



Dokument tittel:	PROSJEKTDOKUMENTASJON / FDV LED VMS RGB		
Dokument nr.:			
Prosjekt:	Hjelviktunnelen		
Prosjekt nr.:	703374 Hjelviktunnelen		
Kunde:	Statens vegvesen	Versjon:	B
Byggherre:		Ant sider:	12

03	09.04.2019	Klargjøring av dokument	BEP	TPK
02	14.06.2018	Lagt til skiltbilde side 8,bitmap side, Consept tegning	RH	HS
01	19.01.2018	Første utgave	HS	
Rev	Dato	Beskrivelse	Skrevet av	Godkjent av

1 Godkjent	☐	Sign.
2 Ikke godkjent	☐	Sign.
Kommentarer: 		

Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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Innholdsfortegnelse

1	OM LED VMS RGB SKILT	3
2	GODKJENNINGER.....	4
3	SKILT	4
3.1	36.52611, 36.52612 Variabel opplysningstavle m/VB.....	5
4	MERKING.....	8
4.1	Serienummer.....	8
5	LED VMS SKILT – FESTEUTSTYR.....	9
6	SERVICE.....	11
6.1	Service/Vedlikehold	11
7	VEDLEGG	12

Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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1 OM LED VMS RGB SKILT

LED VMS RGB modulskilt er utviklet spesielt for krevende norske forhold. Skilt er bygd opp av moduler som er IP66 godkjent. ITS kontroller er plassert i koblingsskap bak på skilt.

TEKNISKE SPESIFIKASJONER

LED, elektronikk

Spredningsvinkel: B1, B2, B3, B4, B5 (EN12966)

Strømtrekket over diodene er lavere enn 60% av diodenes maksimale strømtrekk.

Kapslingsgrad: IP66 Diodetype: Nitchia

Strømforsyning: 230Vac / 24VDC

Godkjenning:

Godkjent i henhold til EN 12966-1:2005 + A1:2009,

(C2L3R2B4/T1, T2, T3/P3),

(C2L3(*) R2B4/T1, T2, T3/P3),

(C2L3(T)R0B4/T1, T2, T3/P3)

Sert. nr. 0402-CPD-SC0543-13

Snøbrøytelast i henhold til EN12899:2007 DSL4

Vindlast i henhold til EN12899:2007 WL5

Tilkobling:

Skruterminal på hurtigplugg eller rekkeklemme i koblingsboks

Materiale og

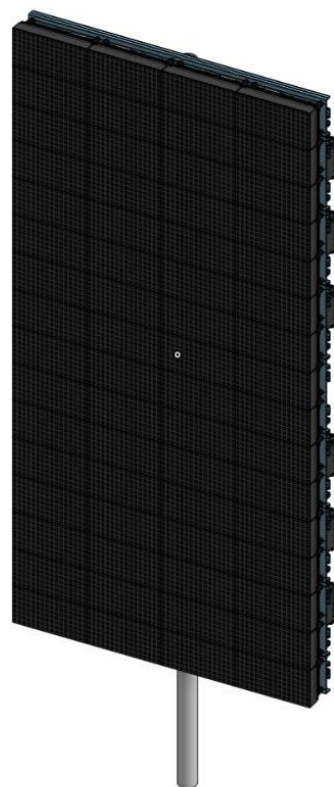
overflatebehandling:

Panel i kromatert, pulverlakkert 6063T6 aluminium.

Skruer og festemateriell er i syrefast stål (A4).

Lagring og frakt:

Under frakt og lagring må skiltet stå oppreist i normalposisjon for drenering og lufting.



Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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2 GODKJENNINGER



Statement of Conformity

Ingress Protection (IP)

Order No.: 343684

Applicant Euroskilt AS
Reservatveien 8
3118 Tønsberg
Norway

Manufacturer Euroskilt AS and Tønsberg
Reservatveien 8
3118 Tønsberg
Norway

Product LED VMS cabinet

Models LED VMS cabinet

Brand Name / Trade mark

Additional information Metal enclosure made of aluminum profile system; dimension 900x900x150mm (height). Hinged door with three rubber seals in profile and two locking devices prepared for padlocks.

IP classification IP56 category 2

The above product is tested according to the following standards
EN 60529 (1991) + A1 (2000)
Degree of protection provided by enclosures (IP Code)
EN 12966 (2014), IPXX category 2
Road vertical signs Variable message traffic signs

IP56
Cat. 2

Nemko confirms that one sample of the mentioned product has been tested and found to be in conformity with the requirement for the degree of protection as specified above.

This statement gives no right to use Nemko's name or certification mark on the products.

Date 2017-12-12

Tested by: Finn-Tore Jørgensen

Approved by: Espen Erikson

Nemko Group
Nemko AS, Gaustadalleen 30, P.O. Box 73 Blindern, 0314 Oslo, Norway
Tel: +47 22 96 03 30 fax: +47 22 96 05 50 email: info@nemko.com
enterprise number: NO2744532

Side 1 av 1

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Statement of Conformity

Ingress Protection (IP)

Order No.: 343684

Applicant Euroskilt AS
Reservatveien 8
3118 Tønsberg
Norway

Manufacturer Euroskilt AS
Reservatveien 8
3118 Tønsberg
Norway

Product LED VMS module

Models LED VMS module

Brand Name / Trade mark

Additional information Insulating enclosure with LED lenses in front. Backside cover with dual rubber seal and electrical connectors for power input and signal input.

IP classification IP66

The above product is tested according to the following standards
EN 60529 (1991) + A1 (2000)
Degree of protection provided by enclosures (IP Code)

IP66

Nemko confirms that one sample of the mentioned product has been tested and found to be in conformity with the requirement for the degree of protection as specified above.

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enterprise number: NO2744532

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Report No. E17198.00

Test Report Electromagnetic Compatibility

Product	Euroskilt Traffic Variable Message Sign, LED RGB
Name and address of the applicant	Euroskilt AS Reservatveien 8 3118 Tønsberg Norway
Name and address of the manufacturer	Euroskilt AS Reservatveien 8 3118 Tønsberg Norway
Model	P20 and P16
Rating	230V AC 50Hz
Trademark	-
Serial number	-
Additional information	CI 1
Tested according to	EN 50293:2012 EN 61000-3-2:2014 EN 61000-3-3:2013
Order number	335624
Tested in period	2017-08-24 and 2017-08-25
Issue date	2017-11-13
Name and address of the testing laboratory	Nemko Group Nemko AS Gaustadalleen 30, P.O. Box 73 Blindern, 0314 Oslo, Norway TEL: +47 22 96 03 30 FAX: +47 22 96 05 50
Use accredited technical staff enrolled under the Norwegian accreditation scheme	
Prepared by [Lam Anh Dung] Approved by [Roger Bergel]	
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Nemko Group
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Nemko Group report: 2017-07



CE NOTIFIED BODY No. 0407

CERTIFICATE OF CONSTANCY OF PERFORMANCE

0407-CPR-1350 (IG-228-2017)

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction products

VARIABLE MESSAGE TRAFFIC SIGNS

Identified as shown overleaf (Annex)

placed on the market by

YAHAM OPTOELECTRONICS CO., LTD.

Bldg A & Bldg D, Yongwei Industrial Park, #118 Yongfu Rd, Fuyong, Bao'an District, Shenzhen, China (PRC)

and produced in the manufacturing plant

Bldg A & Bldg D, Yongwei Industrial Park, #118 Yongfu Rd, Fuyong, Bao'an District, Shenzhen, China (PRC)

This certificate attests that all provisions concerning the assessment and verification of constancy of performance at system level and the performances described in Annex ZA of the standard

EN 12966-1:2005 + A1:2009

are applied and that

the products fulfil all the prescribed requirements.

This certificate was first issued on 30/10/2017 and will remain valid as long as the harmonised standard remains valid or the manufacturing conditions in the plant or the factory production control itself are not modified significantly.

Revision No. 0

CPD Department Technical Manager
(Dott. Ing. Giuseppe Persano Adorno)

Chief Executive Officer
(Dott. Arch. Sara Lorenza Giordano)

The original of this document consists of an electronic document with a digital signature affixed pursuant to DPR (Presidential Decree) 133/07.

Sheet 1 of 2

ISTITUTO GIORDANO S.p.A. - Via Gioacchino Rossini, 2 - 47814 Bellaria-Igea Marina (RN) - Italia
www.giordano.it - info@giordano.it - PEC: ist-giordano@legalmail.it - tel. +39/0541/343030

Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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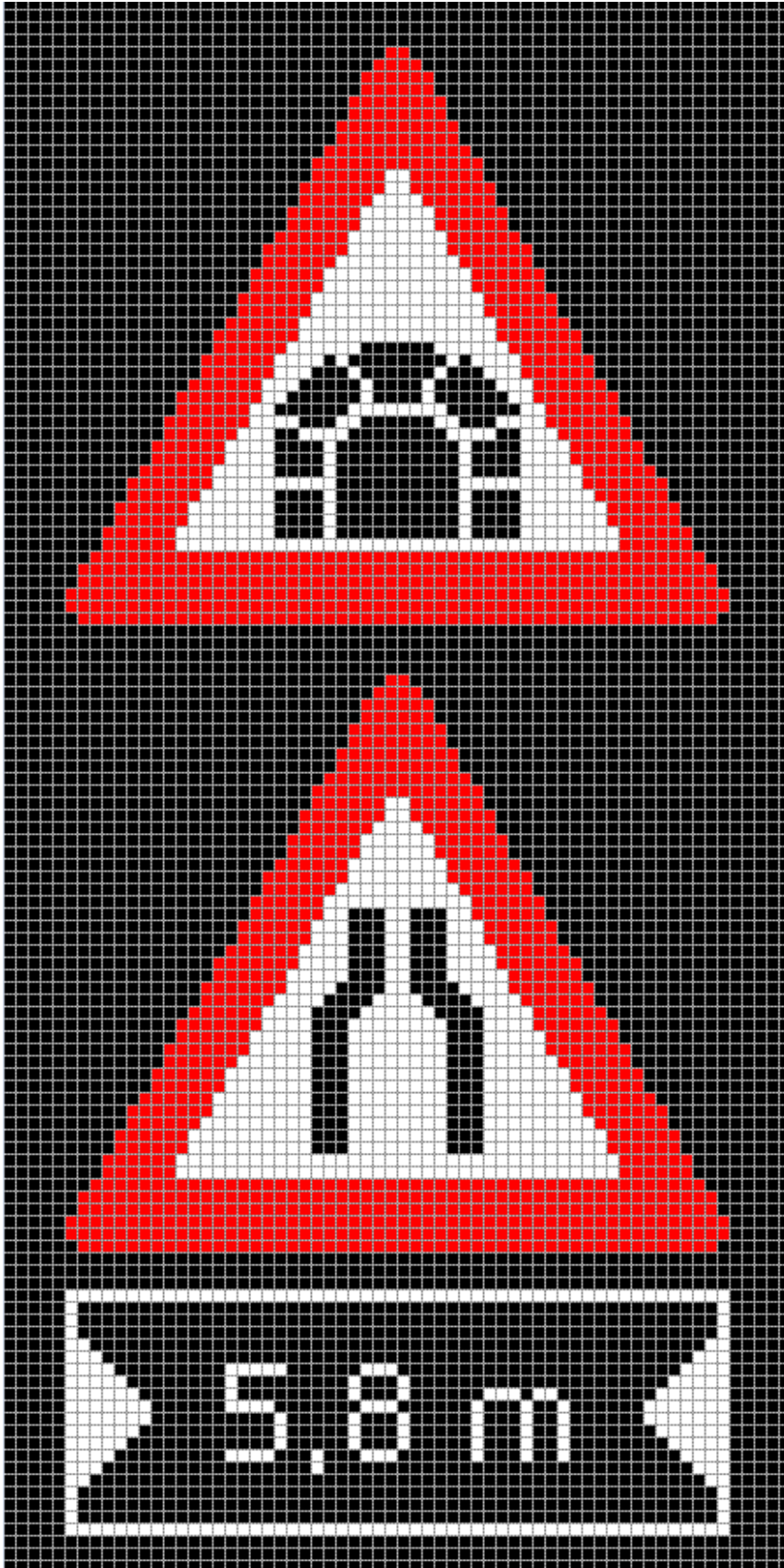
SKILT

3.1 36.52611, 36.52612 Variabel opplysningstavle m/VB

Skiltbilde	Variabel opplysningstavle m/VB	
Produkt nr.	160 160 xxx xx	
Type	LED VMS modul løsning	
Mål skiltansikt (mm)	1024 x 2048 mm	
Mekanisk størrelse (mm)	1024 x 2048 mm	
Fargekode	RAL 9017 glans 3 - 10	
Antall:	2	
Styring	ITS controller	
Feste:	Ikke spesifisert	
Kabelgjennomføring:	M32, M20	
Driftsspenning:	230VAC	
Styreprotokoll	OPC-UA	
Effekt maks:	Est.640 W	
Effekt nominell:	400 W	
Diodeavstand:	P16	
Vekt	Ca. 150 kg	
El. tegninger:	1542805-WD-01	

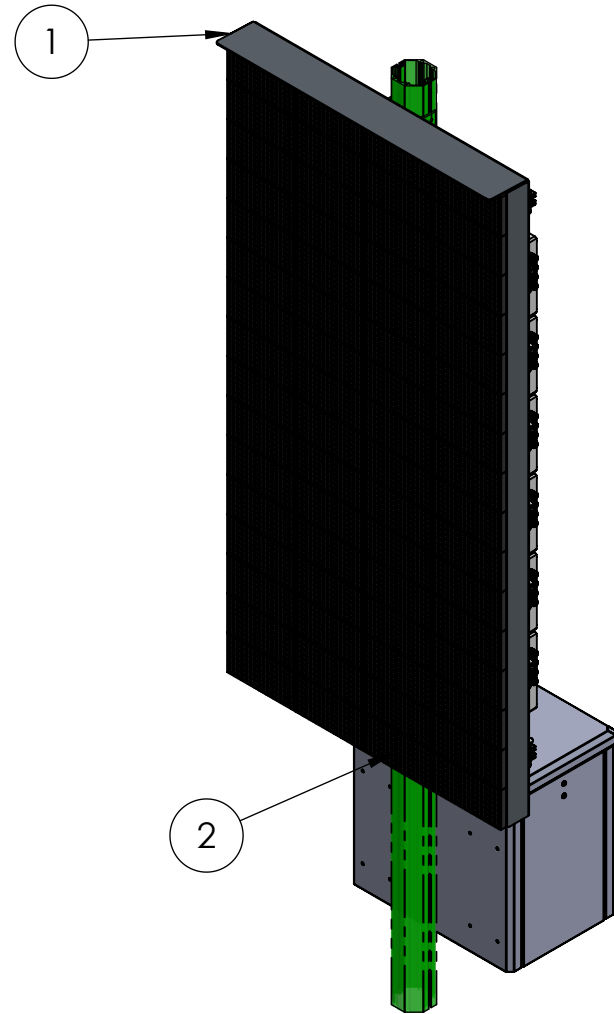
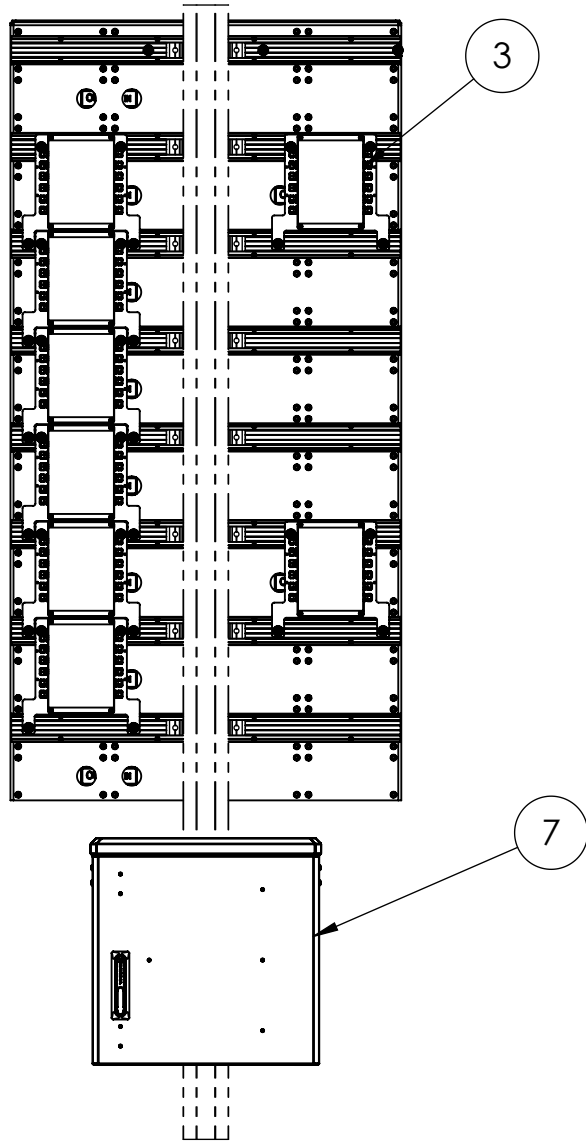
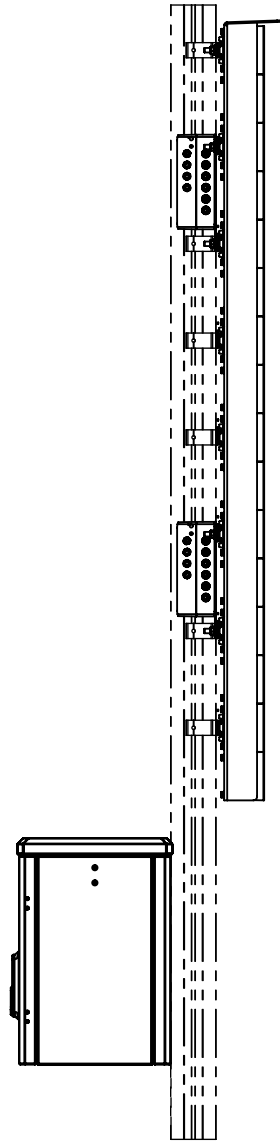
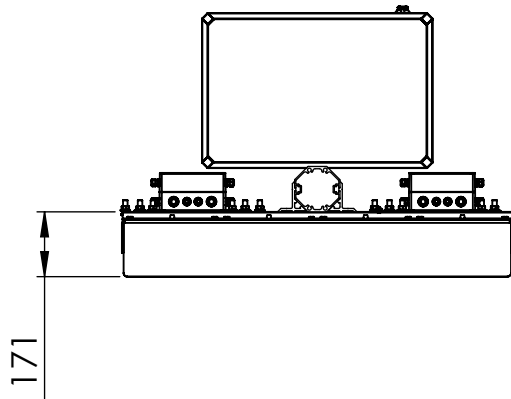
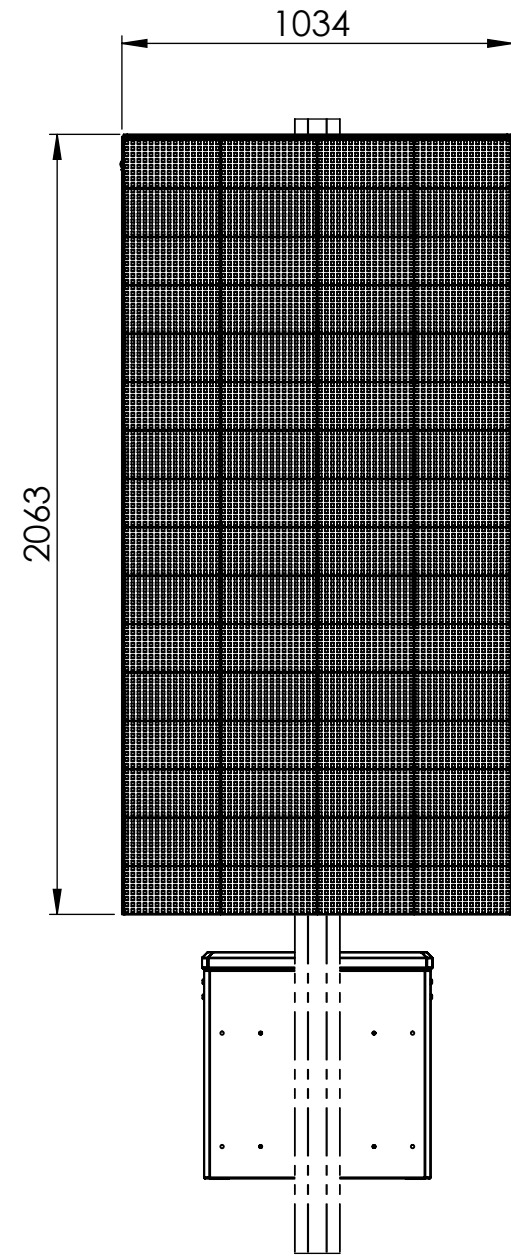
	
Pos 1	Pos 2

Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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Geometry from 3D CAD-model is leading unless otherwise stated on the 2D drawing or in the additional specifications document



Change date	Changed by	Approval date	Approved by	Description of change	Revision
21.01.2019	CBO	21.01.2019	ABL	Removed blink lamp	2
19.12.2018	CBO	08.01.2019	ABL	Added cabinet	1
08.08.2018	CBO	09.08.2018	ABL	ok	0

7	1	H100131	Cabinet					
6	256		Hex nut M8, ISO 4032 A4					
5	3		Hexagon Flange Nut with Gleitmo, ISO 4161 M12 A4-80					
4	3	005-11011	Hammer head bolt M12x35 A4					
3	8	10000364	Controll card unit complete withe box and mountingplate					
2	64	10000310	P16 module					
1	1	10000540	LED VMS module P16 Hjelviktunnelen, back plate assembly					
POS	QTY.	Drawing No.	Description					
Drawn date 03.08.2018	Drawn by CBO	Approval date 09.08.2018	Approved by CBO	General Tolerance NS-ISO 2768-1-M	Projection 	Sheet 1 of 1	Scale 1:20	
Material			Surface treatment		Weight NA kg	Prod. Groupe 073	Format A3	
Title LED VMS module P16 Hjelviktunnelen					Status APPROVED		Drawing no. 10000539	Revision 2
Additional description					Article no.		Project no. 703374	Document Type Assembly

Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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4 MERKING

Skilt er merket med serienummer og QR-kode på en værbestandig etikett



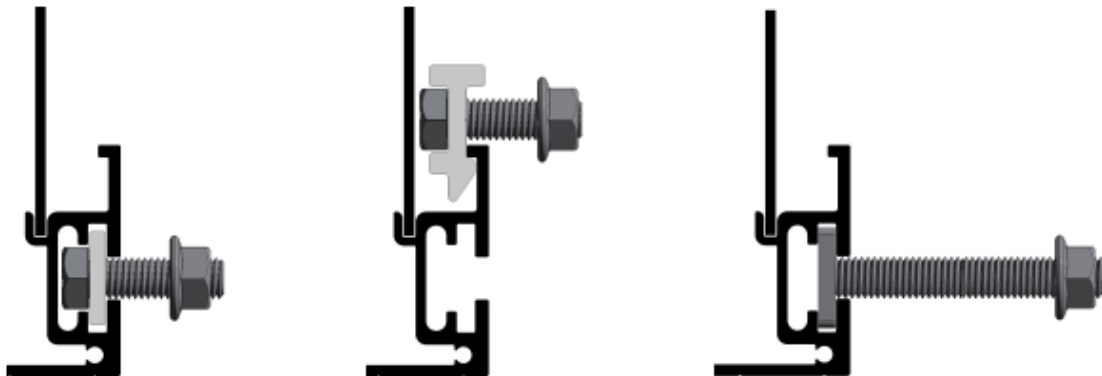
[703374_Hjelviktunnelen_LED_VMS_RGB](#)

4.1 Serienummer

Enhet	Nr	Serienummer	Info
LED RGB opplysningsskilt	1	SPES-2019-023	
LED RGB opplysningsskilt	2	SPES-2019-024	

Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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5 LED VMS SKILT – FESTEUTSTYR



Figur 5-1: M12 Boltfester, T-bolt og hammerboltfeste

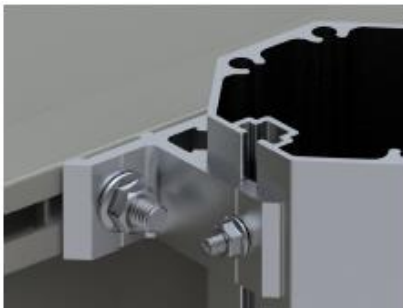
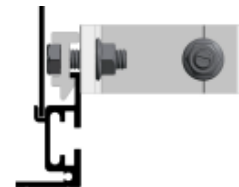
Følgende fester med glideskinne brukes for montering på Norsafe mast:

Varenr: 21190022618 Klammer alu Ø90mm med flatskinne

Varenr: 22330020012 NM120 Skiltefeste m/60mm glideskinne

Varenr: 22330030015 NM150 Skiltefeste m/60mm glideskinne

Varenr: 22330030019 NM190/290 Skiltefeste m/60mm glideskinne



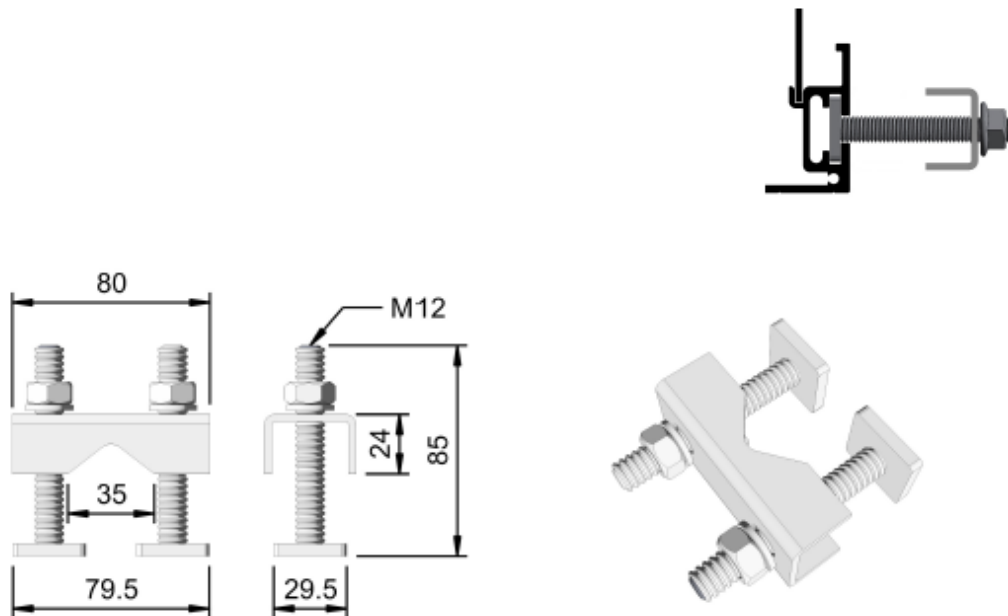
Figur 5-2: Glideskinne

Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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Kamjernfeste i syrefast stål

Brukes til 16 – 35mm kamjern (vertikalt eller horisontalt) og stålmast

Varenr: 16095100520

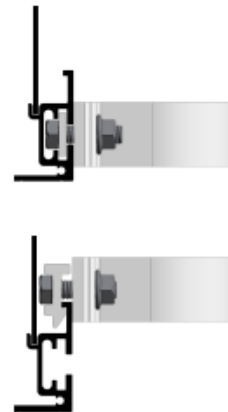
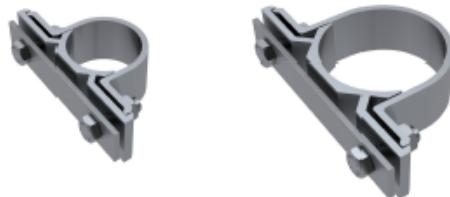


Montering med Ø60 eller Ø90mm rør bak skiltet

Aluminium fester som brukes når skiltet skal monteres på rør samt på Norsafe Mast NM89. Her må man være obs på at rørene normalt blir det svakeste punktet i konstruksjonen. (Det er også mulig å montere skiltet med feste for VD dersom man ikke har feste med glideskinne tilgjengelig) Det kan og leveres varmgalvaniserte fester for montering på andre rør. Følgende fester med glideskinne brukes for montering med rør:

Artikkel nr.: 21190022614 Klammer alum Ø60mm med flattskinne

Artikkel nr.: 21190022618 Klammer alum Ø90mm med flattskinne



Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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6 SERVICE

6.1 Service/Vedlikehold

Vennligst se vedlegg XX «Vaskerutiner RGB» for detaljer.

For å holde frontplater rene må produktene inspiseres årlig og rengjøres for smuss.
For å unngå vanninntrenging med påfølgende kondensoppbygging og skader på elektronikk må det utføres kontroll av pakninger jevnlig.
Påse at dreneringshull og luftenipler er åpne og at varmeelement fungerer.

Produktene tåler Statens Vegvesens normale vaskeprosedyrer.
Det anbefales ikke å vaske skiltene fra undersiden/i underkant på grunn av luftenipler og dreneringshull.

Ved bytte av styrekort må «Jumpere» settes lik utbyttet enhet (setter tilbakemeldinger og styrker).
Dette må settes før skiltet kobles til spenning. Se vedlagte skjemategninger for hvilke typer «jumpere» som er benyttet.

NB! Ved vedlikehold og bytte av enhet må enheten være strømløs og spenningsprøving må være foretatt.

Ved behov for service:

Euroskilt AS
Reservatveien 8
3118 Tønsberg



service@euroskilt.no

0 60 80

Prosjekt:	Hjelviktunnelen	Prosjektnr.	703374	Dato:	09.04.2019	Rev.	03
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7 VEDLEGG

Vedlegg nr.	Beskrivelse	Rev.
1	1542805-GA-01	01
2	1542805-WD-01	01
3	1542805-SD-01	01
4	1542805-GA-02	01
5	1542805-WD-02	01
6	1542805-SD-02	01
7	Samsvarserklæring	-
8	Vaskerutine for Euroskilt RGB skilter	-

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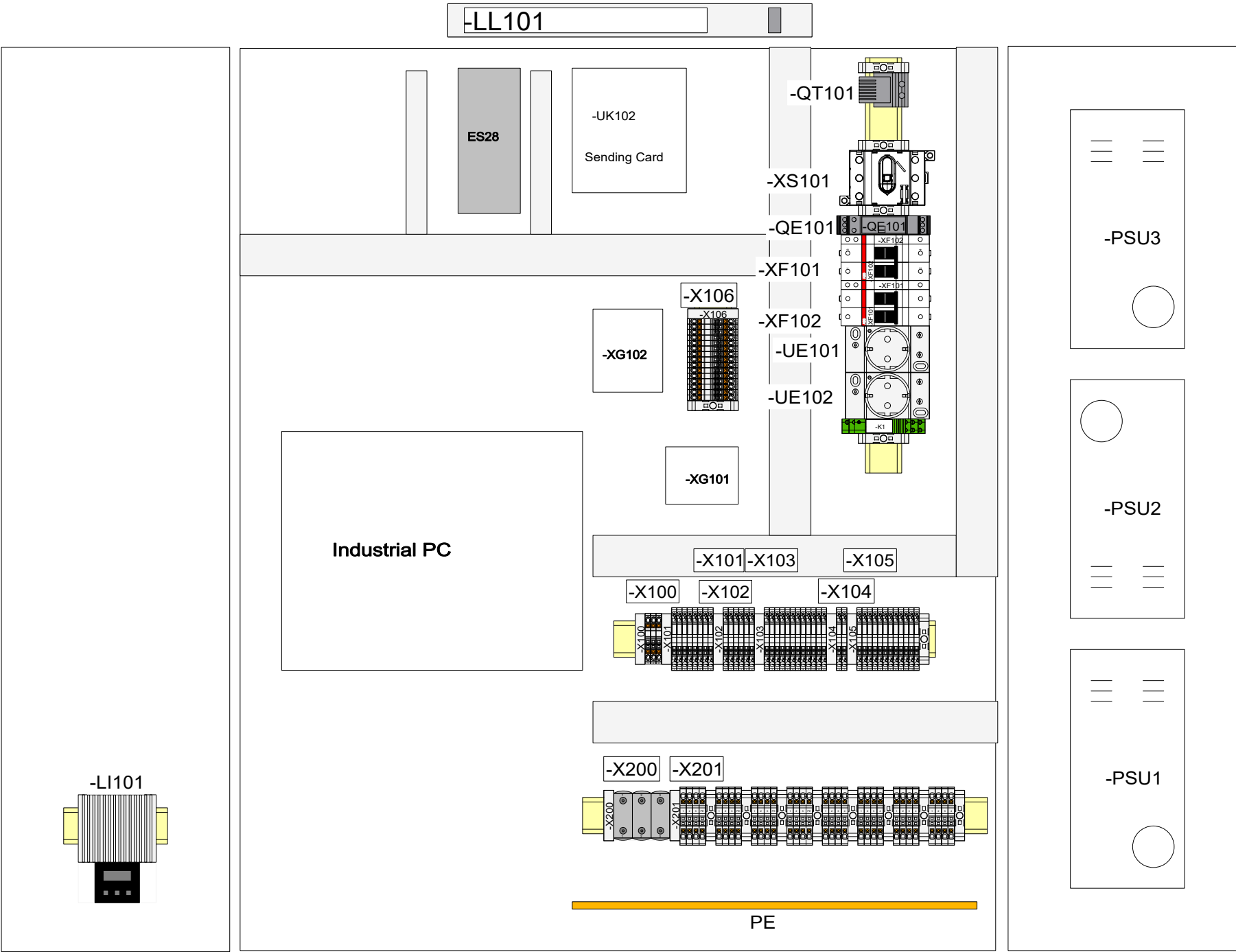
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7

8

Change date	Changed by	Approval date	Approved by	Description of change	Revision
180319	MLa			AS built	01

A



B

C

D

E

F

G

Drawn date 180319	Drawn by MLa	Approval date	Approved by	General Tolerance NS-ISO 2768-1-M	Projection 	Sheet 1	Scale				
Material			Surface treatment		Weight	Prod. Group	Format A3				
Title Hjelvikttunnelen-1					Status		Drawing no. 1542805-GA-01		Revision 01		
Additional description Euroskilt					Article no.			Project no.		Document Type GA_skap1	

H

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8

Change date	Changed by	Approval date	Approved by	Description of change	Revision
180319	MLa			AS built	01

Component list

Qty	Description	Supplier	Real manufacturer part number	Item
1	Hovedbryter	ABB	OT63F3	XS101
1	Automat S202M-C6	ABB	2CDS272001R0064	XF101
1	Automat S202M-C10	ABB	2CDS272001R0104	XF102
2	Hjelpekontakt S2C-H6R	ABB	2CDS200912R0001	XF101, XF102
1	Surge Protector PLT-SEC-T3-230-P	Phoenix	2905229	QE101
1	EMI Filter Trans 230VAC	Yaham	B3LB-6A	XG101
1	Power Supply 24V DC /5V DC	MeanWell	RD35-B	XG102
3	Power Supply 5V DC	MeanWell	RSP 320-5	PSU1-3
1	ES28E w/ES28 AdapterCard RS-232	Flåtnes/Giotto	101600225	XZ101
8	Receiving Card OT16/OT20	Yaham	YHT-SYS-FS-42	XZ102
1	Sending Card P16/P20	Yaham	YHT-SYS-STM32-05	UK102
8	Pixel Detection Card OT16/OT20	Yaham	YHT-HUBTEST-07	XZ107
64	LED Martix P16 Nichia Row x Column 12x13 (WxH)	Yaham	YHT-OT16-1R1G1B-A132-1S3-02-M	XZ108, XZ109, XZ110...XZ172
1	Photo Sensitive Probe	Yaham	YHT-DLS-01	XP101
1	Relay - 1CO	Releco		K1
2	Stikkontakt PC for DIN skinne 16A PNJ	Schneider	A9A15310	UE101, UE102
1	Termostat 15/5°C	OEM	01160.0-00	QT101
1	45 Watt varmeelement	OEM	14003.0-00	LI101
3	Overgangsklemme 1,5-50mm², 1xAl/Cu - OTL	Kontram	VC05-0013	X200
32	Terminal 4mm²	Phoenix	PT4	X201
18	Terminal 2,5mm²	Phoenix	PT2,5	X100, X106
40	Terminal 2.5mm²	Phoenix	ST 2,5	X101, X102, X103, X104, X105
1	LED025 Skapbelysning 230V AC LED	STEGO	02540.0-01	LL101
1	Industrial PC			

Drawn date	Drawn by	Approval date	Approved by	General Tolerance	Projection	Sheet	Scale		
180319	MLa			NS-ISO 2768-1-M		2			
Material		Surface treatment		Weight	Prod. Groups	Format			
Title						Status	Drawing no.		Revision
Hjelviktunnelen-1							1542805-GA-01		01
Additional description						Article no.		Project no.	Document Type
Euroskilt									GA_skap1

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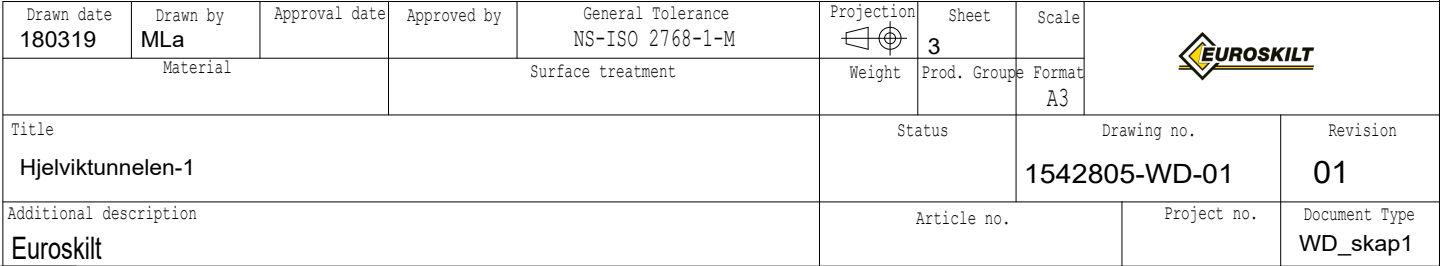
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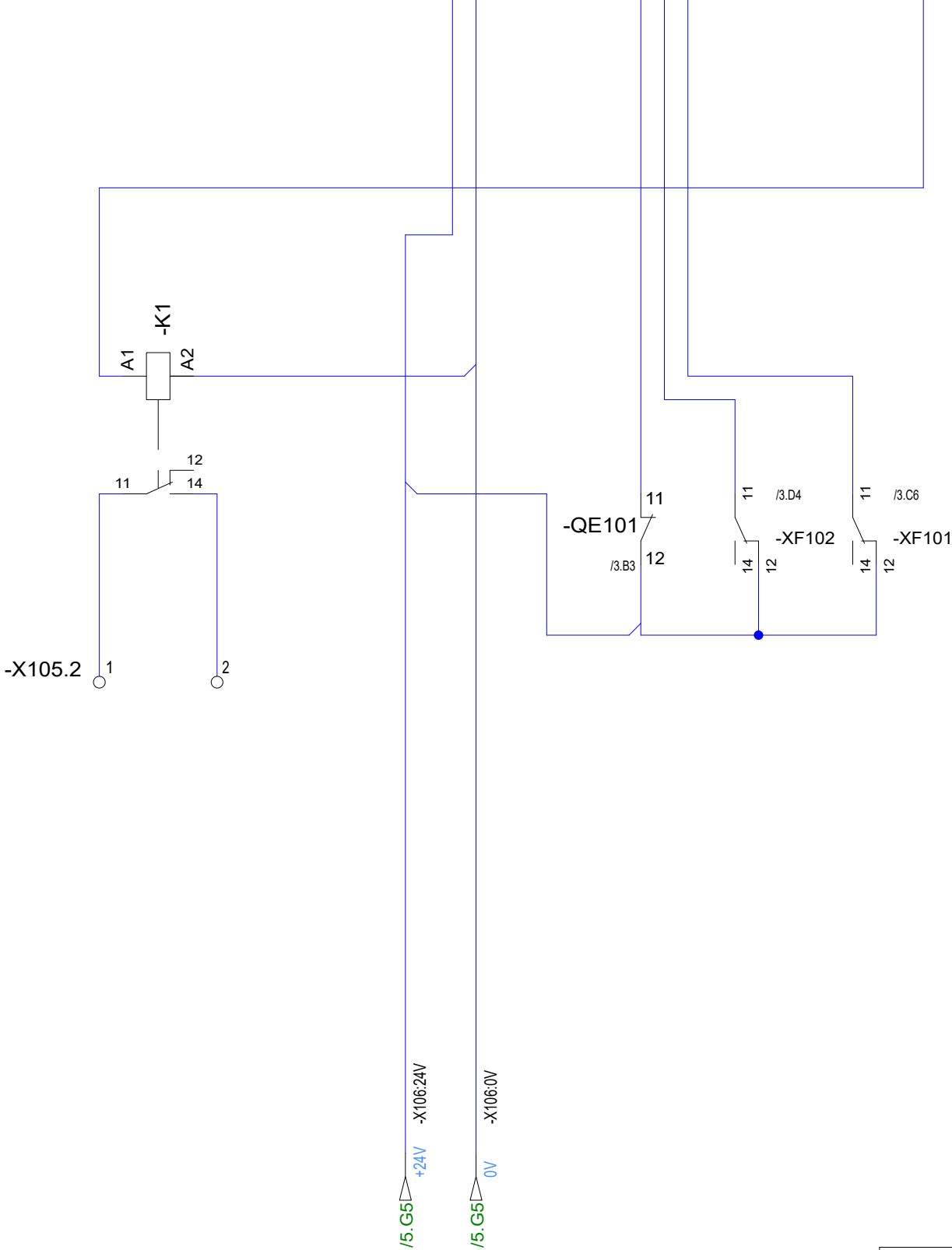
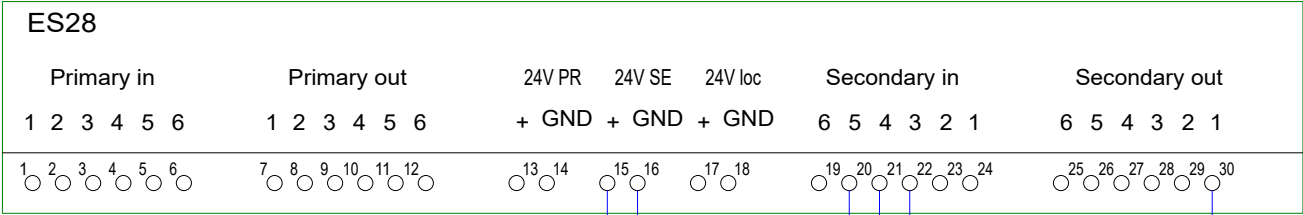
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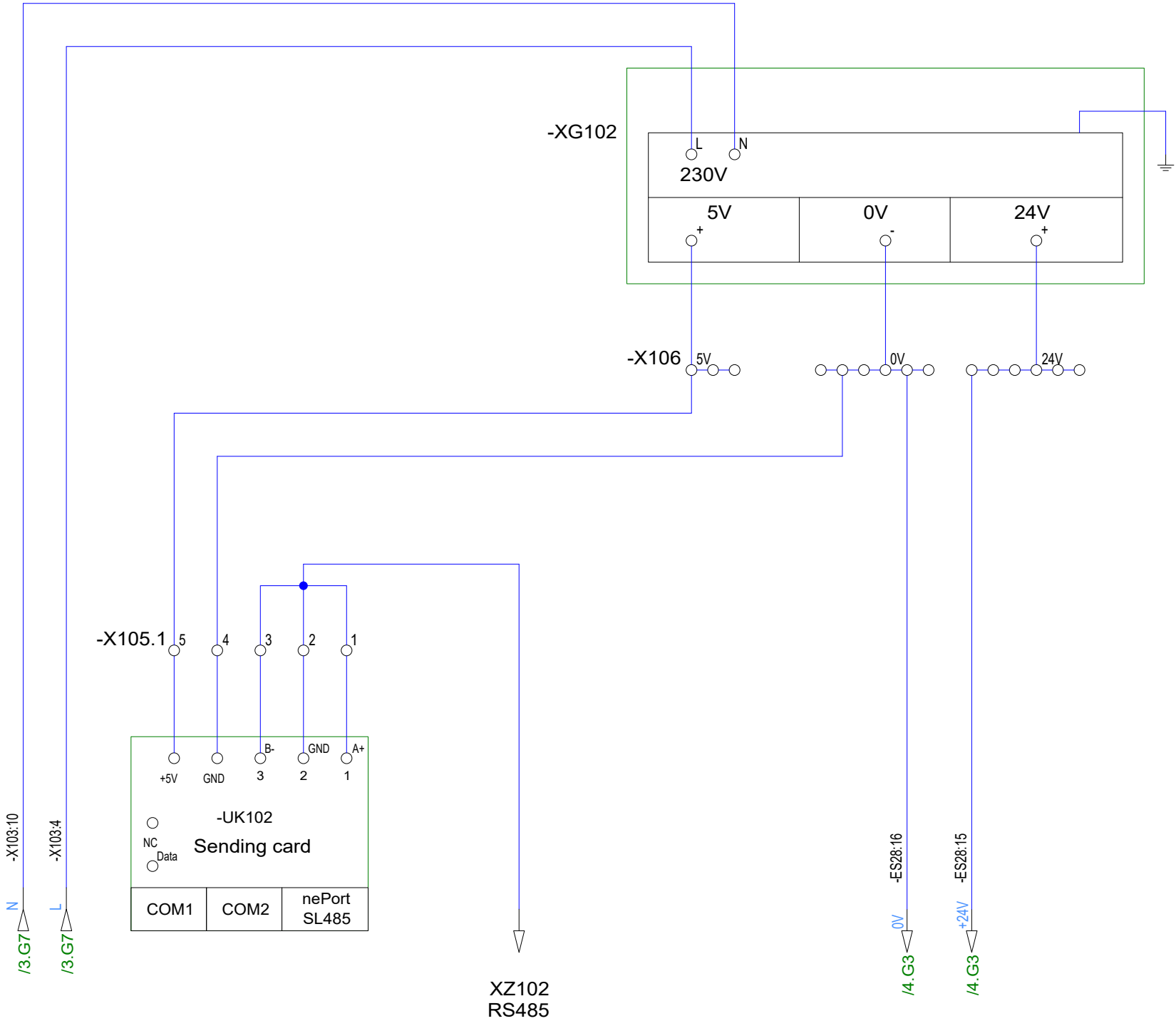


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180319	MLa			AS built	01

Drawn date 180319	Drawn by MLa	Approval date	Approved by	General Tolerance NS-ISO 2768-1-M	Projection 	Sheet 4	Scale				
Material			Surface treatment		Weight	Prod. Group	Format A3				
Title Hjelvikttunnelen-1					Status		Drawing no. 1542805-WD-01		Revision 01		
Additional description Euroskilt					Article no.			Project no.		Document Type WD_skap1	

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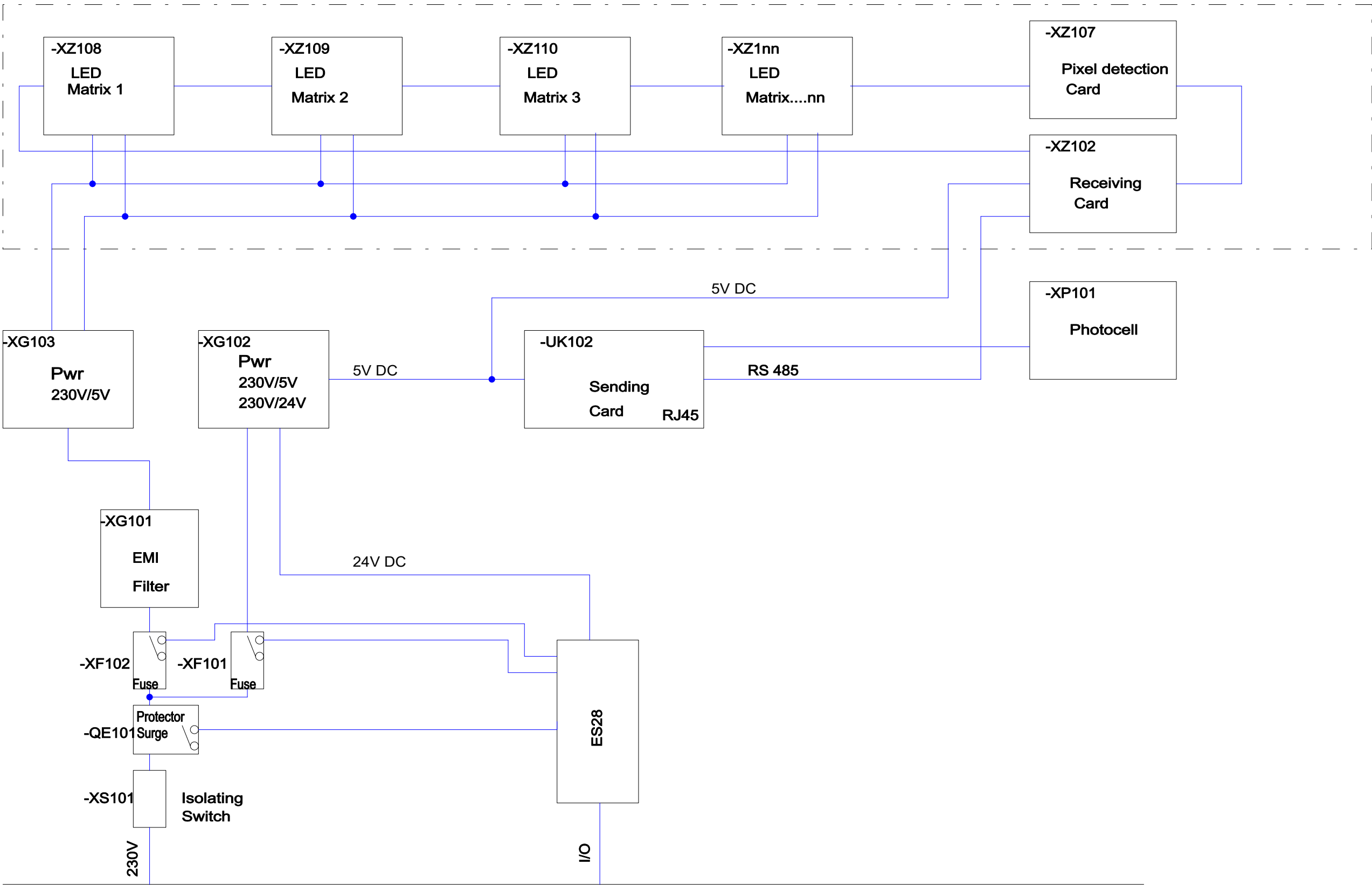
Change date	Changed by	Approval date	Approved by	Description of change	Revision
180319	MLa			AS built	01

Drawn date 180319	Drawn by MLa	Approval date	Approved by	General Tolerance NS-ISO 2768-1-M	Projection 	Sheet 5	Scale				
Material			Surface treatment		Weight	Prod. Groups	Format A3				
Title Hjelviktunnelen-1					Status		Drawing no. 1542805-WD-01		Revision 01		
Additional description Euroskilt					Article no.			Project no.		Document Type WD_skap1	

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Sign - LED Matrix Row x n



Change date	Changed by	Approval date	Approved by	Description of change	Revision
180319	MLa			AS built	01

Drawn date 180319	Drawn by MLa	Approval date	Approved by	General Tolerance NS-ISO 2768-1-M	Projection 	Sheet 6	Scale				
Material			Surface treatment		Weight	Prod. Groups	Format A3				
Title Hjelviktunnelen-1					Status		Drawing no. 1542805-SD-01		Revision 01		
Additional description Euroskilt					Article no.			Project no.		Document Type Blokk_skap1	

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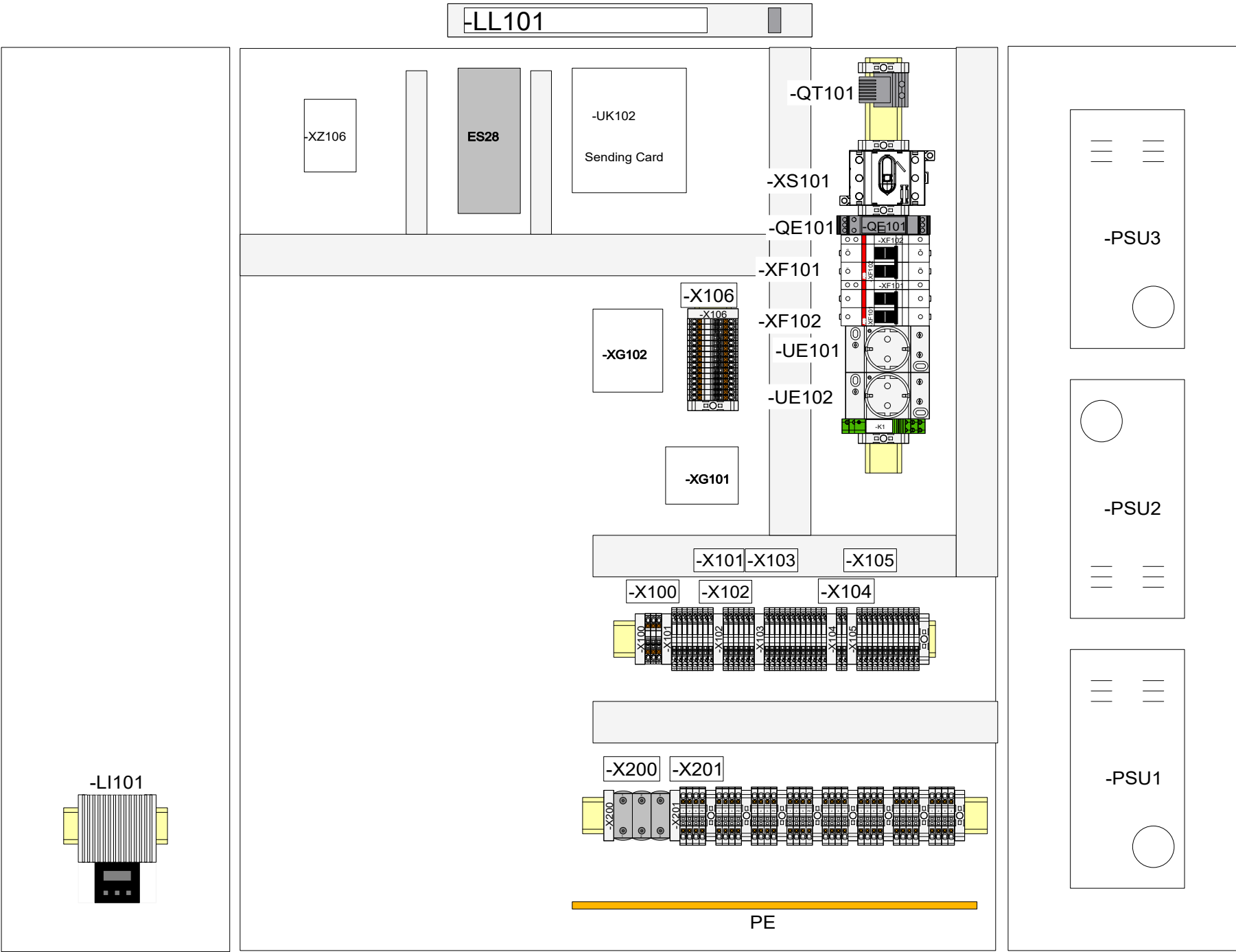
6

7

8

Change date	Changed by	Approval date	Approved by	Description of change	Revision
180319	MLa			AS built	01

A



B

C

D

E

F

G

Drawn date 180319	Drawn by MLa	Approval date	Approved by	General Tolerance NS-ISO 2768-1-M	Projection 	Sheet 1	Scale		
Material			Surface treatment		Weight	Prod. Groups	Format A3		
Title Hjelvikttunnelen-2					Status		Drawing no. 1542805-GA-02		Revision 01
Additional description Euroskilt					Article no.			Project no.	Document Type GA_skap2

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Change date	Changed by	Approval date	Approved by	Description of change	Revision
180319	MLa			AS built	01

Component list

Qty	Description	Supplier	Real manufacturer part number	Item
1	Hovedbryter	ABB	OT63F3	XS101
1	Automat S202M-C6	ABB	2CDS272001R0064	XF101
1	Automat S202M-C10	ABB	2CDS272001R0104	XF102
2	Hjelpekontakt S2C-H6R	ABB	2CDS200912R0001	XF101, XF102
1	Surge Protector PLT-SEC-T3-230-P	Phoenix	2905229	QE101
1	EMI Filter Trans 230VAC	Yaham	B3LB-6A	XG101
1	Power Supply 24V DC /5V DC	MeanWell	RD35-B	XG102
3	Power Supply 5V DC	MeanWell	RSP 320-5	PSU1-3
1	ES28E w/ES28 AdapterCard RS-232	Flåtnes/Giotto	101600225	XZ101
8	Receiving Card OT16/OT20	Yaham	YHT-SYS-FS-42	XZ102
1	Sending Card P16/P20	Yaham	YHT-SYS-STM32-05	UK102
8	Pixel Detection Card OT16/OT20	Yaham	YHT-HUBTEST-07	XZ107
64	LED Martix P16 Nichia Row x Column 12x13 (WxH)	Yaham	YHT-OT16-1R1G1B-A132-1S3-02-M	XZ108, XZ109, XZ110...XZ172
1	Photo Sensitive Probe	Yaham	YHT-DLS-01	XP101
1	Relay - 1CO	Releco		K1
2	Stikkontakt PC for DIN skinne 16A PNJ	Schneider	A9A15310	UE101, UE102
1	Termostat 15/5°C	OEM	01160.0-00	QT101
1	45 Watt varmeelement	OEM	14003.0-00	LI101
3	Overgangsklemme 1,5-50mm², 1xAl/Cu - OTL	Kontram	VC05-0013	X200
32	Terminal 4mm²	Phoenix	PT4	X201
18	Terminal 2,5mm²	Phoenix	PT2,5	X100, X106
40	Terminal 2.5mm²	Phoenix	ST 2,5	X101, X102, X103, X104, X105
1	LED025 Skapbelysning 230V AC LED	STEGO	02540.0-01	LL101
1	ITS Controller	Euroskilt	RPI-MODBP	XZ106

Drawn date	Drawn by	Approval date	Approved by	General Tolerance	Projection	Sheet	Scale		
180319	MLa			NS-ISO 2768-1-M		2			
Material		Surface treatment		Weight	Prod. Groups	Format			
Title					Status		Drawing no.		Revision
Hjelviktunnelen-2							1542805-GA-02		01
Additional description					Article no.			Project no.	Document Type
Euroskilt									GA_skap2

A

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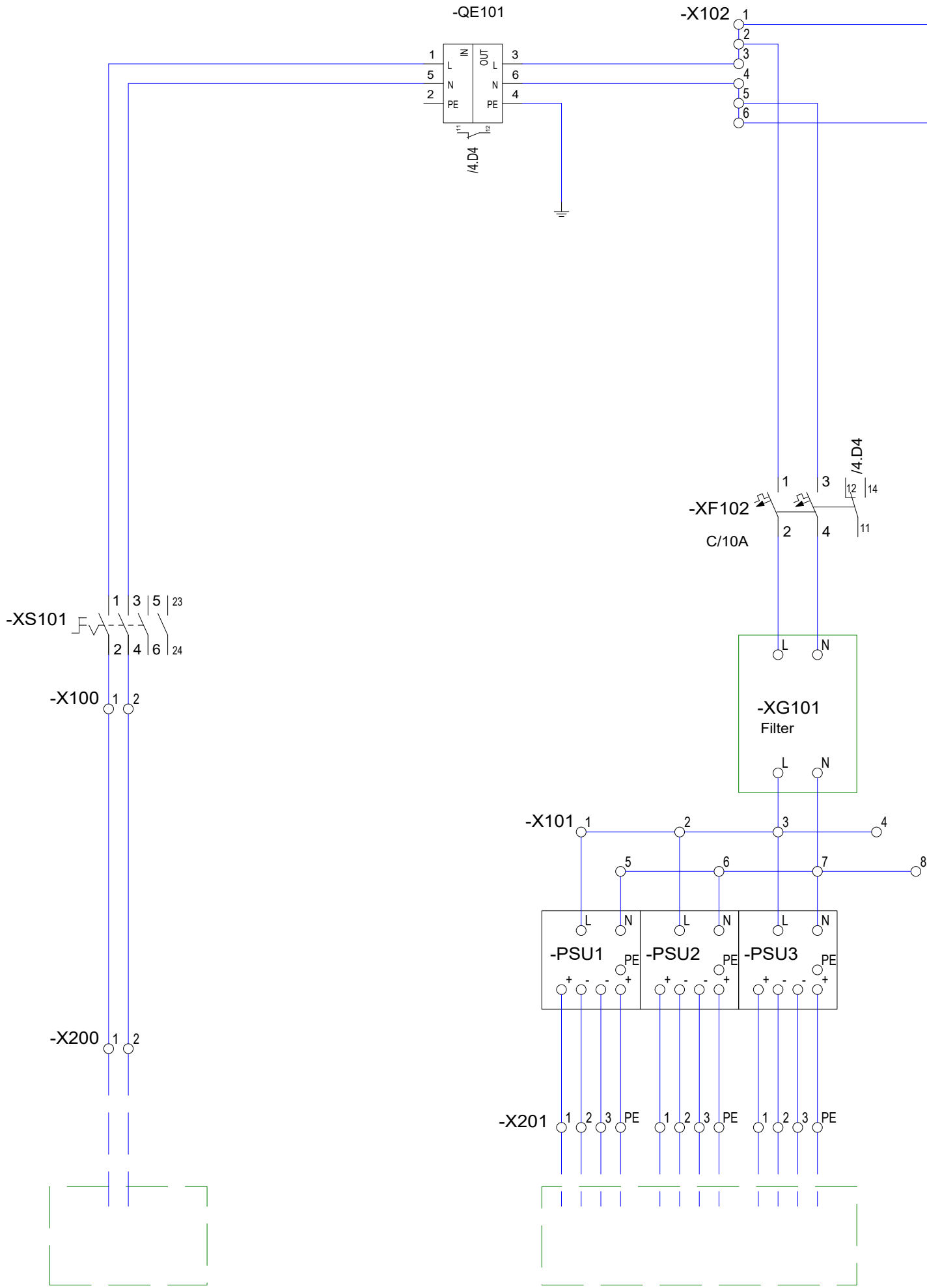
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H

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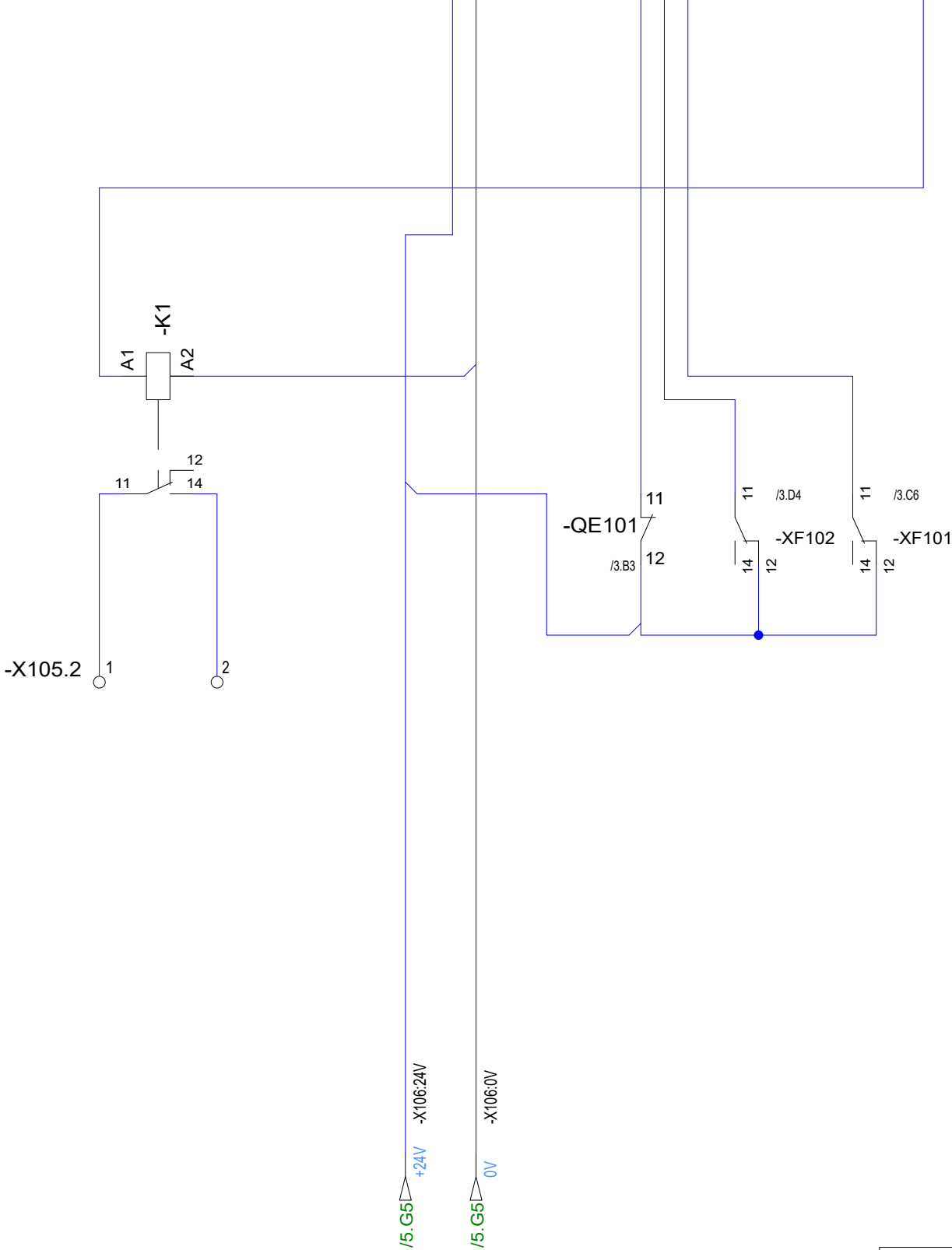
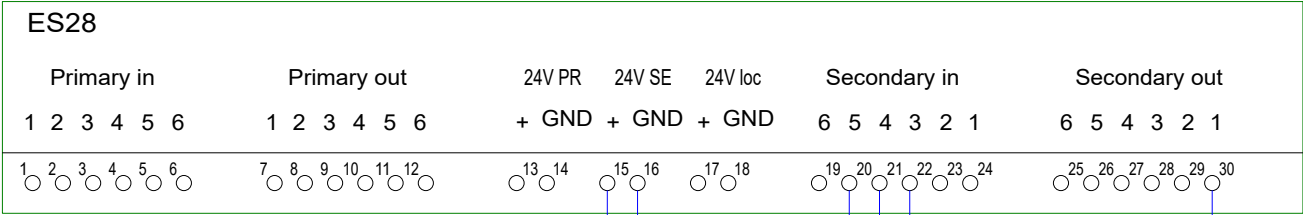


Change date	Changed by	Approval date	Approved by	Description of change	Revision
180319	MLa			AS built	01

Drawn date 180319	Drawn by MLa	Approval date	Approved by	General Tolerance NS-ISO 2768-1-M	Projection 	Sheet 3	Scale				
Material			Surface treatment		Weight	Prod. Groups	Format A3				
Title Hjelviktunnelen-2					Status		Drawing no. 1542805-WD-02		Revision 01		
Additional description Euroskilt					Article no.			Project no.		Document Type WD_skap2	

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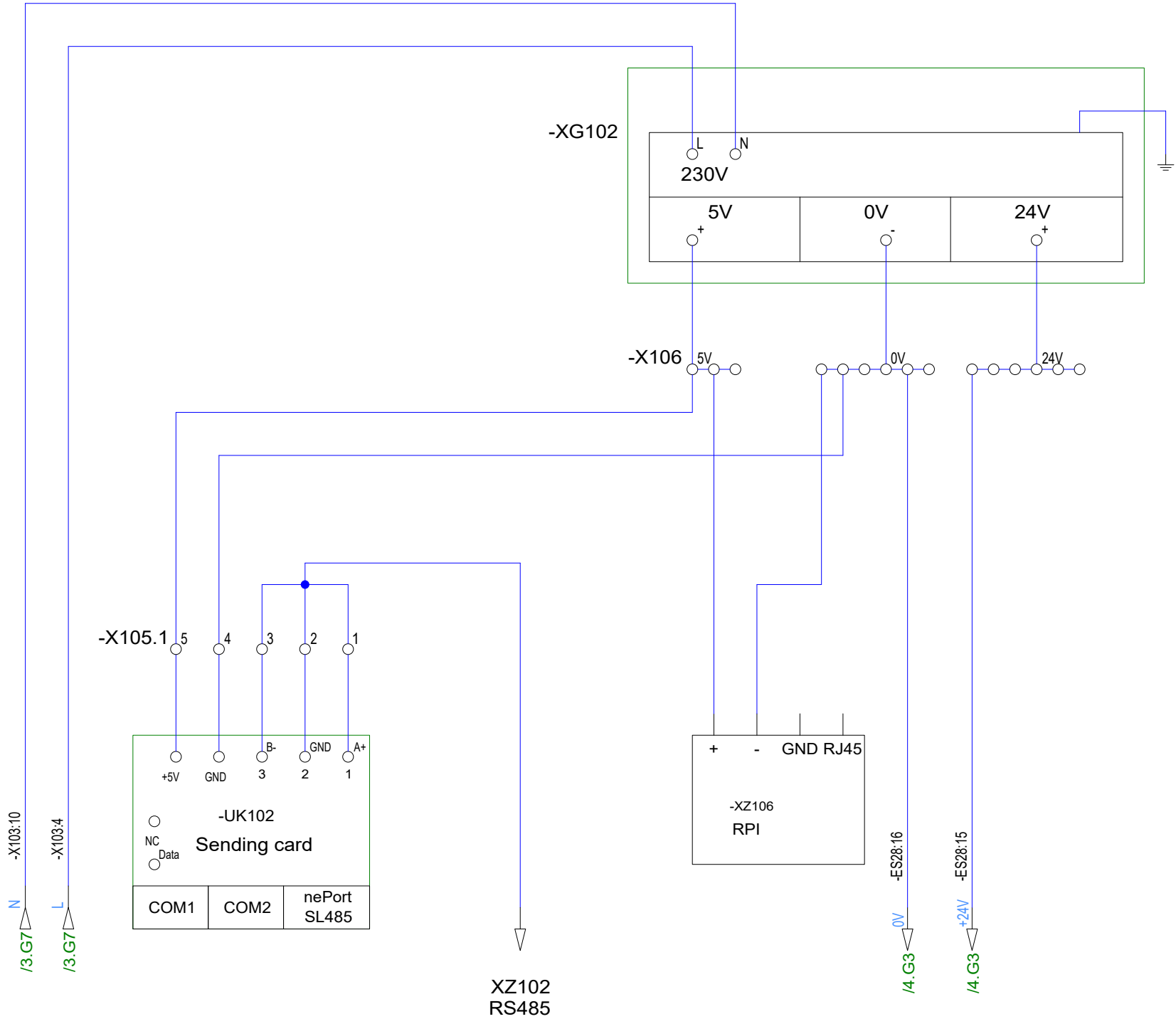


Change date	Changed by	Approval date	Approved by	Description of change	Revision
180319	MLa			AS built	01

Drawn date 180319	Drawn by MLa	Approval date	Approved by	General Tolerance NS-ISO 2768-1-M	Projection 	Sheet 4	Scale				
Material			Surface treatment		Weight	Prod. Groups	Format A3				
Title Hjelvikttunnelen-2					Status		Drawing no. 1542805-WD-02		Revision 01		
Additional description Euroskilt					Article no.			Project no.		Document Type WD_skap2	

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Material			Surface treatment		Weight	Prod. Groups	Format A3		
Title Hjelviktunnelen-2					Status		Drawing no. 1542805-WD-02		Revision 01
Additional description Euroskilt					Article no.			Project no.	Document Type WD_skap2

Samsvarserklæring Nr 20112017-1

Produsent:

Euroskilt AS
Reservatveien 8
3118 Tønsberg

Vi bekrefter herved at våre produkter innen
produktgruppen:

LED VMS Skilt

Er CE merket og typetestet i henhold til En 12966-1, og produsert i henhold til de
retningslinjer og krav som er gjeldende for dette produktet. Dette gjelder også krav som
kommer frem under Statens Vegvesen sin Håndbok R310

Tønsberg 20.11.2017

A handwritten signature in blue ink that reads "Håkon Sahlsten".

Håkon Sahlsten
Utviklingssjef Euroskilt

Vaskerutine for Euroskilt RGB skilter

Renholdanvising

Benytt høytrykksspyling

Front

Dysetrykk: Max 100 bar

Dysevinkel 90° på skilt

Avstand.: Minimum 50 cm

Vanntemperatur: maks 80° C

Vaskemiddel: pH 6-8

Bakside

Dysetrykk: Max 100 bar

Dysevinkel 90° på skilt

Avstand.: Minimum 100 cm

Vanntemperatur: maks 80° C

Vaskemiddel: pH 6-8

OBS: Det bør ikke spyles inn i luftespalter på skiltets bakside.