	PROSJEKTDOKUMENTASJON LED VMS PÅBUDSKILT		
Prosjekt:	E18 Tvedestrand Arendal		
Prosjekt nr.:	100491		
Synopsis:	Ordre nr. 806145		
Kunde:	Otera Traftec AS	***Versjon:***	A
Byggherre:	-	***Ant sider:***	9

02	25.11.2021	Endring s 1, 4	ALH	FW
01	08.09.2021	Første utgave	ALH	FW
Rev	***Dato***	***Beskrivelse***	***Skrevet av***	***Godkjent av***

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

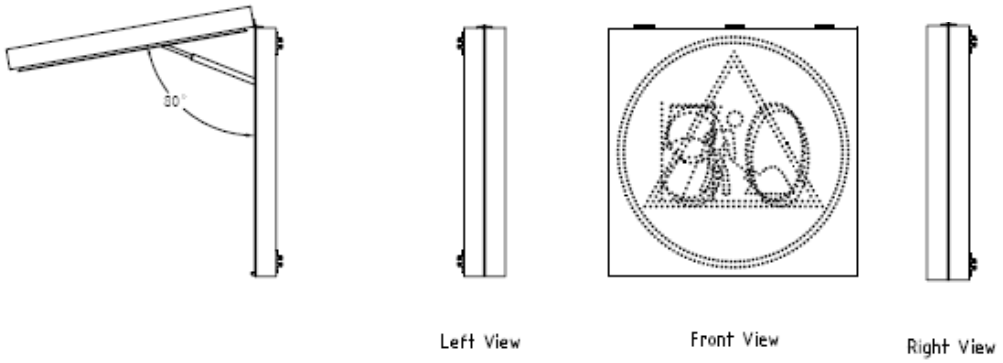
Prosjekt:	E18 T-A	Prosjektnr.:	100491	Dato:	25.11.2021	Rev.:	02

Innholdsfortegnelse

1 SKILT

Modell	LED Billedpunktskilt (VSLS)
Produktnr.	16000000009
Sertifisering	EN12966
LED VMS SPESIFIKASJONER	
Modul-størrelse (mm)	
Piksel-tetthet (px/m²)	
Optikk egenskaper	
Klasser	EN12966
Luminans	L3
Luminansforhold	R2
Farge	C2
Spredningsvinkel	B6
Lyskontroll	32 nivåer
Skiltkasse egenskaper	
Yttermål (mm)	1070 x 1070
Tykkelse (mm)	178
Skjerm (mm)	NA
Skjerm (pxl)	NA
Vekt	70
Materialtype	Aluminium
Overflatebehandling	Pulverlakkert
	Front: RAL 9017
	Bakside: RAL 7032
Temperaturklasse (°C)	T2 (-25°C to +55°C)
Forurensingsklasse	D2
Kapslingsgrad	IP56
Kabelgjennomføring	M16, M25
Vedlikehold	Frontåpning
Elektriske egenskaper	
Nominell spenning	230V single phase 50Hz
LED kort-spenning	DC 4,2V
Effektforbruk Nom/Maks m² (±10%)	50 W/ 100 W
Kommunikasjon	TCP/IP via RJ45
Protokoll	ModBus

1.1 Illustrasjoner/utsnitt



Tilstander skilt (MS-størrelse):

	
Posisjon 1	**Posisjon 2**

				
Posisjon 1	**Posisjon 2**	**Posisjon 3**	**Posisjon 4**	**Posisjon 5**

						
Posisjon 1	**Posisjon 2**	**Posisjon 3**	**Posisjon 4**	**Posisjon 5**	**Posisjon 6**	**Posisjon 7**

*Se vedlegg for detaljer

Prosjekt:	E18 T-A	Prosjektnr.:	100491	Dato:	25.11.2021	Rev.:	02

Tilstander skilt (SS-størrelse):

	
Posisjon 1	**Posisjon 2**

				
Posisjon 1	**Posisjon 2**	**Posisjon 3**	**Posisjon 4**	**Posisjon 5**

						
Posisjon 1	**Posisjon 2**	**Posisjon 3**	**Posisjon 4**	**Posisjon 5**	**Posisjon 6**	**Posisjon 7**

*Se vedlegg for detaljer

2 STYRING

Type (kryss av):

Produktnr.	Beskrivelse		Dokument
16095100414	Styrekort SC15G	☒	
16095100412	Relèkort SC28E (skillekort)	☒	
		☐	
16016010010	OPC-UA Server- Linux	☐	ELS04-2
16095100425	Styreskap med HMI panel (LS)	☐	10000032-02
16095100426	Styrepanel med HMI for SSA (LS)	☐	
16095100402	SMART Kontrollstasjon Basismodul	☐	

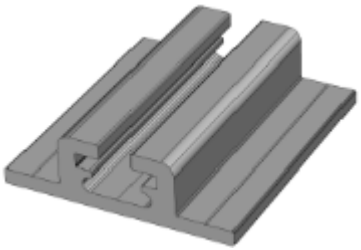
* Se vedlegg for detaljer

3 MERKING

Serienummer (fra-til)	Tag	Beskrivelse
		LED VMS VSLS
		LED VMS VSLS

4 MONTERING

Skilt i aluminium leveres med skinne EUV5134 (alu).



Figur 1: EUV5134 skinne

Skinnene er kompatible med alle typer festemateriell fra Euroskilt.

Festetyper (kryss av):

Produktnr.	Beskrivelse		Dokument
22331020012	NM120 Skiltfeste m/VD-skinne	☐	Monteringsveiledning
22331030015	NM150 Skiltfeste m/VD-skinne	☒	Monteringsveiledning
22331000019	NM190/290 Skiltfeste m/VD-skinne	☐	Monteringsveiledning
21940000005	Klammer for gittermast (Modifisert)	☐	
16095201030	Syrefaste fester for kamjern, stål, fagverk	☐	
	Feste for portal	☐	

*Se vedlegg/Monteringsveiledning

5 SERVICE / VEDLIKEHOLD

Vennligst se vedlegg «Vedlikeholdshåndbok» for detaljer.

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

Ved behov for service:

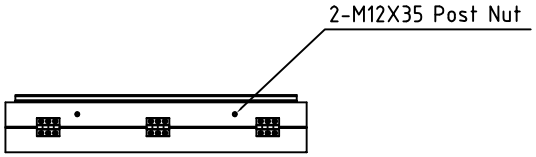
Euroskilt AS
Reservatveien 8
3118 Tønsberg

service@euroskilt.no

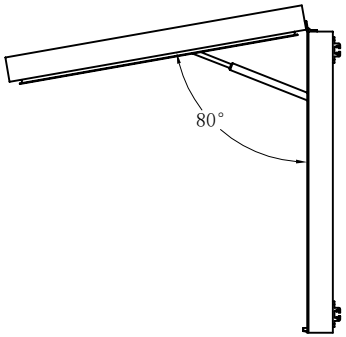
0 60 80

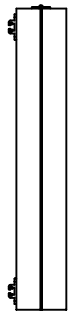
6 VEDLEGG

Vedlegg nr.	Beskrivelse	Dato	Rev.
1	YHT216083 MODBUS VSLS	17.06.2021	1.0
2	SW22 Euroskilt Protokoll Modbus TCP RGB	08.11.2019	8.2
3	Monteringsveiledning	22.06.2020	1.0
4	Ytelseserklæring	21.10.2019	1.0
5	YHT216083 _User Manual	28.07.2021	A

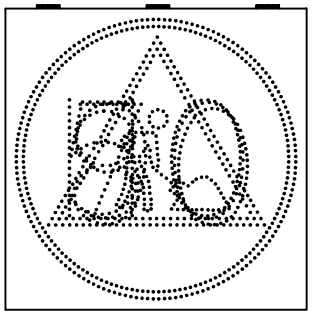


Top View

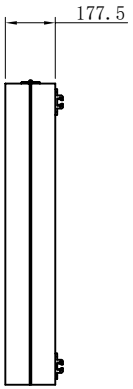




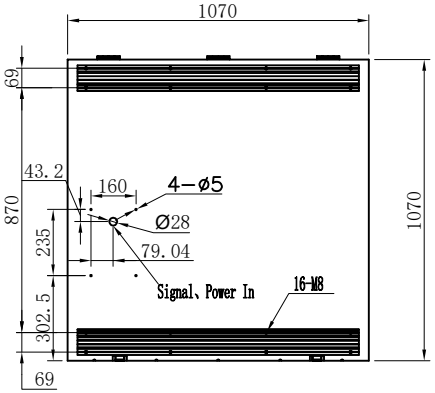
Left View



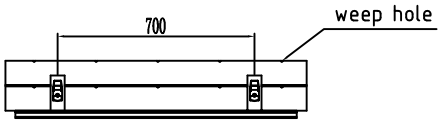
Front View



Right View



Back View

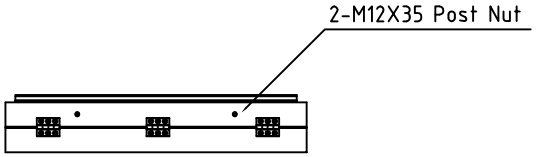


Bottom View

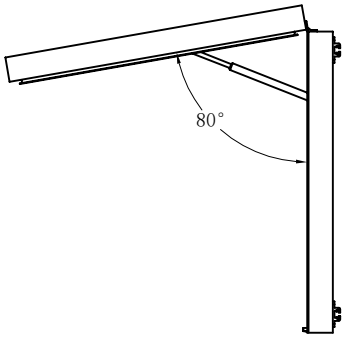
1.Cabinet Material: AL5052 T=2

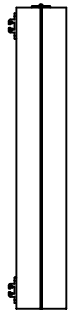
2.Display Weight: 70KG/m²

Rev	1.0	Unit	ITEM	Modbus protocol of SLS	DRAWING TITLE		DRAWING NO.
Date	2021.05.11	mm					

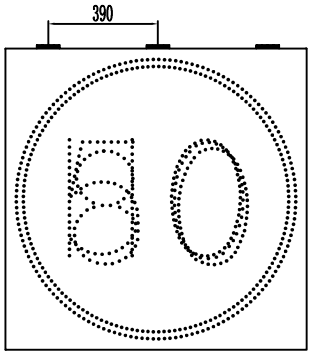


Top View

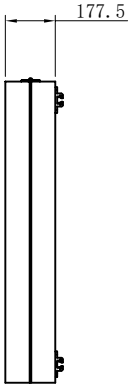




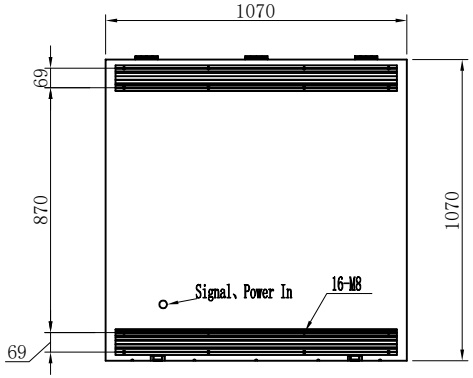
Left View



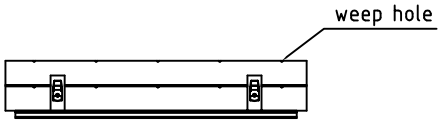
Front View



Right View



Back View

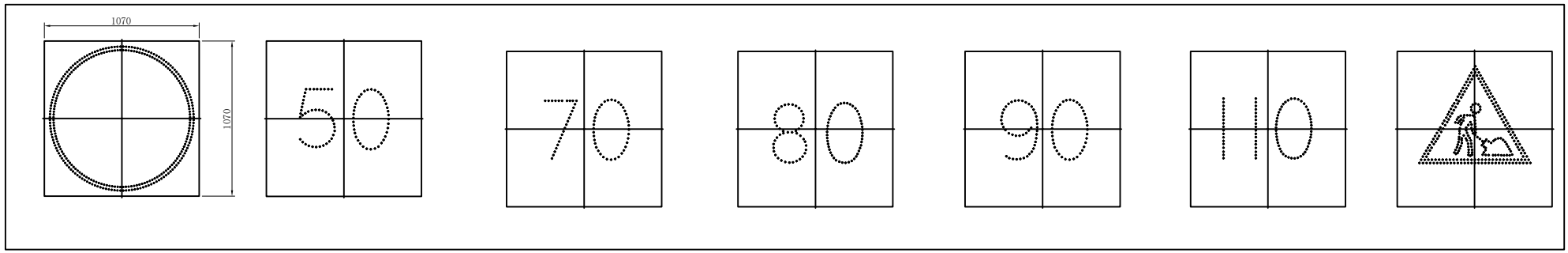


Bottom View

1.Cabinet Material: AL5052 T=2

2.Display Weight: 70KG/m^2

	Rev	1.0	Unit	ITEM	Layout of terminal block to IO port	DRAWING TITLE		DRAWING NO.
	Date	2021.05.11	mm					


1070
1070
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110

Document Title:	**Modbus TCP/IP – Serial protocol with RGB SIGN**		
Document no.:	SW22		
		Version:	A
		No. pages:	21

8.2	08.11.2019	Eight point two definition	DAB	DAB
8	21.10.2019	Eight definition	DAB	DAB
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:		

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)
8	Eight definition Bug repairs : - Minimum intensity/power
8.2	Eight point two definition Bug repairs: - “Flimmer” on VMS matrix - Extended “PG26” INTERFACE “0X001A/0x001D ”(POSITIONS)

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.

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 CD / M2, then Current Intensity = 1
  Luminous intensity = X * 0. 50 CD / M2, then Current Intensity = 50.
  Luminous intensity = X * 1. 00 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.

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.

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	Brightness

2.1 Minimum Intensity – Min. Mode

Bit	Description
0	Current Intensity Minimum Mode 0: Disable Min Mode Intensity….(Default) 1: Enable Min Mode Intensity
1…7	Reserved

2.2 Brightness

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

2.3 Intensity – Intensity Mode

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

2.4 Reset - Reset

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

2.5 Intensity – Intensity

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

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

2.6 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

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

3.3 Display Page 0 – Image No

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

3.4 Program No – Program No

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

3.5 Display Picture Duration – Show Time

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

3.6 Display Picture Duration – Blank Time

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

Signal from sign:

Modbus function code 3 (Read holding Registers)

Modbus address: 30 000

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

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

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

4.6 Current Display Status – Program Info

Bit	Description
0 1 2	Current Program Shown 0…7: Current Program No 1…8
3 4 5 6	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
7	Reserved

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

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

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: (Alternating between location 1, location 2, 1s delay)
2	Position 3: (Alternating between location 3, location 4, 1s delay)
3	Position 4: (Alternating between location 5, location 6, 1s delay)
4	Auto – Tunnel
5	Direktestyrt fra VTS - VTS
6	Reserved
7	Reserved
8	Position 5: (Alternating between location 7, location 8, 1s delay)
9	Position 6: Show image in location 9

10	Position 7: Show image in location 10
11	Position 8: Show image in location 11
12	Position 9: Show image in location 12
13	Position 10: Show image in location 13
14	Position 11: Show image in location 14
15	Position 12: Show image in location 15

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	

6.1 PG26 Status Register – PG26_Status_cmd

Bit	Description
0	Read Position 1: Show status on Position 1
1	Read Position 2: Show status on Position 2
2	Read Position 3: Show status on Position 3
3	Read Position 4: Show status on Position 4
4	Comfail - Comfail
5	Direktestyrt fra VTS - VTS
6	Lokal (mirrored by Auto/VTS) 1 = tunnel, 0 = VTS
7	Modulfeil
8	Read Position 5: Show status on Position 5
9	Read Position 6: Show status on Position 6
10	Read Position 7: Show status on Position 7
11	Read Position 8: Show status on Position 8
12	Read Position 9: Show status on Position 9
13	Read Position 10: Show status on Position 10

14	Read Position 11: Show status on Position 11
15	Read Position 12: Show status on Position 12

END OF INTERFACE 2

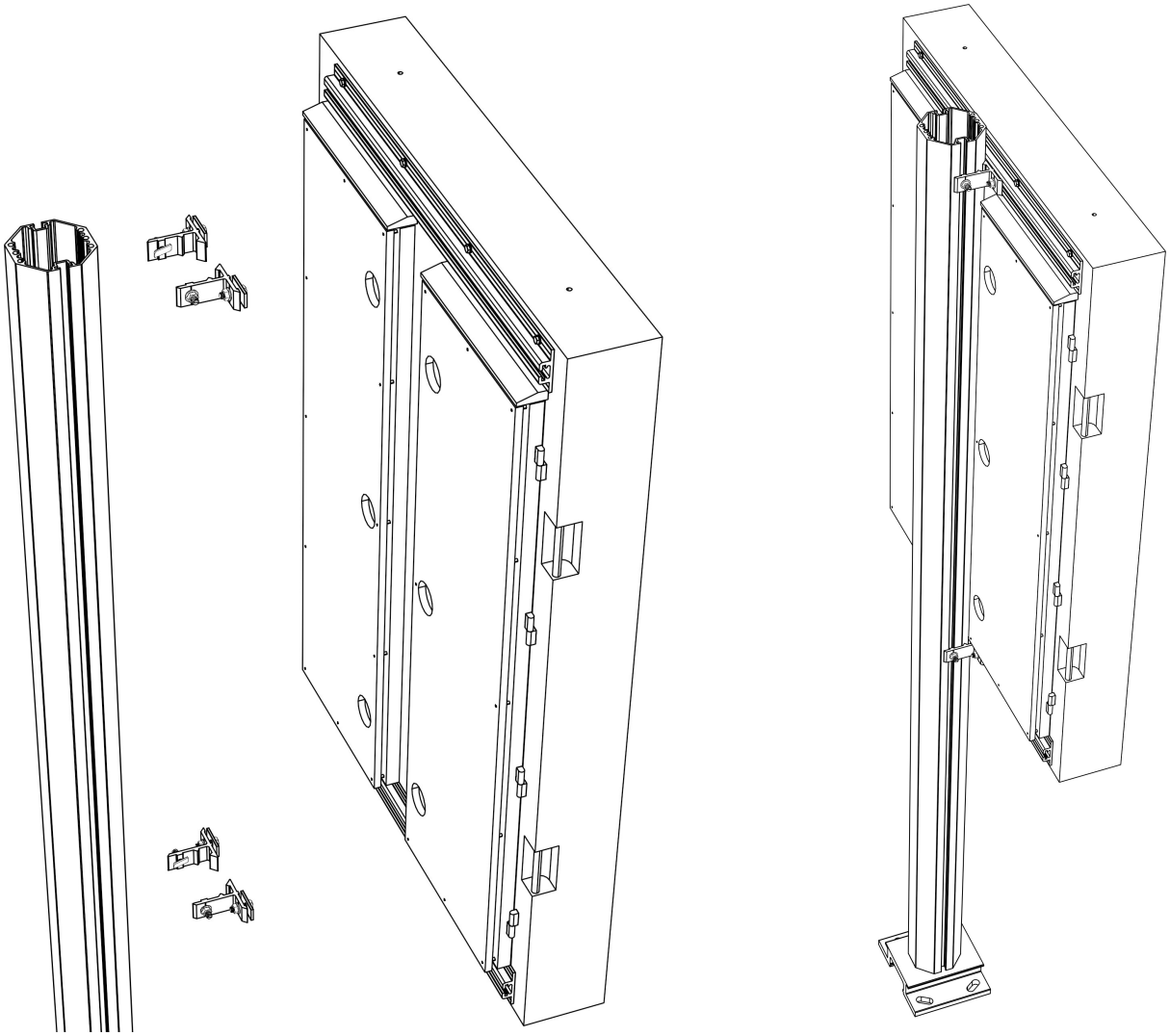
Monteringsveiledning
Montering av RGB skilt på Norsafe Mast

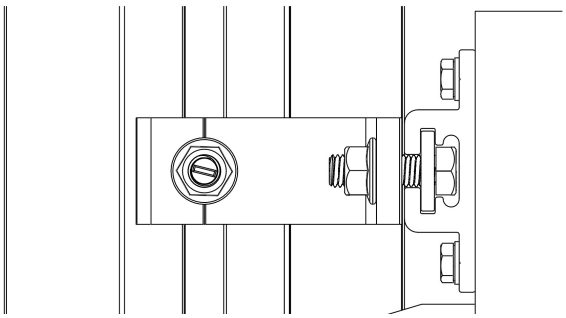
Ved montering av RGB skilt på Norsafe Mast må alltid min. 4 stk. NM skiltfester brukes.
Se egne datablad for fester til respektive mastestørrelser.
2 stk. skiltfester monteres for hver skinne pr. mast. Skiltfeste tres inn fra siden.
Det skal brukes fester med glideskinne, firkanthodebolt må ikke brukes.

Deretter løftes/heises skiltet opp mot masten.

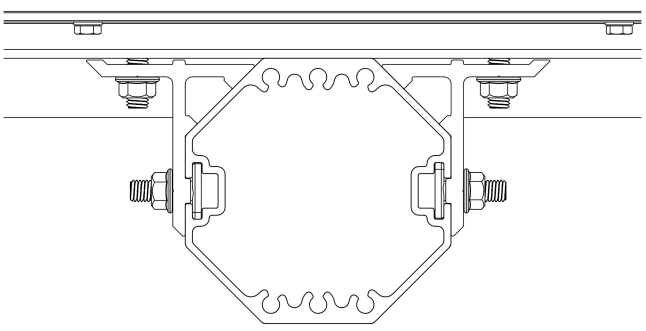
Når skiltet er på plass skyves skiltfestene inn mot masten og hammerhodeboltenes hoder føres vertikalt inn i sporet i masten. Deretter dreies hammerhodeboltene slik at de får festegrep i mastesporet. Et strekmerke på enden av bolten angir når bolten står riktig.
Mutrene trekkes til som følger: M8 = 22Nm, M12 = 76Nm.

Kun medfølgende muttere må brukes. Det skal ikke brukes smøremidler ved montering.
De vibrasjonssikre Safe-Lock låsemutrene har Gleitmo glidebelegg. Grease/fett må ikke brukes.





Mast, skinne og feste sett fra siden



Mast, skinne og fester sett ovenfra

Ytelseserklæring 073-LED VMS RGB YAHAM

Sted og prosess	Euroskilt AS / Produksjon / Produksjon Tønsberg / Produkt / LED VMS	**Siste revisjonsdato**	07.09.2020
		Neste revisjonsdato	20.10.2021
Sist godkjent dato	07.12.2020 (Håkon Sahlsten)	**Dokumentansvarlig**	Håkon Sahlsten
Dato endret	07.12.2020 (Håkon Sahlsten)		

1.Varetypens unike identifikasjonskode: LED VMS RGB YAHAM

2.Tilsiktet bruksområde: Variable trafikkskilt installert permanent for instruksjon og veiledning av trafikanter på offentlig og privat land, inkludert tunneler.

3.Produsent:

Euroskilt AS, Reservatveien 18, 3118 Tønsberg, Norge

4. Autorisert representant: Håkon Sahlsten.

5. System eller systemer for vurdering og verifikasjon av byggevarers ytelser: System 1

6.Harmoniseret produktstandard: EN-12966-1:2005+A1:2009
Teknisk kontrollorgan nr. 0407 – CRP – 1350 (IG-228-2017) INSTITUTO GIORDANO

7. Angitte ytelser:

Vesentlige egenskaper	Ytelse	Harmonisert standard
Dynamisk vindlast	WL9	EN 12966-1:2005+A1:2009
Dynamisk snølast	DSL0	
Kollisjonstest	Godkjent	
Farge	C2	
Luminans	L1, L2, L3(*)	
Luminansforhold	R3	
Spredning	B1, B2, B3, B4, B5, B6	
Ensartethet	Godkjent	
Synlig flimmer	Godkjent	
Temperatur	T2	
IP grad vann	P3 IPx6	
IP grad støv	P3 IP5x	
Elektromagnetisk emisjon	Godkjent	
Elektromagnetisk immunitet	Godkjent	
Elektrisk sikkerhet	Godkjent	
Forurensingsmotstand	D1	

Ytelser for denne byggevaren, som er anført ovenfor, er i overensstemmelse med de angitte ytelsene. Denne ytelseserklæringen er utarbeidet i overensstemmelse med forordning (EU) nr. 305/2011 under eneansvar til produsenten, som er anført ovenfor.

Underskrevet for produsenten og på dennes vegne av:

HÅKON SAHLSTEN

Håkon Sahlsten, produktsjef Euroskilt AS
Reservatveien 18, 3118 Tønsberg, Norge

VSLS

LED Display User Manual

Version: A

Project Number：YHT216083

WE APPRECIATE YOUR CHOOSING US!

Using Guide:

Before installing and operating any devices, please read and follow the instructions!

Warning:

- ✓ To prevent any bodily injury, please read this installation manual before you connect the system to its power.
- ✓ Check all the AC power connections being proper before turn the power on.
- ✓ Turn off the power, including LED Screen, Terminal Computer, System Box and Monitor before doing any maintenance.
- ✓ Do not touch the power supply when the power is on.

Caution:

- ✓ To prevent any devices damage or loss of data, please read user manual before you operate the display.
- ✓ Turn off the power, including LED Screen, Terminal Computer, System Box and Monitor before connecting any cables.
- ✓ Wear the anti-static belt on the hand before replacing any electronics parts.

NOTE:

Design and specifications are subject to change without prior notice for the purpose of performance improvement.

Use **Metric Tools** to tighten all the Screws

Date: July 28, 2021

Contents

LED display specifications

Item	Description	Unit	Remark
Product Name	Traffic Sign		
Model Type	YHT-VSLS-CMS-E-Modbus		
Pixel Pitch	-	mm	
Pixel Density	-	P/ m^2	
Pixel Configuration	1R1W		
LED	Union LED		
LED Model	510		
Control Mode	Asynchronous		
Display Dimension	1070(W)x1070(H)		
Display Resolution	-		
Module size	-	mm	
Module Resolution	-	Pixels	
Brightness	12400	nits	
Cabinet Material	AL		
Cabinet Color	Black		
Protect Level	IP65		
Maintenance	Front Flip Cover		
Input Voltage	AC230V	V	
PC Monitor Resolution Request	1024(W) × 768(H)	Pixels	
Module Max Power Consumption	26W	W	
Display Max Power Consumption	80	W	

Package list

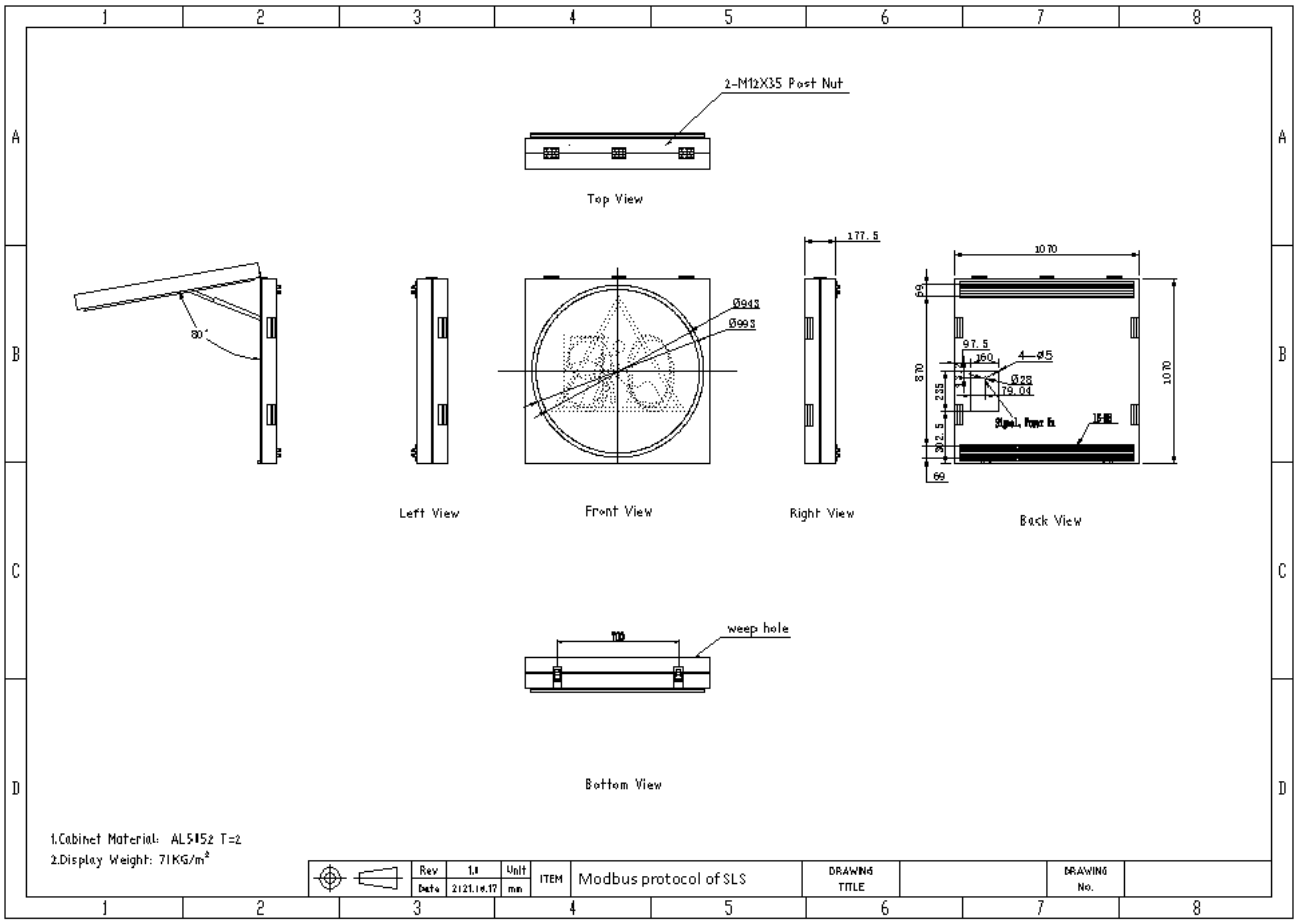
Please follow the packing list to check the items in the packaging box carefully. (List sent by Email)

Equipment description

Use this section to become more familiar with the display's external and internal components. Components shown in this section are critical to the display's installation procedure.

Display size and installation

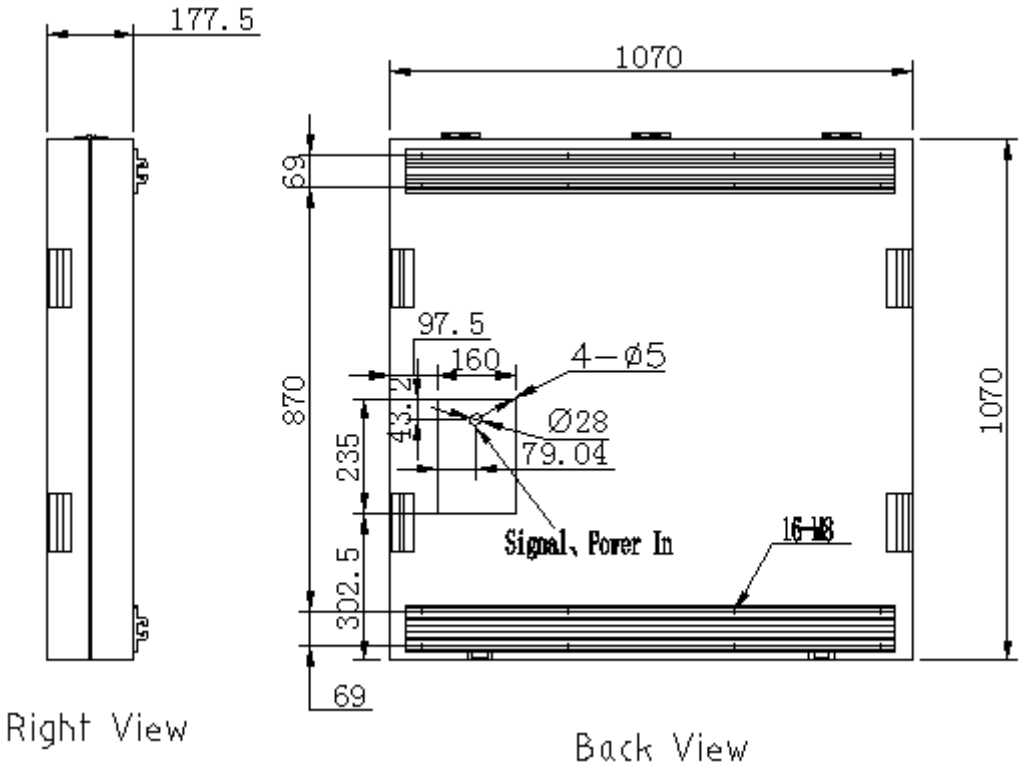
Refer to installation drawing.



Detailed information refer to Installation drawing.pdf

Display exterior

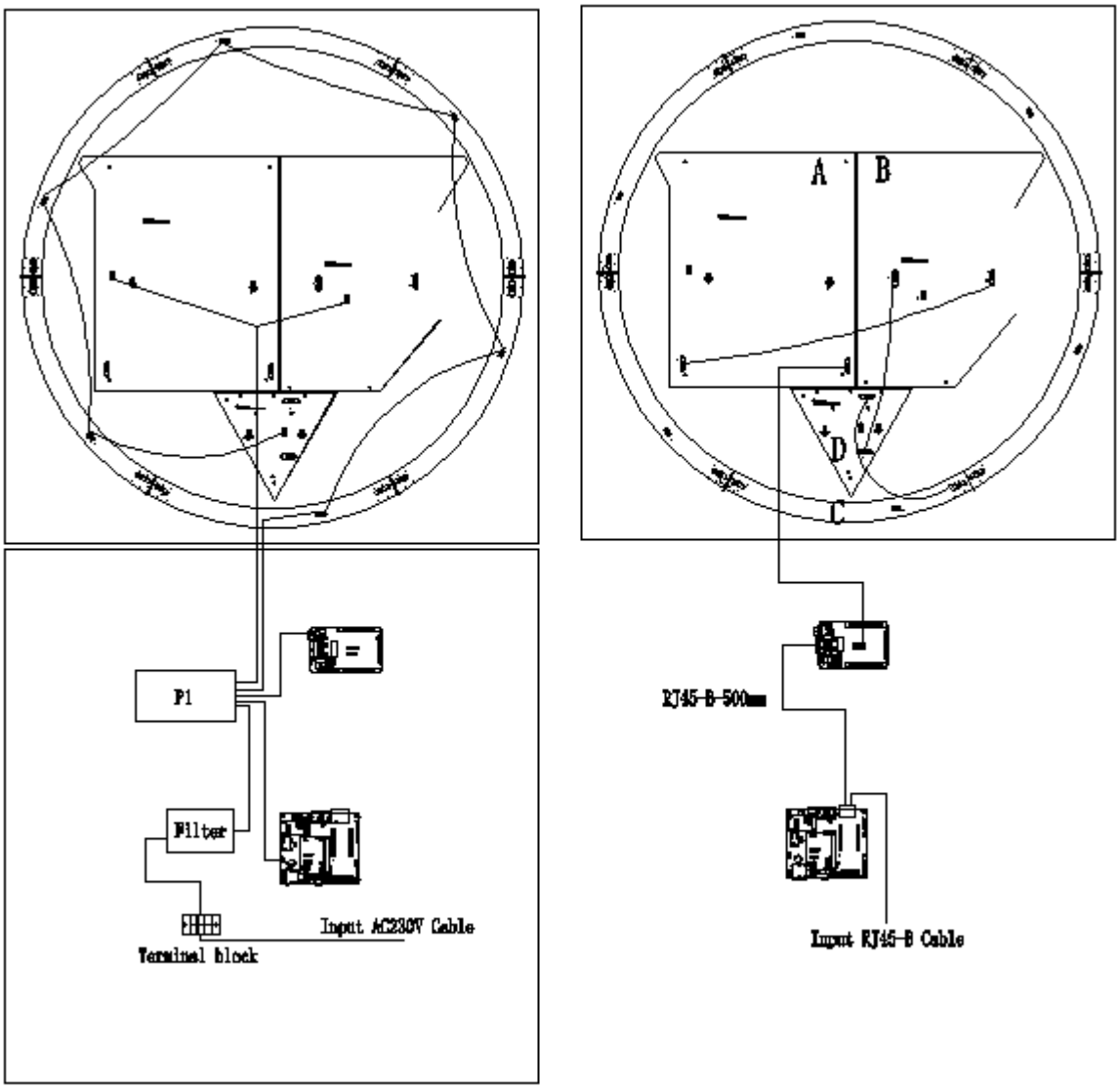
External Diagram of the display is as show as follow.

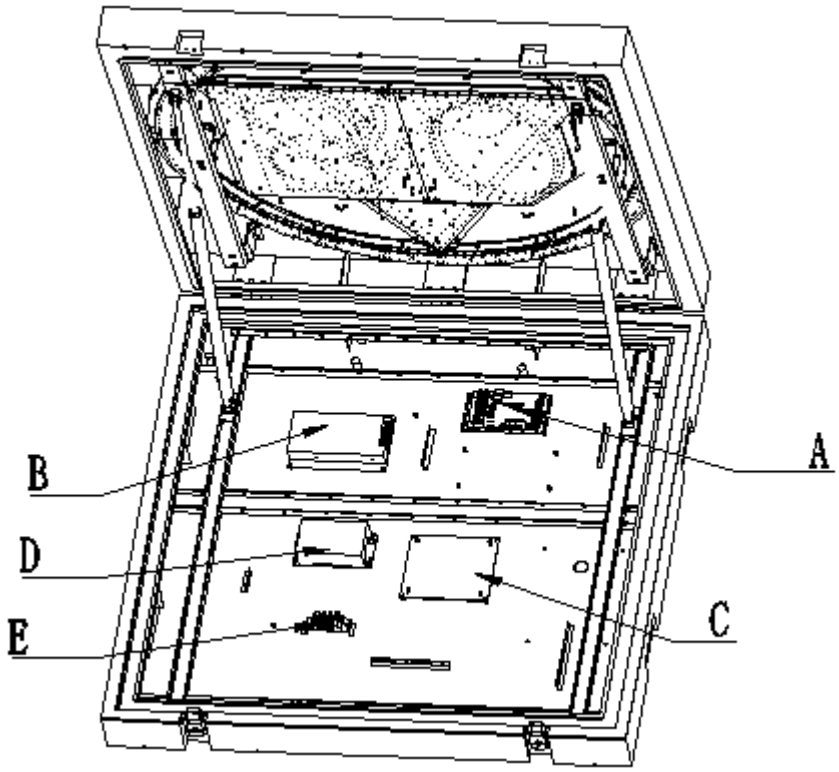


Φ32 flexible conduit and tube head

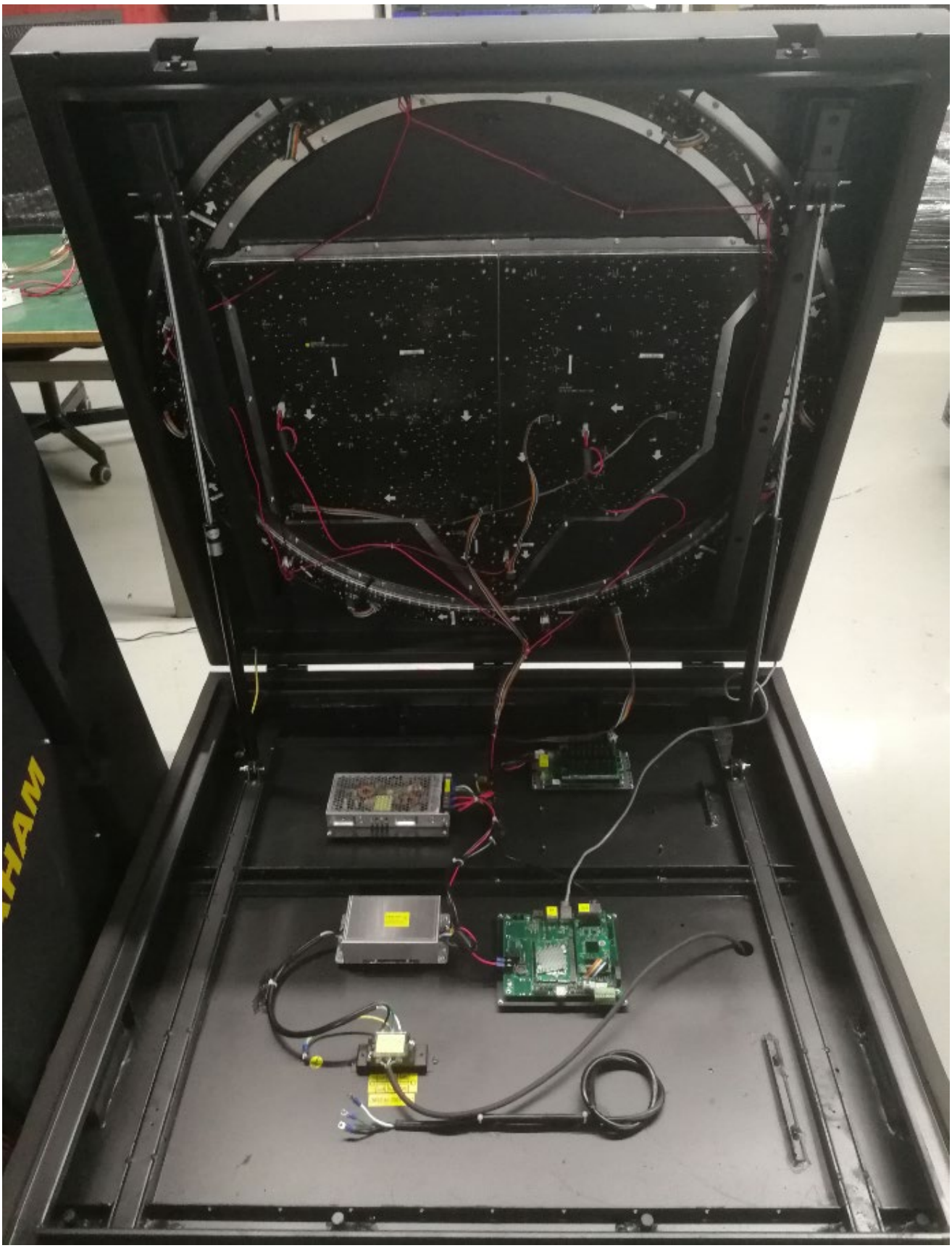
Display interior

Component identification.


A
B
D
C
P1
Filter
Input AC230V Cable
Terminal block
RJ45-B-500mm
Input RJ45-B Cable



Item	Name	Description
A	Receiver Card	Receive signal from sending card and divide the signal into several groups to modules.
B	Power supply	To provide DC5V for modules and control cards.
C	Sending card	Receive signal input from protocol card and send it to receiving card. .
D	Filter	To improve EMC performance.
E	Terminal block	Input AC230V electric cable connect here.



LED Display Installation

Introduction of LED Display Installation

LED display project is the comprehensive engineering project that collects electronic, optical, communications, computer, network, structure, construction, decoration and other disciplines. LED display installation is electromechanical installation from the perspective of equipment. That is the installation of LED light-emitting devices. Other relevant projects are installation bases of display screen meanwhile make it coordinate with the surrounding environment. Other relevant projects: civil foundation works (including lightning protection); steel frame construction; outdoor decoration; the strong and weak electricity wiring and installation of ancillary equipment.

Mechanical installation

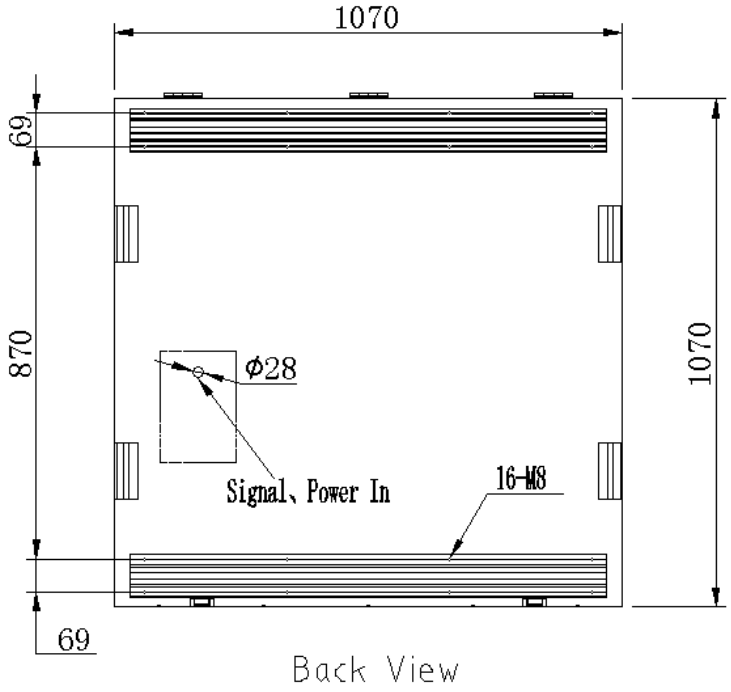
Install the display to the display-structure

WARNING! DO NOT lift the display by the mounting brackets. Lifting the display by the mounting brackets may result in the display falling causing personal injury and damage the display. Failure to comply will void the warranty.

All upper and lower mounting brackets must be used to secure the display to the display–structure, otherwise the display may fall causing personal injury and damage the display. Failure to comply will void the warranty.

Entire LED display's cabinet layout

Each LED display is assembled with 1 PCS cabinet. All the cabinets are arranged as follows.



Electrical installation

WARNING! **Hazardous voltage! Contact with high voltage may cause death or serious injury. Remove power at the source.**
Failure to properly ground the display could result in elevated voltage from lightning entering the display seeking a path to earth. High voltage from lightning can result in electric shock, fires, and destruction of the display.

Notice:

• Electrical installation must only be attempted by a qualified electrician. The electrical connection must comply with all applicable national and local codes.
• All electrical conduit connections must be watertight.
• **DO NOT** drill additional conduit holes in the display.
• **DO NOT** route communication wiring in close proximity or parallel with power wiring, power conduit, or high voltage wiring.

Earth-grounding displays

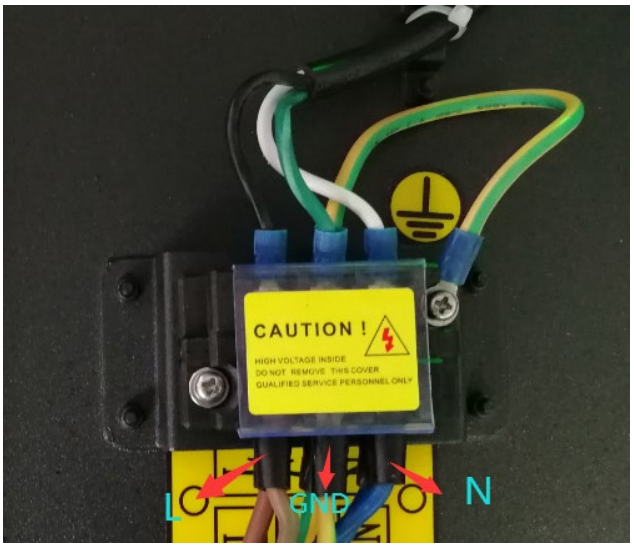
Properly grounding each display is necessary because it is an essential means of preventing shock, shock hazards, potential fire hazards, and damage to low voltage components.

Lightning strike protection

Though surge protection is incorporated into a display, to protect a display from high-voltage lightning transients, additional surge protectors (such as an external earth–ground) need to be installed in accordance with NEC Articles 280 and 285 and local electrical codes.
A display bonded to an earth–ground has a means of dissipating the high voltage and current from a lightning strike. The resistance of the grounding electrode must be as low as possible. However, damage can still occur to a display's electronic equipment from lightning voltage transients.

Input Electric Wiring Connection

Input electric wiring of the display is as show as follow:

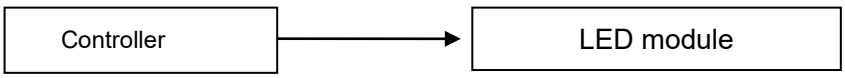


Signal installation

The following section describes how to connect to the display using signal cable.

Signal Flow Graphs

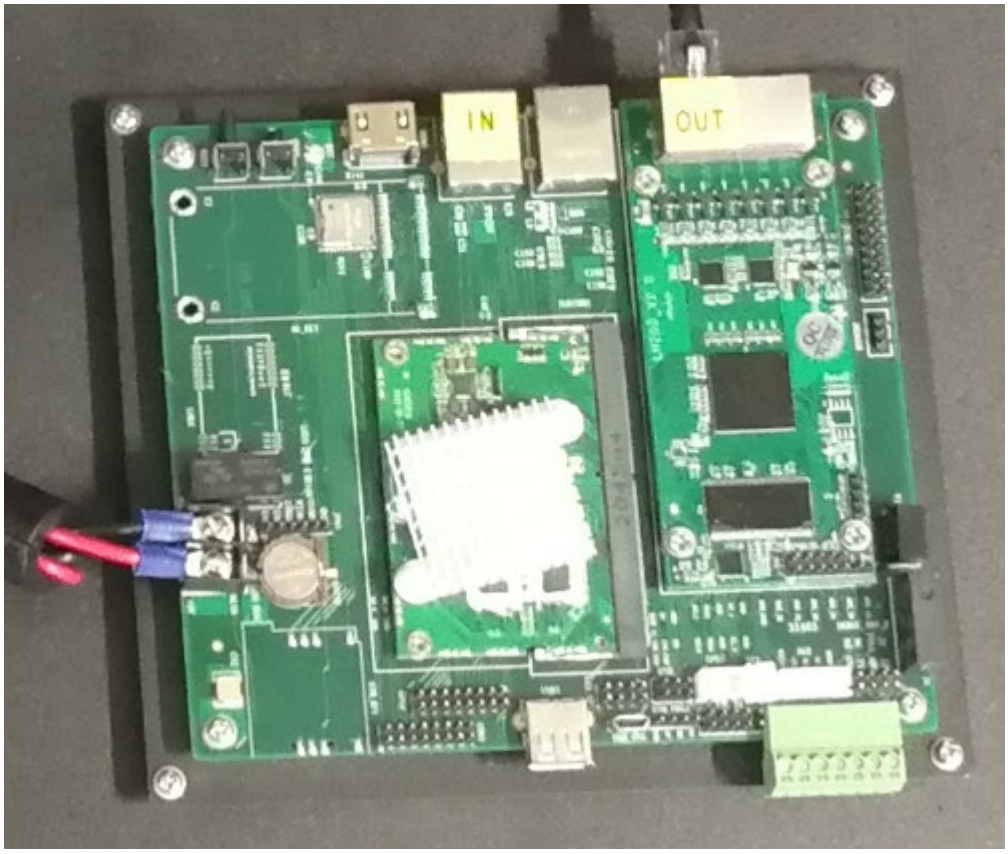
Signal is transferred in the way of:



Whole LED Display Signal Flow Chart

Input Signal Connection

Input signal of the display is shown as follow:



Signal Input Port

Control System in Display

1) What's inside of display?

✓ Controller

✓ Receive card(JT3000)

Caution Note

- Please apply to the operation specification of these instructions.
- Environment temperature for operating is -20 ℃ ~ +65 ℃; and for store is -40 ℃ ~ +70 ℃.
- Power supply demand. LED display panel's power supply is: AC230V;

Maintenance

Maintenance of Module

Refer to LED module maintain

Maintenance of System Boards/Cards

Waterproof and Dustproof Maintenance: please keep them dryness and cleanness;
Maintenance of Damage Proof: please prevent them from scratching / hitting / touching / pressing;
Function Maintenance: please replace them when they are abnormal.

Maintenance of Cabinets

Please keep them dryness / cleanness and waterproof, prevent them from rusting / scratching / hitting / touching / pressing.

Maintenance of Power & Signal Cables

Please prevent the scarfskin of cables from disrepair, prevent the cables from aging and breaking;
Please prevent the cables from being bite by mice and other animals.
Please prevent the cables from breaking when plugging in/out;
Please prevent the cables from poor contact;
Please prevent signal cables from disturbing by outside environment;

Maintenance of Power Supply

Please prevent the input power supply from going beyond the ruled voltage range, prevent them from lightning strike etc.

Cleaning Dust Guard Periodically

Time Interval of Cleaning Dust Guard

One month is suggested.

Checking & Cleaning Periodically

Checking exhaust fans periodically, please replace them if they have been damaged;
Checking cabinets periodically, please clean them if they have dust;

Checking the front of display periodically, please clean it by personnel who have been trained if it is dirty.

Key