



	PROSJEKTDOKUMENTASJON / FDV LED VMS RGB		
Prosjekt:	E16 Langhelle- og Beitlatunnelene		
Prosjekt nr.:	100599		
Synopsis:	Ordre nr.: 733780		
Kunde:	BMO Elektro AS	Versjon:	B
Byggherre:	Statens Vegvesen	Ant sider:	9

03	23.08.2019	Endring side 5,6 og vedlegg	BEP	DR
02	24.06.2019	Endring side 1 – 3, 5, 9	ALH	BEP
01	27.11.2018	Første utgave	ALH	FW
Rev	Dato	Beskrivelse	Skrevet av	Godkjent av

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

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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),

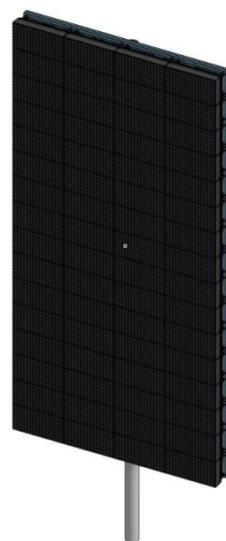
(C2L3(*) R2B4/T1, T2, T3/P3),

(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.

Skiltkasse i syrefast stål 316.

Skruer og festemateriell i syrefast stål (A4)

Lagring og frakt:

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

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2 Godkjenninger



ISTITUTO GIORDANO

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 1 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.

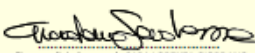
Bellaria-Igea Marina - Italia, 30/10/2017

Revision No. 0

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



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



Firmato digitalmente da SARA LORENZA GIORDANO

The original of this document consists of an electronic document with a digital signature affixed pursuant to DPR (Presidential Decree) 513/97.

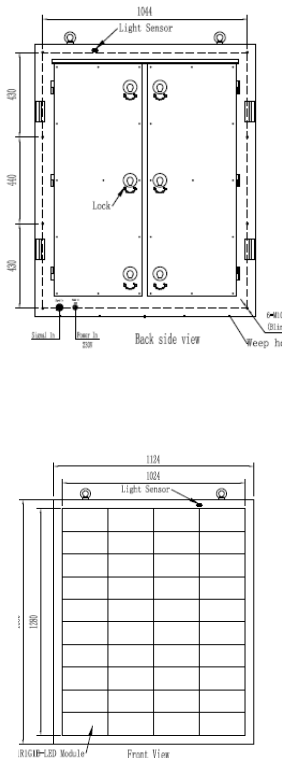
Sheet 1 of 2

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

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3 SKILT

3.1 Variabel opplysningstavle, Th. 140

Skiltbilde:	Variabel opplysningstavle	 (skisser for illustrasjon)
Produktnummer.:	160 160 000 01	
Type:	LED VMS RGB kasseløsning	
Mål skiltansikt (mm):	1280 x 1440 mm	
Mekanisk størrelse (mm):	1400 x 1560 mm	
Farge:	Grå	
Antall:	8	
Styring:	Modbus	
Styrekort:	-	
Styreprotokoll:	-	
Feste:	NM mastfeste	
Kabelgjennomføring:	M32, M20	
Driftsspenning:	230 VAC	
Effekt maks:	700 W	
Effekt nominell:	ca. 400 W	
Diodeavstand:	P10	
Vekt:	250 kg	
IP-grad:	65	
El. tegninger:	Se vedlegg	

Langhelle tunnelen og Beitlatunnelen:



Tilstand 1



Tilstand 2



Tilstand 3

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4 MERKING

4.1 Merking

Anlegg	Sentral	Merking
Langhelletunnelen	Variabelt skilt VK21	+3LANT = 561.001 -VS021
Langhelletunnelen	Variabelt skilt VK22	+3LANT = 561.001 -VS022
Langhelletunnelen	Variabelt skilt VK33	+3LANT = 561.001 -VS033
Langhelletunnelen	Variabelt skilt VK34	+3LANT = 561.001 -VS034

Beitlatunnelen	Variabelt skilt VK28	+3LANT = 561.001 -VS028
Beitlatunnelen	Variabelt skilt VK29	+3LANT = 561.001 -VS029
Beitlatunnelen	Variabelt skilt VK30	+3LANT = 561.001 -VS030
Beitlatunnelen	Variabelt skilt VK31	+3LANT = 561.001 -VS031

4.2 IP-adresser

Hex IP adr.	IP adresse	Anlegg	Sentral	Maske	Gateway
0A202B4B	10.32.43.75	Langhelletunnelen	Variabelt skilt VK21	255.255.255.128	10.32.43.126
0A202B4C	10.32.43.76	Langhelletunnelen	Variabelt skilt VK22	255.255.255.128	10.32.43.126
0A202B4D	10.32.43.77	Langhelletunnelen	Variabelt skilt VK33	255.255.255.128	10.32.43.126
0A202B4E	10.32.43.78	Langhelletunnelen	Variabelt skilt VK34	255.255.255.128	10.32.43.126

0A20514B	10.32.81.75	Beitlatunnelen	Variabelt skilt VK28	255.255.255.128	10.32.81.126
0A20514C	10.32.81.76	Beitlatunnelen	Variabelt skilt VK29	255.255.255.128	10.32.81.126
0A20514D	10.32.81.77	Beitlatunnelen	Variabelt skilt VK30	255.255.255.128	10.32.81.126
0A20514E	10.32.81.78	Beitlatunnelen	Variabelt skilt VK31	255.255.255.128	10.32.81.126

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5 Montering

5.1 Montering på Norsafe mast

Skilt monteres på overside av Norsafe mast NM150-30.

Se vedlegg for skisse.

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6 SERVICE

6.1 Service/Vedlikehold

Vennligst se vedlegg «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 luftnipler er åpne og at varmeelement fungerer.

Produktene tåler Statens Vegvesens normale vaskeprosedyrer. Det anbefales ikke å vaske skiltene fra undersiden/i underkant.

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

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7 VEDLEGG

Nr	Beskrivelse	Rev.
1.	Modbus TCP/IP – Serial Protocol with RGB Sign	7
2.	Certificate of Constancy of Performance	-
3.	Vaskerutiner RGB	-
4.	Installation drawing - YHT186210-01	A
5.	Installation drawing - YHT186210-02	A
6.	Electrical Cable drawing - YHT186210-03	A
7.	Signal Flow drawing - YHT186210-04	A
8.	NM150-30 Topplate til VMS – 010-1314	A



Document Title:	Modbus TCP/IP – Serial protocol with RGB SIGN		
Document no.:	SW22		
		Version:	A
		No. pages:	18

7	31.07.2019	Seventh definition	DAB	DAB
6	16.05.2019	Sixth definition	DAB	DAB
5	07.05.2019	Fifth definition	BEP	DAB
4	08.04.2019	Fourth definition	DAB	DAB
3	04.04.2019	Third definition	DAB	DAB
2	07.03.2019	Second definition	DAB	DAB
1	21.02.2019	First definition	DAB	DAB
Rev	Date	Definition	Written by	Approv. by

1 Approved	☒	Bjønnes
2 not approved	☐	Sign.
Comments:		

Modbus	TCP/IP	Doc. no:	SW22	Dato:	31.07.19	Rev.:	07
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Document history

Version	Definition of change
1	First definition
2	Second definition
3	Third definition
4	Fourth definition
5	Fifth definition. Change of address in chapter 3.1,4, 4.3 & 6
6	Sixth definition. Change/added addresses in chapter 4, 6 (0x001C/D) (Added functionality, "Read minimum intensity level, 0x001C")
7	Seventh definition. Change of pixel detection function in chapter 6.1 Change of set image in chapter 5.1, bit 1,2 (alternating VMS positions + delay)

Referencedocument

No	Document No	Definition
1		

Introduction

Information
This Modbus protocol document contains two different interfaces. Both interfaces share functions but are separated with registers, the additional interface functionality was requested by customer, therefor added in version "REV 03" of this document. Interface 1: General purpose Modbus interface, dynamic (multiple registers) Interface 2: PG26 (Prosessgrensesnitt 26) interface, static (2 x 16bit registers) Interface 1 is first described, following by Interface 2.

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Information of use

Information
▪ In most scenarios using Display Control Registers, only 0x1001 are necessary, this function utilizes the “program” logic of the controller. ▪ Parameter for Time Control is used by the top system to start timing in combination with Image No. When timing is started, the sign must turn to the position that is valid for the timing. When Display Control Program or Display Picture are used, these will override Time Control. • VMS Control Registers can be written with modbus function code 0x16 “Write Multiple Registers” and read with Modbus function code 0x03 “Read Holding Registers”. • 2 VMS Control Registers - Midnight Reset 0x000A is intended as an option to the default RTC on sign controller, this function is intended to be used I rare cases. • 2.1 Intensity – Intensity Mode - When In auto Intensity, 2 x lux sensors are sampled for the environmental light, thereafter the sign will automatically adjust the light level according to EN12966. • 2.3 Intensity – Intensity - Maximum brightness that the sign can achieve is set to 100%, the maximum luminous intensity of VMS is X CD/M2. Luminous intensity = $X * 0.01 \text{ CD / M2}$, then Current Intensity = 1 Luminous intensity = $X * 0.50 \text{ CD / M2}$, then Current Intensity = 50. Luminous intensity = $X * 1.00 \text{ CD / M2}$, then Current Intensity = 100. This value is not allowed to be “0” The user may send a value between 1-200% which is converter to a value between 1 – 100, as example above illustrates.

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Information of use

Information
• 2 VMS Control Registers - Minimum Intensity "0x0007" are to be used to set the minimum light level threshold value. - This can be used on both manual and automatic mode, when using this register in default mode (auto), the value chosen between 1 – 200 % will override the minimum automatic light threshold level.

1 Default functions

Function nr	Description	Purpose
01	RTC (Readl Time Clock)	A reset caused by a power-on reset or other unexpected conditions at other times, will keep the RTC time (not lost). When Modbus controller used with "0x000A", it will set the calendar time to 00:00. Otherwise this will be done automatically by the RTC.

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Command: INTERFACE 1

Modbus function code 16 (Write Multiple Registers)

Modbus address: 40 000

2 VMS Control Registers

Modbus Address	Register	High Byte	Low Byte
0x0000	Intensity	Int. Mode	Intensity
0x0001	Time Control 1 Image 1	Program Time	
0x0002	Time Control 1 Image 4	Program Time	
0x0003	Time Control 2 Image 1	Program Time	
0x0004	Time Control 2 Image 2	Program Time	
0x0005	Time Control 2 Image 3	Program Time	
0x0006	Midnight Reset	Reset	Reserved
0x0007	Minimum Intensity	Min. Mode	Intensity

2.1 Intensity – Minimum Mode

Bit	Description
0	Current Intensity Minimum Mode 0: Auto Intensity....(Default) 1: Manual Intensity
1...7	Reserved

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2.2 Intensity – Intensity Mode

Bit	Description
0	Current Intensity Mode 0: Auto Intensity....(Default) 1: Manual Intensity
1...7	Reserved

2.3 Reset - Reset

Bit	Description
0	Midnight 0: Reset deactivated....(floating) 1: Reset....(Start counting to 1440m) Reset
1...7	Reserved

2.4 Intensity – Intensity

Bit	Description
0..7	Current 1...200%: Intensity Value (%) (1 - 200) Intensity

Note: Bit 0...7 = 1...200 % equals 1 – 100% Intensity
200% = max “auto” Intensity level

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2.5

Time Control -Program Time

Bit	Description
0	Activate Program 0: Do not activate Time Control...(Default) 1: Activate Time Control
1	Store Program 0: Do not store program 1: Store program
2...15	Time Control 0...65532: Minutes from Midnight...(1-1440)

3 Display Control Registers

Modbus Address	Register	High Byte	Low Byte
0x0008	Display Control Program	Program Cmd	Program No
0x0009	Display Picture 0 Image No	Image No	Reserved
0x000A	Display Picture 0 Duration	Show time	Blank Time
0x000B	Display Picture 1 Image No	Image No	Reserved
0x000C	Display Picture 1 Duration	Show time	Blank Time
0x000D	Display Picture 2 Image No	Image No	Reserved
0x000E	Display Picture 2 Duration	Show time	Blank Time
0x000F	Display Picture 3 Image No	Image No	Reserved
0x0010	Display Picture 3 Duration	Show time	Blank Time
0x0011	Display Picture 4 Image No	Image No	Reserved
0x0012	Display Picture 4 Duration	Show time	Blank Time
0x0013	Display Picture 5 Image No	Image No	Reserved
0x0014	Display Picture 5 Duration	Show time	Blank Time

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0x0015	Display Picture 6 Image No	Image No	Reserved
0x0016	Display Picture 6 Duration	Show time	Blank Time
0x0017	Display Picture 7 Image No	Image No	Reserved
0x0018	Display Picture 7 Duration	Show time	Blank Time
0x0019	Runteller write	Write_Counter	

3.1 Runteller Write -Write_Counter

Bit	Description
0..15	Periodically stores a value based on external increment cycles from user/PLC. Register (write) "0x0019" is automatically mirrored to status register (status) "0x001A". 0...65535

3.2 Display Control -Program Cmd

Bit	Description
0	Activate Program 0: Do not activate program 1: Activate program
1	Store Program 0: Do not store program 1: Store program
2...7	Reserved

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3.3 Display Page 0 – Image No

Bit	Description
0...7	Image 0...N: Image Memory No, 0...7 = 1 – 8

3.4 Program No – Program No

Bit	Description
0...7	Program 0...7: Program Memory No, 0...7 = 1 – 8

3.5 Display Picture Duration – Show Time

Bit	Description
0...7	Show 0...255: Show Time (x100ms)

3.6 Display Picture Duration – Blank Time

Bit	Description
0...7	Blank 0...255: Blank Time (x100ms)

Signal from sign:

Modbus function code 3 (Read holding Registers)

Modbus address: 30 000

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4 VMS Status Registers

Modbus Address	Register	High Byte	Low Byte
0x0000	VMS Status 0	DispCmdStatus	0x00
0x0001	VMS Status 1 (Reserved)	0x00	0x00
0x0002	Version Info	Protocol Ver.	Firmware Ver.
0x0003	Current Display Status	Program Info	Image Info
0x0004	Display Picture 0 Image No	Image No	Reserved
0x0005	Display Picture 0 Duration	Show Time	Blank Time
0x0006	Display Picture 1 Image No	Image No	Reserved
0x0007	Display Picture 1 Duration	Show Time	Blank Time
0x0008	Display Picture 2 Image No	Image No	Reserved
0x0009	Display Picture 2 Duration	Show Time	Blank Time
0x000A	Display Picture 3 Image No	Image No	Reserved
0x000B	Display Picture 3 Duration	Show Time	Blank Time
0x000C	Display Picture 4 Image No	Image No	Reserved
0x000D	Display Picture 4 Duration	Show Time	Blank Time
0x000E	Display Picture 5 Image No	Image No	Reserved
0x000F	Display Picture 5 Duration	Show Time	Blank Time
0x0010	Display Picture 6 Image No	Image No	Reserved
0x0011	Display Picture 6 Duration	Show Time	Blank Time

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0x0012	Display Picture 7 Image No	Image No	Reserved
0x0013	Display Picture 7 Duration	Show Time	Blank Time
0x0014	Display Picture 8 Image No	Image No	Reserved
0x0015	Display Picture 8 Duration	Show Time	Blank Time
0x0016	Temperature(Future)	VMS Internal	Cabinet
0x0017	Intensity	Int.Mode	Intensity
0x0018	VMS Status	VMS Status	Reserved
0x0019	Pixel Error Count	Pixel Error Count	Reserved
0x001A	Runteller Status	Stat_Counter	
0x001B	Comfailure	Comfail	Reserved
0x001C	Intensity	Min.Mode	Intensity

4.1 VMS Status – VMS Status

Bit	Description
0	Last Display Command Status 0: Display Cmd ok 1: Display Cmd Failed
1...7	Reserved

4.2 Runteller Status -Stat_Counter

Bit	Description
0..15	Periodically get mirrored value from register (write) "0x0019". 0...65535

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4.3 Comfailure -Comfail

Bit	Description
0	Register is used for detecting Com Failure, giving feedback with communication failure on status register "0x001B" && 0x001C, bit 4. Controller logic illustrated below < TIMERON (If register (write) (0x0019) == register (status) (0x001A) for 10s from 0x0004 bit 0-7)> Then Com failure is activated on both registers (status) "0x001B" && 0x001C, bit 4. Else: Com failure = deactivated. Bit 0 = 0 - Everything ok Bit 0 = 1 - Com failure
1...7	Reserved

4.4 Temperature – VMS Internal

Bit	Description
0...7	VMS Internal Temperature -127...128: 2's compliment in degrees

4.5 Temperature – Cabinet

Bit	Description
0...7	VMS Internal Temperature -127...128: 2's compliment in degrees

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4.6 Current Display Status – Program Info

Bit	Description
0	Current Program Shown 0...7: Current Program No 1...8
1	
2	
3	Current Picture Status 0: Picture 0 Show 1: Picture 0 Blank 2: Picture 1 Show 3: Picture 1 Blank 4: Picture 2 Show 5: Picture 2 Blank 6: Picture 3 Show 7: Picture 3 Blank 8: Picture 4 Show 9: Picture 4 Blank 10: Picture 5 Show 11: Picture 5 Blank 12: Picture 6 Show 13: Picture 6 Blank 14: Picture 7 Show 15: Picture 7 Blank
4	
5	
6	
7	
7	Reserved

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4.7 Current Display Status – Image Info

Bit	Description
0	Current Image Shown 0, 2...127: Current Image No 1: Blank Image
1	
2	
3	
4	
5	
6	
7	Reserved

4.8 Intensity – Intensity Mode

Bit	Description
0	Current Intensity Mode 0: Manual Intensity 1: Automatic Intensity
1...7	Reserved

4.9 Intensity - Intensity

Bit	Description
0...7	Current Intensity 1...200: Intensity Value (%)

Note: Bit 0...7 = 1...200 % equals 1 – 100% Intensity
200% = max “auto” Intensity level

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4.10 VMS Status – VMS Status

Bit	Description
0	Reserved
1	Reserved
2	Reserved
3	Reserved
4	Reserved
5	Reserved
6	Reserved
7	Reserved

4.11 Pixel Error Count – Pixel Error Count / Modulfeil

Bit	Description
0	Pixel Error Count 0 = 0 - ok (no fault-state) 0 = 1 - Pixel Error (fault in module-state)
1...15	Reserved

END OF INTERFACE 1

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Command: INTERFACE 2

Modbus function code 16 (Write Multiple Registers)

Modbus address: 40 000

5 PG26 Write Registers

Modbus Address	Register	High Byte	Low Byte
0x001A	PG26 Write Register	PG26_Write_cmd	

5.1 PG26 Write Register – PG26_Write_cmd

Bit	Description
0	Position 1: Show image in location 0
1	Position 2: Show image in location 1 (Alternating between POS1,POS2, 1s delay)
2	Position 3: Show image in location 2 (Alternating between POS3,PO4, 1s delay)
3	Position 4: Show image in location 3
4	Auto - Tunnel
5	Direktestyrt fra VTS - VTS
6..15	Reserved

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5.2 Auto - Tunnel

Bit	Description
0	Auto: being controlled by tunnel 0: Tunnel deactivated (Set Status register "0x001B", bit 6 HIGH) (Set Status register "0x001B", bit 5 LOW) 1: Tunnel activated (Set Status register "0x001B", bit 6 LOW) (Set Status register "0x001B", bit 5 HIGH)

5.3 Direktestyrt fra VTS - VTS

Bit	Description
0	VTS: being controlled by VTS 0: VTS deactivated (Set Status register "0x001B", bit 5 LOW) (Set Status register "0x001B", bit 6 HIGH) 1: VTS activated (Set Status register "0x001B", bit 5 HIGH) (Set Status register "0x001B", bit 6 LOW)

Signal from sign:

Modbus function code 3 (Read holding Registers)

Modbus address: 30 000

6 PG26 Status Registers

Modbus Address	Register	High Byte	Low Byte
0x001D	PG26 Status Register	PG26_Status_cmd	

Modbus	TCP/IP	Doc. no:	SW22	Dato:	31.07.19	Rev.:	07
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6.1 PG26 Status Register – PG26_Status_cmd

Bit	Description
0	Read Position 1: Show image in location 0
1	Read Position 2: Show image in location 1
2	Read Position 3: Show image in location 2
3	Read Position 4: Show image in location 3
4	Comfail - Comfail
5	Direktestyrt fra VTS - VTS
6	Lokal (mirrored by Auto/VTS) 1 = tunnel, 0 = VTS
7	Modulfeil
8..15	Reserved

END OF INTERFACE 2



ISTITUTO GIORDANO

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 1 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.

Bellaria-Igea Marina - Italia, 30/10/2017

Revision No. 0

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

Chief Executive Officer

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ANNEX TO CERTIFICATE

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

Revision No. 0 dated 30/10/2017

PRODUCT TYPE: VMS containing up to a 30 (W) × 6 (H) matrix (size: 9760 mm × 1120 mm) of YHT-VMS modules.			
Product standard: EN 12966-1:2005 + A1:2009			
Method	Laboratory test	Test report number	Class/Conformity
EN 60598-1	Impact test	344865/10842/CPR	Compliant
EN 60068-2-64	Vibration test	344861/10838/CPR	Compliant
EN ISO 9227	Corrosion test	344863/10840/CPR	Compliant
EN 60529	Degrees of protection provided by enclosures (IP-class)	344862/10839/CPR	P2 (IP54)
EN 60068-2-14	Change of temperature test	344864/10841/CPR	T2
EN 60068-2-30	Damp heat cycling test		Compliant
EN 12966-1	Optical performance (luminance)	344424/10800/CPR	Luminance
			Luminance ratio
			Beam width
			Uniformity
	Chromaticity co-ordinates		Colour
			Red, green, blue, yellow and white: L3
			Red, green, blue, yellow and white: R3
			Red, green, blue, yellow and white: B6
			Compliant
			Red, green, blue, yellow and white: C2
EN 12899-1	Assessment of calculation report referring to the variable message signs (VMS) frame	346071/10990/CPR	PAF1, WL9, DSL0, PL0, TDB2, TDT2

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

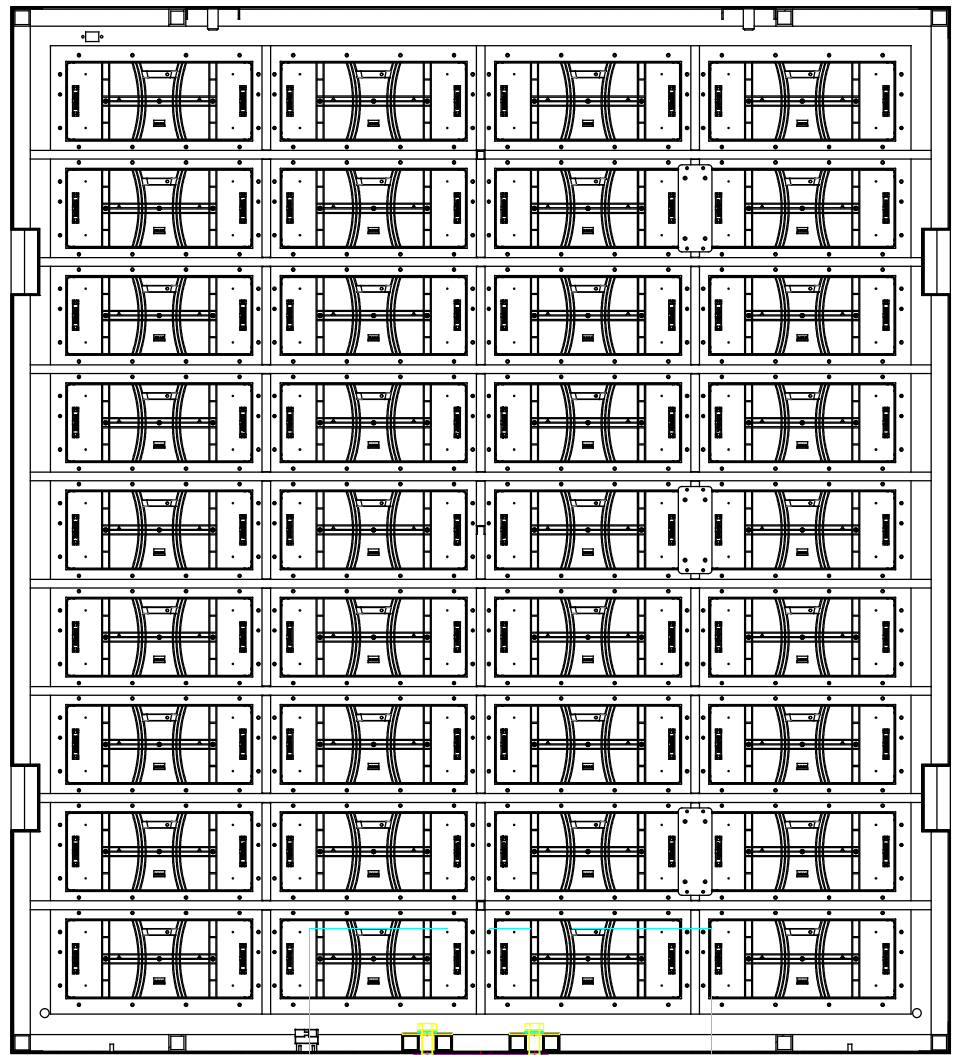
Dysevinkel 90° på skilt

Avstand.: Minimum 100 cm

Vanntemperatur: maks 80° C

Vaskemiddel: pH 6-8

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



Display connection structure

M16 Flat gasket

M16 Flat gasket

Pad

25*25 square tube

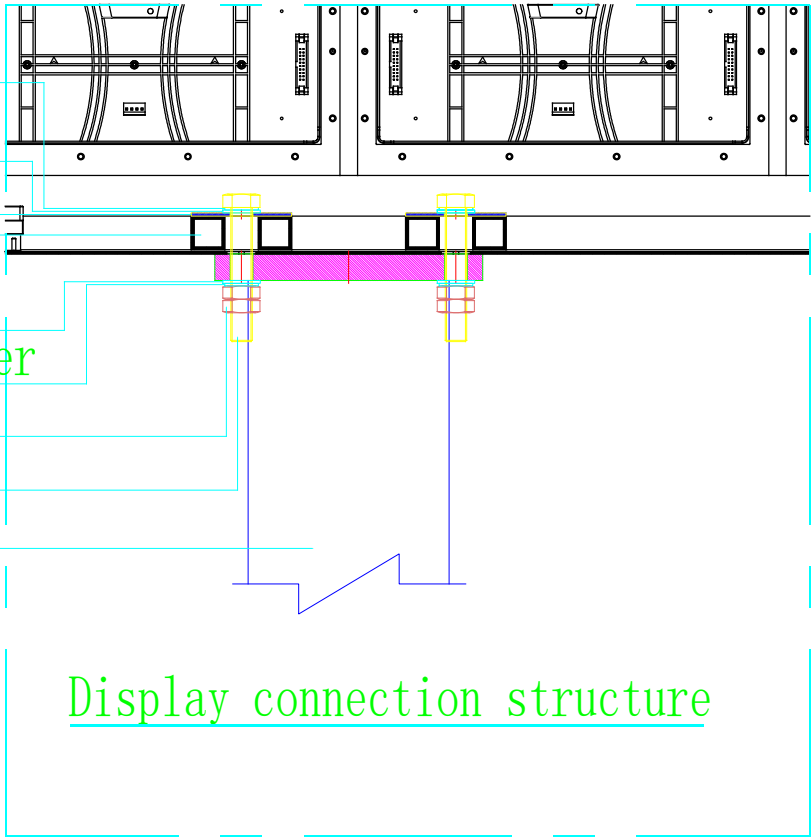
M16 Flat gasket

M16 Spring washer

M16 Nut

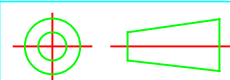
M16*100

Column



Display connection structure

Note: M16 bolts/nuts/flat washers/spring washers are provided by the purchaser.



Rev.
A

Unit
mm/inch

ITEM

OT10-1R1G1B

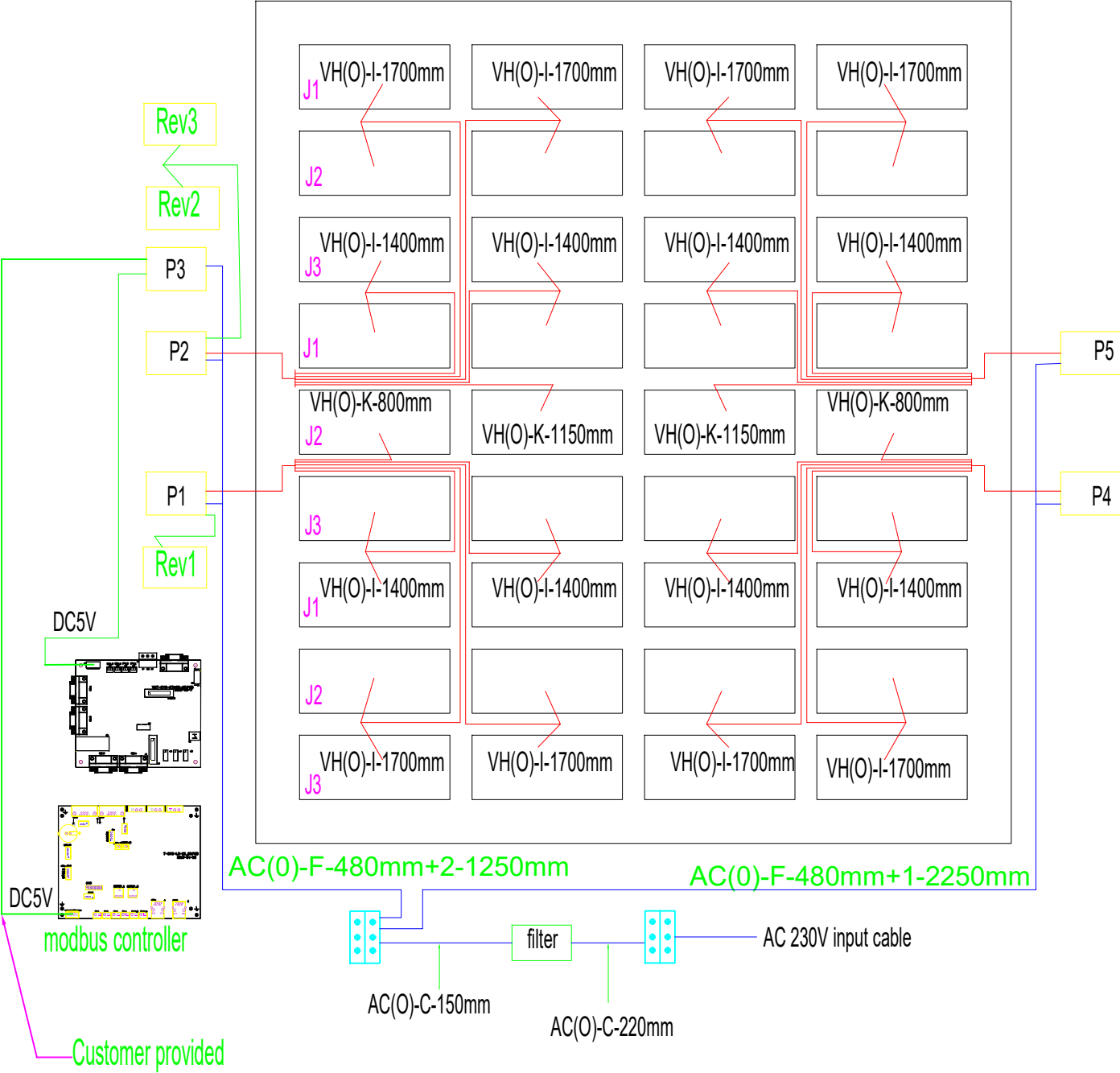
DRAWING TITLE

Installation drawing

DRAWING NO.

YHT186210-02

Power cable(Rear view)



	Rev. A	Unit mm/inch	ITEM	OT10-1R1G1B	DRAWING TITLE	Electric cable drawing	DRAWING NO.	YHT186210-03
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