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Alphanumeric LED display modules Titan message displays

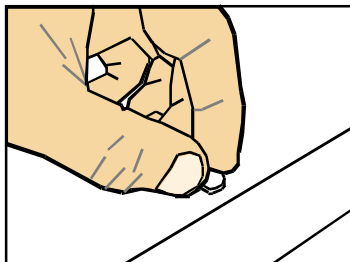
General information



Caution: There is a risk of electrical shock if this instrument is not properly installed



Caution: Risk of danger: Read the whole manual before you install this display



Rear case screws - please note

The rear panel is held in place with finger-screws, which only need to be gently tightened.

Do not use tools to tighten or loosen the screws, as this could cause damage to the internal threads.

Warranty

We warrant our products against defects in materials or workmanship for a period of three (3) years from the date of purchase.

In the event of a defect during the warranty period, the unit should be returned, freight (and all duties and taxes) prepaid by the Buyer to the authorised distributor from where the unit was purchased.

The Distributor, at its option, will repair or replace the defective unit. The unit will be returned to the Buyer with freight charges prepaid by the distributor.

LIMITATION OF WARRANTY

The foregoing warranty shall not apply to defects resulting from:

1. Improper or inadequate maintenance by the buyer.
2. Unauthorised modification or misuse.
3. Operation outside the environmental specification of the product.
4. Mishandling or abuse.

The warranty set forth above is exclusive and no other warranty, whether written or oral is expressed or implied. We specifically disclaim the implied warranties of merchantability and fitness for a particular purpose.

EXCLUSIVE REMEDIES

The remedies provided herein are the buyer's sole and exclusive remedies.

In no event shall we be liable for direct, indirect, incidental or consequential damages (including loss of profits) whether based on contract, tort or any other legal theory.

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* Need a manual urgently?
You can download manuals from our website

Warnings

Please carefully read this manual and all warnings. Install the display ONLY when you are sure that you've covered all aspects.



Where the product is intended for "UL" installations, removal or addition of option boards is not permitted.



Check that the model number and supply voltage suit your application before you install the display.



Connect the display according to current IEE regulations, IEC61010 & NFPA:70 National Electric Code in USA.



Power supplies to this equipment must have anti-surge (T) fuses rated at 1A for 230V supply, 2A for 110V, 5A for 48VAC supply or 10A for DC supplies in the range 11-30VDC.



Don't touch any circuitry after you have connected the display, because there may be lethal voltages on the circuit board.



Do not apply power to the display if its case is open.



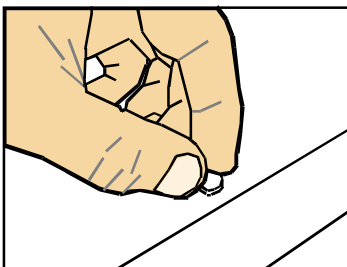
Only adjust on-board switches or connections with the power turned off



Make sure all screw terminals are tight before you switch the meter on.



Only clean the display's case and window with a soft damp cloth. Only lightly dampen with water. Do not use any other solvents.



Rear case screws - please note

The rear panel is held in place with finger-screws, which only need to be gently tightened.

Do not use tools to tighten or loosen the screws, as this could cause damage to the internal threads.

**Safety FirstDon't assume anything..... Always double check.
If in doubt, ask someone who is QUALIFIED to assist you in the subject.**

Introduction

Please contact us if you need help, if you have a complaint, or if you have suggestions to help us improve our products or services.

If you contact us about a product you already have, please tell us the full model number and serial number, so that we can give you accurate and fast help.

This product has a 2 year warranty. We will put right or replace any display which is faulty because of bad workmanship or materials. This warranty does not cover damage caused by misuse or accident.

If you return a unit for repair, please include a detailed description of the problem, and the name of a contact who we can refer to for any questions. Please mark for the attention of the QA Department.

IMPORTANT

If this equipment is important to your process, you may want to buy a spare to cover possible failure or accidental damage in the future.

This is because during factory shutdown periods, you may have to wait several weeks for an equivalent replacement, or we may have no stock at the time you urgently need it.

You may also need to pay extra carriage charges if you want a fast, guaranteed courier service. Warranty repairs or replacements are usually returned with a standard courier service.

We do not offer compensation for losses caused by failure of this instrument.

If you do not agree with these conditions, please return this item in unused condition, in its original packaging and we will refund the purchase price, excluding any carriage paid.

We thought you'd prefer to know about possible delays and extra charges now, rather than during a panic. A spare unit could help to avoid these issues.

We always try to improve our products and services, so these may change over time. You should keep this manual safely, because future manuals, for new designs, may not describe this product accurately.

We believe these instructions are accurate, and that we have competently designed and manufactured the product, but please let us know if you find any errors.

General Description

This series of displays accepts industrial signals to allow various alphanumeric messages to be displayed, such a weight, temperature, pressure, humidity etc.

The main function of this series is to give a clear readout of important information.

Various character heights are available, to suit the maximum viewing distance required in each installation. For every 10 metres of viewing distance required, use 1" of digit height.

Displays have four power supply options : 100-240 VAC, 5V DC, 48 VAC or 11-30 VDC

These displays must be installed fully assembled, and must be installed according to local electrical installation rules.

When properly installed, and provided they have been ordered with cable glands exiting the lower surface of the case, they provide ingress protection to IP65 / NEMA4X from all directions.

Safety



Caution: There is a risk of electrical shock if this display is not properly installed



Caution: Risk of danger: Read the whole manual before you install this display

Obey all safety warnings in this manual, and install the display according to local wiring and installation regulations. Failure to follow these guidelines may cause damage to the display, connected equipment, or may be harmful to personnel.

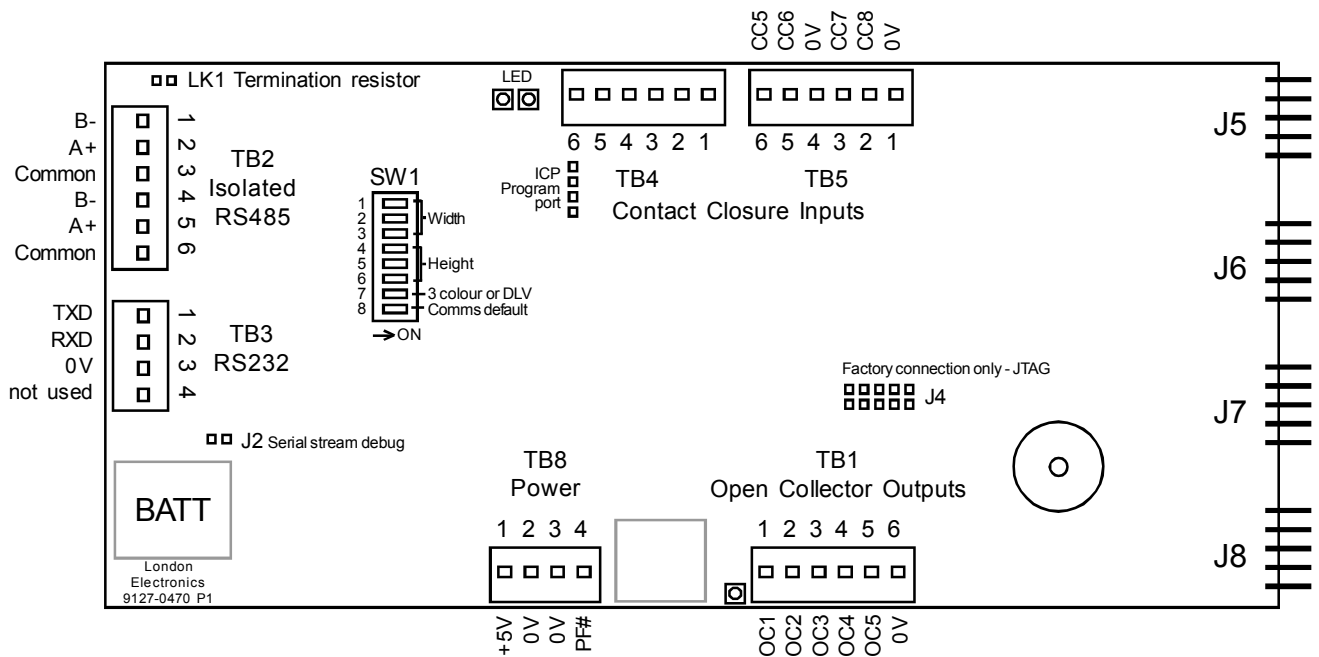
Any moving mechanical device controlled by this equipment must have suitable access guards to prevent injury to personnel if the display should fail.

Connections

This Titans are modular, so depending on which build format you order, the location of the input board and power supply connections will vary.

Input Data Connections

This is the Titan controller board, which you will connect to if you are feeding RS232, RS485 or contact closure signals to the display...



Power Connections:

A labelled power connector within the case will identify the required power connections

Message data format

Standard Message Format:

- Start Character (1 byte)
- Message Type (1 byte ASCII encoded)
- Device Address (1 byte ASCII encoded)
- Command Code (1 byte ASCII encoded)
- Sub-command Code (1 byte ASCII encoded)
- Flags (1 byte ASCII encoded)
- Data (0 to [MAX_DATA_LENGTH] bytes)
- Checksum (1 byte ASCII encoded)
- End Character (1 byte)

Start Character: 0x02

Message type: 0xF8 to 0xFF

The message type provides for multiple message formats. The value range is outside that of the panel meter device address range allowing meters and displays to co-exist on the same bus.

0xF8 Standard Message format (detailed above)

0xF9 Standard Message format (detailed above) but without the checksum field

0xFA Reserved

0xFB Reserved

0xFC Response to F8 Message

0xFD Response to F9 Message

0xFE Reserved

0xFF Reserved

Device Address:

0x00 to 0xF7

0x00 is the broadcast address. A response must not be requested unless it's guaranteed that there is only one device within the specified group.

Command Code: 0x00 to 0xF7

Sub-Command Code: 0x00 to 0xF7

Flags: 0x00 to 0xFF

For command messages:

Bit 0, 0 = Do not respond, 1 = Response required

Bit 1, 0 = Don't Beep, 1 = Beep when command completed

Bit 2,

Bit 3,

Bit 4,

Bit 5,

Bit 6,

Bit 7,

The beep will sound for all recognised messages including broadcast messages and those with parameter errors. The beep will not sound for messages with invalid command or invalid sub command code.

For response messages:

Bit 0, 0 = Command completed successfully, 1 = An error occurred

Bit 1,

Bit 2,

Bit 3,

Bit 4,

Bit 5,

Bit 6,

Bit 7, 1 = Port is locked and command was ignored. No data returned

If an error occurs, a 16-bit error code is returned in the data field

Data:

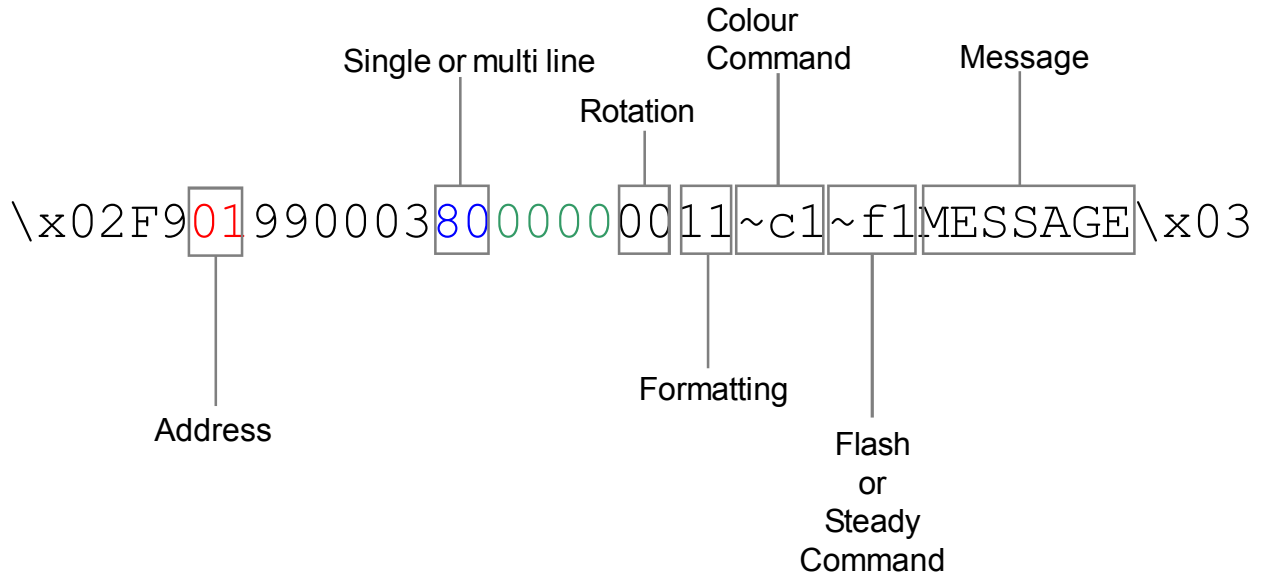
This field can be zero length depending on the command code.

Checksum:

Not yet implemented.

End Character: 0x03

Message examples



Colour Commands are:

~c0 = Red
~c1=Green
~c2=Amber

Flash or Steady commands:

~f0 = Steady
~f1 = Flashing

The Colour and Flash/Steady commands are placed immediately before the message text.

You can include multiple colour and flash commands in a message, simply by inserting the appropriate command prior to a section of text.

For example, to display a steady **Hello** in green followed by a flashing red **123** we would send:-

```
~c1~f0Hello~c0~f1123
```

Messages longer than the display will scroll automatically.

Formatting allows you to justify text, if it is small enough to completely fit within the bounds of the display:

The formats available are:-

00 = Left Justified
01 = Centered
02 = Right justified
11 =

Rotation:

00 = Rotate Left
01 = Fixed
02 = Rotate Right

We provide a free software tool called Titan Manager which allows you to create messages on PC and then send them to the display via a com port.

For network connections, please see our dedicate guide at:-

https://www.london-electronics.com//Titan_Network_Installation_Guide.pdf

Internal Switch settings

Display Width

| | | | |
|-------|-------|-------|------------|
| SW1,3 | SW1,2 | SW1,1 | |
| OFF | OFF | OFF | 32 pixels |
| OFF | OFF | ON | 64 pixels |
| OFF | ON | OFF | 96 pixels |
| OFF | ON | ON | 128 pixels |
| ON | OFF | OFF | 160 pixels |
| ON | OFF | ON | 192 pixels |
| ON | ON | OFF | 224 pixels |
| ON | ON | ON | 256 pixels |

Display Height

| | | | |
|-------|-------|-------|-----------|
| SW1,6 | SW1,5 | SW1,4 | |
| OFF | OFF | OFF | 8 pixels |
| OFF | OFF | ON | 16 pixels |
| OFF | ON | OFF | 24 pixels |
| OFF | ON | ON | 32 pixels |
| ON | OFF | OFF | Reserved |
| ON | OFF | ON | Reserved |
| ON | ON | OFF | Reserved |
| ON | ON | ON | Reserved |

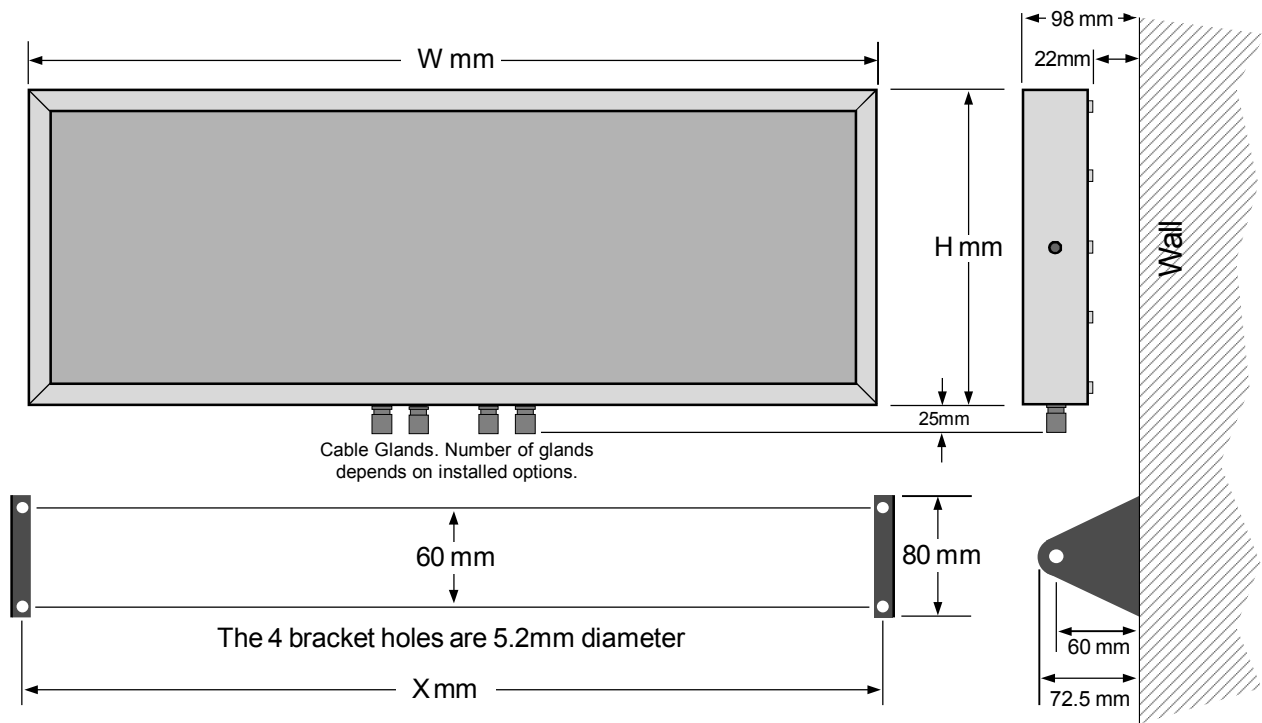
Display Type

| | |
|-------|--|
| SW1,7 | |
| OFF | Red/Green Tiles Fitted for Tri-colour display |
| ON | Red/Red Tile Fitted for Red DLV display (Forces all colours to yellow) |

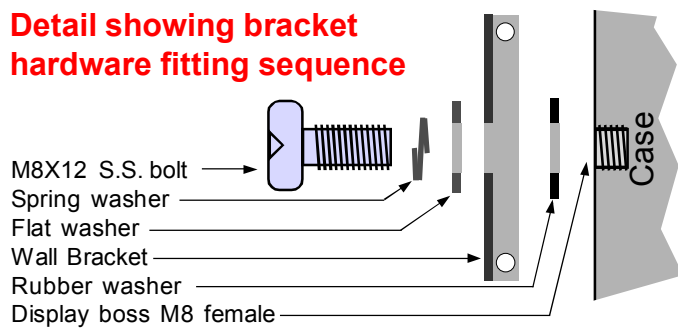
Communications Default

| | |
|-------|--|
| SW1,8 | |
| OFF | Communications controlled by on-board configuration |
| ON | Communications forced to 38400, 8, N, 1 with Device Address = 0x01 |

Titan - Wall Mounting dimensions



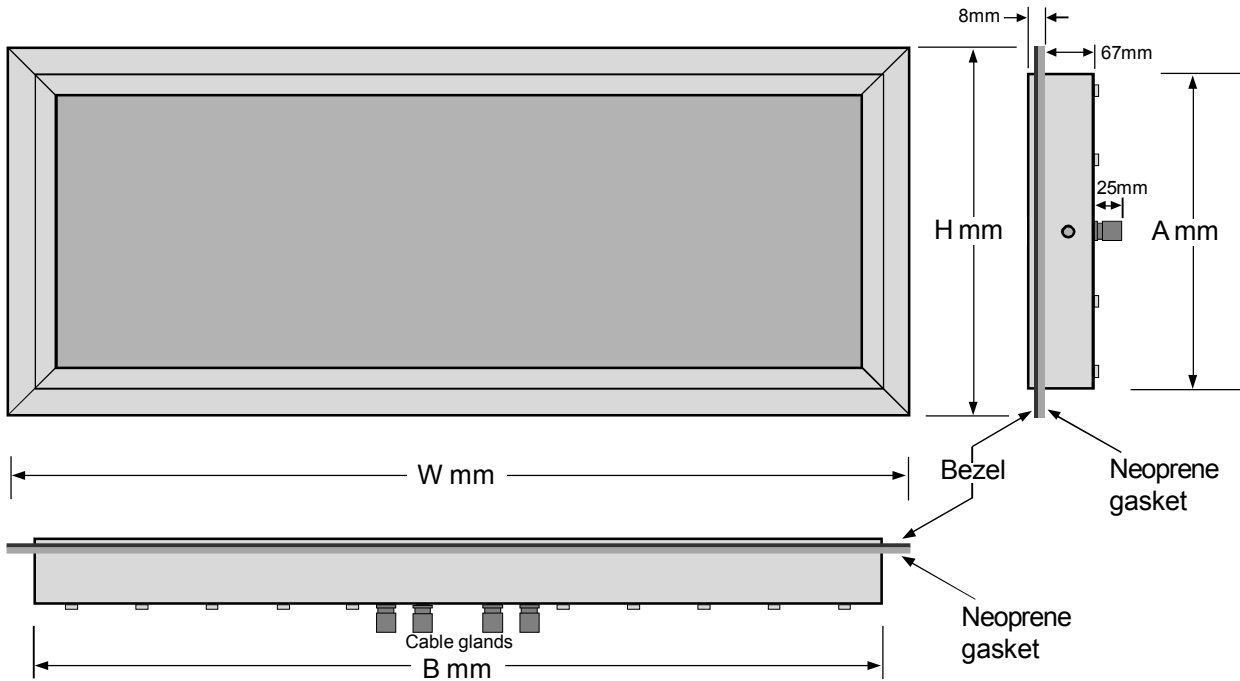
Detail showing bracket hardware fitting sequence



The side holes in the two brackets are 8.5mm dia. to accept M8 bolts.

| Display Format | X mm | H mm | W mm |
|----------------|------|------|------|
| 64 x 8 | 523 | 98 | 540 |
| 80 x 8 | 643 | 98 | 660 |
| 96 x 8 | 767 | 98 | 784 |
| 128 x 8 | 1009 | 98 | 1026 |
| 160 x 8 | 1251 | 98 | 1268 |
| 192 x 8 | 1493 | 98 | 1510 |
| 32 x 16 | 279 | 158 | 296 |
| 64 x 16 | 523 | 158 | 540 |
| 80 x 16 | 643 | 158 | 660 |
| 96 x 16 | 767 | 158 | 784 |
| 128 x 16 | 1009 | 158 | 1026 |
| 160 x 16 | 1251 | 158 | 1268 |
| 192 x 16 | 1493 | 158 | 1510 |
| 224 x 16 | 1735 | 158 | 1752 |
| 64 x 32 | 525 | 278 | 542 |
| 128 x 32 | 1009 | 278 | 1026 |
| 256 x 32 | 1977 | 278 | 1994 |

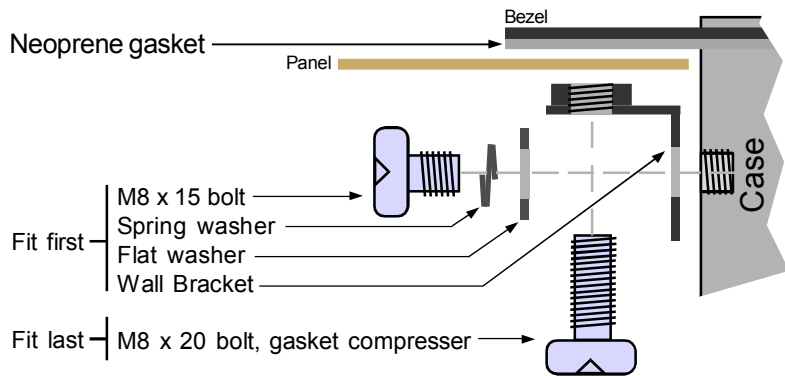
Titan - Panel mounting dimensions



Detail showing bracket hardware fitting sequence

Panel cutout dimensions
 $A+3\text{mm}(h) \times B+3\text{mm}(w)$

Bezel is 18mm wider/
 taller than case



| Display Format | B mm | A mm | W mm | H mm |
|----------------|------|------|------|------|
| 64 x 8 | 541 | 98 | 559 | 116 |
| 80 x 8 | 661 | 98 | 679 | 116 |
| 96 x 8 | 785 | 98 | 803 | 116 |
| 128 x 8 | 1027 | 98 | 1045 | 116 |
| 160 x 8 | 1269 | 98 | 1287 | 116 |
| 192 x 8 | 1511 | 98 | 1529 | 116 |
| 32 x 16 | 297 | 158 | 315 | 176 |
| 64 x 16 | 541 | 158 | 559 | 176 |
| 80 x 16 | 661 | 158 | 679 | 176 |
| 96 x 16 | 785 | 158 | 803 | 176 |
| 128 x 16 | 1027 | 158 | 1045 | 176 |
| 160 x 16 | 1269 | 158 | 1287 | 176 |
| 192 x 16 | 1511 | 158 | 1529 | 176 |
| 224 x 16 | 1753 | 158 | 1771 | 176 |
| 64 x 32 | 543 | 278 | 561 | 296 |
| 128 x 32 | 1027 | 278 | 1045 | 296 |
| 256 x 32 | 1995 | 278 | 2013 | 296 |

Specifications

| | |
|-----------------------------|--|
| Case Material | Heavy duty welded uPVC |
| Connectors | Internal detachable Screw Terminal connectors accessed via compression glands |
| Environmental | Storage Temperature range -20 to +70C, non condensing Operating temperature range 0 to 50C. Internal heater option available for use in conditions down to -25C Allow 30 minutes for this product to reach thermal equilibrium. |
| Power Options Burden | 110VAC, 240 VAC, 11V DC-30 VDC optional Depends on pixel count. Typically 15w per 500 pixels |
| Colours | Red Green and Amber - colours may be mixed within tests. |
| Reading distance | 50mm characters can be read to 20m 100mm characters can be read to 40m |
| Viewing angle | Indoor brightness displays = 160 degrees Outdoor brightness displays = 30 degrees to 1/2 brightness |
| Sealing | IP65 all round, provided the display is mounted vertically and that all cable glands and rear case-closure screws are properly secured. |
| Message size. | Depends on number of pixels. Messages can be longer than the display width, in which case they will scroll. |
| Message Storage | As standard, 64 messages may be stored within the display, for recall via contact closures representing a binary number. Capacity may be optionally increased to 254 messages |
| Input Signals | RS232 RS422 and RS485 Baud rate selectable from 300 to 115200 Data format selectable 701,7e1,7n2,80,8E,8n,8n2 Address 00 to FF Contact Closures (to call up stored messages) Open circuit voltage = 5V DC Closed circuit current = 1mA Ethernet TCP/IP 100/10 (Optional) Profibus DP (Optional) |
| Addressing | 254 unique addresses available |

Notes

Declaration of CE Conformity

Declaration Reference : Titan
Issue Date : 21 September 2011
Products Covered : Titan Series of message displays
Title : DOC-Titan

This is to confirm that the Product covered by this declaration has been designed and manufactured to meet the limits of the following EMC Standard :

EN61326-1:1997

and has been designed to meet the applicable sections of the following safety standards

EN61010-1:2001



Conditions

The displays are allowed to display aberrations during periods when they are subjected to interference, but must recover automatically when disturbance ceases without the need for human intervention, such as resetting, power-down etc.

The displays covered by this certificate must be installed in adherence to the following conditions :-

Signal cabling shall be routed separately to power carrying cabling.

All signal cabling shall be screened. The screen shall only be terminated to the power earth terminal at the display end of the cable.

Declared as true and correct, for and on behalf of London Electronics Ltd.

J.R.Lees Director