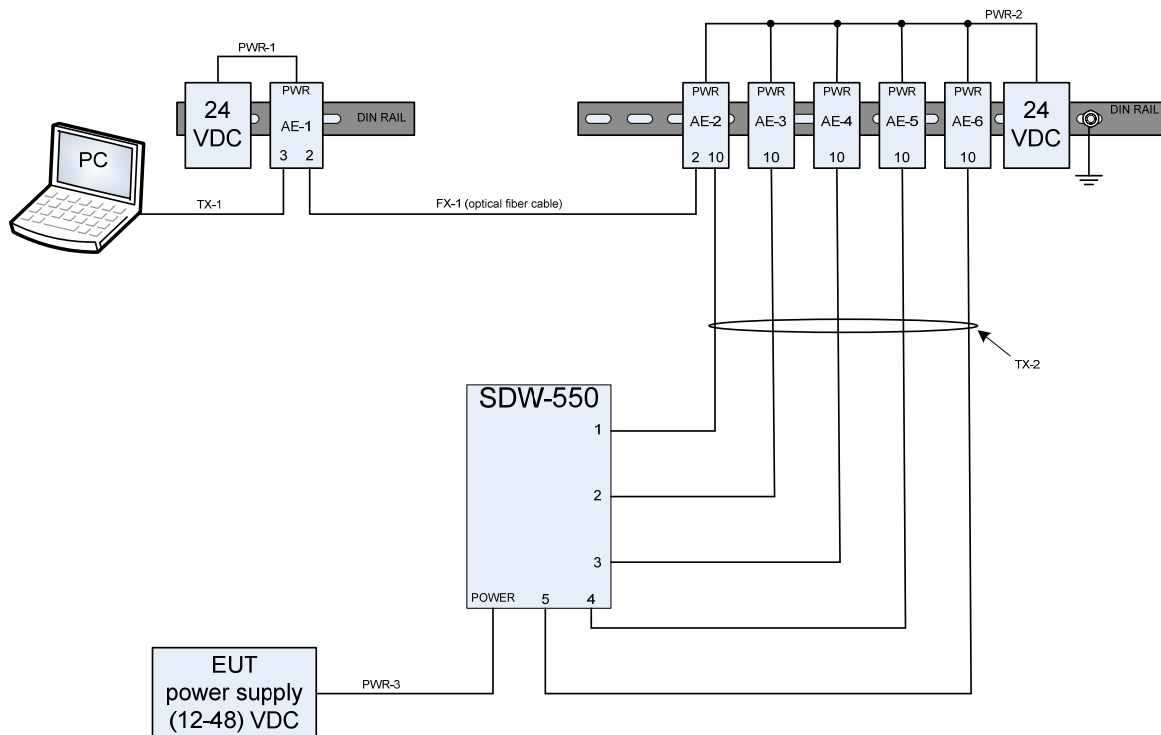


Abbildung 4, Blockschaltbild Prüfaufbau

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Fotodokumentation / Photo Documentation

Anlage / Appendix 2

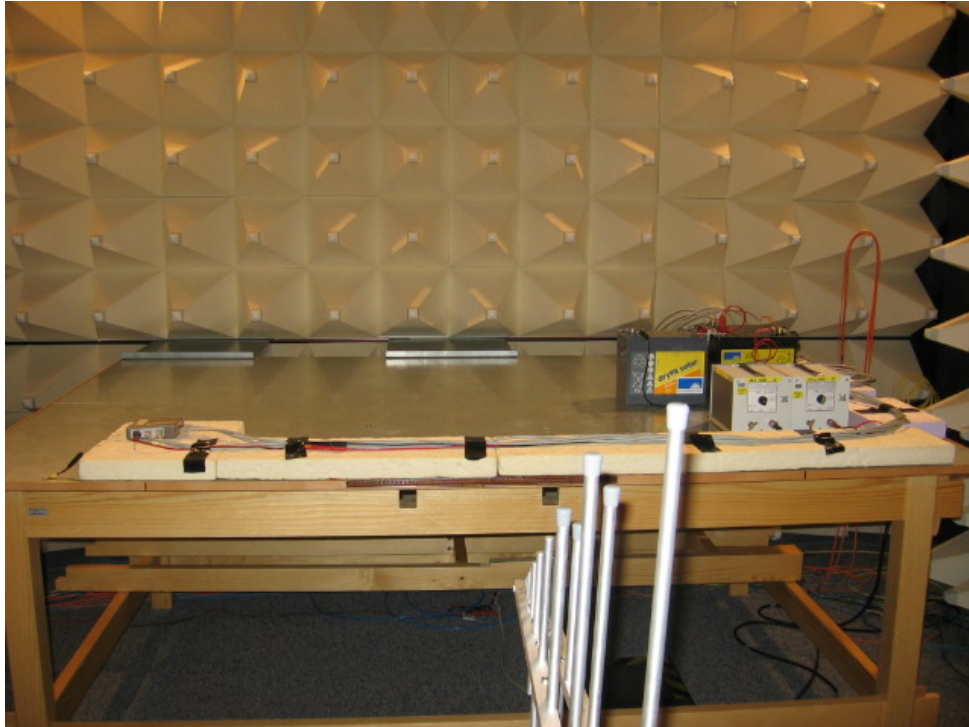


Abbildung 5, Prüfaufbau gestrahlte Störaussendung, Übersicht



Abbildung 6, Prüfaufbau gestrahlte Störaussendung, Detail Prüfling

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Fotodokumentation / Photo Documentation

Anlage / Appendix 2

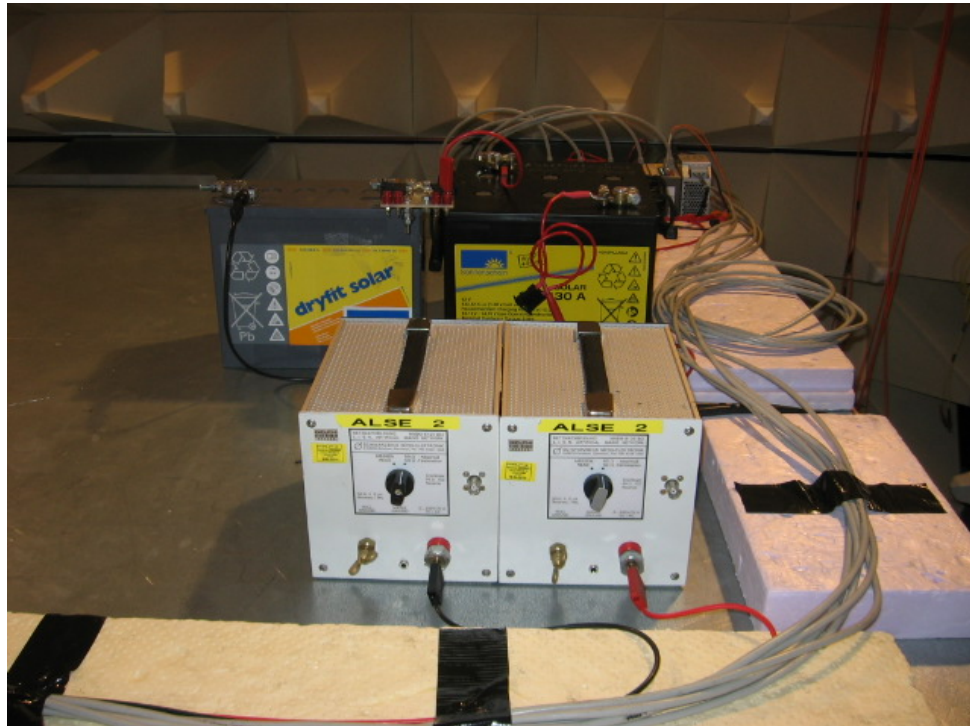


Abbildung 7, Prüfaufbau gestrahlte Störaussendung, Detail Bordnetznachbildung

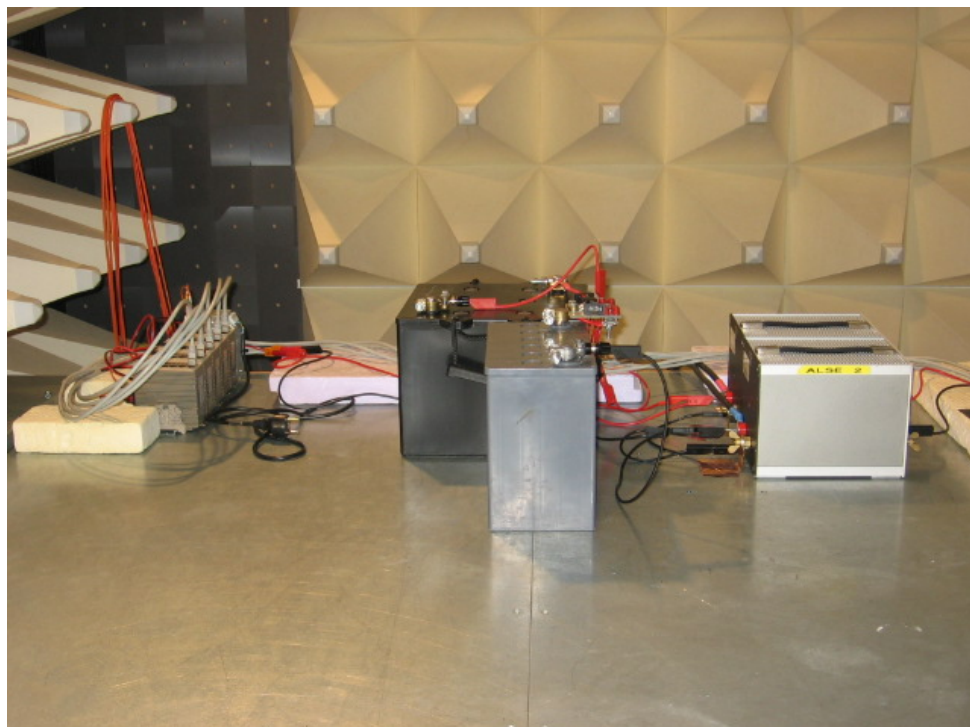


Abbildung 8, Prüfaufbau gestrahlte Störaussendung, Detail Schnittstellenbelastung

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Fotodokumentation / Photo Documentation

Anlage / Appendix 2

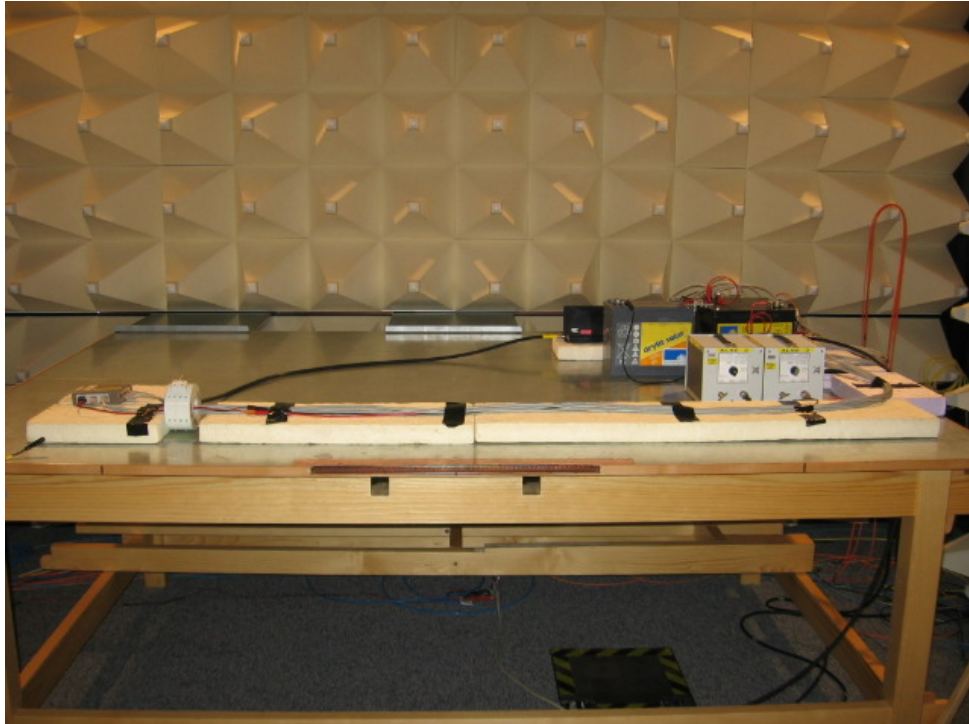


Abbildung 9, Prüfaufbau gestrahlte Störfestigkeit, BCI-Methode, Übersicht

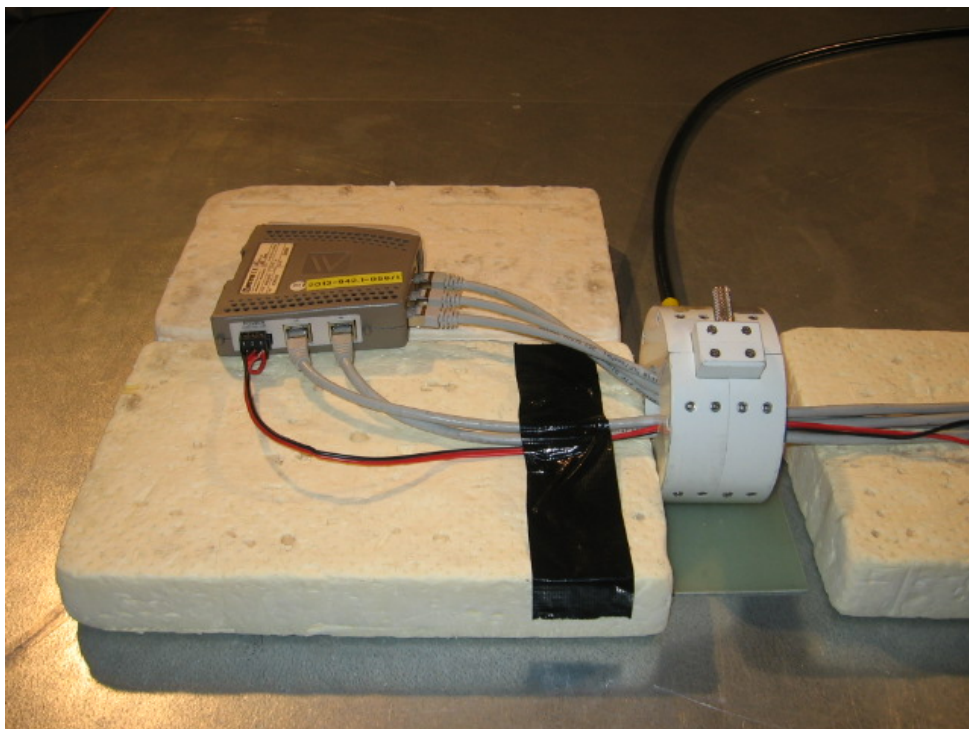


Abbildung 10, Prüfaufbau gestrahlte Störfestigkeit, BCI-Methode, Detail

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Fotodokumentation / Photo Documentation

Anlage / Appendix 2

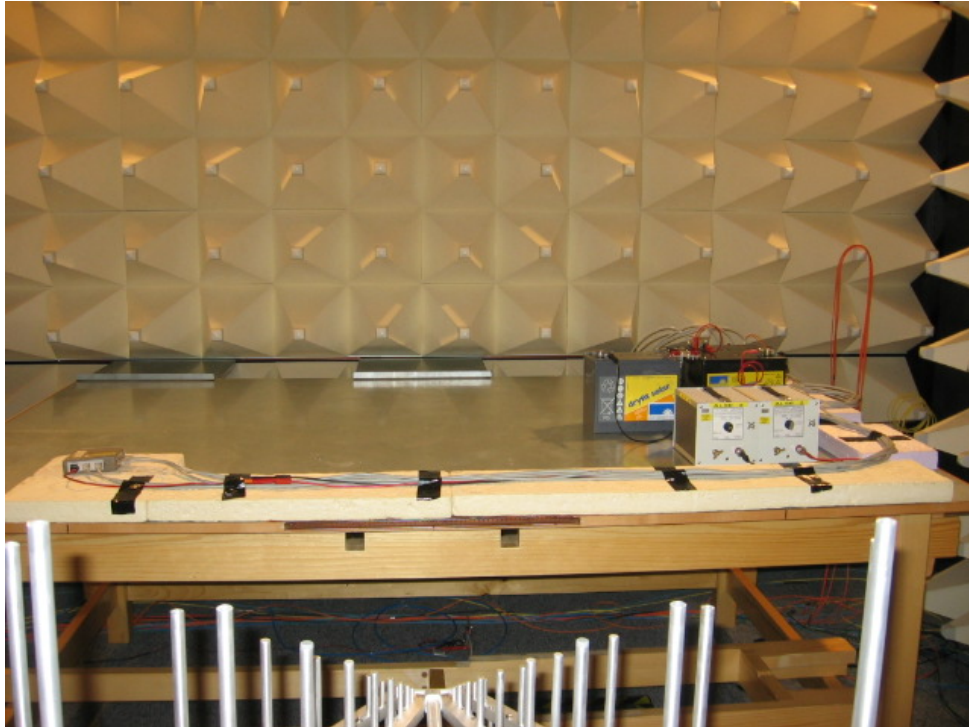


Abbildung 11, Prüfaufbau gestrahlte Störfestigkeit, Antennenmethode ≤ 1 GHz



Abbildung 12, Prüfaufbau gestrahlte Störfestigkeit, Antennenmethode > 1 GHz

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Fotodokumentation / Photo Documentation

Anlage / Appendix 2

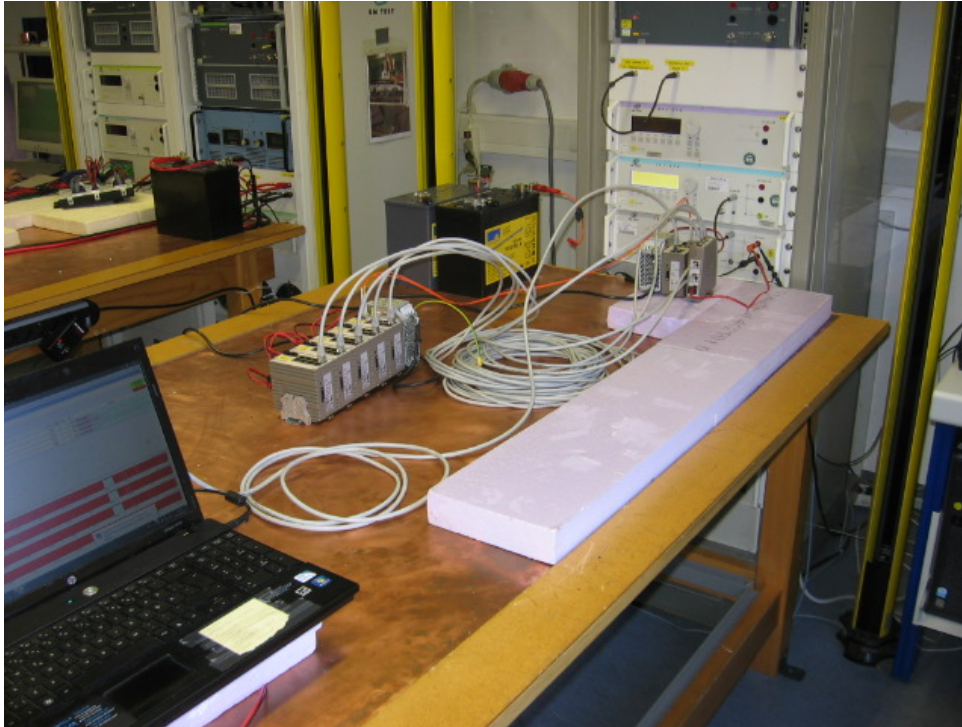


Abbildung 13, Prüfaufbau leitungsgeführte Störfestigkeit, Übersicht

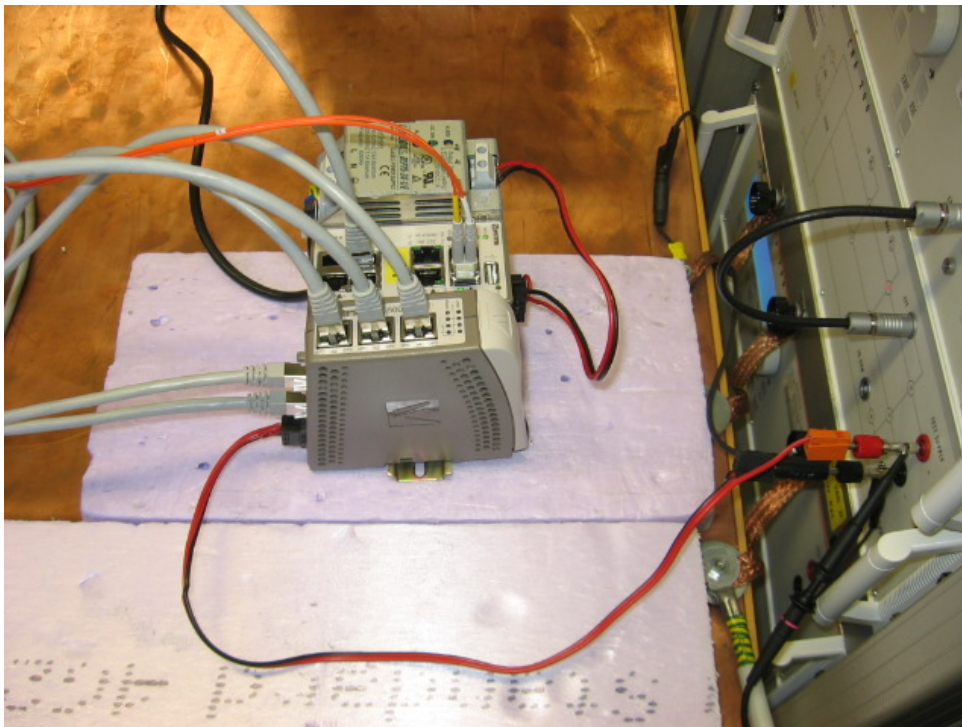


Abbildung 14, Prüfaufbau leitungsgeführte Störfestigkeit, Detail

Typ / Type : SDW-550

Hersteller / Manufacturer : Westermo Teleindustri AB

Fotodokumentation / Photo Documentation


Anlage / Appendix 2



Abbildung 15, Prüfaufbau leitungsgeführte Störaussendung

INFORMATION DOCUMENT**No. 2013/SDW-550**

according to ECE-R10 including all amendments up to 04 series of amendments, for type approval of an electric/electronic sub-assembly with respect to electromagnetic compatibility

1. **Make (trade name of manufacturer):**
Westermo Teleindustri AB
2. **Type:**
SDW-550
3. **Means of identification of type, if marked on the component/~~separate technical unit:~~**
Type description
- 3.1. **Location of that marking:**
Left side of enclosure
4. **Name and address of manufacturer:**
Westermo Teleindustri AB
640 40 Stora Sundby
Sweden
Name and address of authorised representative, if any: Bevollmächtigter gestrichen
~~Westermo Research and Development AB
Svalgången 1
724 81 Västerås
Sweden~~

M.Quade 28.02.2014
5. **In the case of components and separate technical units, location and method of affixing of the approval mark:**
Printed on the name plate on the left side of enclosure
6. **Address(es) of assembly plant(s):**
Westermo Teleindustri AB
640 40 Stora Sundby
Sweden
7. **This ESA shall be approved as a component/~~STU~~**
8. **Any restrictions of use and conditions for fitting:**
N/A
9. **Electrical system rated voltage:**
12 - 48 VDC, negative ground.

Index

Description	Pages	Document / Sketch No.	Issue date	Revision date
Attachment 1 Description of ESA	1	---	2013-12-02	---
Attachment 2 Type and commercial description(s)		---	2013-12-02	---
Attachment 3 Name plate with location and affixing of the approval mark		---	2013-12-02	---
Attachment 4 User guide	24	User Guide 6644-2214 REV.A	2011-04	---
Attachment 5 Circuit diagram	4	5003-2590-C	2008-11-03	---
Attachment 6 Parts list	2	---	2013-08-27	---
Attachment 7 Component placement specification	1	5003-2590-H	2008-11-03	---

Attachment 1

Description of ESA

The SDW-550 is an Industrial Ethernet 5-port switch.

All ports support auto-negotiation, but DIP-switches also allow speed and duplex configuration of any individual TX port. It is also possible to set up one port to monitor traffic to/from the switch.

The SDW-550 has been designed to meet high industrial specifications, providing very high dependability in harsh environmental conditions.

Features:

- TX shields individually isolated
- Wide DC power range 12 – 48 VDC
- Wide temperature range
- Automatic MDI/MDI-X crossover
- LED indicators for Power, Speed, Duplex, Link and Traffic
- Port monitoring
- 35 mm DIN rail mounting
- Enable or disable of flow control

Example of applications are:

- 5-port switch
- Ethernet isolator, for STP networks

Attachment 2



Type and commercial description(s)


Type : *SDW-550*

Commercial description: *N/A*

Attachment 3

Name plate with location and affixing of the approval mark

   10R - 04 XXXX www.westermo.com SE-640 40 STORA SUNDBY, SWEDEN Date of mfg: xxxx-xx-xx	
Art.No. 3644-6001	Power 12-48 V === 320 mA
Type SDW-550	Ser. No. XXXXXX



User Guide

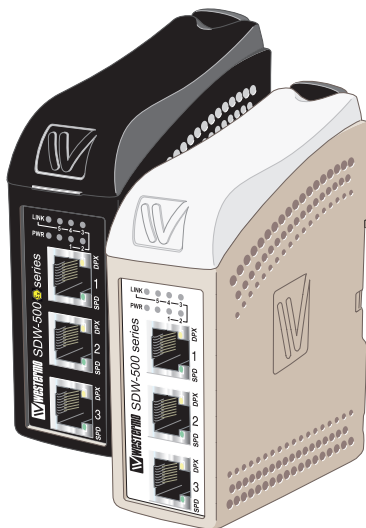
6644-2214

WESTERMO



SDW-500

S E R I E S



Industrial Ethernet 5-port Switch

www.westermo.com

Legal information

The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to the accuracy and reliability or contents of this document. Westermo reserves the right to revise this document or withdraw it at any time without prior notice.

Under no circumstances shall Westermo be responsible for any loss of data or income or any special, incidental, and consequential or indirect damages howsoever caused.

More information about Westermo can be found at the following Internet address:

<http://www.westermo.com>

Safety



Before installation:

Read this manual completely and gather all information on the unit. Make sure that you understand it fully. Check that your application does not exceed the safe operating specifications for this unit.

This unit should only be installed by qualified personnel.

This unit should be built-in to an apparatus cabinet, or similar, where access is restricted to service personnel only.

The power supply wiring must be sufficiently fused, and if necessary it must be possible to disconnect manually from the power supply. Ensure compliance to national installation regulations.

This unit uses convection cooling. To avoid obstructing the air flow around the unit, follow the spacing recommendations (see Installation section).



Before mounting, using or removing this unit:

Prevent access to hazardous voltage by disconnecting the unit from power supply.

Warning! Do not open connected unit. Hazardous voltage may occur within this unit when connected to power supply.



Class 1 Laser Product

Do not look directly into fibre optical fibre port or any connected fibre although this unit is designed to meet the Class 1 Laser regulations.

Care recommendations

Follow the care recommendations below to maintain full operation of unit and to fulfil the warranty obligations.

This unit must not be operating with removed covers or lids.

Do not attempt to disassemble the unit. There are no user serviceable parts inside.

Do not drop, knock or shake the unit, rough handling above the specification may cause damage to internal circuit boards.

Do not use harsh chemicals, cleaning solvents or strong detergents to clean the unit.

Do not paint the unit. Paint can clog the unit and prevent proper operation.

Do not expose the unit to any kind of liquids (rain, beverages, etc). The unit is not waterproof. Keep the unit within the specified humidity levels.

Do not use or store the unit in dusty, dirty areas, connectors as well as other mechanical part may be damaged.

If the unit is not working properly, contact the place of purchase, nearest Westerno distributor office or Westerno Tech support.

Fibre connectors are supplied with plugs to avoid contamination inside the optical port.

As long as no optical fibre is mounted on the connector, e.g. for storage, service or transportation, should the plug be applied.




ATEX Information (Applicable for SDW-500 Ex series only)

General

This unit is intended for use in Zone 2 hazardous location only.


Marking

 II 3 G

Ex nA IIC 140°C (T3) Gc

SPECIAL CONDITION

WARNING – DO NOT SEPARATE WHEN ENERGIZED

	Indicate that this unit complies with relevant European standards that are harmonised with the 94/9/EC Directive (ATEX).
II	Equipment group II. This unit can be installed in all places with an explosive gas atmosphere other than mines susceptible to firedamp.
3	Equipment category 3. A category is the classification according to the required level of protection. This unit ensures the requisite level of protection during normal operation and is intended for use in areas in which explosive atmosphere caused by gases, vapours, mists, or dust mixtures are unlikely to occur or, if they do occur, are likely to do so only infrequently and for a short period only.
G	Indicates protection concerning explosive atmospheres caused by gases, vapours or mists (G).
Ex	Indicates that this unit is in conformity with relevant European Ex standard(s).
nA	The type of protection used. This unit is a non-sparking device "nA" which is constructed to minimize the risk of occurrence of arcs or sparks capable of creating an ignition hazard during conditions of normal operation.
IIC	Gas group, a typical gas is hydrogen.
140°C (T3)	Maximum surface temperature assigned = 140°C with the next highest temperature class T3 (T3 = 200°C). This unit is classified in accordance with its maximum surface temperature (external and internal).
Gc	Equipment protection level Gc (EPL Gc) Equipment for explosive gas atmospheres, having a "enhanced" level of protection, which is not a source of ignition in normal operation and which may have some additional protection to ensure that it remains inactive as an ignition source in the case of regular expected occurrences. EPL Gc are analogous to the ATEX Categories (Category 3 G = EPL Gc).
SPECIAL CONDITION	This unit has a special condition for safe use. The special condition for safe use contains safety related information that is necessary for the correct installation and safe use.

Ratings and safety control drawing

Ratings \ Model	SDW-550EX	SDW-541EX-MM-LC2 SDW-541EX-SM-SC15 SDW-541EX-SM-LC40	SDW-541EX-MM-SC2 SDW-541EX-MM-ST2 SDW-541EX-SM-LC15
Power	(12 – 48) VDC; 320 mA	(12 – 48) VDC; 350 mA	(12 – 48) VDC; 450 mA
Ambient temperature	-25°C ≤ Ta ≤ +70°C		-25°C ≤ Ta ≤ +65°C
Maximum surface temperatur	140°C (temperatur class T3)		
Degree of protection	IP 21		
Installation spacing	Minimum 25 mm above / below and minimum 10 mm left / right		

Ratings \ Model	SDW-532EX-2SM-LC15 SDW-532EX-2MM-LC2 SDW-532EX-2SM-SC15 SDW-532EX-2SM-LC40	SDW-532EX-2MM-SC2 SDW-532EX-2MM-ST2
Power	(12 – 48) VDC; 450 mA	(12 – 48) VDC; 600 mA
Ambient temperature	-25°C ≤ Ta ≤ +60°C	
Maximum surface temperatur	140°C (temperatur class T3)	
Degree of protection	IP 21	
Installation spacing	Minimum 25 mm above / below and minimum 10 mm left / right	



The different models allows these ports to be configured as either copper RJ 45, optical SC, -ST or -LC connection.

Ethernet TX – RJ 45

Position	Direction* / descripton	Input / Output values
1	In / Out / TD+	Per port: U = ± 1 V (4µV/s) I = ± 20 mA Data rate: 10/100 Mbit/s
2	In / Out / TD-	
3	In / Out / RD+	
4	Not connected	
5	Not connected	
6	In / Out / RD-	
7	Not connected	
8	Not connected	
Shield	HF-connected	

Galvanically isolated via signal transformers and capacitively isolated to signal ground through 3 kV 470 pF capacitor.

Ethernet FX – SC, ST or LC

Position	Direction* / descripton	Input / Output values
Rx	In / Receive port	Max optical power = 5 dBm
Tx	Out / Transmit port	

Power

Position	Direction* / descripton	Input / Output values
1	In / COM	U _{in} = (9.6 – 57.6) VDC Max I _{in} = 0.6 A @ 9.6 VDC Max P _{in} = 6 W
2	In / +VA	
3	In / +VB	

SPECIAL CONDITION FOR SAFE USE

Ambient temperature:

This unit is designed for use in extreme ambient temperature conditions according to the following:

SDW-550: $-25^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$

SDW-541: $-25^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$

SDW-532: $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

Installation in an apparatus cabinet:

This unit requires installation in an Ex certified apparatus cabinet suitable for the area of use and providing a degree of protection of at least IP54.

Resistance to impact:

This unit requires installation in an apparatus cabinet where adequate resistance to impact is provided by the apparatus cabinet. See "Installation in an apparatus cabinet" above for requirements on the external apparatus cabinet.

Resistance to light:

This unit requires installation in an apparatus cabinet where it is protected from light (for example daylight or light from luminaires).

See "Installation in an apparatus cabinet" above for requirements on the external apparatus cabinet.

Secureness of plugs:

When this unit is installed in an explosive atmospheres, all connectors must be mechanically secured to prevent loosening.

Conductor temperature:

When this unit is installed in locations with high ambient temperature, special precautions shall be taken upon the choice of external conductors and the temperature rating of the conductor(s).

Directive 94/9/EC alongside with other directives:

Directive 2004/108/EC (EMC) applies and to assure a safe performance of this unit under the scope of Directive 94/9/EC, refer to the electromagnetic immunity level specified under "Type tests and environmental conditions" in this manual.

Standards and date of compliance

EN 60079-0 and EN 60079-15

2011-04-15

Note. Fibre Optic Handling

Fibre optic equipment needs special treatment. It is very sensitive to dust and dirt. If the fibre will be disconnected from the modem the protective hood on the transmitter/receiver must be connected. The protective hood must be kept on during transportation. The fibre optic cable must also be handle the same way.

If this recommendation not will be followed it can jeopardise the warranty.

Cleaning of the optical connectors

In the event of contamination, the optical connectors should be cleaned by the use of forced nitrogen and some kind of cleaning stick.

Recommended cleaning fluids:

- Methyl-, ethyl-, isopropyl- or isobutyl-alcohol
- Hexane
- Naphtha

Maintenance

No maintenance is required, as long as the unit is used as intended within the specified conditions.

Agency approvals and standards compliance

Type	Approval / Compliance
EMC	EN 61000-6-2, Immunity industrial environments
	EN 61000-6-3 ¹ , Emission residential environments
	EN 61000-6-4 ² , Emission industrial environments
Safety	UL 60950-1, 1st Edition ³
Marine	DNV Standard for Certification no. 2.4 ⁴
Ex	EN 60079-0 and EN 60079-15 ⁵
Note	¹ – Applicable only for 3644-000x and 3644-0015 ² – Applicable only for 3644-0019, 3644-002x and 3644-003x ³ – Applicable only for 3644-000x (SDW-550 och SDW-550 EC) ⁴ – Applicable only for 3644-0001, 3644-0022 , 3644-0023, 3644-0025, 3644-0032, 3644-0033, 3644-0035 (SDW-550, SDW-532-MM-LC15, SDW-532-MM-LC2, SDW-532-SM-LC40, SDW-532-2SM-LC15, SDW-532-2SM-LC2, SDW-532-2SM-LC40) ⁵ – Applicable only for SDW-5xx Ex series

Declaration of Conformity



Declaration of conformity

The manufacturer Westerno Teleindustri AB
SE-640 40 Stora Sundby, Sweden

Herewith declares that the product(s)

Type of product	Model	Art no
Industrial Ethernet switch	SDW-500 series	3644-0001, -0005, -0015, -0019, -0020, -0021, -0022, -0023, -0024, -0025, -0030, -0031, -0032, -0033, -0034, -0035
	SDW-500 EX series	3644-5001, -5020, -5021, -5022, -5023, -5024, -5025, -5030, -5031, -5032, -5033, -5034, -5035

is in conformity with the following EC directive(s).

No	Short name
2004/108/EC	Electromagnetic Compatibility (EMC)
94/9/EC ¹	Equipment Explosive Atmospheres (ATEX)

References of standards applied for this EC declaration of conformity.

No	Title	Issue
EN 61000-6-2	Electromagnetic compatibility – Immunity for industrial environments	2005
EN 61000-6-3 ²	Electromagnetic compatibility – Emission for residential environments	2007
EN 61000-6-4 ³	Electromagnetic compatibility – Emission for industrial environments	2007
EN 60079-0	Explosive atmospheres Equipment – General requirements	2009
EN 60079-15	Electrical apparatus for explosive gas atmospheres – Construction, test and marking of type of protection “n” electrical apparatus	2005

The last two digits of the year in which the CE marking was affixed: 11

Signature

Pierre Öberg
Technical Manager
8th April 2011

¹ Applicable for SDW-500 EX series.

² Applicable for 3644-000x and 3644-0015.

³ Applicable for 3644-0019, 3644-002x and 3644-003x.

Postadress/Postal address
S-640 40 Stora Sundby
Sweden

Tel.
016-428000
Int+46 16428000

Telefax
016-428001
Int+46 16428001

Postgiro
52 72 79-4

Bankgiro
5671-5550

Org.nr/
Corp. identity number
556361-2604

Registered office
Eskilstuna

Environmental conditions

Isolation between interfaces	
Power Interface to all other	2.8 kV DC 2.0 kV RMS @ 50 Hz and 60 s duration
TX signal Interface to all other	2.1 kV DC 1.5 kV RMS @ 50 Hz and 60 s duration
TX shield Interface to all other	1.5 kV DC 1.0 kV RMS @ 50 Hz and 60 s duration

Environmental	
Temperature, operating	-25 to +70°C (SDW-550), -25 to +65°C (SDW-541) -25 to +60°C (SDW-532)
Temperature, storage and transportation	-25 to +70°C
Relative humidity, operating	5 to 95% (non-condensing)
Relative humidity, storage and transportation	5 to 95% (condensation allowed outside packaging)

Mechanical	
Dimension (W x H x D)	35 x 121 x 119 mm
Weight	0.2 kg
Mounting	DIN-rail
Degree of protection	IP21

Configuration	
Auto configured (auto-negotiation) or manually setting of speed and duplex of individual TX port, by DIP-switches.	
Port mirror function is possible to set with DIP-switch. With the port mirror function active the switch will copy all outgoing traffic to port 1. This can be used to monitor all traffic going out from the switch. Packets may be discarded if the total throughput exceeds the port speed of port 1.	

Fibre optic power budget

Model	Multimode MM-xx2	Singlemode SM-SC15	Singlemode SM-LC15	Singlemode SM-LC40
Transmitted wavelength	1310 nm	1310 nm	1310 nm	1310 nm
Min. output power, transmitter	-19 dBm	-15 dBm	-15 dBm	-5 dBm
Max. output power, transmitter	-12 dBm	-8 dBm	-8 dBm	0 dBm
Input sensitivity, receiver	-31 dBm	-34 dBm	-31 dBm	-34 dBm
Min. power budget	12 dBm	19 dBm	16 dBm	29 dBm
Max. power budget	19 dBm	26 dBm	23 dBm	34 dBm
Recommended fibre cable and core / cladding diameter	50/125 62.5/125	9/125 10/125	9/125 10/125	9/125 10/125

Attenuation in connectors / splices

Type	Normal attenuation
Connector	0.2 - 0.4 dBm
Fusion splice	0.1 dBm
Mechanical splice	0.2 dBm

1. Description

The SDW-550 is an Industrial Ethernet 5-port switch.

All ports support auto-negotiation, but DIP-switches also allow speed and duplex configuration of any individual TX port. It is also possible to set up one port to monitor traffic to/from the switch.

The SDW-550 has been designed to meet high industrial specifications, providing very high dependability in harsh environmental conditions.

Features:

- ⌘ TX shields individually isolated
- ⌘ Wide DC power range 12 – 48 VDC
- ⌘ Wide temperature range
- ⌘ Automatic MDI/MDI-X crossover
- ⌘ LED indicators for Power, Speed, Duplex, Link and Traffic
- ⌘ Port monitoring
- ⌘ 35 mm DIN rail mounting
- ⌘ Enable or disable of flow control

Example of applications are:

- ⌘ 5-port switch
- ⌘ Ethernet isolator, for STP networks

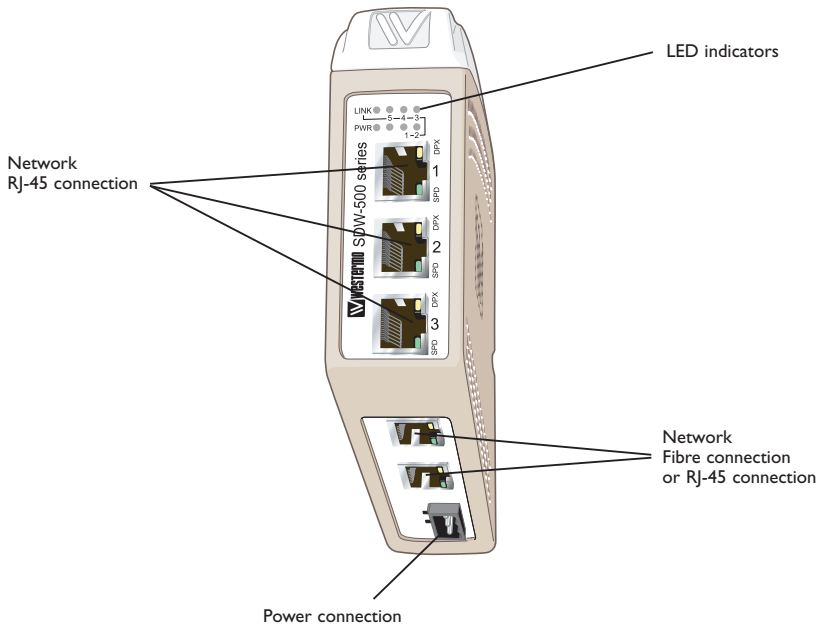
Interface specifications

Power SDW-500 series		
Rated voltage	12 – 48 VDC, polarity protected	
Operating voltage	9.6 – 57.6 VDC	
Rated current	@12 VDC power input	
	SDW-550	320 mA
	SDW-541-MM-SC2	450 mA
	SDW-541-MM-ST2	450 mA
	SDW-541-SM-LC15	450 mA
	SDW-541-SM-SC15	350 mA
	SDW-541-SM-LC40	350 mA
	SDW-541-MM-LC2	350 mA
	SDW-532-2-MM-SC2	600 mA
	SDW-532-2-MM-ST2	600 mA
	SDW-532-2-SM-LC15	450 mA
	SDW-532-2-SM-SC15	450 mA
	SDW-532-2-SM-LC40	450 mA
SDW-532-2-MM-LC2	450 mA	
SDW-532-MM-SC2-SM-SC15	450 mA	
Rated frequency	DC	
Connection	Detachable screw terminal	
Connector size	0.2 – 2.5 mm ² (AWG 24-12)	

Ethernet TX	
Electrical specification	IEEE std 802.3. 2000 edition
Data rate	10 Mbit/s or 100 Mbit/s, manual or auto
Duplex	Full or half, manual or auto
Connection	SC, ST or LC
Circuit type	Optical
Transmission range	100 m

Ethernet FX	
Electrical specification	IEEE std 802.3. 2000 edition
Data rate	10 Mbit/s or 100 Mbit/s, manual or auto
Duplex	Full or half, manual or auto
Connection	SC, ST or LC
Circuit type	Optical
Transmission range	100 m

Connections



Available models:

- ⌘ SDW-550 10/100Base-T/TX: 5 ports
- ⌘ SDW-541 10/100Base-T/TX: 4 ports 100Base-FX: 1 port
- ⌘ SDW-532 10/100Base-T/TX: 3 ports 100Base-FX: 2 ports

NOTE! SDW-532-MM-SC2-SM-SC15

Port 4: SC Single mode 15 km connector

Port 5: SC Multi mode 2 km connector

Power

The SDW-500 series supports redundant power connection.

The positive input are +VA and +VB, the negative input

for both supplies are COM.

The power is drawn from the input with the highest voltage.



3-pos screw terminal	Description	Power
1	COM	0 V
2	+VA	A: 9.6 – 57.6 VDC
3	+VB	B: 9.6 – 57.6 VDC

TX

Ethernet TX connection (RJ-45 connector), automatic MDI/MDI-X crossover.

Contact	Signal Name	Direction	Description/Remark
1	TD+	In/Out	Transmitted/Received data
2	TD–	In/Out	Transmitted/Received data
3	RD+	In/Out	Transmitted/Received data
4	–	–	–
5	–	–	–
6	RD–	In/Out	Transmitted/Received data
7	–	–	–
8	–	–	–
Shield	–	–	HF-connected



CAT 5 cable is recommended.

Unshielded (UTP) or shielded (STP) connector might be used.

FX SC Multi- or single mode (optional)

Ethernet FX connection.

1300 nm multi- or singlemode fibre transceiver with SC-connector.

The dust protection plug shall be mounted when no fibre is connected.



FX ST Multi mode (optional)

Ethernet FX connection.

1300 nm multi mode fibre transceiver with ST-connector.

The dust protection plugs shall be mounted when no fibre is connected.



FX LC Multi- or single mode (optional)

Ethernet FX connection.

1300 nm singlemode fibre transceiver with LC-connector.

The dust protection plug shall be mounted when no fibre is connected.



LED indicators

At power on the PWR flashes during initialising.

Indicators (LED) Power (PWR)
 Link (LINK) of every port
 Speed (SPD) and duplex (DPX) of TX ports

LED	Status	Indication of
PWR	ON	Internal power, initialising OK
	Slow flash	Initialisation progressing
	Fast flash	Initialisation error
LINK	OFF	No Ethernet link
	ON	Good Ethernet link
	Flash	Ethernet data is transmitted or received, traffic indication
SPD	OFF	10 Mbit/s
(TX only)	ON	100 Mbit/s
DPX	OFF	Half duplex
(TX only)	ON	Full duplex

DIP switch settings SDW-550

DIP-switches are accessible under the lid on top of the unit. DIP-switches are used to configure the unit.



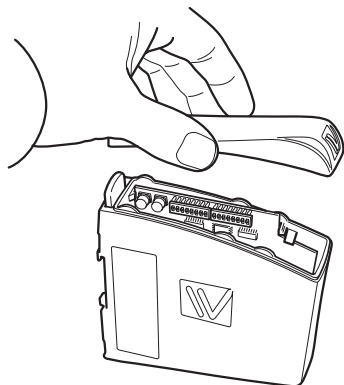
Warning!

Prevent damage to internal electronics from electrostatic discharges (ESD) by discharging your body to a grounding point (e.g. use of wrist strap), before the lid on top/front of the unit is removed.



Warning! Do not open connected equipment.

Prevent access to hazardous voltages by disconnecting the unit from AC/DC mains supply and all other electrical connections.

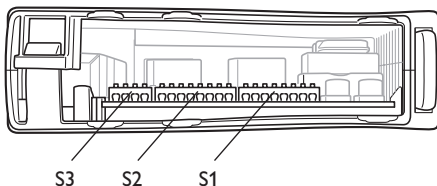


NOTE

When configuration via DIP-switches, the settings of DIP-switches configure the unit only after a reboot (power off/on).

To be observe when the DIP-switches will be configured

- ⌘ Speed and duplex setting only valid when auto-negotiation is disabled.
- ⌘ When monitoring selected all outgoing packets from the switch is also copied to the port 1.
- ⌘ Speed and duplex switch settings are ignored for FX ports.
- ⌘ If auto-negotiation and auto MDI/MDI-X disabled all TX ports support MDI-X configuration.



Port 1 settings

S1 ON Auto-negotiation and auto MDI/MDI-X disabled
1 2 3 4 5 6 7 8

S1 ON Auto-negotiation and auto MDI/MDI-X enabled
1 2 3 4 5 6 7 8

S1 ON 10 Mbit/s speed selected
1 2 3 4 5 6 7 8

S1 ON 100 Mbit/s speed selected
1 2 3 4 5 6 7 8

S1 ON Half duplex selected
1 2 3 4 5 6 7 8

S1 ON Full duplex selected
1 2 3 4 5 6 7 8

Port 3 settings

S1 ON Auto-negotiation and auto MDI/MDI-X disabled
1 2 3 4 5 6 7 8

S1 ON Auto-negotiation and auto MDI/MDI-X enabled
1 2 3 4 5 6 7 8

S1 ON 10 Mbit/s speed selected
1 2 3 4 5 6 7 8

S1 ON 100 Mbit/s speed selected
1 2 3 4 5 6 7 8

S1 ON Half duplex selected
1 2 3 4 5 6 7 8

S2 ON Full duplex selected
1 2 3 4 5 6 7 8

S2 ON Full duplex selected
1 2 3 4 5 6 7 8

Port 2 settings

S1 ON Auto-negotiation and auto MDI/MDI-X disabled
1 2 3 4 5 6 7 8

S1 ON Auto-negotiation and auto MDI/MDI-X enabled
1 2 3 4 5 6 7 8

S1 ON 10 Mbit/s speed selected
1 2 3 4 5 6 7 8

S1 ON 100 Mbit/s speed selected
1 2 3 4 5 6 7 8

S1 ON Half duplex selected
1 2 3 4 5 6 7 8

S1 ON Full duplex selected
1 2 3 4 5 6 7 8

Port 4 settings

S2 ON Auto-negotiation and auto MDI/MDI-X disabled
1 2 3 4 5 6 7 8

S2 ON Auto-negotiation and auto MDI/MDI-X enabled
1 2 3 4 5 6 7 8


S2 ON 10 Mbit/s speed selected
1 2 3 4 5 6 7 8


S2 ON 100 Mbit/s speed selected
1 2 3 4 5 6 7 8


S2 ON Half duplex selected
1 2 3 4 5 6 7 8


S2 ON Full duplex selected
1 2 3 4 5 6 7 8


Port 5 settings


S2  Auto-negotiation and auto MDI/MDI-X disabled

S2  Auto-negotiation and auto MDI/MDI-X enabled


S2  10 Mbit/s speed selected


S2  100 Mbit/s speed selected

S2  Half duplex selected


S2  Full duplex selected


Port mirroring settings

S2  No monitoring selected


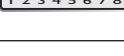
S2  Monitoring selected


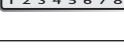
Flow control selected



S3  Flow control selected

S3  No flow control selected

Factory settings

S1  

S2  

S3  

DIP switch settings SDW-541 and SDW-532

DIP-switches are accessible under the lid on top of the unit. DIP-switches are used to configure the unit.



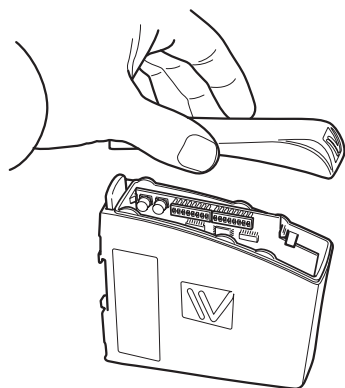
Warning!

Prevent damage to internal electronics from electrostatic discharges (ESD) by discharging your body to a grounding point (e.g. use of wrist strap), before the lid on top/front of the unit is removed.



Warning! Do not open connected equipment.

Prevent access to hazardous voltages by disconnecting the unit from AC/DC mains supply and all other electrical connections.




NOTE


When configuration via DIP-switches, the settings of DIP-switches configure the unit only after a reboot (power off/on).


To be observe when the DIP-switches will be configured


- ⌘ Speed and duplex setting only valid when auto-negotiation is disabled.
- ⌘ When monitoring selected all outgoing packets from the switch is also copied to the port 1.
- ⌘ Speed and duplex switch settings are ignored for FX ports.
- ⌘ If auto-negotiation and auto MDI/MDI-X disabled all TX ports support MDI-X configuration.


Port 1 settings


S1  Auto-negotiation and auto MDI/MDI-X disabled

S1  Auto-negotiation and auto MDI/MDI-X enabled


S1  10 Mbit/s speed selected


S1  100 Mbit/s speed selected


S1  Half duplex selected


S1  Full duplex selected


Port 2 settings


S1  Auto-negotiation and auto MDI/MDI-X disabled

S1  Auto-negotiation and auto MDI/MDI-X enabled


S1  10 Mbit/s speed selected


S1  100 Mbit/s speed selected


S1  Half duplex selected


S1  Full duplex selected


Port 3 settings

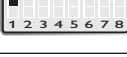
S1  Auto-negotiation and auto MDI/MDI-X disabled

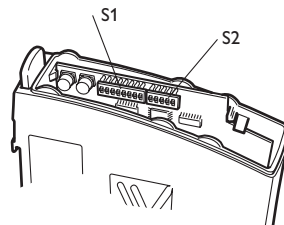
S1  Auto-negotiation and auto MDI/MDI-X enabled

S1  10 Mbit/s speed selected


S1  100 Mbit/s speed selected


S1  Half duplex selected


S2  Full duplex selected





Port 4 settings*


S2  Auto-negotiation and auto MDI/MDI-X disabled

S2  Auto-negotiation and auto MDI/MDI-X enabled

S2  10 Mbit/s speed selected


S2  100 Mbit/s speed selected


S2  Half duplex selected

S2  Full duplex selected



* Setting of port 4 is only possible when using SDW-541. These settings are ignored when using SDW-532

Port mirroring settings

S2  No monitoring selected

S2  Monitoring selected

Factory settings

S1  S2 



Installation

Mounting / Removal

Before mounting or removing the unit:

Prevent damage to internal electronics from electrostatic discharges (ESD) by discharging your body to a grounding point (e.g. use of wrist strap).

Prevent access to hazardous voltages by disconnecting the unit from AC/DC mains supply and all other electrical connections.

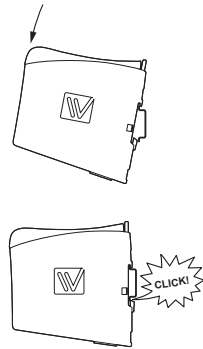
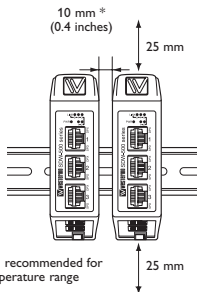
Mounting

This unit should be mounted on 35 mm DIN-rail which is horizontally mounted on a wall or cabinet backplate.

This unit uses convection cooling. To avoid obstructing the airflow around the unit, use the following spacing rules.

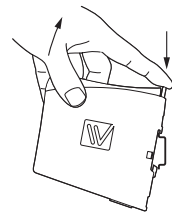
Recommended spacing 25 mm (1.0 inch) above/below and 10 mm (0.4 inches) left/right the unit.

Snap on mounting, see figure



Removal

Press down the black support at the back of the unit, see figure.





Westermo Teleindustri AB • SE-640 40 Stora Sundby, Sweden

Phone +46 16 42 80 00 Fax +46 16 42 80 01

E-mail: info@westermo.com

Westermo Web site: www.westermo.com

Sales Units

Sweden

Westermo Data Communications AB

Svalgängen 1

SE-724 81 Västerås

Phone: +46 (0)21 548 08 00 • Fax: +46 (0)21 35 18 50

E-Mail: info.sverige@westermo.se

United Kingdom

Westermo Data Communications Ltd

Talisman Business Centre • Duncan Road

Park Gate, Southampton • SO31 7GA

Phone: +44(0)1489 580-585 • Fax: +44(0)1489 580586

E-Mail: sales@westermo.co.uk

Germany

Westermo Data Communications GmbH

Goethestraße 67, 68753 Waghäusel

Tel.: +49(0)7254-95400-0 • Fax: +49(0)7254-95400-9

E-Mail: info@westermo.de

France

Westermo Data Communications S.A.R.L.

9 Chemin de Chilly 91160 CHAMPLAN

Tél : +33 1 69 10 21 00 • Fax : +33 1 69 10 21 01

E-mail : infos@westermo.fr

Singapore

Westermo Data Communications Pte Ltd

2 Soon Wing Road #08-05

Soon Wing Industrial Building

Singapore 347893

Phone +65 6743 9801 • Fax +65 6745 0670

E-Mail: sales@westermo.com.sg

North America

Westermo Data Communications

939 N. Plum Grove Road, Suite F

Schaumburg

Chicago

Phone: +1 847 619 6068

Fax: +1 847 619 66 74

E-mail: info@westermo.com

Taiwan

Westermo Data Communications Co

F2, No. 188, Pao-Chiao Rd.

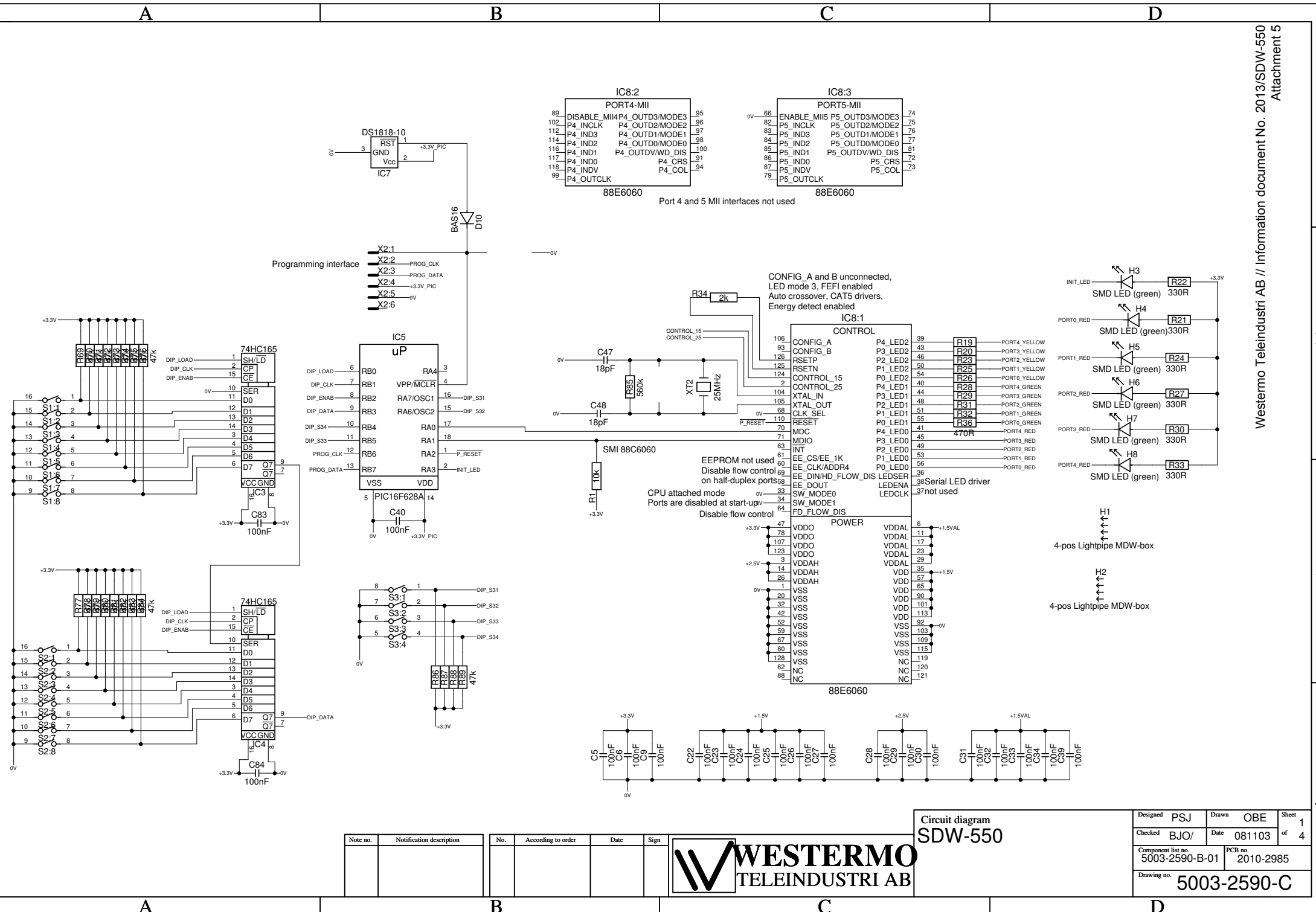
Shing-Tien City

Taipei 23145

Phone: +886 2 8911 1710

E-mail: info@westermo.com

Westermo Teleindustri AB have distributors in several countries, contact us for further information.



Circuit diagram SDW-550		Designed PSJ	Drawn OBE	Sheet 1
		Checked BJO/	Date 081103	of 4
		Component list no. 5003-2590-B-01		PCB no. 2010-2985
		Drawing no. 5003-2590-C		

Note no.	Notification description	No.	According to order	Date	Sign

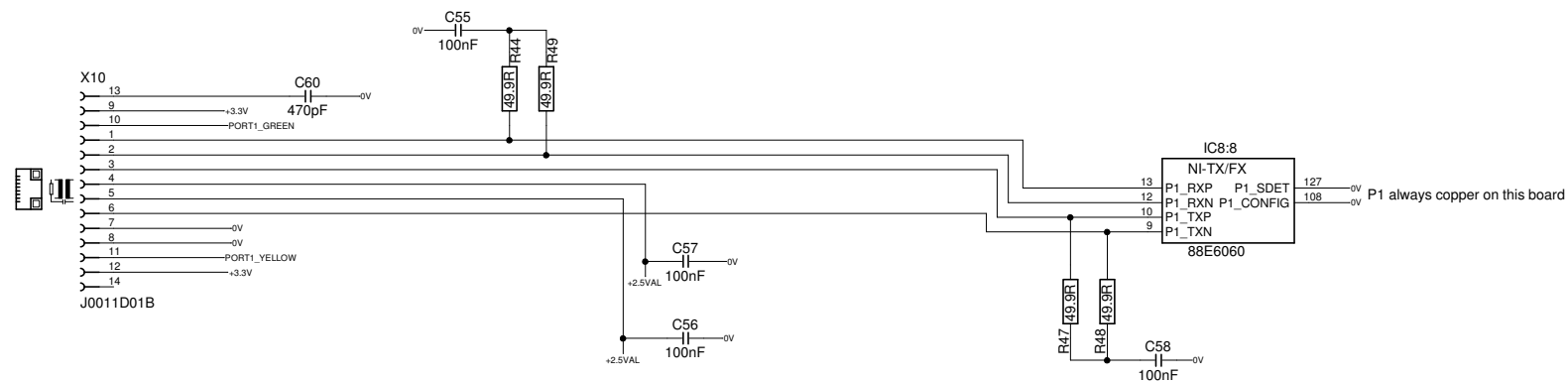
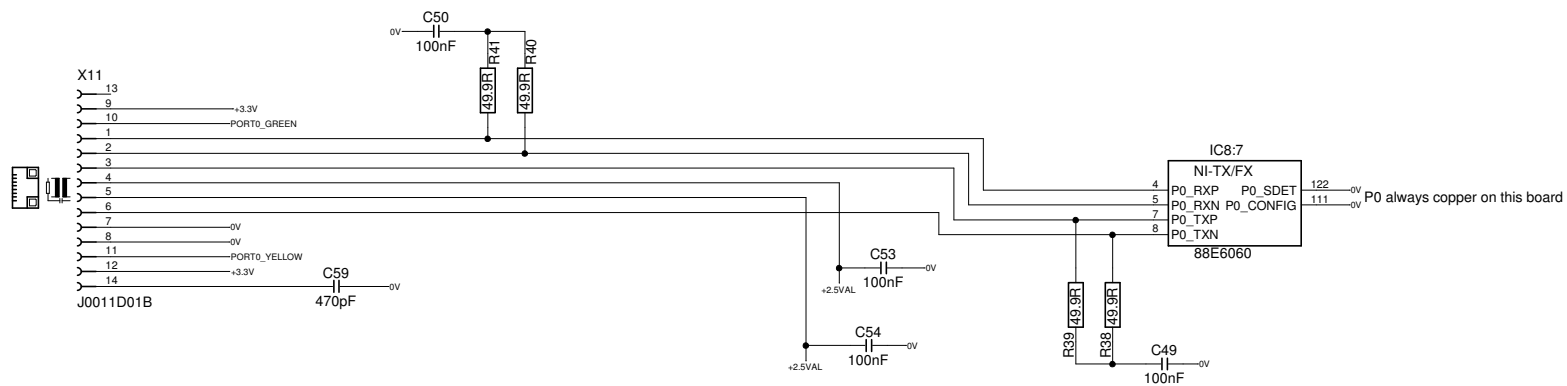


A

B

C

D



A

B

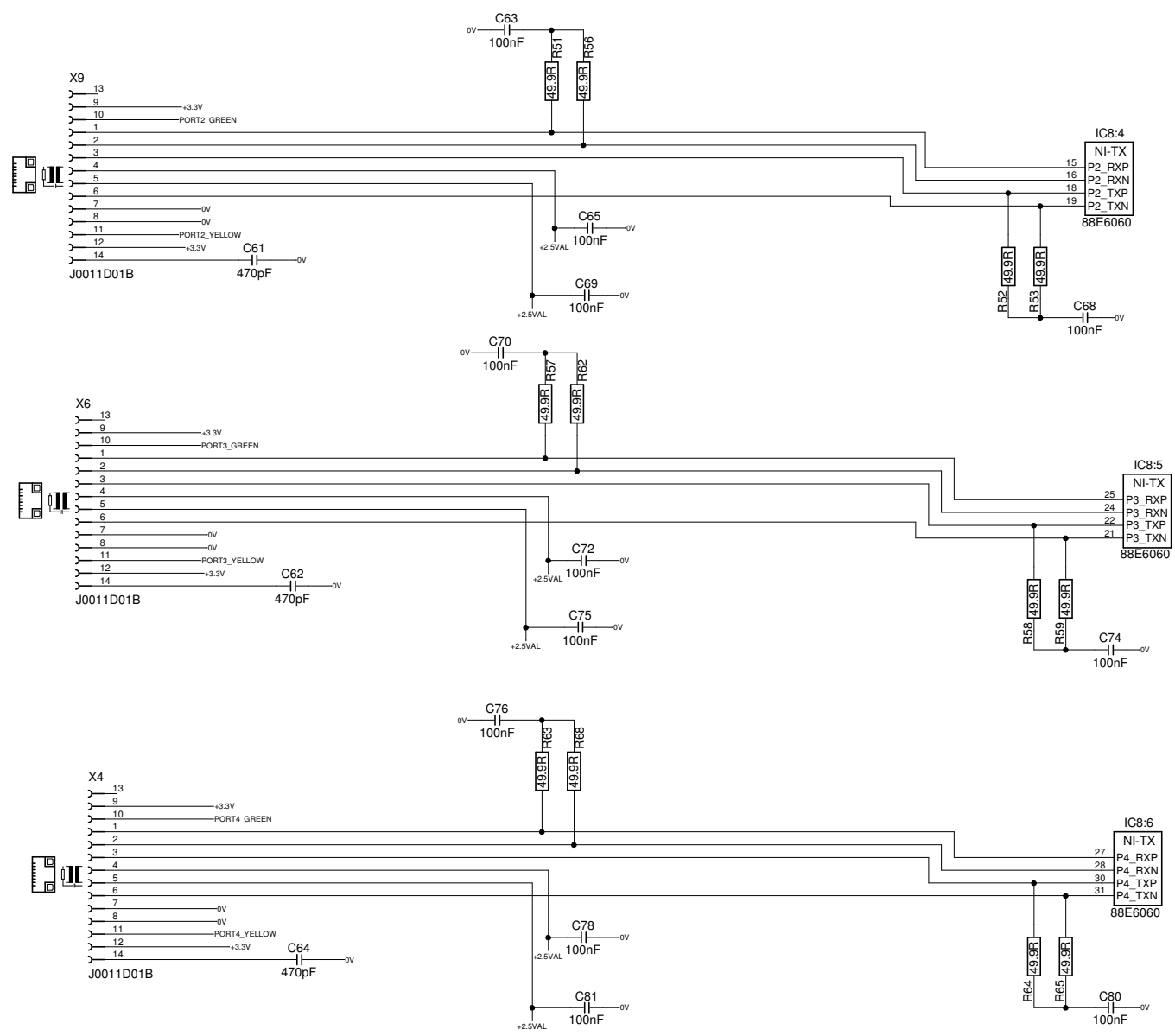
C

D

Note no.	Notification description	No.	According to order	Date	Sign



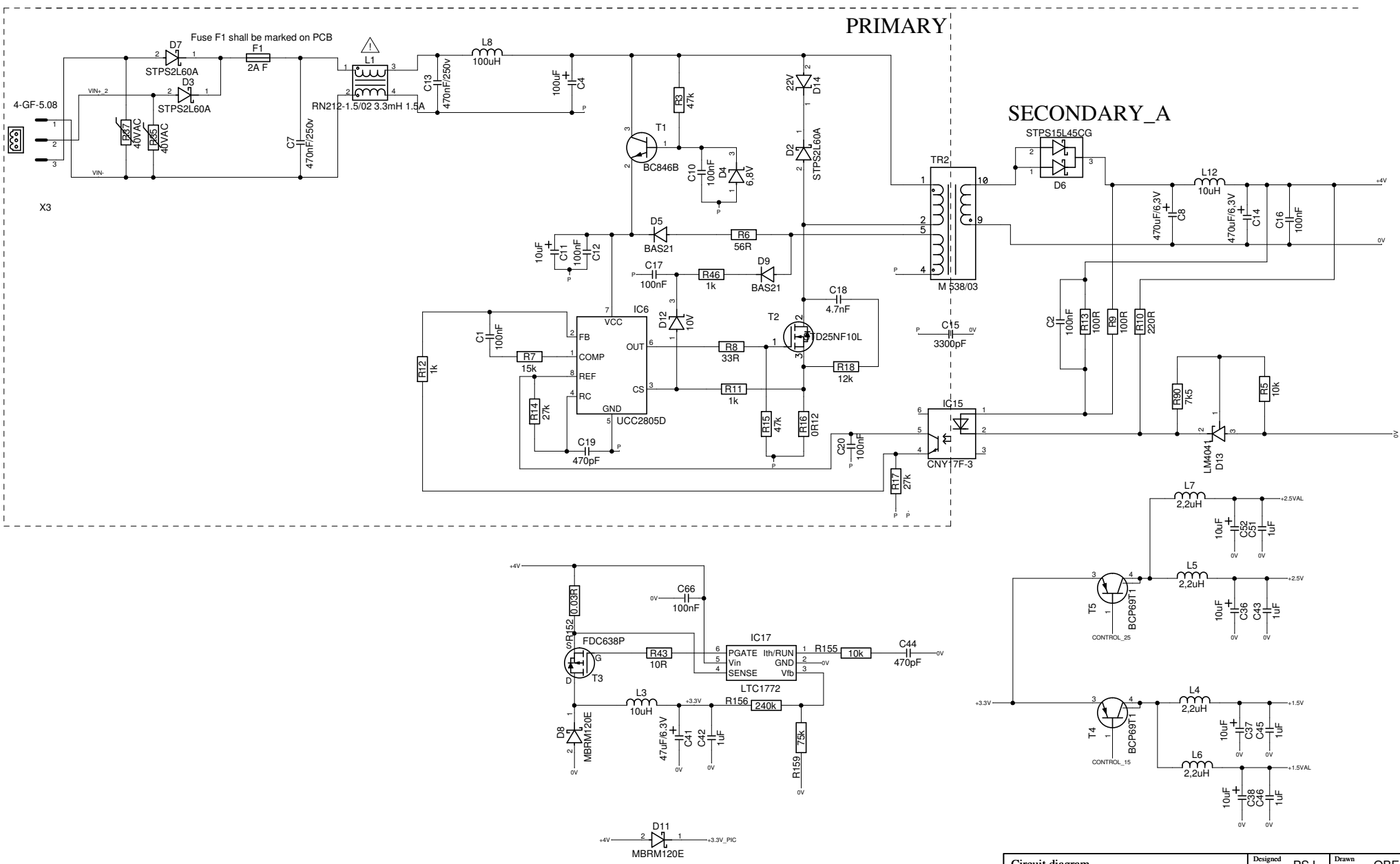
Circuit diagram SDW-550		Designed PSJ	Drawn OBE	Sheet 2
		Checked BJO/	Date 081103	of 4
		Component list no. 5003-2590-B-01	PCB no. 2010-2985	
		Drawing no. 5003-2590-C		



Note no.	Notification description	No.	According to order	Date	Sign



Circuit diagram		Designed	PSJ	Drawn	OBE	Sheet	3
SDW-550		Checked	BJO/	Date	081103	of	4
		Component list no.	5003-2590-B-01		PCB no.	2010-2985	
		Drawing no.	5003-2590-C				



Note no.	Notification description	No.	According to order	Date	Sign



Circuit diagram
SDW-550

Designed	PSJ	Drawn	OBE	Sheet	4
Checked	BJO/	Date	081103	of	4
Component list no.		PCB no.			
5003-2590-B-01		2010-2985			
Drawing no. 5003-2590-C					

Attachment 6

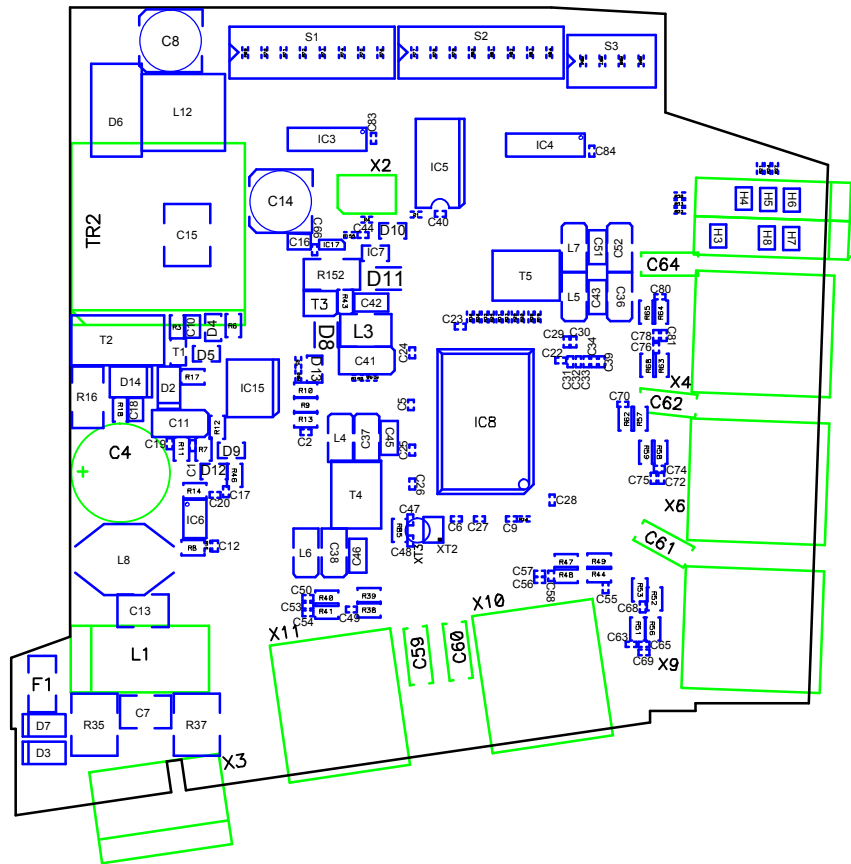
Parts list

Quantity	RefDes	Part Number	Description
1	C4	1037-0650	Capacitor 100uF/100V 2M
5	C59,C60,C61,C62, C64	1044-6001	Capacitor 470pF 3000V
1	TR2	1057-1874	Transformer DC/DC 10W 1uH
1	L1	1057-4029	Current-compensated choke RN212-1.5/02 3.3mH 1.5A
5	X10, X11, X4, X6, X9	1200-4663	RJ45, 8/8, angle, dwn, led, mag, rc, S
1	X2	1200-6003	PIN HEADER 2x3 2.54
2	H1, H2	1212-0767	4-pos Lightpipe MDW-box
6	R21, R22, R24, R27, R30, R33	1500-0330	Resistor, 330R, 0.063W, 1%, (0402)
10	R19, R20, R23, R25, R26, R28, R29, R31, R32, R36	1500-0470	Resistor, 470R, 0.063W, 1%, (0402)
1	R34	1500-1200	Resistor, 2k, 0.063W, 1%, (0402)
1	R90	1500-1750	Resistor, 7k5, 0.063W, 1%, (0402)
3	R1, R155, R5	1500-2100	Resistor, 10k, 0.063W, 1%, (0402)
21	R15, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R86, R87, R88, R89	1500-2470	Resistor, 47k, 0.063W, 1%, (0402)
1	R159	1500-2750	Resistor, 75k, 0.063W, 1%, (0402)
1	R156	1500-3240	Resistor, 240k, 0.063W, 1%, (0402)
2	R13, R9	1502-0100	Resistor 100R 1/8W 1% (0805)
1	R6	1502-9560	Resistor 56R 1/8W 1% (0805)
1	R10	1502-0220	Resistor 220R 1/8W 1% (0805)
3	R11, R12, R46	1502-1100	Resistor 1k 1/8W 1% (0805)
1	R18	1502-2120	Resistor 12k 1/8W 1% (0805)
1	R7	1502-2150	Resistor 15k 1/8W 1% (0805)
2	R14, R17	1502-2270	Resistor 27k 1/8W 1% (0805)
1	R3	1502-2470	Resistor 47k 1/8W 1% (0805)
1	R85	1502-3560	Resistor 560k 1/8W 1% (0805)
1	R43	1502-9100	Resistor 10R 1/8W 1% (0805)
1	R85	1502-9330	Resistor 33R 1/8W 1% (0805)
20	R38, R39, R40, R41, R44, R47, R48, R49, R51, R52, R53, R56, R57, R58,R59, R62, R63, R64, R65, R68	1502-9499	Resistor 49R9 1/8W 1% (0805)
1	R152	1505-7002	Resistor, 0.03ohm, 0.5W, +-1%, (2010)
1	R16	1506-7002	Resistor 0R12 1W 1% (2512)
2	R35, R37	1518-1040	Varistor 40VAC (2220)
4	C36, C37, C38, C52	1533-0610	Capacitor tantal 10uF/6V (3528)
1	C11	1534-2010	Capacitor tantal 10uF/16V (6032)
2	C14, C8	1537-0602	Capacitor 470uF/6,3V (E12)
1	C41	1537-0603	Capacitor, 47uF, 6.3V, 0.1ohm/1A@100k (EIA6032)


Attachment 6

46	C1, C12, C17, C2, C20, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C39, C40, C49, C5, C50, C53, C54, C55, C56, C57, C58, C6, C63, C65, C66, C68, C69, C70, C72, C74, C75, C76, C78, C80, C81, C83, C84, C9	1540-2010	Ceramic capacitor 100nF/16V (0402)
2	C47, C48	1540-5018	Ceramic capacitor 18pF/50V (0402)
2	C19, C44	1540-5470	Ceramic capacitor 470pF/50V (0402)
1	C18	1543-5247	Capacitor 4,7nF/50V (0805)
2	C10, C16	1543-5410	Capacitor 100nF/50V (0805)
5	C42, C43, C45, C46, C51	1544-1100	Capacitor 1uF/16V X7R (1206)
1	C15	1544-9012	Y2 Capacitor 3300pF/250VAC (GHM3000)
2	C13, C7	1546-0002	Cer. Capacitor 470nF/250V (1812)
1	XT2	1548-3054	X-TAL, 25MHz, 12pF, +-100ppm, (XTAL3.2-2.5)
1	D12	1555-0110	Zenerdiode 10V/350mW/5% BZX84 (SOT23)
1	D4	1555-0111	DIOD ZENER 6V8 350MW
1	D14	1555-0704	Transil 22V 600W (SMB)
2	D11, D8	1555-0808	Diode schottky 20V
1	D6	1555-0809	Dual schottky diode STPS15L45CB
3	D2, D3, D7	1555-0810	Schottky diode STPS2L60A
2	D5, D9	1555-0902	Diode signal BAS21
1	D10	1555-0901	Diode BAS16
6	H3, H4, H5, H6, H7, H8	1555-1783	SMD LED green
1	T3	1555-2024	MOSFET -P, -20V/-4,5A/0.05ohm
1	T1	1555-2046	Transistor BC846B
2	T4, T5	1555-2089	Transistor BCP69T1
1	T2	1555-2090	Transistor MOSFET 17A/100V
1	D13	1555-3208	LM4041DIM3
4	L4, L5, L6, L7	1557-4001	Choke coil 2,2uH
1	L3	1557-4051	Choke coil 10uH, 1A
1	L12	1557-4056	Inductor 10uH 3.9A
1	L8	1557-4080	Coil DO3340P-104 100uH
1	F1	1558-2115	Fuse R451002 2A fast
1	IC15	1600-0017	OPTO CNY17F-3 option 7
1	IC17	1601-0325	Switched regulator
1	IC6	1601-0326	Switched controller UCC2805D
1	IC7	1601-0407	Controller reset
1	IC5	1601-1266	uP PIC16F628A-I
1	IC8	1601-1339	6-port Ethernet switch 88E6060
2	IC3, IC4	1603-0165	Shift register 74HC165
1	X3	1700-0153	CCA 2.5/3-G-5.08P26THR
1	S3	1710-1104	DIP-switch 4-pol
2	S1, S2	1710-1108	DIP-switch 8-pol
1		2010-2985	PCB

This document must not be copied or imported to a third party without our written permission in each case. Nor may be used for any unauthorized purpose. Controvention will be prosecuted.



Remark	No	Revision	Date	Sign

 WESTERMO TELEINDUSTRI AB	Description SDW-550	Designed	Drawn	Sheet 1
		MK	MK	
		Checked	Date	081103
Drawing no		5003-2590-H		