London Electronics Limited

Design and manufacture of digital panel meters, large displays, bargraphs, clocks, counters, timers, signal transmitters, production line monitors and custom special instrumentation.








Catalogue 6

Index listing - by function

4-20mA splitter	TIM018 triple loop splitter	33
4-20mA / 0-10V displays	88-PRO loop powered display	1
	EasyReader-P large display	8
	INT2-P 1/8 DIN panel mounting	15
	Fusion-P large display	11
	MAXI-Int2-P 144x72mm series	30
Accessories	Useful additions	40
Alphanumeric displays	Titan series	36
Ampere-Hour displays	INT2-AH Ampere-Hour / Charge display	15
Bargraph displays	BAR-A and BAR-X, 1/8 DIN series	4
	NA Series, 144x48mm, 96 x 24mm	27
	PRO-BAR 309 x 94mm	39
BCD displays	BCD2 2 digit 1/8 DIN	6
	BCD4 4 digit 72 x 24mm display	7
Chart recorder	KD7	23
Clocks	Fusion-H series large displays	11
	INT2-H series 1/8 Din clocks	15
Counters	EasyReader -C large display	8
	Fusion-C series large displays	11
	INT2-C Series 1/8 DIN	15
	144 x 72mm Maxi-Int2-C series	30
Data logger	KD7	23
Digital panel meters - 1/8 DIN	Intuitive series	15
	144 x 72mm Maxi-Int2 series	30
	Loop powered - 88-PRO	1
	Miniature - PICA series	34
Ethernet Gateway	LEM	29
Flow totalisers	INT2-I 4-20mA integrator	15
	INT2-C pulse totaliser	15
Humidity Sensors	P18 series	10
Large digit displays	Easy Reader series	8
	Fusion series	11
Load / Torque / force displays	Fusion-L series large displays	11
	INT2-L 1/8 DIN panel mounting	15
	MAXI-Int2-L 144x72mm series	30
Message displays	Titan series	36
OEE software and displays	Fusion series	11
	OEE solutions	21
Power / Energy metering	N30P 1/8 DIN single phase power/energy meter	26
	ND20 3 phase power meter, 96 x 96mm	26
	P43 3 phase power transducer, DIN rail mounting	26
Printer - panel mounting	MPP5610V	38
Radio modem	SM7 series	3
Rate / Speed / RPM displays	EasyReader-C large display	8
	INT2-C 1/8 DIN panel mounting	15
	Fusion-C large display	11
	MAXI-Int2-C 144x72mm series	30
Resistance meters	INT2-R 1/8 DIN series	15
	MAXI-Int2-R 144x72mm series	30
Serial RS232 / RS485 slave displays	EasyReader-S Large display	8
	INT2-S 1/8 DIN panel mounting	15
	Fusion-S large display	11
	MAXI-Int2-S 144x72mm series	30
Temperature Sensors	P18 Series	10
	Accessories	40
Timers	INT2-H 1/8 DIN panel mounting	15
	Fusion-H large display	11
	MAXI-Int2-H 144x72mm series	30
Text displays	Titan series	36
Time reference	ASR-GPS	2
Video displays	LED and LCD video displays	5

London Electronics Ltd

www.london-electronics.com help@london-electronics.com Tel +44 1767 626444 Fax +44 1767 626446

Contents listing - by model / family

88-Pro	Loop powered scalable panel meter. 1/8 DIN	1
Accessories	Commonly requested add-ons to help complete your system	40
ASR-GPS	Time reference with optional temperature measurement	2
BAR-A and BAR-X	Bargraph displays with alarm options. 1/8 DIN	4
BCD2	2 digit BCD display. 1/8 DIN	6
BCD4	Miniature 4 digit BCD display	7
Clocks	Factory clocks, stand alone and synchronised	32
Easy Reader	Low cost 4 digit large displays	8
Ethernet Module	Add Ethernet TCP/IP connectivity to any RS232 or RS485 device	29
Fusion	High performance Large digit displays	11
Intuitives Mk. 2	High performance digital panel meters. 1/8 DIN	15
KD7	Data logger and paperless chart recorder. Touch-screen display.	23
Maxi-Int2	High performance digital panel meters. 72mm x 144mm	30
N30P	Single phase power meter 1/8 DIN	26
NA Series	Bargraph displays, multi colour with output options.	27
ND20	3 phase power meter, 96 x 96mm	26
OEE displays	Automatically monitor live OEE performance	17,21
P18	Temperature and Humidity sensor 4-20mA and RS485 data out.	10
P43	3 phase power transducer, DIN rail mounting	26
PICA	Sub-miniature panel meters. 24mm x 48mm	34
Panel Printer	RS232 data printer, ideal with our Intutitive panel meters	38
Pro-Bar	Bargraph display - large format	39
Production displays	Share performance data with your production teams.	17
SM7	Radio data modem	3
TIM018A	Loop splitter. Takes 1 x 4-20mA input and gives 3 x 4-20mA outputs	33
Titan Message displays	Alphanumeric displays in a range of sizes and colours.	36
Video displays	LED and LCD video displays	5

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

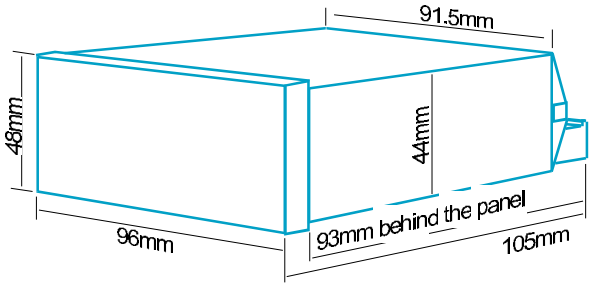
88-PRO 4-20mA Loop Powered 1/8 DIN meter

- **Shallow case 93mm behind panel**
- **Low cost and fast delivery**
- **Powered by its input signal**

A detailed operating manual for this model is available at **http://london-electronics.com/**

General specifications

Digit Height	12.7mm standard
Display type	High contrast LCD
Accuracy	+/- 0.1 % of range
Calibration method	Zero + Span pots
Decimal point selection	push-on jumpers
CMRR	65 dB DC-450Hz.
Linear ranges	3-21mA, 8-52mA, 0.8-6mA
Resolution	1 part in 2000 max.
Display update rate	3 readings/second
Technique	dual slope integrator
Integration period	100mS
Temperature range	0 to +50 degrees C
Sealing rating at bezel	IP54



Panel cutout 45mm high x 92mm wide. Weight 250 grammes. Sealed IP54. For the IP67 optional cover, specify option SPC4

The 88-PRO can display a wide range of process variables such as temperature, pressure, flow, weight, pH, humidity etc. It accepts 4-20mA, 10-50mA and 1-5mA, and gives superb value for money.

The loop voltage drop is only 2.5V.

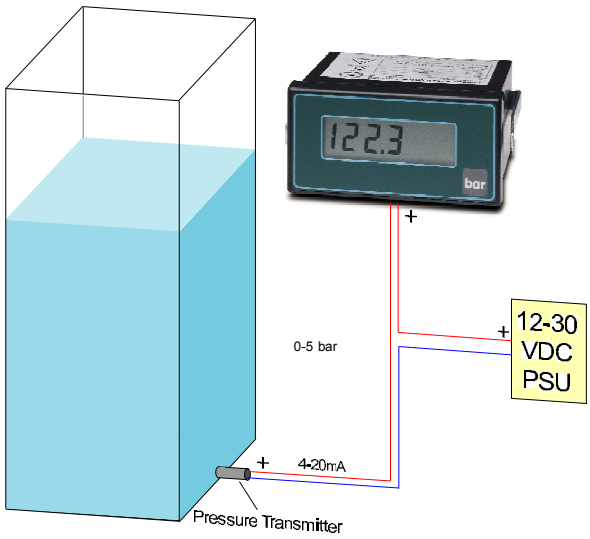
The simple bezel will compliment your panel design. The lens protects all legends and markings, so display clarity will always be excellent even after repeated wipedowns. High contrast LCDs make these meters suitable for use in bright environments.

You can extend the maximum reading up to 19990, or 199900 with fixed zeros, selected by jumper switches. This is useful when the cost of a 4 1/2 or 5 1/2 digit meter may be too high.

There's also an INVERT facility, so an increasing input signal gives a reducing display, for example 4-20mA =100.0 to 0.0

Typical application

You can connect the 88-PRO to a wide range of signal loops. You won't need a power supply. This is because the meter uses the input signal as its power source.



This simple example shows how to use the 88PRO to measure the contents of a straight sided liquid storage tank. The transmitter is at the bottom of the tank, and as liquid level rises, the pressure at the base rises. Simply adjust the meter to read in true volume.

Ordering Guide:

88-PRO □ □ □ □ □

Input signal range **4-20mA 10-50mA 1-5mA**

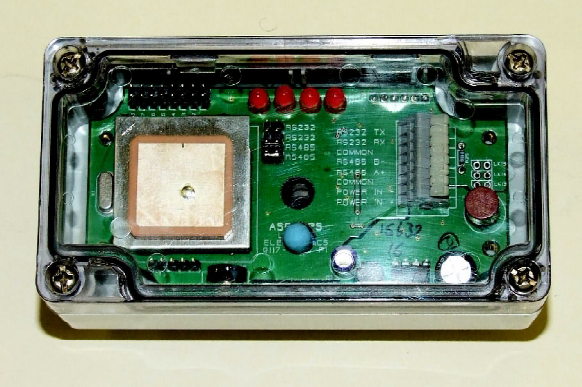
Display range **Specify, eg. 0-100.0 , 0-200, 0-19990 etc.**

Units of measure **Specify, eg. Bar, kg, °C, %rh etc.**

Accessories **Specify any other options you want, such as SPC4 IP67 cover**

Example 88-PRO-4-20mA-0-50-°C-SPC4

GPS based atomic time standard - Model ASR-GPS



- **Simple to install and commission**
- **Compatible with London clock displays**
- **In-built antenna, just point at the sky**
- **DC powered, for portable/mobile use**
- **Synchronises up to 32 clocks**
- **Sealed for outdoor use**
- **Clear Plain English operating manuals**
- **Network TimeServer software option**

Operating manuals and more technical detail available at **http://london-electronics.com**

Specifications

Connections

Power supply	11 to 30 V DC at up to 50mA.
	Typically 25mA at 24VDC
Data output	RS485 or RS232, 9600 baud
	8 data bits, no parity, 1 stop bit
	1 transmission per second.

Timing

Precision	Within +/- 1 second
Summer/winter time	Automatic correction
Time Zone setting	Set with PC configuration application

Cabling

Cable dimensions	Screened cable 4.5 to 6.5mm dia.
Cable type	CAT5 preferred

Case

Case sealing	IP65
Case Material	Polycarbonate
Flammability Class	V0 (UL94)
Case width	115.0 mm
Case thickness	40.0 mm
Case height	65.0 mm
Cable gland height	20.0 mm
Typical weight	175 grams
Operating conditions	0 to 50 degrees C
Storage conditions	-20 to +70 degrees C

If you want to guarantee all your clock displays are reading the correct time, the ASR-GPS time standard is ideal.

It receives precise time updates from the GPS satellite network, anywhere in the world, and contains a precision backup timer to maintain data output if the satellite signal is temporarily lost.

It provides and ASCII data output of time and date, with summer and winter time correction.

You can configure the receiver to send one of 3 data formats ...

1) HHmmSSDDMMYY [DN] [SOURCE] [DST] [TZ],xxx.x[U]<CR><LF>
2) CCYYMMDDTHHmmSS [DN] [SOURCE] [DST] [TZ],xxx.x[U]<CR><LF>
3) CCYY-MM-DDHH:mm:SS [DN] [SRC] [DST] [TZ],xxx.x[U]<CR><LF>

HH is hours 00-23
mm is minutes 00-59
SS is seconds 00-59
DD is date 01-31
MM is months 01-12
YY is years 00-99
CC is century 00-99

[DN] is Day of Week 1-7, 1 character
Sunday is day 1, Monday is day 2 etc

[SOURCE] is the time source, 3 characters
GPS or RTC (GlobalPositioningSatellite live data or RealTimeClock internal reference)

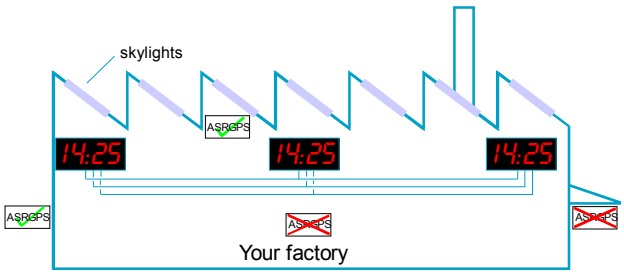
[DST] is Daylight Saving flag, 1 character, 0 or 1
1 = daylight saving correction has been applied

[TZ] is time zone adjustment applied.
5 characters, +1200 to -1200
Zero offset has a space instead of +/-

,xxx.x is temperature if temperature option installed, or ,---.- if not

[U] is either C for degrees C or F for degrees F

Where to mount your ASRGPS...



A single ASR-GPS can synchronise up to 32 EasyReader or Fusion clocks in your factory.

You can connect the clocks to the ASR-GPS with 3 core screened data cable, CAT5 cable etc.

The ASR-GPS must be able to 'see' the sky, so you can mount it under a skylight, or on an outside wall. Avoid mounting it within the factory or under eaves etc.

If your ASR-GPS includes the outdoor temperature sensing option, mount it on a North-facing ouside wall if you are in the northern hemisphere, or a South-facing outside wall if you are in the southern hemisphere, so it will avoid the heating effect of direct sunlight.

Ordering Code: ASR-GPS

Temperature sensor option: Select 0 or TEMP
With network timeserver software: Select 0 or SERVER

London Electronics Ltd
www.london-electronics.com help@london-electronics.com Tel +44 1767 626444 Fax +44 1767 626446

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

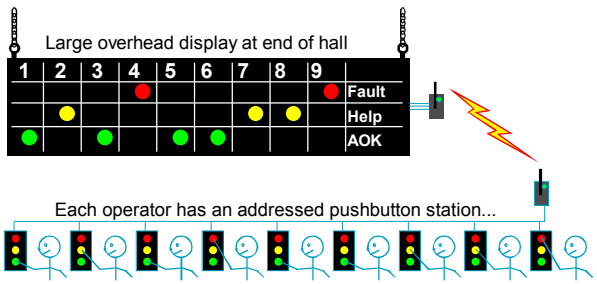
SM7 Radio data modem for RS232 / RS485

- **Simple to install and commission**
- **Supports RS232 and RS485**
- **Choice of 433MHz or 868 MHz**
- **Manchester or NRZ data encoding**
- **Antenna can be remotely mounted**
- **10 channels, each with addressing**
- **No license required**

The SM7 is perfect for applications where you need to send data to a remote device and wiring the two together is not convenient. Examples include sensing weight data from a mobile crane to a central logging device, fork lift operator display updating from a warehouse controller, etc.

The units support ModBus and can also be used to transmit logic status, such as pushbutton actions, by using our PSC1 logic compressor and logic expander. this is useful in applications where you may have a long production line, with many operator workstations, and you want to allow the operators to signal faults or help-requests.

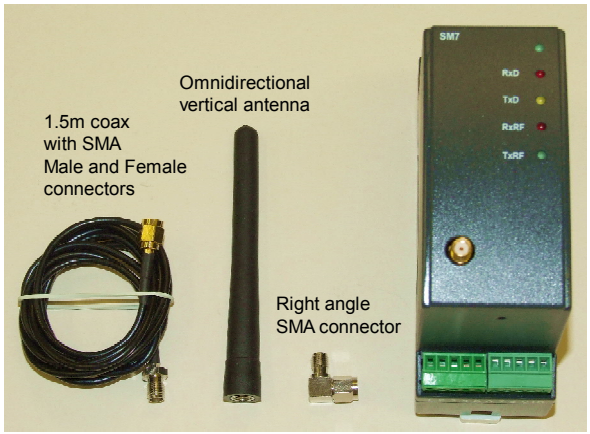
Their button presses can be sent to a large overhead traffic light system to immediately alert the production supervisor or maintenance staff of a problem. The SM7 allows this to be achieved without complex wiring.



Port 1	RS232 interface	
	Data format	8N1, 8N2, 801, 7E1, 701
	Baud rate	4800 to 115200
	Max voltage above ground	50V
Port 2	RS485 interface	
	Data format	8N1, 8N2, 8E1, 801, 7E1, 701
	Baud rate	4800 to 115200
	Max voltage above ground	50V

Carrier frequency	433 or 868 MHz, to order
Power choices	-20, -15, -10, -5, 0, +5, +10 dBm
Receiver sensitivity	110 dBm
Encoding type	Manchester or NRZ
Range, line of sight	300 metres
Number of channels	10
Antenna connection	50 Ohm SMA
Switch-on delay	2 seconds
Antenna orientation	Must be mounted vertically
Power voltage	85-253 V AC or 7-35V DC
Power consumption	2.5 VA
Dimensions	45mmw x 120mmh x 100mmd
Weight	500g
Mounting	35mm DIN rail
Sealing	IP20
Installation category	3
Pollution grade	2
Operating temperature	0 to 45 Degrees C
Storage temperature	-20 to 70 degrees C
Humidity	Less than 95% non condensing

Each modem comes with an antenna, cable to allow the antenna to be mounted remotely, a right angled SMA connector to allow the module to be mounted vertically or horizontally, whilst mainitaing the antenna vertical, a setup CD and an operating manual.



Ordering Code

Radio transmission module (single module) **SM7**

Supply voltage 85-253VAC = **1** 7-35VDC = **3**
Carrier Frequency 433MHz = **1**, 868 MHz = **2**
Standard unit, no mods = **8**

Process Bargraphs - Model BAR-A and BAR-X

- **Get an instant idea of 'How Much'**
- **Simple to install and commission**
- **Clear Plain English operating manuals**
- **Internal 24V supply to power sensor**
- **Slow / Fast response**
- **Dot / Bar format**
- **Vertical / Horizontal**

Operating manuals and more technical detail available at **http://london-electronics.com**

Input Ranges
4-20mA, 0-20mA, 0-10mA, 1-5V, 0-10V, -5 to +5V

Accuracy
Of range. ..... 0.5% ,+/- 1 segment at 25 Deg. C
Resolution.....1 in 30
Excitation output..... 24V +/- 10%, current limited to 30mA

Display
Format.....30 segments, red or green LED
Scale length ..... 75 mm

Alarm Outputs (on BAR-X only)
Format.....HI-LO (default), HI-HI, LO-LO or pump control
Annunciation....Red LED illuminates when relay de-energises
Output.....Changeover, form C, rated 5A, 250VAC, resistive
Hysteresis.....+/-1% of range

Power Supply
95-265 V AC wide range switch-mode supply - standard
11-30 V DC wide range switch-mode supply - optional
Power consumption.....Around 3 VA

Dimensions
Display Bezel .....1/8 DIN , 96 x 48 mm
Panel Cutout .....92 x 45 mm
Depth behind panel, including connectors .....125 mm
Max. width behind panel .....110 mm

Environmental Limits
Storage temperature .....-40 to 85 °C
Operating temperature ..... 0 to 50 °C
Humidity ..... 0 to 85 % RH non condensing
Sealing.....Front = IP54 Standard, IP67 with optional SPC4

Case
Material .....94V-1, UL Rated Noryl

We also make bargraphs in 144 x 38mm format, model BAR-50. and with 250mm scale length, model PRO-BAR.

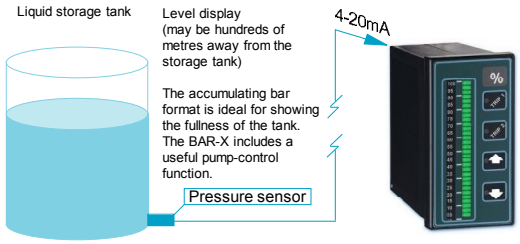
Bargraph displays are ideal if you want to know the 'fullness' of a tank, 'hotness' of a process etc. Use them in applications where you want to be able to know, at a glance, the relative value of a variable. Similar in principal to moving pointer displays, yet more reliable and robust because they have no moving parts.

Choose from 2 models:

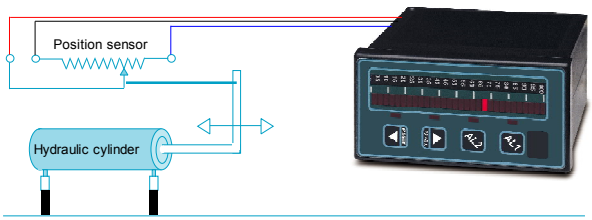
- The BAR-A is a display-only version
- The BAR-X has 2 alarm relays.

These displays can be set with a moving dot or accumulating bar format, to suit such applications as position monitoring or tank level indication.

And, you can mount the display horizontally or vertically to suit different applications. For example ...



Position display. The moving dot format is better for this type of application



To scale and identify the readout, we offer to print customised scale labels for you, free of charge.

The Alarms on the BAR-X model have Failsafe (de-energise on trip) changeover relay outputs, with an LED to show relay status. The alarms are supplied as HI-LO format, but you can easily set HI-HI or LO-LO.

There is also a 'pump-control' mode available as standard, where the low alarm will latch, and will only reset when the input exceeds the high alarm limit.

Ordering Code:

BAR [ ] [ ] [ ] [ ] [ ]

A - display only
X - display + 2 alarms

Input signal eg 4-20mA

Scale and units, eg 0-100 Bar

95-265 VAC - Suitable for 110/230 VAC
11-30 VDC - Suitable for 12/24 VDC

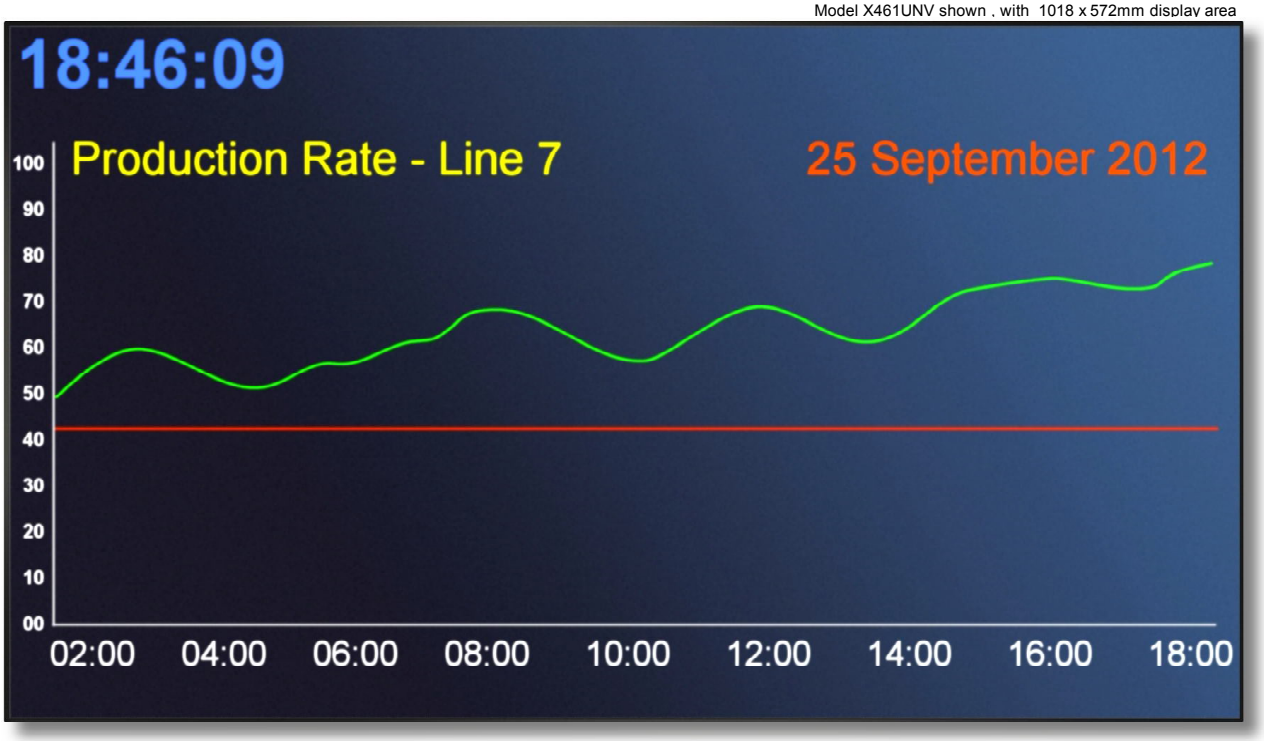
Extras, such as **SPC4**. Enter **0** if not needed

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

LED and LCD large format displays

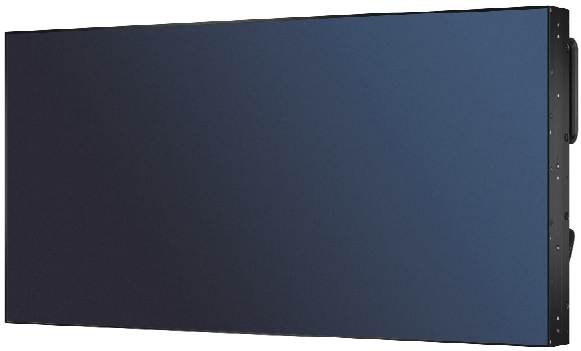
Model X461UNV shown , with 1018 x 572mm display area



LCD video panels

Full colour, large format displays are ideal for showing graphs, production data, instructional video or any other information which you want to share with your workforce.

They come in a range of sizes to suit the viewing distance requirements on site.



Model X461UNV shown , with 1018 x 572mm display area

LCD panels can be stacked side by side, one above the other to build up larger screens, as required.

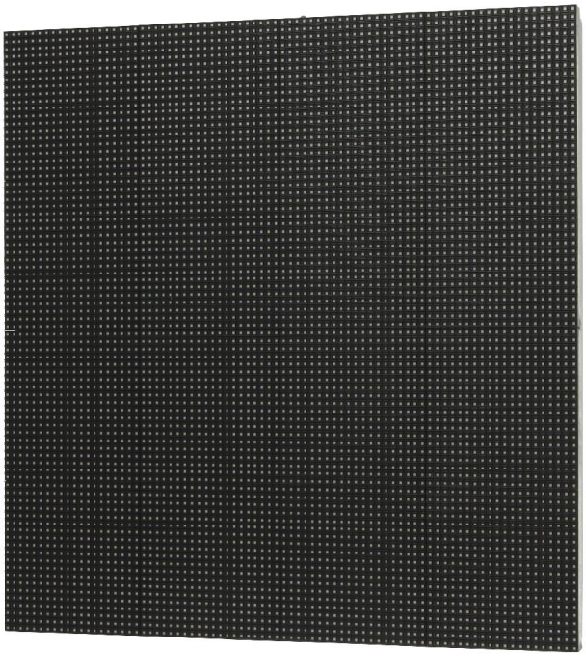
These displays are ideal for use with our web-based production line monitoring systems.

We also supply outdoor mounting LED versions which can be read in direct sunlight.

These are ideal for mounting at entrances to factories or organisations, and can show such information as stock performance, site safety instructions, promotional video etc.

LED matrix 500mm x 500mm

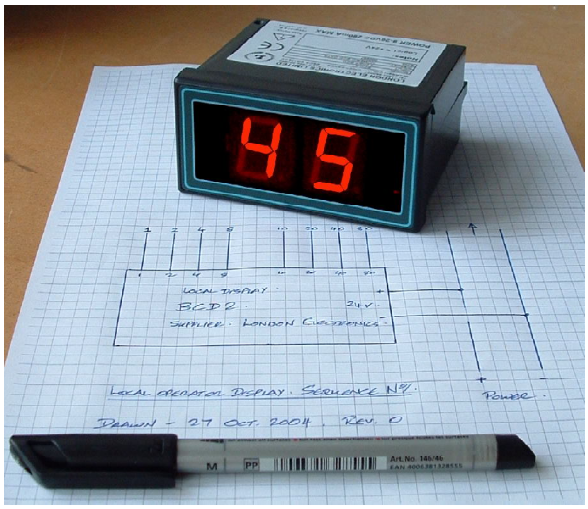
LED matrix displays are full colour, high intensity displays, which are supplied in ‘tiles’ of 500 x 500mm.



Rear view of a 500x500 tile

Side view

Large 2 digit BCD input 1/8 DIN display - Model BCD-2



- **Simple to install and commission**
- **Large digits for clear visibility**
- **Suits common PLC data levels**
- **Industry-standard case sizes**
- **Simple selection of logic polarity**
- **Clear Plain English operating manuals**
- **Detachable screw terminal connectors**

Operating manuals and more technical detail available at **http://london-electronics.com**

Input Signals
Format .....4 bits per digit. 1,2,4,8,10,20,40,80
Logic.....Selectable, High or Low level = logic 1
Voltage levels.....24V

Display
Format.....2 digit 7 segment red LED
Digit height.....25mm
Viewing distance.....13m max

Power Supply
Supply voltage.....21-26 VDC
Power consumption.....5 Watts max.

Dimensions
Display Bezel .....1/8 DIN , 96 x 48 mm
Panel Cutout .....92 x 45 mm
Depth behind panel, including connectors .....105 mm
Max. width behind panel .....110 mm

Environmental Limits
Storage temperature .....-20 to 70 °C
Operating temperature..... -10 to 50 °C
Humidity ..... 0 to 90 % RH non condensing
Sealing.....Front = IP54 Standard, IP67 with optional SPC4

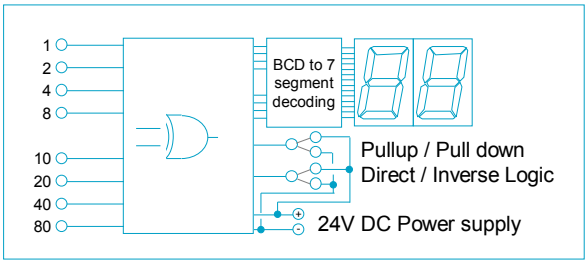
Case
Material .....94V-1, UL Rated Noryl

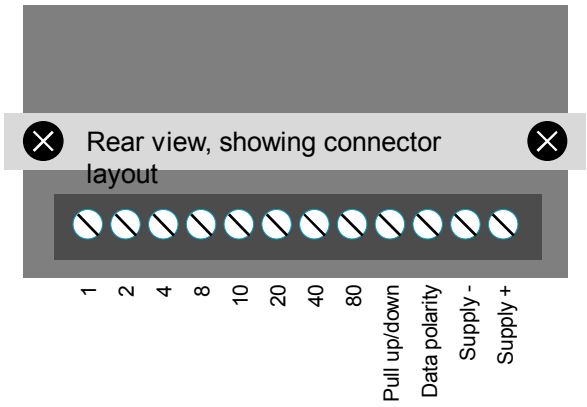
We also make large digit displays which can accept up to 7 digits of BCD data via the **PSC1** parallel to serial converter. See separate datasheet.

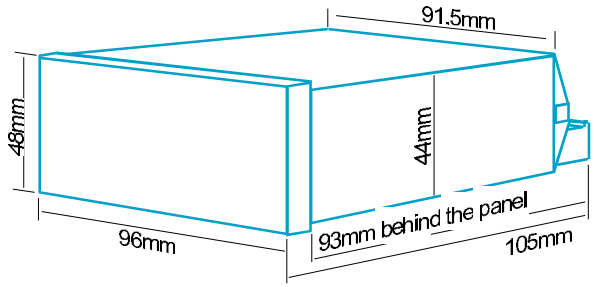
BCD displays are useful in many PLC and logic circuits, to give your machine operators an idea of important numeric values.

These displays connect directly to PLCs with 24V logic output

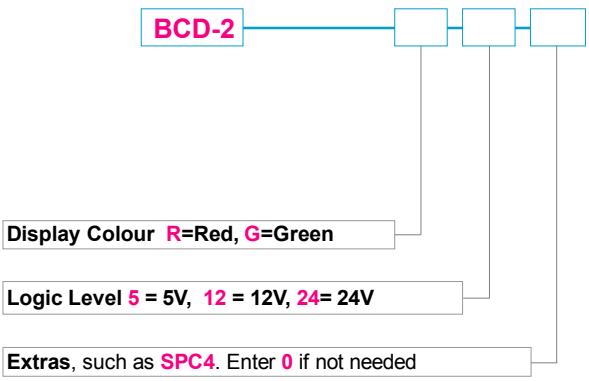
The BCD-2 is a simple 2 digit display, with 25mm high digits. You can clearly see the displayed value up to 13 metres away.





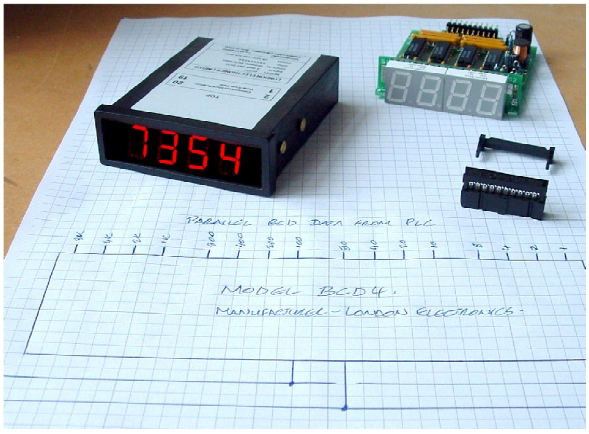


Ordering Code:



London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

BCD-4 Miniature 4 digit BCD input display



- **Simple to install and commission**
- **Suits common PLC data levels**
- **Industry-standard case size**
- **Simple IDC ribbon cable connection**
- **Clear Plain English operating manuals**
- **Strobe / load / hold input**

Operating manuals and more technical detail available at **http://london-electronics.com/**

Input Signals
Format .....4 BCD bits per digit
Logic.....High level = logic 1
Input level.....24V positive logic standard, 5V optional
Input resistance per line.....4900 Ohms
Strobe.....Low = Follow, High = Hold

Display
Format.....4 digit 7 segment
LED Digit height.....14.2mm
Viewing distance.....7m max
Decimal point.....set by solder switch

Power Supply
Supply voltage.....21-26 VDC
Power consumption.....2 Watts max.

Dimensions
Display Bezel .....72 x 24 mm
Panel Cutout .....68 x 22 mm
Depth behind panel, including connectors .....100 mm max.
Max. width behind panel .....80 mm

Environmental Limits
Storage temperature .....-40 to 85 °C
Operating temperature ..... 0 to 50 °C
Humidity ..... 0 to 85 % RH non condensing
Sealing.....Front = IP54 Standard, IP65 optional

Case
Material .....94V-1, UL Rated Noryl, acrylic lens

We also make large digit displays which can accept up to 7 digits of BCD data via the **PSC1** parallel to serial converter. See separate datasheet.

BCD displays are useful in many PLC and logic circuits, to give your operators a clear idea of important numeric values.

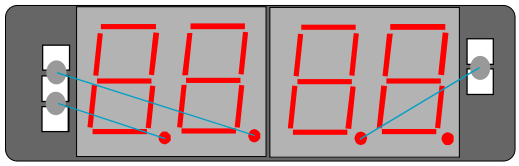
You can clearly see these displays up to 7 metres away.

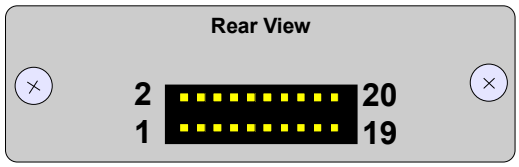
The BCD-4 gives 4 digits, each with 14.2mm height and selectable decimal point. A level-active strobe input is useful if you want to capture data which is not always present.

These displays connect directly to PLCs or other devices which give 24V logic output. A 5V logic option is also available.

We normally supply a 20 way IDC connector with every display. If you prefer, we can supply a pre-terminated length of ribbon cable for you instead - just tell us the length of cable you need and we will quote to offer this service.

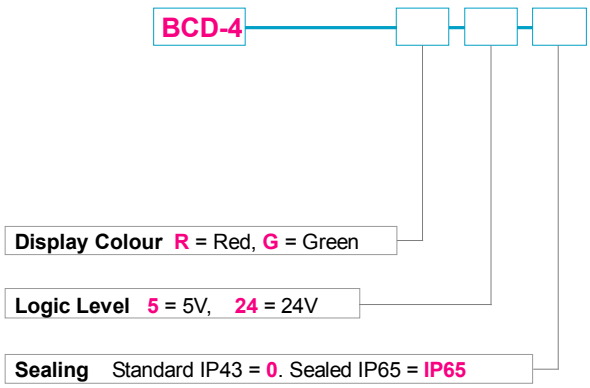
How to illuminate decimal points with solder blobs on copper pads





1	Supply +	2	Supply negative
3	Strobe	4	Signal OV comm.
5	BCD 8	6	BCD 1
7	BCD 2	8	BCD 4
9	BCD 80	10	BCD 10
11	BCD 20	12	BCD 40
13	BCD 800	14	BCD 100
15	BCD 200	16	BCD 400
17	BCD 8000	18	BCD 1000
19	BCD 2000	20	BCD 4000

Ordering Code:



Economy Large Displays - Easy-Reader

Save time and money with this range of low cost general purpose large displays. Their simple yet rugged design gives long term reliability and smart appearance. Calibration and commissioning is made easy with the unique INTUITIVE menu-free programming system.

11 reasons to choose the EasyReader...

- Smart styling
- Clear, bright display
- Broad range of models
- Low maintenance costs
- Lowest cost large display
- Fast, free technical support
- High immunity to interference
- Easy to use, menu-free setup
- Lockout system to save your settings
- Can be configured from the front panel
- Long warranty, extendable free of charge

10 Display Functions

- Total
- Rate / Speed / Frequency
- Process
- Weight (with amplifier or weigh-head)
- Slave display from RS232, RS485 etc.
- Time of Day / Elapsed Time
- Temperature
- Humidity (with external converter)
- Power (with external converter)
- Pressure

5 Input Signal types

- 4-20mA, 0-10V, 1-5V etc
- Pulses PNP, NPN, Contact etc
- Serial Data RS232, 485, 422 etc.
- BCD data, via model PSC1
- Thermocouple/PT100 Sensors

2 digit sizes

- 57 mm for up to 25 metres viewing
- 102mm for up to 50 metres viewing

A look inside the rear case of the 57mm version. Here you can see the neat and simple layout.

Cables enter the enclosure through 3 glands at the bottom of the case. Detachable screw terminals make installation easy and fast. A back-plate seals the enclosure after you have finished your wiring.

More technical information for this product is at **www.london-electronics.com**

Installing the 102mm version...

A simple and affordable way to easily see and share important measurements over distances up to 50 metres.

Help your workforce to keep in touch with what is happening. Measurements can be seen up to 50 metres away. Ideal for displaying your important plant variables such as:-

* Production rate - are we working fast enough?
* Production total and target - have we made enough?
* Temperature and humidity in controlled environments
* Crane lifting weight - are we within safe limits?
* What time is it? Synchronised factory clocks.
* Weighbridge load - the driver can stay in his cab.
* Any physical variable important to your process

All the signal conditioning, power supply and display circuitry is included in the enclosure, so installation is simple and tidy.

Just apply power and connect your input signal to get precise display of your process variables.

You can wall-mount or suspend these displays. Tell us how you want to mount your display when you order, and we'll supply the mounting brackets free of charge.

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

EasyReader specs.

	57mm digit height gives **25 metres viewing max.**	102mm digit height gives **50 metres viewing max.**
Model numbers:	Format	Format
Process input	ER2P 8.8.8.8	ER4P 8.8.8.8
Rate / Total	ER2C 8.8.8.8	ER4C 8.8.8.8
Serial data input	ER2S 8.8.8.8	ER4S 8.8.8.8
Temperature	ER2T 8.8.8.8	ER4T 8.8.8.8
Clock Slave *	ER2H 88 :88	ER4H 88 :88
Mechanical:		
Case size	260mmW x 140mmH	415mmW* x 195mmH
Depth front-back	75 mm	75 mm
Weight	2kg	3kg *425mm for ER4H
Flush panel mounting versions have a 9mm bezel lip all around the case. Panel Cutout size = Case size + 1mm. Glands exit from the rear.		

Input Signals:

Models	**ER2P, ER2T and ER4P, ER4T - process displays**
Ranges	4-20mA, 0-10V and 1-5V DC as standard, fully scalable. (PT100 / TC for ER2T and ER4T)
Scaling method	INTUITIVE menu-free digital scaling. Settings stored in non volatile memory.
Input resistance	33 Ohms for current inputs, 1 Megohm for voltage inputs. (not on ER2T or ER4T)
Excitation	24VDC nominal, at up to 30mA (not on ER2T or ER4T)
Accuracy	+/- 0.1% of range +/-1 count at 25C. Tempco +/-100ppm/C zero and span.
Read-rate	3 per second nominal
Filtering	Signal averaging period adjustable from 0 to 5 seconds
Count-by	Can be set to count by 1,2,5,10,20 or 50
Features	Tare, Peak, Valley and reset from front panel or with remote contact closures

Models	**ER2C and ER4C - scalable counters and ratemeters**
Signal types	NPN, PNP or contact closure, from proximity sensors, switches, relays etc.
Functions	Counting and pulse rate, elapsed time, quadrature fully scalable.
Scaling method	INTUITIVE menu-free digital scaling. Settings stored in non volatile memory.
Excitation	24VDC nominal, at up to 50mA
Accuracy(rate)	+/- 0.05% of range +/-1 count at 25C. Tempco +/-50ppm/C zero and span.
Read-rate	3 per second nominal
Filtering(rate)	Signal averaging period adjustable from 0 to 5 seconds
Features	Peak, Valley and reset from front panel or with remote contact closures

Models	**ER2S,ER4S,ER2S,ER4S - addressable serial data input remote displays**
Signal types	ASCII data from 300 to 9600 baud. RS232, RS485, RS422 and TTY types.
Addressing	From 00 to FF
Protocol	Adjustable to suit a wide range of data sources.
Read-rate	Display updates with each incoming data string.
Features	Tare, Peak, Valley and reset from front panel or with remote contact closures

Materials:

Case	uPVC welded extrusion case, Anti-reflective tinted acrylic window, steel fittings.

Environment:

Working temperature	-10 to 50 degrees C
Storage temperature	-20 to +70 degrees C, 0 to 95 %rh non condensing
Sealing	IP54 dust tight standard, IP65 optional
Atmosphere	Non-flammable, non explosive

Ordering code:

Type & Size		Mounting	Power	Brightness
Process display 57 mm	ER2P	-1 Flush Panel	-AC 95-265VAC	-0 Normal
Process display 102mm	ER4P	-2 Wall	-DC 11-30V DC	-DLV Ultrabright
Counter/ratemeter	57 mm ER2C	-3 Suspension		
Counter/ratemeter	102mm ER4C	-6 Top-of-cabinet		
Serial ASCII slave	57 mm ER2S			
Serial ASCII slave	102mm ER4S			
TC/PT100 display	57 mm ER2T			
TC/PT100 display	102mm ER4T			
HH:MM Clock *	57 mm ER2H			
HH:MM Clock *	102mm ER4H			

IP65 Option. Please add suffix **IP65** if you need sealing to IP65

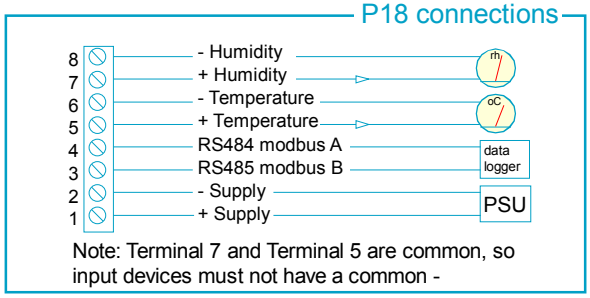
For example model **ER4P-2-DC-0** is a wall mount 102mm process display, DC power, normal brightness.

* Time data provided by our precision time reference module such as ASR-GPS.

Temperature & Humidity transmitter. Model P18 / P18L

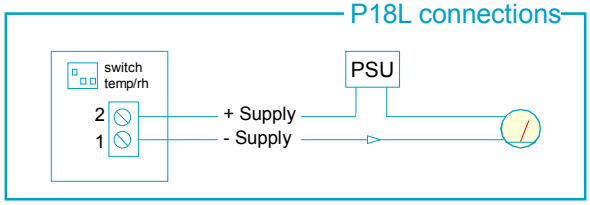
- **Combined temperature and humidity**
- **Economical and easy to use**
- **4-20mA or 0-10V and Modbus output**
- **Sealed rugged enclosure**

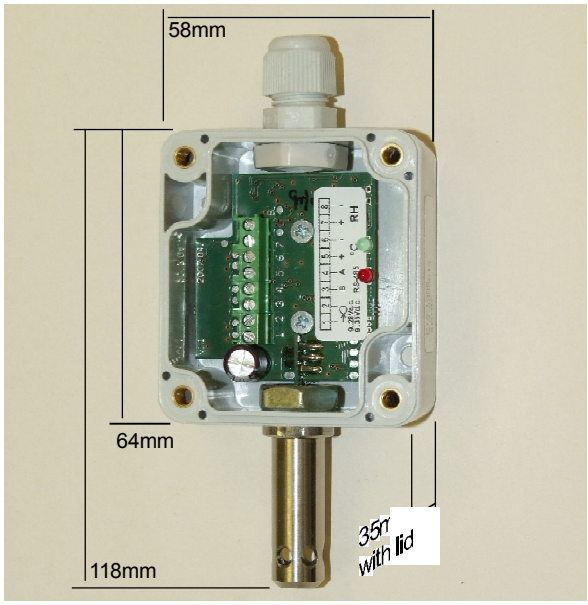
P18 connections



Note: Terminal 7 and Terminal 5 are common, so input devices must not have a common -

P18L connections





Specifications

Relative humidity range	0...100%
Basic error - humidity	± 2% for RH = 10...90% ± 3% remaining range
Hysteresis for humidity	± 1%
Temperature range	- 30 to +85°C
Temperature accuracy	± 0.5% of range
Temperature influence	± 25% /10 deg. C

Intended installation
The P18 or P18L transducer is fixed to a wall by way of 2 screw holes, outside the main sealed enclosure. Must be mounted in a typical area to be monitored, in order to give realistic representation of conditions in that area.

RS-485 digital output (P18 only):

Transmission protocol	MODBUS
Baud rate	4800, 9600, 19200, 38400, 57600 bit/s
Format RTU	8N2, 8E1, 8O1, 8N1
Response time	300 ms

Analogue output

Current	4 to 20 mA or 0-10V
Current output load	200 Ohms max

P18L has a simple single 2 wire connection, where the unit modulates the current in the power supply cable. A selector switch chooses whether the output is proportional to temperature or humidity

P18 has an active output, giving simultaneous temperature and humidity + modbus data.

Rated operating conditions:

Supply	9 to 36 V d.c.
Consumption	< 2 VA
Ambient temperature	- 30 to 85 deg. C
Relative air humidity	< 95% non condensing
Preheating time	15 minutes
Protection	IP 65
Weight	125 g

Electromagnetic compatibility:
- immunity acc. to EN 61000 -6-2
- emission acc. to EN 61000 -6-4

Installation requirements acc. to EN 61010-1
- installation category III
- pollution grade 2
- working voltage in relation to earth 50 V

Fixing positions

Dry areas	Any
Exposed to water	With the sensor pointing down

Ordering Code

P18-1 = Advanced unit 2 x 4-20mA + modbus output
P18-2 = Advanced unit 2 x 0-10V + modbus output
P18L = Basic unit , single 4-20mA output, selectable either temperature or humidity.

London Electronics Ltd
www.london-electronics.com help@london-electronics.com Tel +44 1767 626444 Fax +44 1767 626446

The Fusion Series of Large displays

This is the 4 inch, 6 digit version (F4-6N) which is clearly legible up to 50m away. Many other sizes available.

Custom code available for YOUR special application !

Display functions
- Total
- Rate / Speed
- Target (ideal for production lines)
- Frequency
- Weight
- Temperature
- Humidity
- Real Time
- Elapsed Time
- Power, RPM, Torque
- Pressure
- ... any combination of the above

The Fusion series has these benefits...
- Easy to use, no-menu programming
- Smart styling, slim, easy to install
- Competitively priced
- Remote setting from ground level
- Modular options to suit your exact needs
- Displays can be built to custom formats
- Indoor and outdoor models
- Fast, free technical support
- Long warranty, extendable free of charge
- Can be built with AlphaNumeric displays
- Wide range of mounting and gland positions

Input signals for the Fusion
- 4-20mA, 0-10V, 1-5V etc
- Loadcells
- PNP, NPN, Namur, Contact closure, etc
- Serial Data RS232, 485, 422 etc.
- Temperature sensors
- Humidity sensors
- Logic Reset, Tare, Peak/Valley etc.

Sealing Standards
- IP65 for bottom glands, IP54 for top

What size digits are available?
- 57 mm for up to 25 metres viewing
- 102mm for up to 50 metres viewing
- 150mm for up to 75 metres viewing
- 200mm for up to 100 metres viewing
- 300mm for up to 140 metres viewing
- 400mm for up to 200 metres viewing

Which output options are possible?
- 2 or 4 alarm SPST relays, 2x SPDT
- 4-20mA, 0-10V or -10 to +10V analog
- RS232, RS485, Ethernet data output

Fusion display formats, colours and sizes

Model numbers:-

Fusion-C	Counter/Rate
Fusion-H	Elapsed timer
Fusion-L	Weight/load
Fusion-P	4-20mA/0-10V
Fusion-S	Serial data

Applications:-
Production totals, targets Vehicle Weight, tank volume, Silo contents, reservoir capacity, kWh energy produced or consumed

Model numbers:-

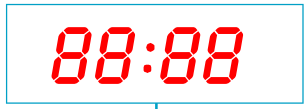
Fusion-H	Clock / Timer
Fusion-S	Serial data

Applications:-
Factory time displays, public area clocks, down-counters, elapsed timers, time until event displays

Model numbers:-

Fusion-C	Counter/Rate
Fusion-H	Elapsed timer
Fusion-L	Weight/Load
Fusion-P	4-20mA/0-10V
Fusion-S	Serial data
Fusion-T	Temperature

Applications:-
Temperature, down-time, humidity, weight, load, RPM, rate, days since last accident displays.



Model numbers:-

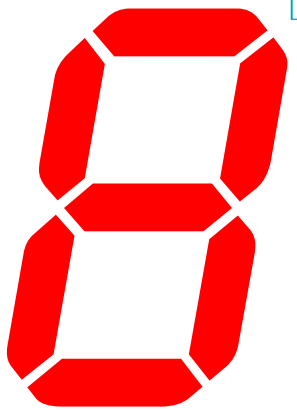
Fusion-H	Clock
Fusion-S	Serial data
Fusion TT	Time/Temp

Applications:-
Production line timing, factory clock synchronising with masters and slaves, Time until maintenance displays, time and temperature.

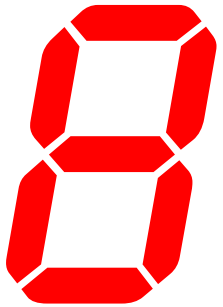
Digit sizes available as standard (shown much smaller than real size, to fit on page)

A 'Rule of Thumb' about digit height and viewing distance:- For every 10 metres of viewing distance, you need digits 1" high (The typical width of a thumb). so, if you will be up to 65 metres away, you will need digits at least 7 inches high - round up to the nearest inch.

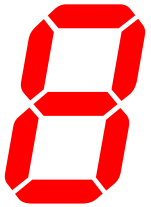
400 mm, 16"
200m viewing



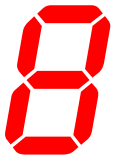
300 mm, 12"
150m viewing



200 mm, 8
100m viewing"



150 mm
6"
75m viewing



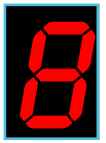
102 mm
4"
50m viewing

57mm
2.25"
25m
view

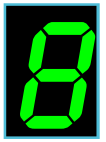
Digit colour options

Choose colours to match corporate image, to differentiate groups of displays or to suit the ambient lighting conditions.

We offer indoor and outdoor brightness versions.

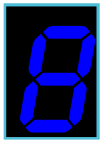


Red: Traditional, and the most popular colour. The lowest cost colour option, thanks to the high quantity of red displays we make. Ideal for outdoor mounting



Green: Preferred by those who consider red is an alarm colour. Best suited to indoor use, as green is less 'punchy' in direct sunlight.

Yellow: Ideal for outdoor and roadside applications.
Good brightness and contrast.
A neutral colour just as clear as red.



Blue: Fashionable and 'cool' to the eye. Adds a distinctive and sharp appearance to the display.

White: Entirely neutral, neither warning red or AOK green, or cool blue. Modern, with a retro feel, as the earliest displays used white bulbs.

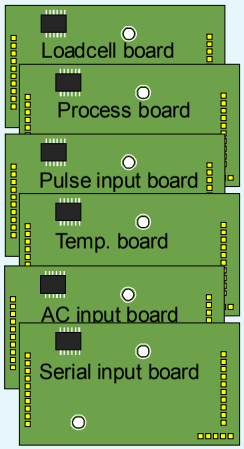
ISO9001:2008

www.london-electronics.com help@london-electronics.com Tel +44 1767 626444 Fax +44 1767 626446 London Electronics Ltd

Create your ideal Intuitive or Fusion display with these building blocks

Input Signal Conditioner boards ...

Choose one.



4 or 6 wire loadcells
10V 120mA excitation.
Millivolt version for DC Current shunts

4-20ma, 0-10v, 0-5V, etc.
24V 60mA excitation.

4 channels NPN, PNP, contact closure, etc.
24V 60mA excitation.

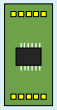
Type J, K, T, R, S, B thermocouples
3 or 4 wire PT100 RTDs.

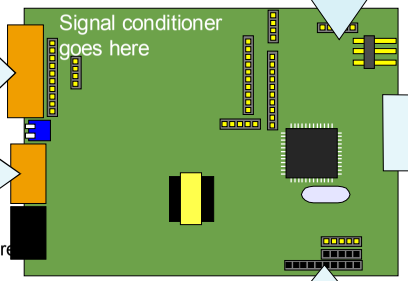
AC Voltage AC Current

RS232 or RS485 Serial Input boards

Real time clock option

Precision date and time module for clock format displays or if you need date and time stamps in your data output.





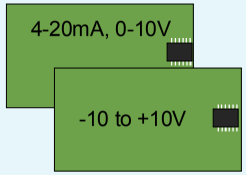
3x Contact closure logic inputs, for use as tare, hold, peak, reset, page address etc.

Main processor board AC or DC power

Choose output options, if needed ...

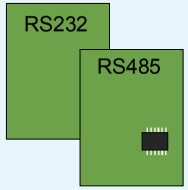
Analogue Output board, if needed

Choose one, or none.

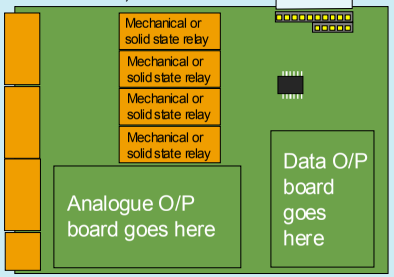


Data output board, if needed

Choose one, or none.

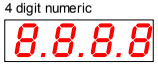


Output option main board with 0, 2 or 4 alarms



Choose a display format...

4 digit numeric



4 digit clock

6 digit numeric

6 digit clock

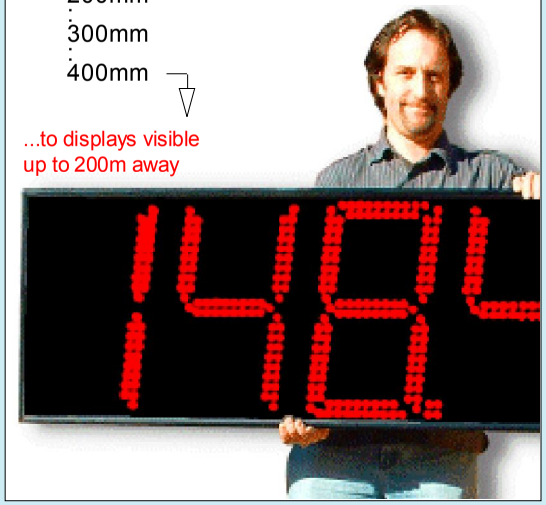
Choose a digit size...

From 1/8 DIN panel meter format ....

14mm
20mm
57mm
102mm
150mm
200mm
300mm
400mm

4 digit display shown with UM option for units of measure.

...to displays visible up to 200m away



Ordering Guide. Create a full part number like this:-

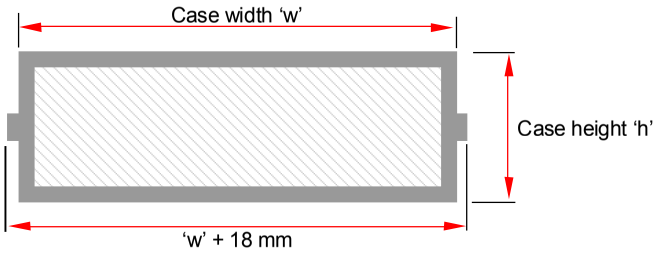
Display Height	Digits and format	Function type	Analogue Output	Alarm Output	Serial Data Output	Colour & brightness	Supply Voltage	Mounting & Gland position & Sealing	Special Requirements
2" 57mm digits -F2	4 digits numeric -4N	Counter -C	No output -0	No alarms -0	No data -0	Normal Inside	95-265VAC-AC	Un-cased boards only -0	None -0
4" 102mm digits -F4	4 digits clock -4C	Clock/Timer -H	4-20mA -ANI	2 alarms -AL2	RS232 -232	Red -R	11-30VDC -DC	Panel, IP65 front -1	Units of measure -UM
6" 150mm digits -F6	6 digits numeric -6N	Loadcell -L	0-10V -ANV	4 alarms -AL4	RS485 -485	Green -G	48VAC -48VAC	Wall, bottom, IP65 -2	RealTime Clock -H
8" 200mm digits -F8	6 digits clock -6C	Process -P	+/-10V -ANB	2xSPCO -SPCO		Yellow -Y		Suspension, top, IP65 -3	8 memories -MEM
12" 300mm digits -F12	8 digits numeric -8N	RS232 slave -S2		2xSolid State -DSS		Blue -B		Wall, top, IP54 -4	3 wire pot input -POT
16" 400mm digits -F16		RS485 slave -S4		4xSolid State -QSS		White -W		Suspension, top,IP54 -5	100 updates/sec -100X
		Temperature -T						Suspension, rear,IP54 -6	Remote prog. -FUSRP
		Time +Temp. -TT				Outdoor bright			Heater AC -HTRAC
		Time +RS485 -TZ				Red -RDLV			Heater 12VDC -HTR12
		Millivolt -M				Green -GDLV			Heater 24VDC -HTR24
						Yellow-YDLV			
						Blue -BDLV			

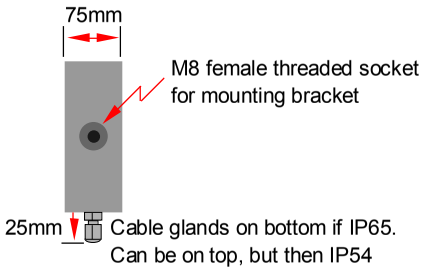
Example part number = F2-6N-P-ANI-AL2-0-R-AC-2-0

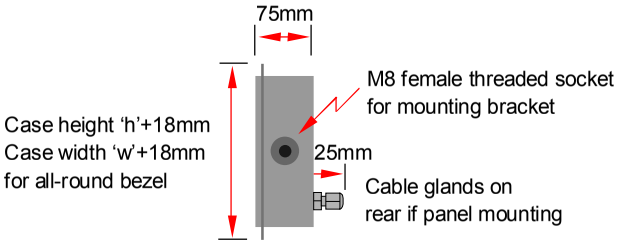
An automated version of this page, which calculates pricing and includes new models, is available at http://www.london-electronics.com/pl_fusion.php

Dimensions. Please note that adding the -UM option will increase the case width by 2 digits.

	Fusion 2	Fusion 4	Fusion 6	Fusion 8	Fusion 12	Fusion 16
4 digit	279.5(N)/291(C)w x 154.5h	434(N)/453(C)w x 195.5h	580w x 246.0h	750w x 290.0h	1050w x 408h	1368w x 515h
6 digit	376(N)/400(C)w x 154.5h	616(N)653(C)w x 195.5h	820w x 246.0h	1072w x 290.0h	1540w x 408h	2020w x 515h
8 digit	504w x 154.5h	824w x 195.5h	1060w x 246.0h	1395w x 290.0h	2022w x 408h	2672w x 515h







ISO9001:2008

INTUITIVE Panel Meters

Most Popular panel meter range

Also available without front-panel buttons and with remote pushbuttons

- **Easy to use**
- **Clear, variable brightness display**
- **Available with digits up to 400mm high**
- **Need a special? Custom code capability.**
- **Clear written manuals & video guides - online!**
- **Saves you time and money**
- **Generally available from stock**
- **Plug-in options for quick upgrades**
- **Calibration counter for audit trails**
- **Adjustable menu timeout for new users**
- **Mirror image display for heads-up applications**

These are among the **easiest** of programmable panel meters to commission. And they offer **high precision** with **long term reliability**.

If you normally programme meters via a menu system, you will know how tedious and time consuming this can be. This is why we designed the INTUITIVE series - to save you time.

The INTUITIVE family eliminates the need for menus. This means **faster commissioning** and **less stress** for you.

Not only is the meter **easy to adjust**, the operating manual is **clear, simple** and **easy to understand**.

You can directly access the setting you want with our unique "Quick-Step" method. If you want to calibrate the zero, or the scaling, or the analogue output, or the alarms, or the 10 point linearisation facility, you get **directly** to that setting, not down a long menu system via other steps or settings!

INT2-AH	Ampere hours / coulombs
INT2-C	Counter/Rate 6 digits, fully scalable
INT2-H	Chronometer / Elapsed timer
INT2-I	Process Integrator for flow totalising
INT2-L	4 and 6 wire loadcells. 10V 120mA exc.
INT2-P	Process I/P for 4-20mA, 0-10V etc.
INT2-R	Resistance meter. 4 wire sensing.
INT2-S2/S4	Serial Data I/P for slave display

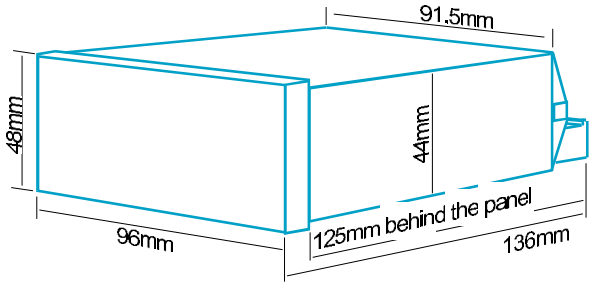
Plug-in Output options...

Isolated and scalable Analogue output
- 4-20mA - Option **ANI**
- 0-10V - Option **ANV**
- -10 to +10V - Option **ANB**

Alarm relays rated 5A 250 VAC resistive
- 2 alarms - Option **AL2**
- 4 alarms - Option **AL4**
- 2 x SPCO - Option **SPCO**
- 2 x Solid state - Option **DSS**
- 4 x Solid state - Option **QSS**

Isolated Data output options
- RS232 - Option **232**
- RS485 - Option **485**

1/8 DIN format case, black polycarbonate, IP65 front



Panel cutout should be 92mm wide x 45mm high, +1mm, -0mm
1/8 DIN. Depth behind panel 125mm max, including cables.
350 grammes typical weight

Ordering Guide. Create a full part number like this:-

Meter input type		Analogue Output		Alarm Output		Serial Data Output		Display Colour		Supply Voltage		Special Requirements	
Process	INT2-P	No output	-0	No alarms	-0	No data	-0	Red	-R	100-240VAC	-AC	None	-0
AmpHour	INT2-AH	4-20mA	-ANI	2 alarms	-AL2	RS232	-232	Green	-G	11-30VDC	-DC	8 memories	-MEM
Integrator	INT2-I	0-10V	-ANV	4 alarms	-AL4	RS485	-485	Yellow	-Y			IP67 cover	-SPC4
Loadcell	INT2-L	-10/+10V	-ANB	2xSPCO	-SPCO							Factory Scaled	-FS
Ohms	INT2-R			Dual SS	- DSS							Plain lens	-PL
Timer	INT2-H			Quad SS	- QSS							Wall Box IP65	-WB
Counter	INT2-C											Remote buttons^	-RB
RS232	INT2-S2											Fast update^	-100X
RS485	INT2-S4												

Example part number = INT2-P-ANI-AL2-0-R-AC-SPC4-FS

An automated version of this guide is available at http://www.london-electronics.com/pl_intuitive.php

INT2-AH Ampere hour meter, typically used in electro-plating processes to measure charge. Accepts mV signal from DC shunt and can be set to accumulate Ah, Ampere minutes, coulombs etc. View instantaneous current an accumulated total. Alarm relays to help with replensihing electrolyte.

INT2-C Versatile Counter / Totaliser / Frequency / RPM Display. NPN, PNP, contact, TTL up to 40Khz. Quadrature inputs up to 5kHz. 24V Excitation rated to 60mA. Also available to order for NAMUR inputs. 6 digit display capacity to 999999. A second input port allows you to add two pulse trains together, subtract one from the other, gate pulses with a logic level or change count direction by logic level. Up to 4 inputs can be simultaneously totalised. Production rate mode for viewing average rate per shift.

INT2- H Timer with either pure numeric readout up to 999999 or with clock format readout HH:MM:SS. Can count up from 0 or down to 0 from a preset. Several modes. Contact closure inputs for start, stop and reset. Precision real-time clock included.

INT2- I Flow Integrator 4-20mA and 0-10V integrator. Accepts signals proportional to flow and calculates total. 24V Excitation rated to 60mA. Stores total in non-volatile memory. Display range max 0-99990. Last digit selectable to count by 1, 2, 5, 10, 20 or 50. Remote logic inputs for tare (force to zero), reset, peak and valley. Rear panel security lock.

INT2-L Loadcell Display for 4 wire and 6 wire loadcells. An ideal general purpose weighing indicator. 10V excitation rated to 120mA . Last digit selectable to count by 1,2,5,10,20 or 50. Variable filtering / averaging. Remote logic inputs for tare (force to zero), reset, peak and valley. Rear panel security lock. Alarm relays offer manual or automatic inflight correction. Includes an independent scale and offset feature, separate from the calibration, so you can change from imperial to metric or any other measurement ratio without having to recalibrate the meter. Has active filtering to give a stable display in the presence of vibration.
10 point linearistation in live or theoretical cal modes.

INT2-P Process display which accepts 4-20mA, 0-10V, 1-5V, 0-10mA input. Ideal for all general purpose process measurements, such as flow, pressure, level, humidity etc. 24V Excitation rated to 60mA. Last digit count by 1,2,5,10,20 or 50. Variable filtering / averaging. 10 point linearisation. Remote inputs for tare (force to zero), reset, peak and valley. Rear panel security lock.

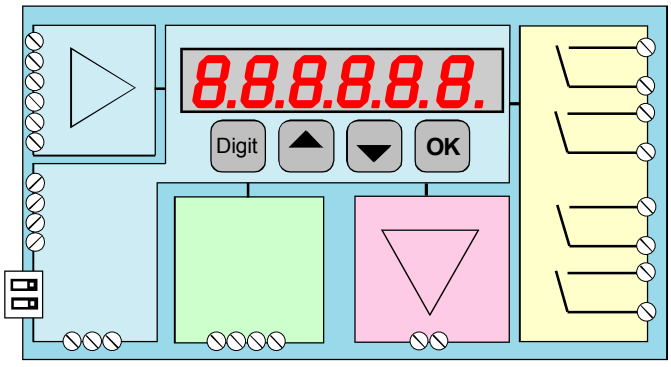
INT2-R Resistance Display for low to medium resistance measurements. 4 wire connection method gives precise results, regardless of cable resistance. Ideal for QA checks of motor windings, lamp filaments, inductors, etc. Ranges to order, from 0-100 milliOhms, up to 0-20 Kilohms. Also available is a conductivity meter, used for checking leakage on low voltage insulation.

INT2-S2 or INT2-S4 Serial Data Display for slave and remote applications. Accepts RS232, RS422, RS485 in ASCII format. Addressable 00 to FF. Able to extract data from complex strings. 300, 600, 1200, 2400, 9600 baud rate. You can also add strings together to give a total value, useful in batching and totalising applications.

INT-T Simple Temperature Display. Accepts J, K, T, N, R, S & PT100 DIN & ANSII sensors.

Anatomy of the INTUITIVE Mk2 series

⦸ = Detachable screw terminal



Excitation to sensor(s)
Input Signal(s) from sensor(s)

Logic inputs
Tare
Reset
Peak/valley

Calibration Lock
Alarm Lock

Optional Alarm outputs
2 relays = option AL2
4 relays = option AL4
Normally open, normally closed, normally energised or normally de-energised. Fully configurable, with adjustable hysteresis.

SPST or SPDT versions.
2 x SPCO option
2 x or 4 x solid state option

Relays rated 2A at 250V AC, from same phase.

You can add input or output options to your display at any time, whenever you need to upgrade or add or change features.

Power
100 - 240 VAC
or 11-30VDC
or 5V DC
8 Watts

Optional Data output
RS232
RS485
Modbus ASCII

Optional Isolated scalable analogue output.
4-20mA = option ANI
0-10V = option ANV
-10 /+10V = option ANB
600 Ohms drive

There are two software codes for this meter.
One is the LPMCS code which covers all meters apart from the INT2-H
The other is the H code which covers only the INT2-H

For detailed technical information and manuals for this product, please see **london-electronics.com** where you can find all our technical manuals and online streaming video guides to show you all you need to know.

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

Production Displays

Why?
Your Production line's efficiency relies on everything working well, and all production staff being aware of what they must do and how they are doing NOW. It is too late if shortfalls are noticed at the end of the shift.

Plus, your customers will be impressed to note that you take production line monitoring seriously, as it shows that you have your finger on the pulse of your production facility.

The benefits?
With live production data, if the production team is behind target, they can see immediately that they need to increase output rate if they are to achieve target by the end of the shift.

In addition, the production manager can see at a glance how each of his lines is performing and can immediately investigate and correct backlogs and low output.

Overhead beacons showing workstation status can be integrated into a single display board so that maintenance staff can react fast to any stoppages.

And your customers will be reassured if they see you are using production monitoring displays in your factory, that you are more likely to be able to meet delivery schedules.

How?
Most of our displays are fully self-contained.

That means they only need mains power and a pulse per item produced, and they can compute and display total, rate, downtime, OEE, moving target, quality %, fault messages etc.

The displays are modular, made from standard functional models in our Fusion and EasyReader range, plus any communications interfaces, sensors, beacons or sounders needed to complete the package.

The enclosures are all made by us, so can be any size necessary to allow the display to be seen clearly in your plant environment. All round sealing to IP65 is standard on most of our displays.

Plus we often brand displays with customers' logos, colour schemes and graphics, to give a truly corporate feel to the production line. We can do the same for you.

The displays can also accept data from existing production control systems and can create data for you to use in reporting and diagnosis.

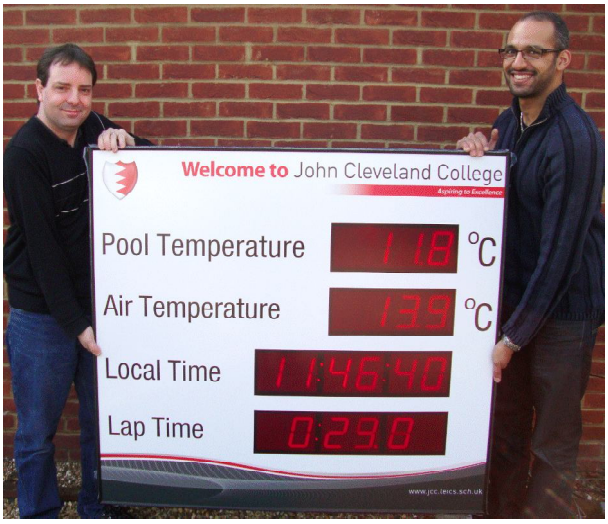
But I need a special display!
We specialise in specials! No two customers have identical requirements, so we are geared up to adapt to your exact needs, and will be pleased to quote for a solution which meets all your requirements.

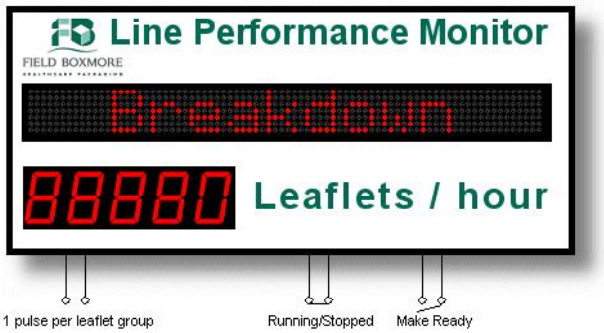
You can download a Custom Special Wishlist from http://www.london-electronics.com/wishlist.php

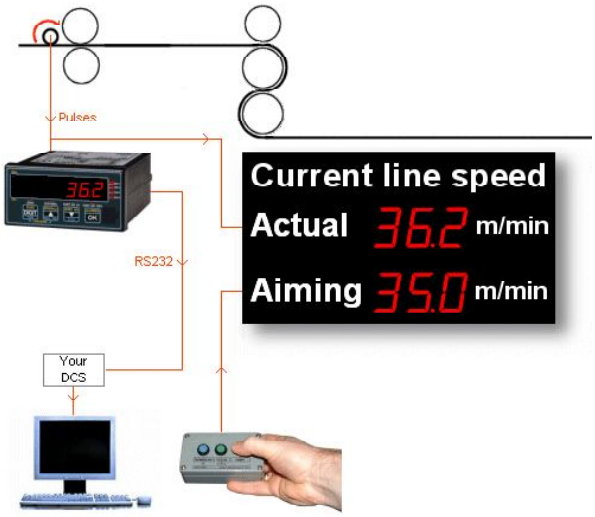
www.london-electronics.com help@london-electronics.com Tel +44 1767 626444 Fax +44 1767 626446

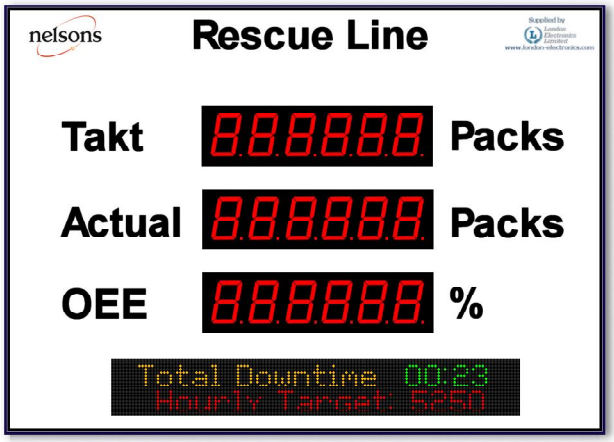
Production Displays - typical examples

Production Displays - more examples ...

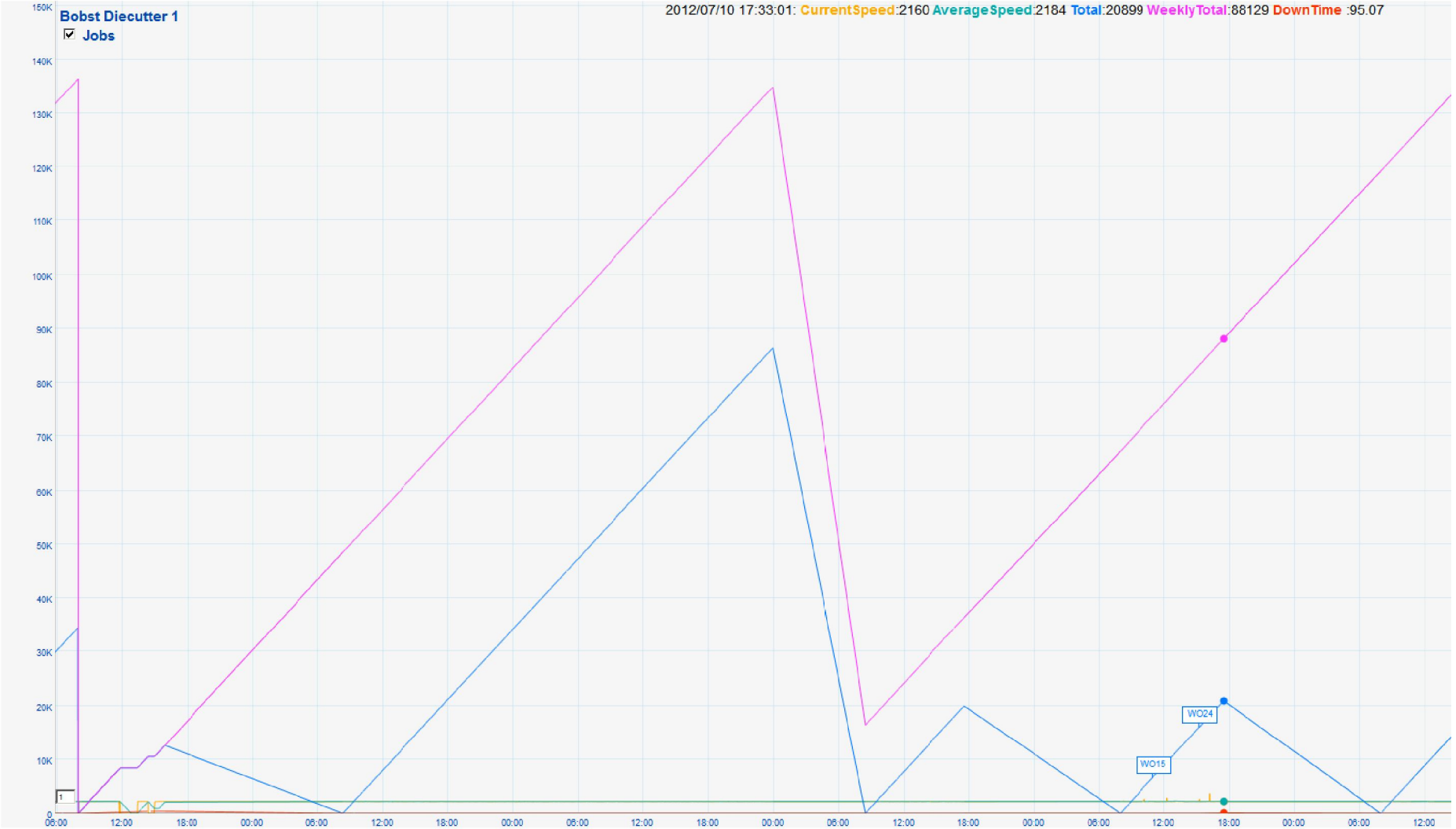








Web based production-line data graphing



Example of our web-based production graphing and analysis software. This can be customised to suit your exact needs.
Data can be zoomed, emails or text messages can be automatically sent if certain conditions occur. Messages can be sent from your phone to a message display within a remote factory. Data is stored in an SQL database and can be manipulated in any way you like - whatever is important to you, we can concentrate our software's power on that area. Visit www.london-electronics.com/monitor.php to see examples which you can zoom and manipulate.

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

Production line software for live analysis & response

OEE is a production performance measurement which looks at 3 key variables on your line:-

1. Speed - is your line slower than it should be?
2. Quality - is your line making too many rejects?
3. Availability - is downtime limiting your output?

Each variable has a scale of 0-100%. We multiply the 3 variables together, to get an **O**verall **E**quipment **E**fficiency percentage which is a commonly used modern measure of line performance.

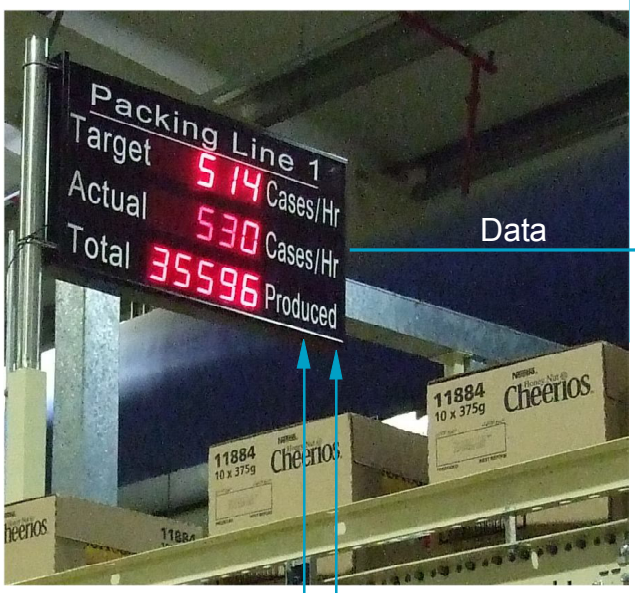
You can send this data to large overhead displays, so everyone can see how they are performing, and save it into a database, using our easy to understand software to create graphs and charts, to suit your exact needs.

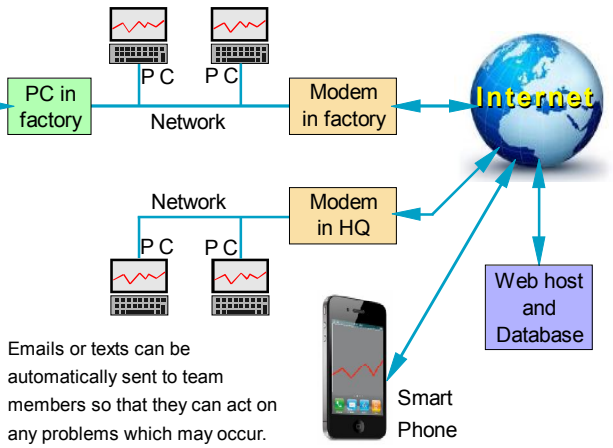
- **Instantly see OEE, availability and quality**
- **Instantly see live actual versus target**
- **Send email or text alarms automatically**
- **Identify problems NOW !**
- **Use records to view trends**

You want your production machinery to be operating at maximum efficiency at all times, but it is sometimes hard to keep track of performance, especially if you use a manual recording system. Manual systems are usually only updated at the end of each shift.

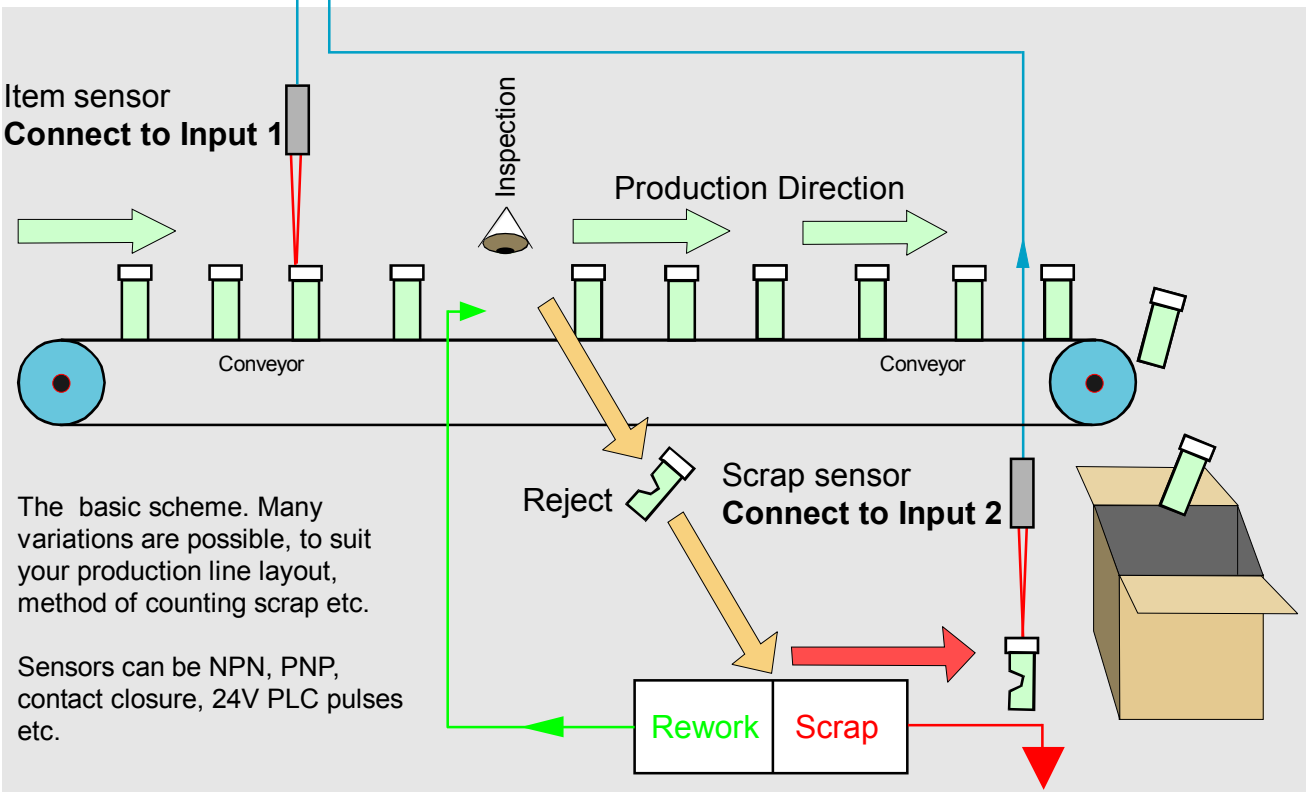
London Electronics real-time OEE systems allows you to see your production performance at a glance, so you will know immediately if things are running smoothly or if they need attention.

Being fully scaleable, you can start simple, on one key machine and work your way up to full plant monitoring, once you become confident in the value of the system.



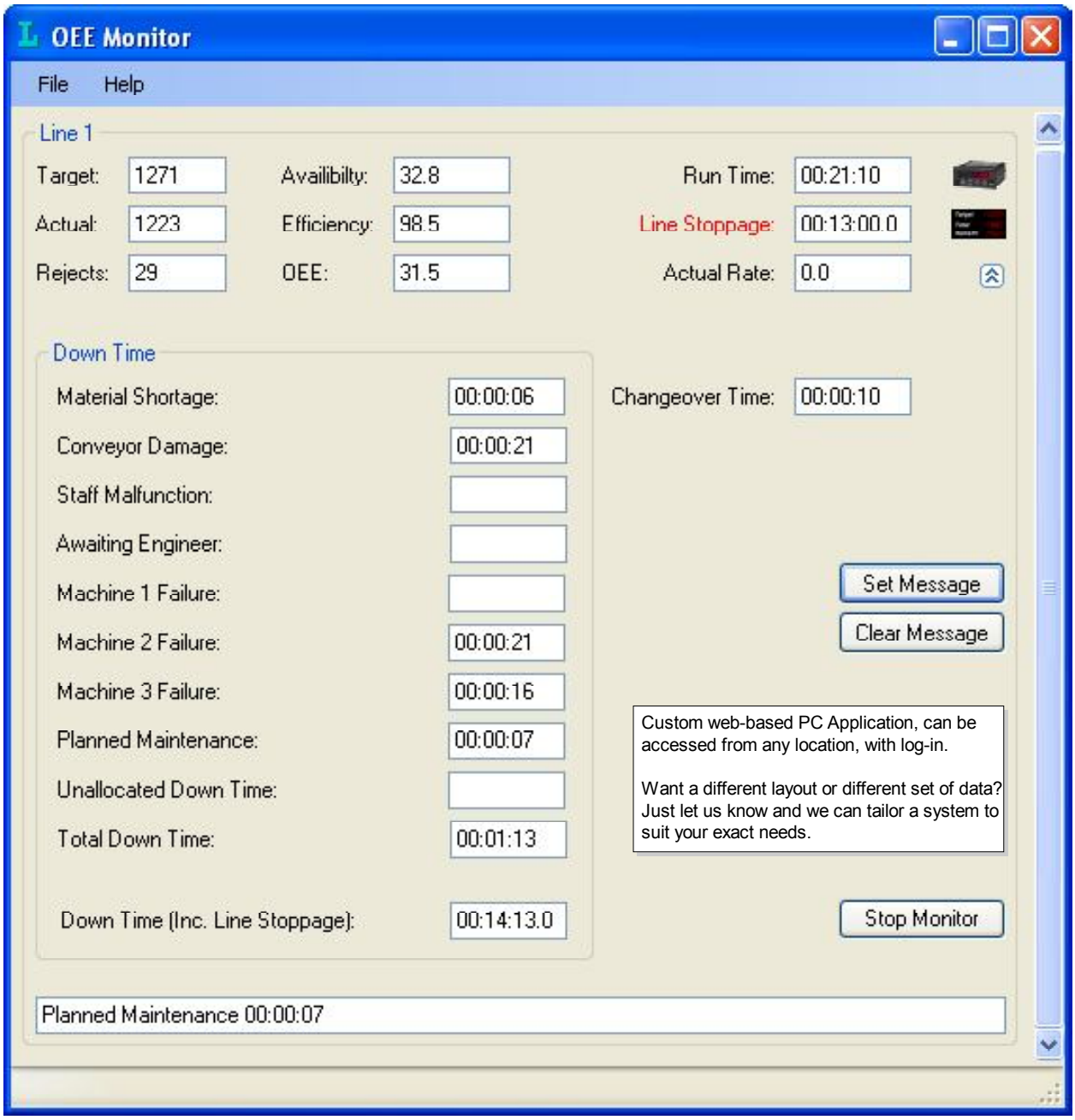


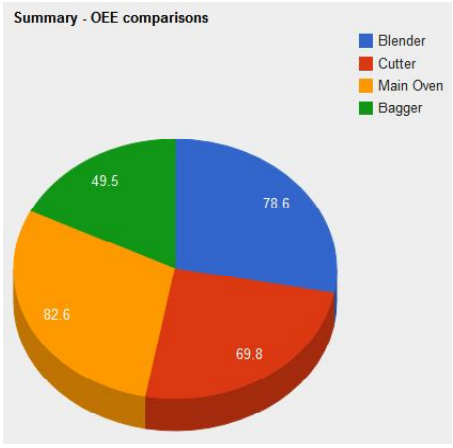
Emails or texts can be automatically sent to team members so that they can act on any problems which may occur.



The basic scheme. Many variations are possible, to suit your production line layout, method of counting scrap etc.

Sensors can be NPN, PNP, contact closure, 24V PLC pulses etc.





The London Electronics advantage is that every system is individually designed to suit each client, using standard modules - contact us today, and we will be pleased to quote for a system to suit your exact needs.

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

KD7 Touch-screen chart recorder and data logger

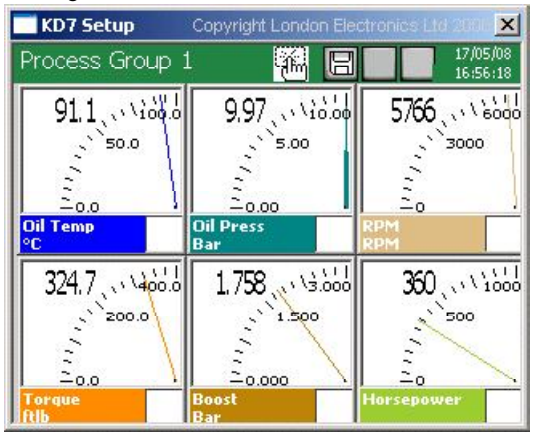
- **Intuitive setup via graphical MS Windows interface**
- **32-bit ARM core, MS Windows CE operating system**
- **3,6 or 12 galvanically isolated measuring channels**
- **24 data comms measuring channels**
- **16 or 32 alarms and 8 or 16 digital inputs,**
- **4 or 8 analog outputs,**
- **Flexible maths functions available as an option**
- **Clear, bright touch-screen display**
- **24V Excitation outputs to power transmitters**
- **Alarm options, 2 per channel, relay or solid state**
- **Accepts signals from most industrial sensors**
- **Built in web server - monitor from anywhere**
- **Anti-tamper algorithm prevents data alteration**
- **Up to 4 GB of storage on compact flash**
- **Easy export to Excel or other application**
- **Multi-language ability**
- **Sealed IP65 from the front**

Online pricing and model number selection tool
www.london-electronics.com/pl_kd7.htm

Measuring ranges - universal measuring inputs

Input	Menu	Full Range	Accuracy	Min. Range	Accuracy
Voltage	mV	+/-9999mV	0.15%	5mV	0.25%
Current	mA	+/- 20.00mA	0.15%	1mA	0.25%
T/C J	TC J	-200 to +1200 °C	0.1%	100 °C	1%
T/C K	TC K	-200 to +1370 °C	0.1%	130 °C	0.7%
T/C N	TC N	-200 to +1300 °C	0.1%	200 °C	0.5%
T/C E	TC E	-200 to +1000 °C	0.1%	100 °C	1%
T/C R	TC R	0 to +1760 °C	0.2%	540 °C	0.3%
T/C S	TC S	0 to +1760 °C	0.2%	570 °C	0.3%
T/C T	TC T	-200 to +400 °C	0.1%	110 °C	0.9%
T/C B	TC B	400 to +1820 °C	0.2%	1000 °C	0.2%
PT100	Pt100	-200 to +850 °C	0.15%	50 °C	0.25%
PT500	Pt500	-200 to +850 °C	0.3%	50 °C	0.5%
PT1000	Pt1000	-200 to +850 °C	0.3%	50 °C	0.5%
NI100	Ni100	-60 to +180 °C	0.15%	50 °C	0.25%
CU100	Cu100	-50 to +180 °C	0.15%	50 °C	0.25%
Potentio'r.	Pot. trans	50 to 2000 Ohms	0.15%	100 Ohms	0.25%
Resist'ce.	Res. trans	0 to 2000 Ohms	0.15%	100 Ohms	0.25%

Analogue meter format



Bargraph meter format

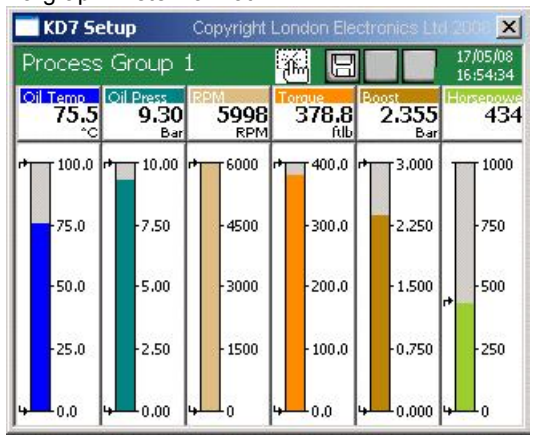
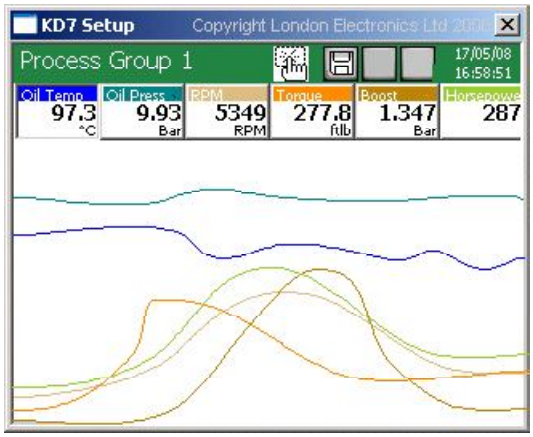
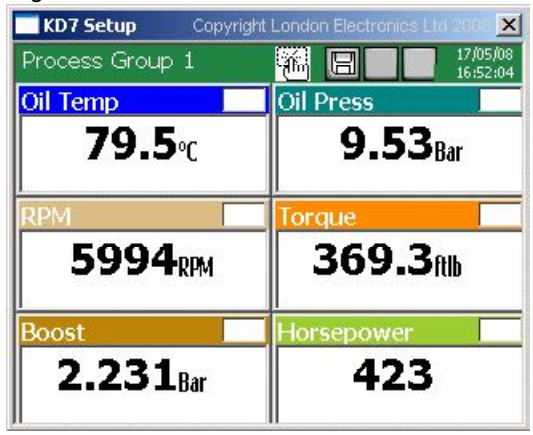


Chart recorder format



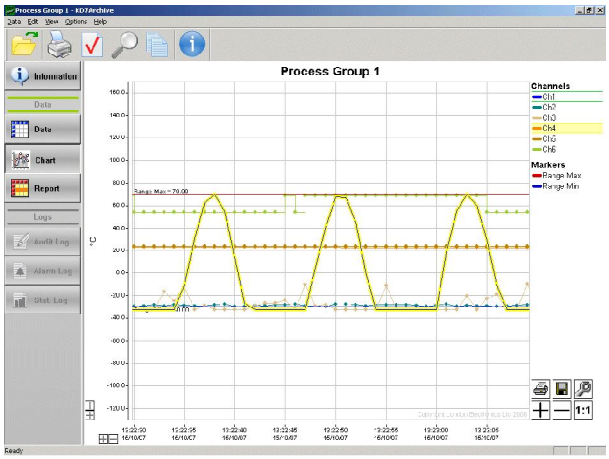
Digital meter format



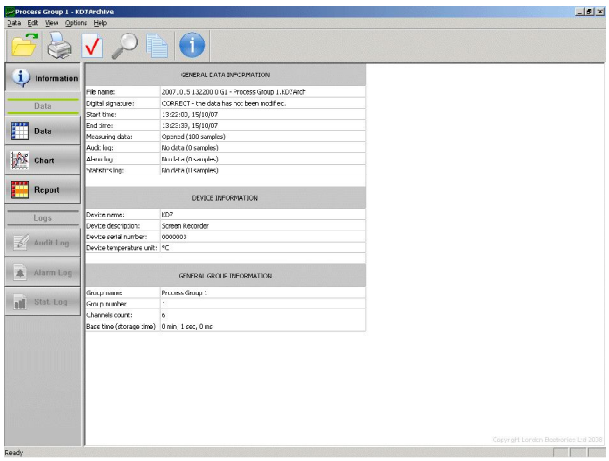
www.london-electronics.com help@london-electronics.com Tel +44 1767 626444 Fax +44 1767 626446

KD7 Archiving and Maths functions

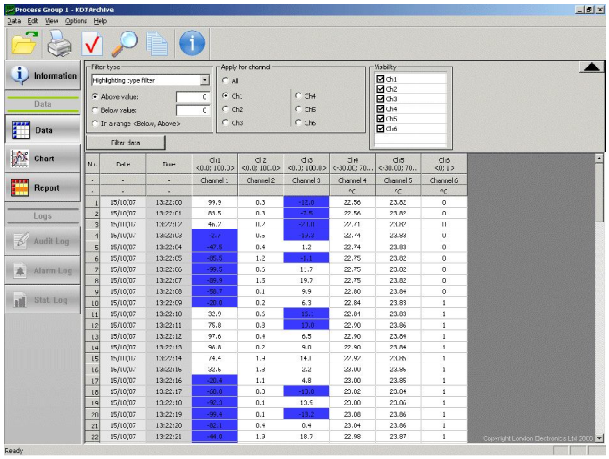
The archiving software lets you create custom graphs from your data...



You can easily check the validity of all data, to ensure that nothing has been edited or tampered with ...



With smart filters, you can instantly highlight any data which falls outside your acceptable limits ...



The KD7 is a remarkable instrument. Designed originally as a paperless chart recorder, it has grown to become much more.

You can use it as a multi-channel display in one of 4 popular formats, analogue meter, digital meter, bargraph or chart.

Or, use it as a supervisory monitor, for example in a food storage area. It could accept up to 24 individual temperature sensors, and can apply high and low alarms to each measurement - ideal if you want to spot any deviations from desired temperature. Too warm and you risk bacterial growth, too cold and you risk freezing and possible damage to food texture.

It also accepts logic inputs from switches, so you can record alarm activity, building access, machine shutdowns etc.

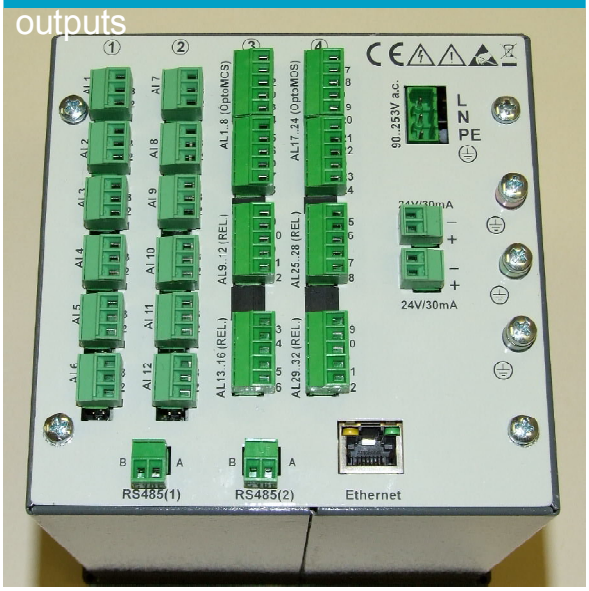
It allows you to scale any 4-20mA or 0-10V signal into engineering units and you can name each channel with your own descriptive text.

The KD7 complies with regulation 21 CFR Part 11, for electronic records and signatures, as issued by the Food and Drug Administration (FDA).

The optional maths functions module adds versatility. Imagine you have a number of input channels and want to calculate the average value - easy! Or you may have RPM on one channel, torque on another and you want to compute horsepower - easy! Just type in your formula as you would write it down on paper and KD7 will do your calculations for you.

All connectors are detachable screw terminals, for easy installation and maintenance.

Rear view of the 12 input version, with relay and solid state alarm outputs



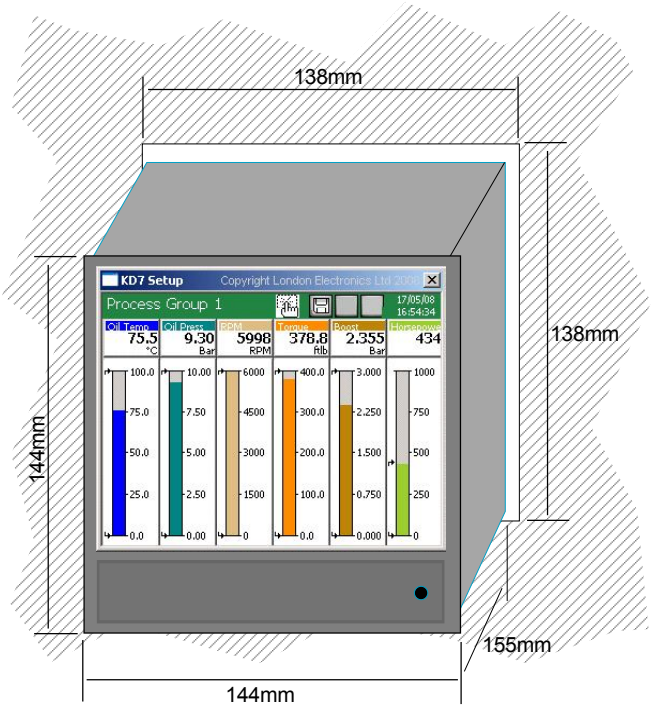
London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

KD7 Specifications

Programmable measuring inputs:	
Number of measuring channels	3, 6 or 12
Input resistance	> 10 M.
Max. sampling rate	350 ms
Isolation between channels	100 V d.c.
Isolation from input to ground	500 V d.c.
Standard inputs	
Number of measuring channels	6 or 12
Voltage measurement	0...10 V
Current measurement	0/20 mA/4/20 mA
Isolation between channels	500 V d.c.
Isolation from input to ground	500 V d.c.
Measurement accuracy	0,25% of range
Measurement time each input	minimum 100 ms
Admissible overload in the measuring system	to EN 60051-8
Logic inputs	8 /16, common 0V
Control signal	0/5... 24 V d.c.
Switching frequency	up to 50 Hz (depending on equipment configuration)
Isolation from case	500 V d.c.
Analog outputs:	
Current: 4 or 8 galvanically isolated	
Output signal	0...5 mA, 0...20 mA or 4...20 mA
Accuracy	0.2%
Load resistance	< 500 Ohms
Isolation from the case	500 V d.c.
Voltage: 4 or 8 galvanically isolated	
Output signal	0...5 V, 1...5 V
Resistance	500 Ohms min.
Accuracy	0.2%
Isolation from the case	500 V d.c.
Alarms:	
Electromagnetic relays:	8 or 16
Load capacity for resistive load	250 V a.c./1 A 30 V d.c./1 A
OptoMOS relays:	8 or 16
Load capacity for resistive load	85 V d.c., 100 mA 60 V a.c., 70 mA
Current peak value	300 mA/10 ms
OptoMOS resistance	8 Ohms approx.
Over current protection	SMD type F 125 V/ 125 mA (SIBA) or BSMD-S0.125 A (TME)
Interfaces:	
RS-232 transmission protocol	Modbus Slave
Baud rate	300... 256000 bit/s
Transmission mode	ASCII/RTU
RS-485	Modbus Master
RS-485	Modbus Slave
Transmission modes	ASCII/RTU
Ethernet 10 Base-T	Socket RJ45,
Server	WWW
USB V.1.1 Device	Socket USBB-G

Excitation outputs for external transmitters
2 x 24 V d.c./30 mA

General recorder parameters:	
Frontal face dimensions	144 x 144 mm
Depth behind the panel	155 mm
Colour graphical screen	LCD 5,7" of TFT
Resolution	320 x 240 pixels,
External data carrier	CompactFlash up to 4 GB
Internal RAM memory (buffer)	6 MB
Built-in maths operators and functions	Arithmetical, Logic, Integral
Working temperature	0 to 50°C
Relative air humidity	< 75% no condensation
Supply voltage	90 to 253 V a.c.
Power consumption (max.)	< 30 VA
Fuse	RFS 1.6 A 250 V for a.c. supply
Housing protection class:	
From front	IP 65 acc. EN 60529
From rear	IP 20 acc. EN 60529
Operational safety:	EN 61010-1
Installation category	I I
Pollution level	2
Electromagnetic compatibility:	
Noise emissions	EN 61000-6-4
Noise immunity	EN 61000-6-2
Weight	< 2 kg



Ordering Code

KD7 = Basic unit
see **http://www.london-electronics.com/pl_kd7.php**
for a detailed ordering guide and pricing tool

Power measurement modules

N30P Single phase power meter

A cost effective 1/8 DIN single phase power meter.

RS485 Modbus data output and up to 4 alarms.

Shows VA VAr, Frequency, Voltage, Current, Phase angle, Cos Phi, kWh

ND20 3 phase power meter

96 x 96mm front panel bezel. 3 or 4 wire connection. Measures VA VAr, Frequency, Voltage, Current, Phase angle, Cos Phi, kWh, distortion, harmonic content, Imported and Exported kWh.

Can average over 15, 30 or 60 minutes.

IP65 front protection. RS485, analogue and alarm output options.

P43 DIN rail mounting transducer

A 3 phase power transducer, which monitors 3 or 4 wire networks.

Alarm relays, analogue output and pulse output.

Stores the average of the past 15 minutes power usage.

Store minimum and maximum power usage levels.

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

NA3, NA5 and NA6 Multi-Colour bargraphs

- **Independent scaling of bargraph & digital display**
- **Wide choice of formats**
- **Accept many common industrial signals**
- **Inter-channel Maths functions x + - / in NA6**

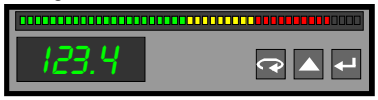
INPUTS:	NA3	NA5, NA6
Pt100 **Pt500** **Pt1000** **RTD excitation current** **Max cable ohms**	-200...+850 °C -200...+850 °C -200...+850 °C <170 uA <20 Ohm/wire	-200...+850 °C -200...+850 °C -200...+850 °C <400 uA <20 Ohm/wire
J (Fe-CuNi) **K** (NiCr-NiAl) **N** (NiCrSi-NiSi) **E** (NiCr-CuNi) **R** (PtRh13-Pt) **S** (PtRh10-Pt) **T** (Cu-CuNi)	-30...+1100 °C -50...+1370 °C -100...+1300 °C -20...+850 °C 0...+1760 °C 0...+1760 °C -50...+400 °C	-100...+1100 °C -100...+1370 °C -100...+1300 °C -100...+850 °C 0...+1760 °C 0...+1760 °C -50...+400 °C
Resistance measurement	0-400 Ohms 0-4000 Ohms	0 to 10 kilOhms sub ranges 110, 220, 460, 950, 2100 and 5000 Ohms
DC Voltage measurement	60mV, 3v, 10v, 200V, 600V	19mV, 35mV, 75mV, 155mV, 5V 11V, 22V, 45V, 180V, 360V, 600V
DC Current measurement	5mA, 20mA, 2A, 5A	5mA, 11mA, 23mA, 1.8A, 3.8A, 5A

Analogue outputs (optional):
Galvanically isolated, resolution 0.025% of the range.
Current scalable: 0/4...20 mA, load resistance <500 Ohms
Voltage scalable: 0...10 V, load resistance >500 Ohms
Output response time 100 mS
Output error 0.2% of the range
Thermal stability (0.1% of the range/10K)

The NA Series offers a wide choice of display formats and functions in space-saving formats, as follows:-

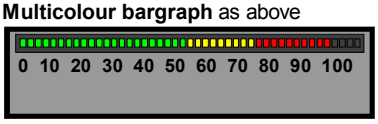
NA3-F **4 seven-segment LED** displays
digit height: 7 mm
indication range: -1999...9999
multicolour bargraph of 82 mm length
45 segments in 3-colour version
25 segments in 7-colour version

96mm x 24mm



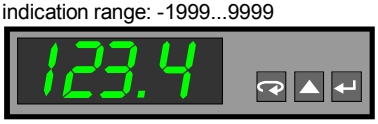
NA3-B **Multicolour bargraph** as above

96mm x 24mm

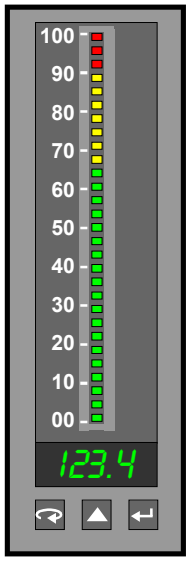


NA3-D **4 seven-segment LED displays**
digit height: 14 mm
indication range: -1999...9999

96mm x 24mm

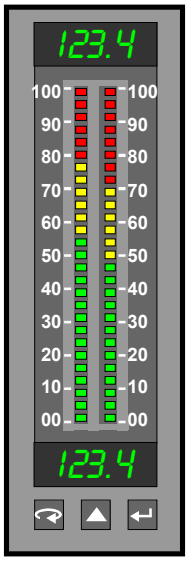


NA5
4 seven-segment LED display
digit height: 7 mm
indication range:
-1999...9999
multicolour bargraph
88 mm length
55 segments (3-colour)
29 segments (7-colour)



144mm x 48mm

NA6
2 x 4 seven-segment LED displays
digit height: 7 mm
indication range:
-1999...9999
multicolour bargraph
88 mm length
48 segments (3-colour)
27 segments (7-colour)



144mm x 48mm

Depth only 100mm behind panel

Relay outputs (optional) See over for solid-state types
2 relays (NA3) or 4 relays (NA5, NA6),
Volt-free contacts - maximal load:250 Va.c., 150 Vdc, 5A
Programmable alarm limits
Three types of alarms
Hysteresis defined by means of the lower and upper limit
Signalling of alarm operation on the bargraph.

Solid State alarms:
2 (NA3) **or 8** (NA5, NA6) **outputs open collector:**
NPN transistor max. load 25 mA, 24V DC

Communication outputs:
Interface RS-485
Transmission protocol MODBUS,
ASCII 8N1, 7E1, 7O1,
RTU 8N2, 8E1, 8O1, 8N1,
Baud rate 2400, 4800 or 9600
Response time to the query frame 300 ms

Excitation voltage in NA5 and NA6 only
24 V d.c., max. load 20 mA

Memory parameters:
Meter memory (recording):
NA3 750 samples
NA5, NA6 750 samples (channel 1 or 2)
or 375 samples (channel 1)
+ 375 samples (channel 2)
Minimal recording interval 1 s

Basic error:
NA3 0.2% +/-1 digit
NA5, NA6 0.1% +/- 1 digit

Additional error from ambient temperature changes:
NA3 0.1% of range/10C
NA5, NA6 0.05% of the range/10C

Averaging time min 200 mS
min 500 mS (temp. ranges)

Rated operation conditions:
Supply voltage depending on
version ordered 95...230...253 V a.c./d.c.
or 20...24...40 V a.c./d.c.

Supply frequency 40 to 440 Hz
Ambient temperature - 10 to 55.C
Storage temperature - 25 to + 85.C
Relative humidity < 95% (non-condensing)
Warmup time 10 minutes

Sustained input overload:
Thermocouples, resistance thermometers 100%
Voltage, current and resistance measurement 110%

Short duration overload (3 s):
Inputs of temperature sensors 30 V
Voltage input > 2.5 V 10 times nominal voltage (< 1000 V)
Current input: 10 times nominal current

Bargraph resolution programmable
Bargraph accuracy +/- 0.5 segment

Sealing:
The front housing:
NA3 IP 40
NA5, NA6 IP 50
From terminal side IP 20

Dimensions:
NA3 96 x 24 x 125 mm (with terminals)
NA5, NA6 48 x 144 x 100 mm (with terminals)

Cut-out dimensions in the panel:
NA3 $22.2^{+0.5}$ x $92^{+0.5}$ mm
NA5, NA6 $44^{+0.5}$ x $137.5^{+0.5}$ mm

Weight < 0.4 kg

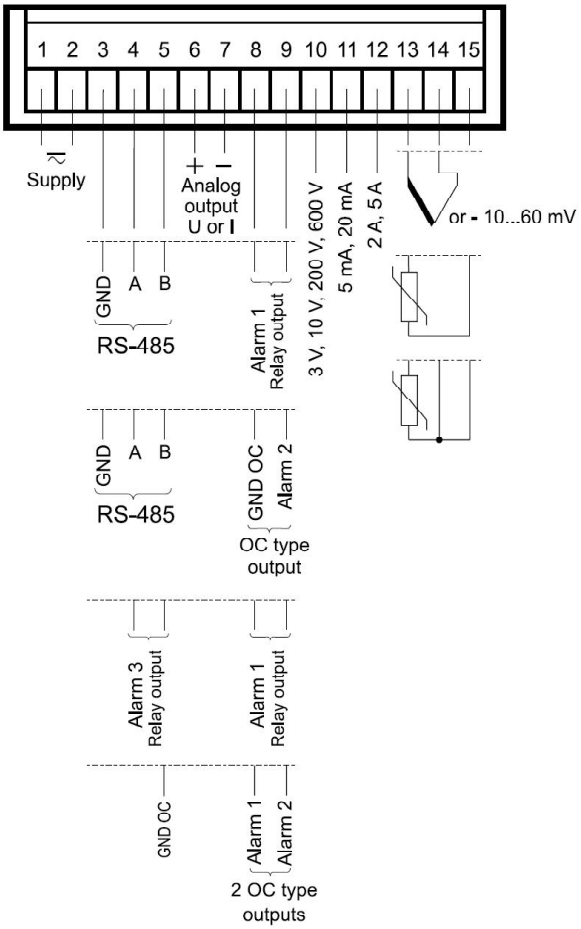
Power consumption:
NA3 < 8 VA
NA5, NA6 < 12 VA

Resistance against supply interruption
According EN 61000-6-2

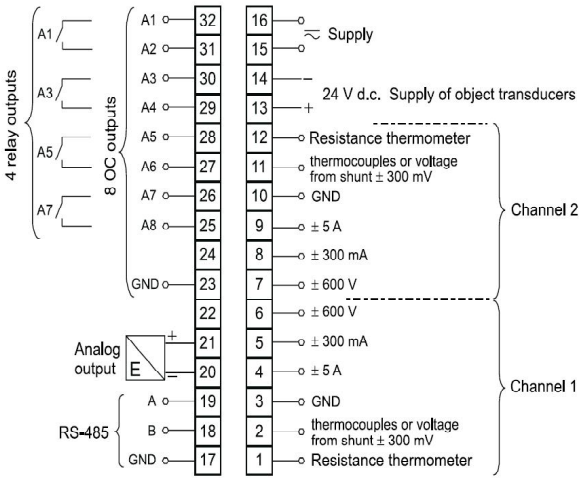
Electromagnetic compatibility:
Immunity EN 61000-6-2
Emission EN 61000-6-4

Safety requirements according EN 61010-1:
Installation category III
Pollution level 2
Working voltage in relation to ground 600 V a.c. max

NA3 connections



NA5 and NA6 connections:

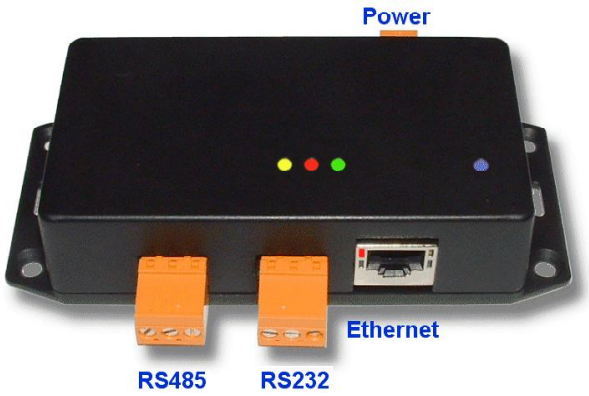


Ordering Code

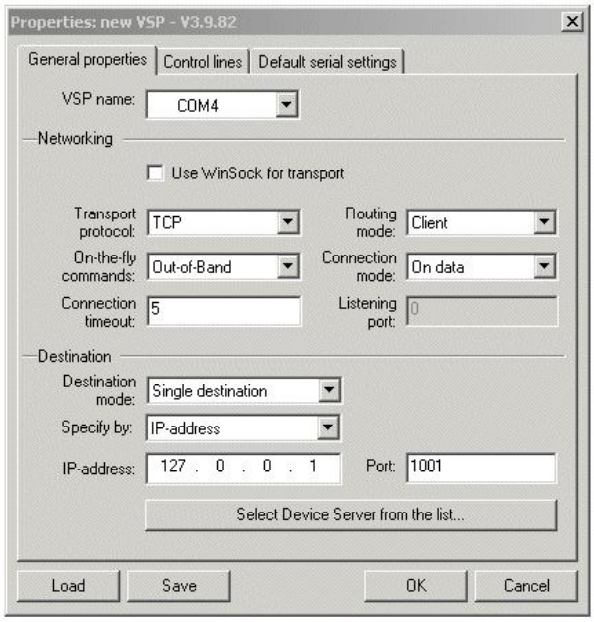
See **http://www.london-electronics.com/pl_na.php** for a detailed ordering guide and pricing tool

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

LEM Ethernet to RS232 / RS485 converter module



- **Add EtherNet connectivity to any RS232/485 device**
- **Create a virtual serial port or access via sockets**
- **Selectable RS485 line termination and biasing**



Optional DC Power supply

Ordering Code

LEM = Basic unit with software
LEM+PSU = Basic unit with software and power supply

Most buildings have network cabling already installed.

You can connect your computer to various serial data devices through your network, with this simple converter.

Large displays, message displays and any other measurement and display devices are ideal candidates for networking.

You can even connect from your PC to a display in another building, another town or another country.

This converter uses internet protocol message packeting (IP), which allows it to be used across borders without boundaries.

Screw terminals make installation easy, and the configuration procedure is simple and fast.

Specifications:

Case width	137.0 mm max
Case forward projection	30.0mm
Case height	62.0 mm case only, 98.0mm including connectors
Typical weight	135 grams
Operating conditions	0 to 50 degrees C
Storage conditions	-20 to +70 degrees C
Case sealing	IP40
Case Material	Polycarbonate
Cable dimensions	Accepts cables up to 1.5mm diameter
Flammability Class	V0 (UL94)
Power supply max.	12 to 30V DC, 2 watts
Isolation	Ethernet isolated from power and RS232/RS485. RS232 and RS485 ports not isolated from power.
Ethernet Connection	Standard base 10/100 RJ45
Serial Data ports	RS232 or RS485, switch selectable.
Baud rate	Set with PC based configuration software.

Large format user-friendly panel meters - Maxi-Int2

Based on the most popular INTUITIVE panel meter range

- **Easy to use**
- **Need a special? Custom code capability.**
- **Clear, variable brightness display**
- **Available with digits up to 400mm high**
- **Clearly written manuals & video guides - online!**
- **Saves you time and money**
- **Generally available from stock**
- **Plug-in options for quick upgrades**
- **Calibration counter for audit trails**
- **Adjustable menu timeout for new users**
- **Mirror image display for heads-up applications**

These are among the **easiest** of programmable panel meters to commission. And they offer **high precision** with **long term reliability**.

If you normally programme meters via a menu system, you will know how tedious and time consuming this can be. This is why we designed the MAXI-INT series - to save you time.

The MAXI-INT family eliminates the need for menus. This means **faster commissioning** and **less stress** for you.

Not only is the meter **easy to adjust**, the operating manual is **clear, simple** and **easy to understand**.

You can directly access the setting you want. If you want to calibrate the zero, or the scaling, or the analogue output, or the alarms, or the 10 point linearisation facility, you get **directly** to that setting, not down a long menu system via other steps or settings!

MAXI-INT2-AH	Ampere hours / coulombs
MAXI-INT2-C	Counter/Rate 6 digits, fully scalable
MAXI-INT2-H	Chronometer / Elapsed timer
MAXI-INT2-I	Process Integrator for flow totalising
MAXI-INT2-L	4 and 6 wire loadcells. 10V 120mA exc.
MAXI-INT2-P	Process I/P for 4-20mA, 0-10V etc.
MAXI-INT2-R	Resistance meter. 4 wire sensing.
MAXI-INT2-S2/S4	Serial Data I/P for slave display

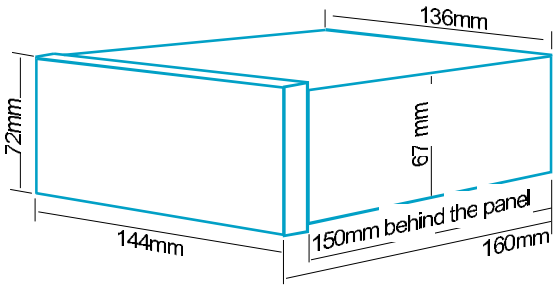
Plug-in Output options...

Isolated and scalable Analogue output
- 4-20mA - Option **ANI**
- 0-10V - Option **ANV**
- -10 to +10V - Option **ANB**

Alarm relays rated 5A 250 VAC resistive
- 2 alarms - Option **AL2**
- 4 alarms - Option **AL4**
- 2 x SPCO - Option **SPCO**
- 2 x Solid state - Option **DSS**
- 4 x Solid state - Option **QSS**

Isolated Data output options
- RS232 - Option **232**
- RS485 - Option **485**

DIN format case, black polycarbonate



Panel cutout 67.5mm high x 138mm wide, +1mm, -0mm
Depth behind panel 150mm max, including cables.
550 grammes typical weight

Ordering Guide. Create a full part number like this:-

Meter input type		Analogue Output	Alarm Output	Serial Data Output	Display Colour	Supply Voltage	Special Requirements
Amp/hrs	MAXI-INT2-AH	No output -0	No alarms -0	No data -0	Red -R	100-240VAC -AC	None -0
Counter	MAXI-INT2-C	4-20mA -ANI	2 alarms -AL2	RS232 -232	Green -G	11-30VDC -DC	8 memories -MEM
Timer	MAXI-INT2-H	0-10V -ANV	4 alarms -AL4	RS485 -485			IP67 cover -SPC4M
Integrator	MAXI-INT2-I	-10/+10V -ANB	2xSPCO -SPCO				Factory Scaled -FS
Loadcell	MAXI-INT2-L		Dual SS - DSS				Wall Box IP65 -WB
Process	MAXI-INT2-P		Quad SS - QSS				Remote buttons -RB
Resistance	MAXI-INT2-R						Fast update -100X
RS232	MAXI-INT2-S2						
RS485	MAXI-INT2-S4						

Example part number = MAXI-INT2-P-ANI-AL2-0-R-AC-SPC4M-FS

An automated version of this guide is available at http://www.london-electronics.com/pl_maxi_int2.htm

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

MAXI-INT2-AH Ampere hour meter, typically used in electro-plating processes to measure charge. Accepts mV signal from DC shunt and can be set to accumulate Ah, Ampere minutes, coulombs etc. View instantaneous current an accumulated total. Alarm relays to help with replensihing electrolyte.

MAXI-INT2-C Versatile Counter / Totaliser / Frequency / RPM Display. NPN, PNP, contact, TTL up to 40Khz. Quadrature inputs up to 5kHz. 24V Excitation rated to 60mA. Also available to order for NAMUR inputs. 6 digit display capacity to 999999. A second input port allows you to add two pulse trains together, subtract one from the other, gate pulses with a logic level or change count direction by logic level. Up to 4 inputs can be simultaneously totalised

MAXI-INT2- H Timer with either pure numeric readout up to 999999 or with clock format readout HH:MM:SS. Can count up from 0 or down to 0 from a preset. Contact closure or logic inputs for start, stop and reset. Precision real-time clock included.

MAXI-INT2- I Flow Integrator 4-20mA and 0-10V integrator. Accepts signals proportional to flow and calculates total. 24V Excitation rated to 60mA. Stores total in non-volatile memory. Display range max 0-99990. Last digit selectable to count by 1, 2, 5, 10, 20 or 50. Remote logic inputs for tare (force to zero), reset, peak and valley. Rear panel security lock.

MAXI-INT2-L Loadcell Display for 4 wire and 6 wire loadcells. An ideal general purpose weighing indicator. 10V excitation rated to 120mA. Last digit selectable to count by 1,2,5,10,20 or 50. Variable filtering / averaging. Remote logic inputs for tare (force to zero), reset, peak and valley. Rear panel security lock. Alarm relays offer manual or automatic inflight correction. Includes an independent scale and offset feature, separate from the calibration, so you can change from imperial to metric or any other measurement ratio without having to recalibrate the meter. Has active filtering to give a stable display in the presence of vibration.
10 point linearistation in live or theoretical cal modes.

MAXI-INT2-P Process display which accepts 4-20mA, 0-10V, 1-5V, 0-10mA input. Ideal for all general purpose process measurements, such as flow, pressure, level, humidity etc. 24V Excitation rated to 60mA. Last digit count by 1,2,5,10,20 or 50. Variable filtering / averaging. Remote logic inputs for tare (force to zero), reset, peak and valley. Rear panel security lock.

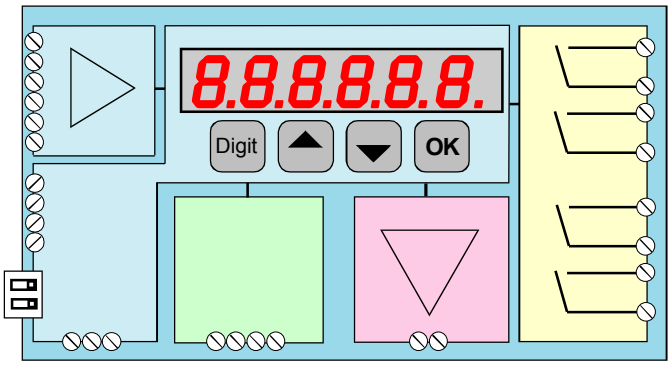
MAXI-INT2-R Resistance Display for low to medium resistance measurements. 4 wire connection method gives precise results, regardless of cable resistance. Ideal for QA checks of motor windings, lamp filaments, inductors, etc. Ranges to order, from 0-100 milliOhms, up to 0-20 Kilohms

MAXI-INT2-S2 or MAXI-INT2-S4 Serial Data Display for slave and remote applications. Accepts RS232, RS422, RS485 in ASCII format. Addressable 00 to FF. Able to extract data from complex strings. 300, 600, 1200, 2400, 9600 baud rate. You can also add strings together to give a total value, useful in batching and totalising applications.

.

Anatomy of the MAXI-INT2 series

⦸ = Detachable screw terminal



Excitation to sensor(s)
Input Signal(s) from sensor(s)

Logic inputs
Tare/Hold
Reset/Net/Gross
Peak/valley

Calibration Lock
Alarm Lock

Power
100 - 240 VAC
or 11-30VDC
or 5V DC
8 Watts

Optional Data output
RS232
RS485
Modbus ASCII

Optional Isolated scalable analogue output.
4-20mA = option ANI
0-10V = option ANV
-10 /+10V = option ANB
600 Ohms drive

Optional Alarm outputs
2 relays = option AL2
4 relays = option AL4
Normally open, normally closed, normally energised or normally de-energised. Fully configurable, with adjustable hysteresis.

SPST or SPDT versions.
2 x SPCO option
2 or 4 x solid state option

Relays rated 2A at 250V AC, from same phase.

You can add input or output options to your display at any time, whenever you need to upgrade or add or change features.

For detailed technical information and manuals for this product, please see **london-electronics.com** or ask for our technical data CD, which is free of charge and includes handy engineering calculators.

www.london-electronics.com help@london-electronics.com Tel +44 1767 626444 Fax +44 1767 626446

Factory Clock systems

Accurate timekeeping is crucial to the modern factory, and a common source of argument between employer and employee.

A fundamental requirement, to help your employees maintain accurate timekeeping around your factory is to ensure that they can refer to an accurate clock, wherever they may be.

We make a range of clock types to suit common factory timekeeping requirements.

In their basic form, the clocks simply show time, but there are a number of useful add-ons which can help you to get the most out of your investment.

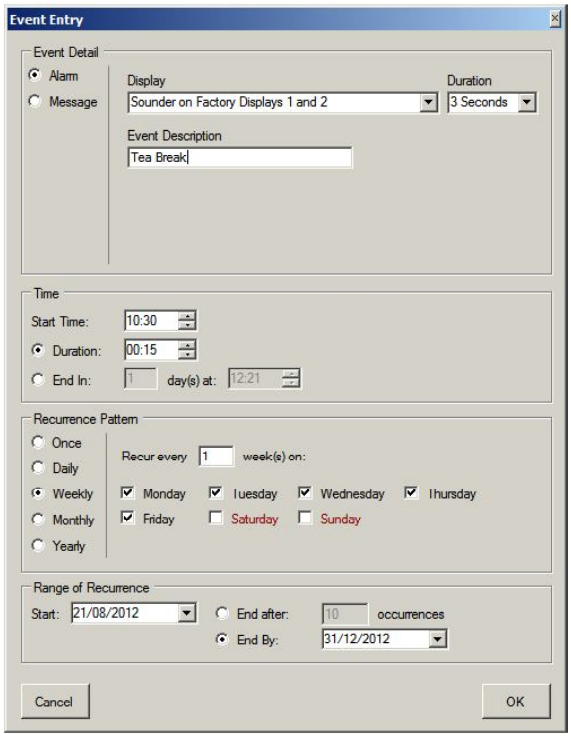
These include:-

Alarm outputs.
Ideal for sounding sirens at start or end of shifts, tea breaks, scheduled maintenance periods etc.

We can either supply simple contact closure alarm relay outputs to control external sirens or beacons, or we can include beacons or sirens within the display itself.

PC Alarm-Scheduler application.
If you run flexible shifts or have different shift patterns on different days, you may find our alarm scheduler saves you time. Allows you to set different break times on different days. Editing alarm times is simple and fast.

You can also use it to send updates to our Titan series of message displays, providing timely prompts to your team, to ensure everyone is aware of the current task or planned action.



- **4 digit HH:MM versions**
- **6 digit HH:MM:SS versions**
- **Wide range of digit sizes and colours**
- **Stand-alone or synchronised systems**
- **Automatic summer/winter correction**
- **Sealed all round to IP65 for washdown**
- **Option to show time and temperature**

Basic stand-alone Clock system

One or more clocks, each running with their own internal time reference.

Advantage - simple installation, only needs power, but all clocks will need to be set occasionally.

Master and slave system

One clock acts as a master. You set this to read the correct time, and all other clocks will copy the master's display, connected together by CAT5 cable.

Advantage - all clocks read exactly the same time, only the master will need to be set occasionally. Up to 32 slaves can be driven by one master.

GPS time standard and slaves

The GPS receiver acts as a constantly corrected master. All slaves will follow the time standard, connected together by CAT5 cable.

Advantage - all clocks read exactly the same time and no correction is ever needed. Up to 32 slaves can be driven by the time standard.

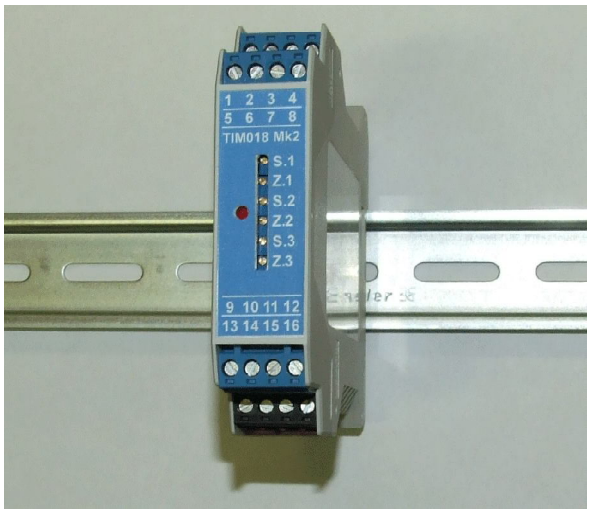
Basic accuracy :	+/- 3 seconds per month.
GPS corrected accuracy:	Less than 1 second error at any time.
Sealing:	IP65 all round, glanded cable entry.
Summer/Winter time:	Automatic correction for daylight saving
Digit sizes:	Available from 14mm up to 400mm high
Cabling distance:	Up to 500m

Contact us now, to discuss your requirements

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

TIM018-Mk2 - Triple 4-20mA Loop Splitter



- **Simple to install and commission**
- **Clear Plain English operating manuals**
- **Internal 20V supply to power sensor**
- **Can scale each output separately**
- **Low cost and fast delivery**
- **wide range power supplies**

Operating manualsand more technical detail at
london-electronics.com/signal-transmitters.php

Specifications:

Input

Input resistance	50 Ohms
Input range	0-20mA, 4-20mA, 0-10mA
Excitation voltage	20VDC nom. 28mA max

Output

Output range	0-20mA, 4-20mA, 0-10mA
Span adjustment	+/-9mA
Zero adjustment	+/-1mA
Response speed	200 mSeconds
Isolation	380V to earth and power
Drive capacity	600 Ohms per loop
Accuracy	+/-0.1% span
Temp.Co.	+/-75ppm/C

Note: All + O/P terminals are internally connected

Power

Supply voltage	95-265 VAC or 11-30 VDC
Power consumption	3 Watts max
Connections	Screw terminals - plug-in

Environmental

Working temp. range	0-50 C
Storage temp. range	-20 to 75 C
Humidity	0-90% rh non-condensing
Sealing	IP40

Mechanical

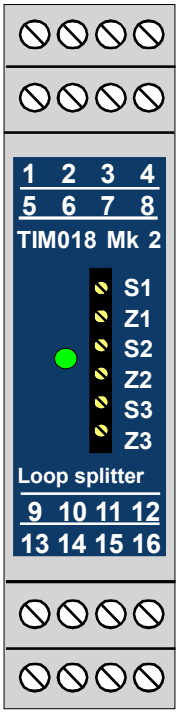
Mounting	DIN Rail EN50 022
Size	22.5 w x 99h x 111 d
Weight	200 grammes

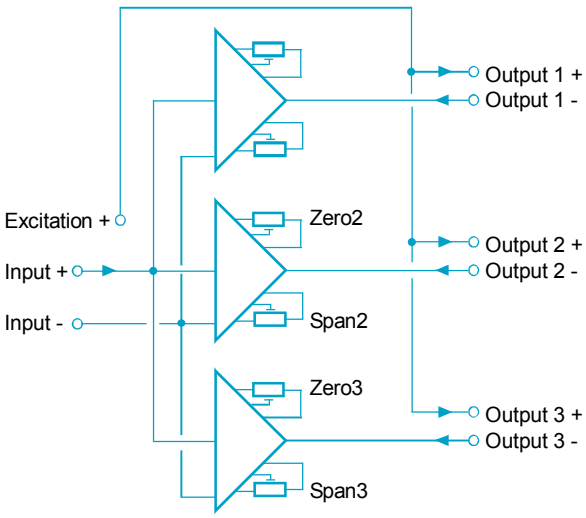
In many industrial systems, 4-20mA will send measurement values from a transmitter or amplifier to other devices such as panel meters, chart recorders, PLC's, controllers etc.

Often, these devices share the same signal, because they are connected in series.

A **problem** which you may find, is that if any of the devices in the loop is removed, fails, or suffers a wiring fault, all other devices will lose their 4-20mA signal.

The TIM018 helps to solve this problem. It takes one 4-20mA signal and makes 3 copies. Each copy signal can be open circuit or short circuit and will not affect the other loop signals.





Ordering Code:

TIM018-Mk2-AC for 95-265 VAC
TIM018-Mk2-DC for 11-30 VDC

Miniature panel meters - The PICA series

Save space and money with these remarkable miniature panel meters. They are fully programmable and can be powered from a wide choice of AC and DC voltages. This makes them ideal for general purpose measurement projects anywhere in the world.

10 reasons to choose the PICA range...

- Low cost
- Small size
- Universal AC or DC power
- Wide range of measurements
- Programme-lock function, for security
- Plug-in connectors for quick servicing
- Digital scaling for precision and stability
- Long warranty, extendable free of charge
- Fast, free technical support
- High immunity to interference

Actual size - Fully programmable, 95-265 VAC power

3 models for different input ranges

- Pica-P : +/-100mV, +/-10V, +/-20mA, +/-200V
- Pica-E : 0-110V / 0-600V AC / 0-1A / 0-5A AC
- Pica-T : PT100, T/C types K,J,T, deg. C and F
- Pica-40-LP: Loop powered 4-20mA, 4 digits

3 power options

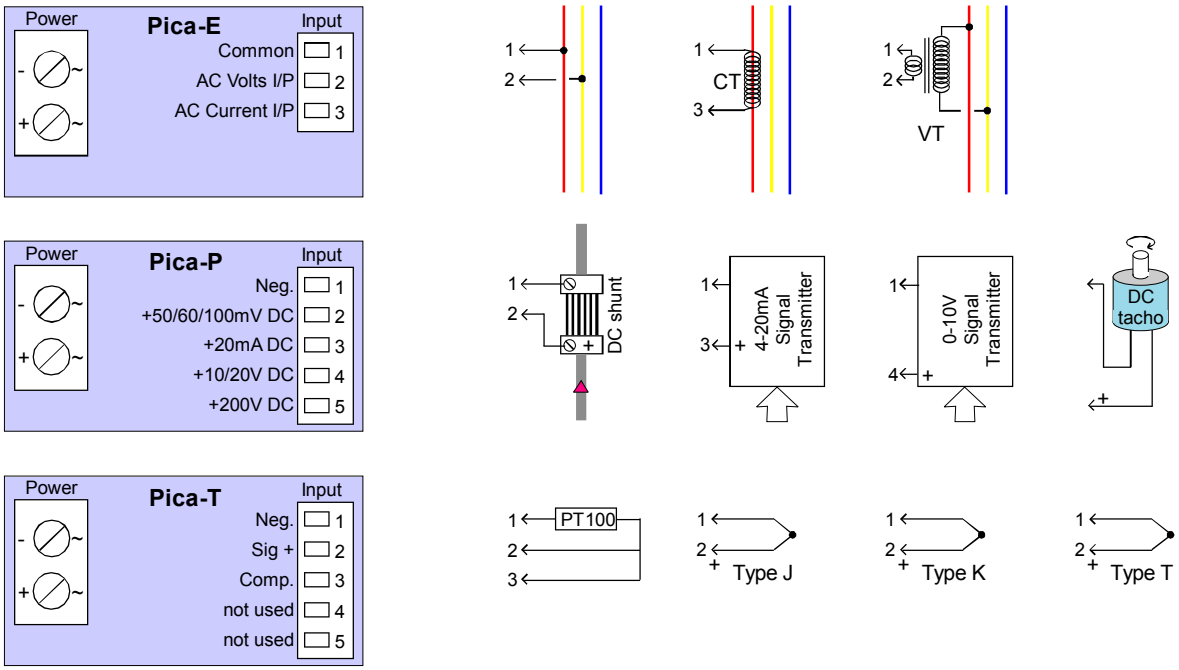
- 85-265 VAC (also accepts 100-300 VDC)
- 11 to 70 VDC (also accepts 21-53 VAC)
- Loop Powered from 4-20mA - PICA-40-LP

The PICA family offers you simplicity, flexibility and reliability for many general purpose process measurements.

The PICA-P is ideal for process monitoring, because it accepts 4-20mA, 0-10V and 1-5V DC process singals. You can scale your meter two ways. You can either type-in expected signal levels and desired readings (theoretical calibration) or you can apply signals to the meter from the system, and adjust the meter to read the desired values. The PICA-40-LP is a loop-powered version, accepting 4-20mA only. It is not intended for use in very bright areas.

The PICA-E is mainly used to monitor power voltage and current. The PICA-T will accept the most common temperature sensors.

Application Examples:



London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

PICA-E Input Range for DC and AC voltage and Current (Fully scalable)

AC Voltage Input	0-100 V	0-600V	3 Megohm I/P R
DC Voltage Input	-100.0 to +100.0V	-199.9V to +600.0V	3 Megohm I/P R
AC Current Input	0-1.000 A	0-5.000 A	14 milliohm I/P R
DC Current Input	-1.000 to +1.000A	-1.999 to +5.000A	14 milliohm I/P R
Accuracy	+/- 0.4% rdg +/-4 digits		
TempCo	100ppm/Deg C		

PICA-P Input Range for DC Process signals (Fully scalable)

DC Voltage Ranges	+/-100.0mV*	+/-9.999V	+/-19.99V	+/-200.0V	1(100*)MΩ I/P R
DC Current Range	+/-19.99mA				12 Ohm I/P R
Accuracy	+/- 0.1% rdg +/-3 digits				
TempCo	100ppm/Deg C				

PICA-T Input Range for Temperature sensor signals

Centigrade:		
RTD PT100	-200 to +800C	Accuracy +/- 0.2% rdg. +/-1 Deg C
	or -100.0 to +199.9 C	Accuracy +/- 0.2% rdg. +/-0.4 Deg C
Thermocouple type J	-50 to +850 C	Accuracy +/- 0.4% rdg. +/-2 Deg C
Thermocouple type K	-50 to +1250 C	Accuracy +/- 0.4% rdg. +/-2 Deg C
Thermocouple type T	-200 to +400 C	Accuracy +/- 0.4% rdg. +/-2 Deg C
Fahrenheit:		
RTD PT100	-328 to +1472 F	Accuracy +/- 0.2% rdg. +/-2 Deg F
	or -148.0 to +392.0 F	Accuracy +/- 0.2% rdg. +/-0.7 Deg F
Thermocouple type J	-58 to + 1562 F	Accuracy +/- 0.4% rdg. +/-4 Deg F
Thermocouple type K	-58 to +2282 F	Accuracy +/- 0.4% rdg. +/-4 Deg F
Thermocouple type T	-328 to +752 F	Accuracy +/- 0.4% rdg. +/-4 Deg F

CJ Compensation from -10 to +60 degrees C. TempCo +/-100 ppm/DegC. Warmup time 10 minutes.
PT100 excitation current <1.3mA, compensates balanced cables <40 Ohms each.

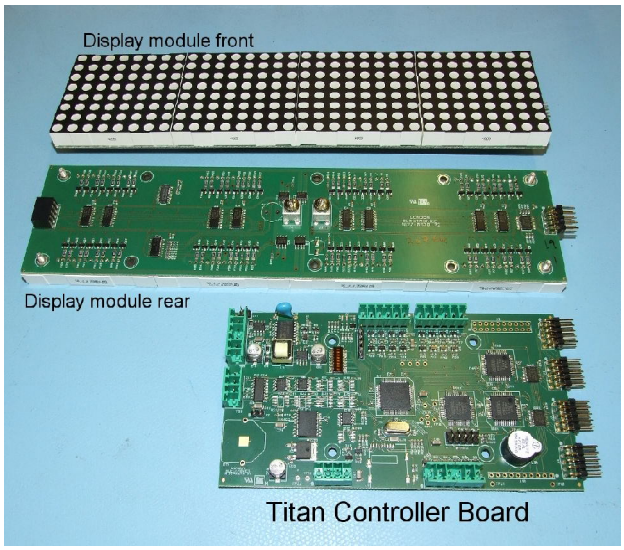
Common Specifications

Display:		
Display read-rate	4 updates per second	
Scaling range	-1999 to +9999 for DC signals, 0 to 9999 for AC signals	
Decimal point position	Selectable with the setup menu (no decimal pont for thermocouple input)	
Display type	Red LED 10mm high	
A/D conversion	Sigma-Delta	
Programming	With 3 pushbuttons on the lower surface of the bezel	
Mechanical:		
Bezel area	24mm high x 48mm wide	
Panel cutout	22mm high x 45mm wide	
Case depth	96mm, (PICA-40-LP is smaller, at 83mm)	
Weight	50 grams	
Sealing	IP65 from front	
Case material	Polycarbonate, flammability rated UL 94 V-0	
Environmental:		
Working temperature	-10 to +60 Deg. C	
Storage temperature	-25 to +85 Deg. C	
Humidity	Less than 95% rh, non-condensing	
Power:		
Standard	85-265 VAC / 100-300 VDC	(use fuse 0.1A rated 250 VAC)
Optional (add suffix -6)	21-53 VAC / 11 to 70 VDC	(use fuse 0.5A rated 250 VAC)
Consumption	1.8 Watts max.	

How to specify a full part number: PICA - E, P or T - 0 or 6
Power 0 = 95-265VAC, 6 = 11-70VDC

Titan Message Displays

- **Designed and manufactured in England**
- **Contact closure message triggers**
- **RS232, RS485, Ethernet, Profibus**
- **Indoors and outdoors vesions**
- **Low cost and fast delivery**
- **Easy to edit messages**
- **Single or multi colour**
- **Single or multi line**
- **AC and DC power**
- **IP65 as standard**



The Titan series is assembled from a combination of inter-connecting modules.

This give many options for size formats, because we can combine a few modules to make a small display, or many modules to make a large one.

Modules can be combined vertically and horizontally, to give wider displays and displays with more lines or taller lines of text.

The modules can be included in custom signs and displays, along with other types of display, such as the Fusion or bargraphs.

The enclosures are sealed IP65 all round and are made by us to exactly suit your requirements.

We can even include your corporate logo and colour scheme. See our Production Displays pages for examples.

Choose from a range of message displays to suit any application. From simple reception area displays, updated from a PC, industrial safety messaging displays, production line status displays, vehicle routing displays, time and date displays,

If there is a message you want to share with people, we have a display to get your message across clearly and reliably.

In addition we can offer message storage modules and custom PC and web based software to generate messages to suit conditions in your production environment.

You can create messages for the Titan series a number of ways, to best suit your needs...

Via web application

From Industrial PLC

Computer in reception

250 message store

London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

Model number	Characters per line	Number of lines
8 pixels high		
(One line 50mm high)		
Titan 64x8	10 char.s,	single line
Titan 96x8	15 char.s,	single line
Titan 128x8	21 char.s,	single line
Titan 160x8	26 char.s,	single line
Titan 192x8	31 char.s,	single line
16 pixels high		
(Two lines each 50mm high, or 1 line 120mm high)		
Titan 64x16	10 char.s, 2 line/8 char.s, 1 line	single and dual line
Titan 96x16	15 char.s, 2 line/12 char.s, 1 line	single and dual line
Titan 128x16	21 char.s, 2 line/16 char.s, 1 line	single and dual line
Titan 160x16	26 char.s, 2 line/20 char.s, 1 line	single and dual line
Titan 192x16	31 char.s, 2 line/24 char.s, 1 line	single and dual line
Titan 256x16	42 char.s, 2 line/24 char.s, 1 line	single and dual line

Input Signals

RS232 and addressable RS485 available as standard

8 bit logic input to call up stored messages

Ethernet optional, via LEM module

Power

95-265 VAC Standard, 24V DC Optional

Enclosure

Sealing = IP65 / NEMA4X all round

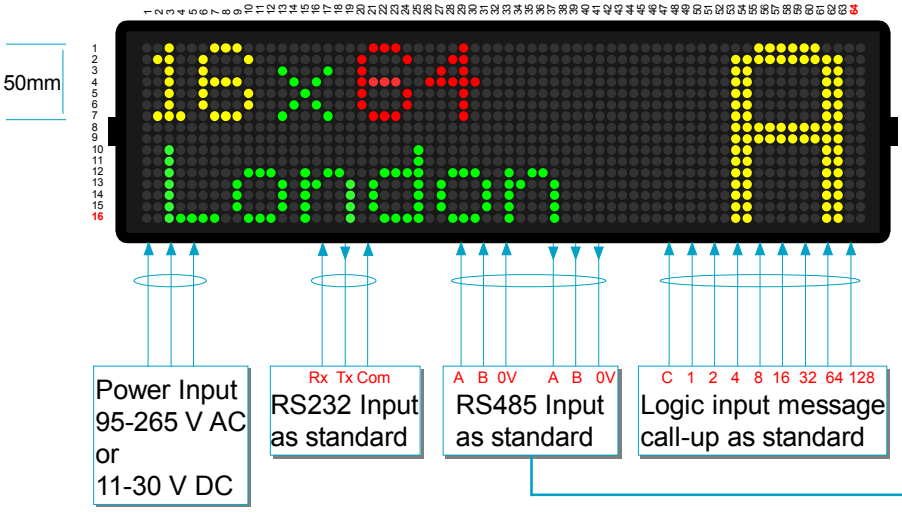
Mounting Brackets Wall Mounting, Suspension mounting

Brightness

1. Standard indoor brightness
2. Ultrabright for use outside in direct sunlight.

Suspension mounting

Wall mounting



What do the part numbers mean?

Let's use **TITAN-16x64** as an example

TITAN = model type
16 = number of vertical pixels
64 = number of pixels wide

All cables enter the sealed enclosure through compression glands.

Ordering guide and full technical details available at http://www.london-electronics.com/titan_16x160.php

www.london-electronics.com help@london-electronics.com Tel +44 1767 626444 Fax +44 1767 626446

Panel mounting Printer - MPP5610V

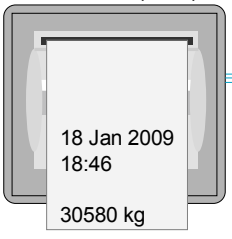
Specifications:

Printing system	Direct thermal head
Characters/line	12, 16, 24,32,48
Character size	3mmx1mm, 3mmx1.5mm, 3m x2mm
Dot pitch	0.125mm
Text line	24 x 384 dots
Printing width	48mm
Printing speed	10 lines per second
Paper width	58mm
Paper capacity	48mm diameter = 25 metres long
Default Font	Arial 24 Chars/line
Character formats	Normal, 2xw, 2xh, 2w and 2xh
Print density	4 selectable levels
Print format	Normal and upside down
Power supply	10 to 35 V DC
Current	2.7A at 10V, 1.2A at 24V, 1A at 35V
Interface	RS232 8n, 8o1,8E1,7o1,7E1
Baud rates	600, 1200, 2400, 4800, 9600. 19.2K
Handshake	None, software, hardware
Buffer	5kB
Dimensions	88 x 86mm, 62mm behind panel
Language fonts	USA, France, Germany, UK, Denmark I/II, Sweden, Italy, Japan, Norway, Latin America, Spain I/II
Panel cut-out	81.5 x 78mm
Weight	80g approx (without paper)
Operating temp.	0oC to +50oC
Storage temp.	-20oC to +60oC
Status LED	On = Printer on Off = Printer off * * * * * =Paper out /door open ** ** ** =Head too hot

Typical Example ...

Model INT2-L-0-0-232-R-DC
Loadcell panel meter with real time clock data output

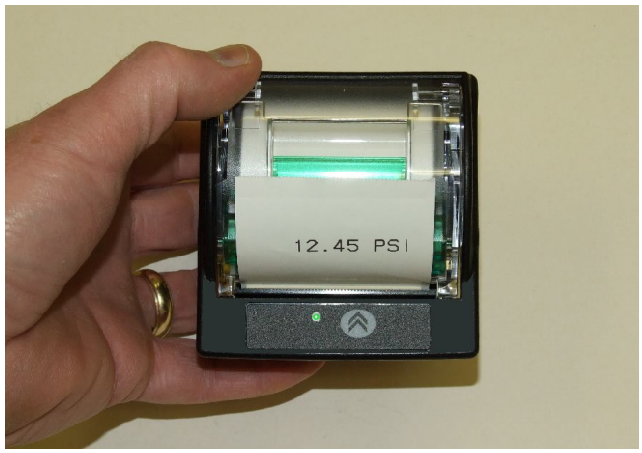
Model MPP5610V panel printer



Axle weigher in cab, with printout of fill weight

Ordering Codes

Printer	MPP5601V
Paper Rolls x 10	MM58
Power cable 150mm	MGK82

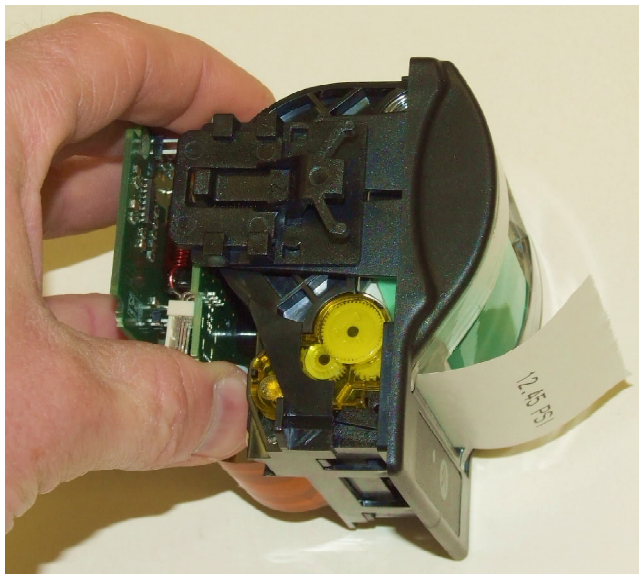


- **Low Cost**
- **Easy loading paper mechanism**
- **Compact - only 62mm behing panel**
- **Clear printout**
- **Suits Text, Barcodes or Graphics**
- **International character set**
- **Normal or upside-down printing**
- **Quiet non-impact mechanism**
- **Generally available from stock**

The MPP5610V uses a fixed thermal head with an easy-load paper mechanism and shallow depth. It accepts RS232 and can be set for 12, 16, 24, 32 or 48 characters per line.

The printer is easy to configure via the front panel mode button to a number of optional modes, data formats, baud rates, fonts, print formats etc.

You can either use the MPP5610V with your own data source, or, if you use it with one of our INT2 panel meters, you can include time, date and descriptive text along with the measurement value. This makes an economical combination for any application where you need to record a measurement with a date stamp.



London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

PRO-BAR series - Large format Bargraph

- **Large scale, high visibility**
- **Outdoor brightness versions**
- **Wall mounting, panel mounting option**
- **Get an instant idea of 'How Much'**
- **Simple to install and commission**
- **Clear Plain English operating manuals**
- **Internal 24V supply to power sensor**
- **IP65 Sealed option**
- **95-265 VAC or 11-30V DC power**
- **Customised scales available**
- **Vertical / Horizontal mounting**

The PRO-BAR is a rugged, high visibility bargraph display which accepts 4-20mA , 1-5V or 0-10V and is scalable to suit your process.

It gives an instant 'feel' for the fullness of vessels, relative pressures, deviation from setpoint etc.

Easy to adjust and calibrate, the PRO-BAR uses no menus, so can be adjusted in minutes, even if you aren't familiar with it.

It replaces alternatives such as sight tubes, with the benefit that the bargraph can be located far from the tank, there are no liquids to freeze in the tube, and tube breakage is avoided.

This means they may be mounted in a convenient location for your system engineers to view, without having to waste time walking to the tanks.

Ultrabright versions can be mounted outside and are clearly visible even in direct sunlight. Plus the sealed case version is suitable for mounting outside in all weathers.

Input Ranges
4-20mA & 0-10V Standard, 0-20mA, 0-10mA, 1-5V to order.

Accuracy
Of range. ..... 0.5% ,+/- 1 segment at 25 Deg. C
Resolution.....1 in 50
Excitation output..... 24V +/- 15%, current limited to 30mA

Display
Format.....50 segments, red or green LED
Scale length .....250 mm

Power Supply
95-265 V AC wide range switch-mode supply - standard
11-30 V DC wide range switch-mode supply - optional
Power consumption..... 5 VA Max.

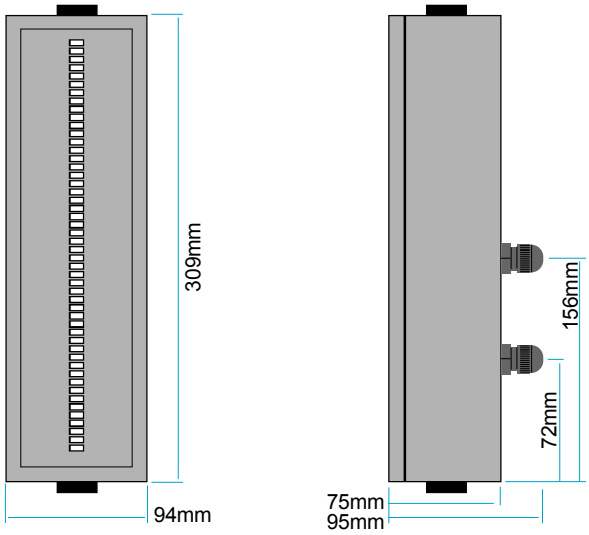
Dimensions
Height of case wall mounting.....309mm + 25mm for brackets
Width of case if wall mounting 94mm

Display Bezel if panel mounting .....326mm x 111mm
Panel Cutout .....311mm x 96mm
Depth behind panel, including connectors .....95 mm
Max. width behind panel .....94 mm

Environmental Limits
Storage temperature .....-40 to 85 °C
Operating temperature ..... 0 to 50 °C
Humidity ..... 0 to 85 % RH non condensing
Sealing.....IP65 all-round

Case
Case Material .....High strength uPVC
Window Material.....3mm thick Acrylic

We also make bargraphs in 1/8 DIN format, model BAR-A and BAR-X, and multicolour bargraphs model NA5



Wall mounting case dimensions. Panel mounting bezel is 17mm wider and taller than the case.

Ordering Code:

PRO-BAR 1)Add suffix **-AC** for AC power 95-265 VAC. Add suffix **-DC** for DC power 11-30V DC. 2) Red = **-R** Green = **-G**
3)Add suffix **-V** for Vertical, **-H** for horizontal 4) Add suffix **-1** for Panelmount, **-2** for Wallmount

Accessories

Temperature Sensors

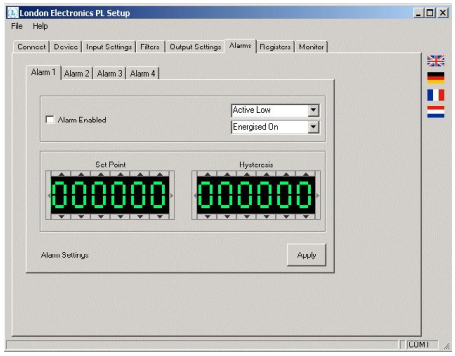
PC Systems and software

Manual stations

Selector Switches

Beacons and Sounders

Custom applications



Portable meter enclosures

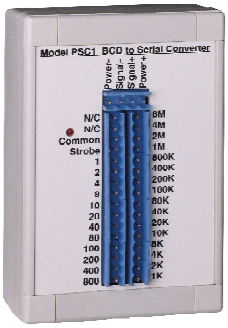
Wall enclosures

Signal selector switches

DC current shunts & CTs

Pressure sensors

Signal converters



London Electronics Ltd
Tel +44 1767 626444 Fax +44 1767 626446
help@london-electronics.com
www.london-electronics.com

London Electronics Ltd
www.london-electronics.com
help@london-electronics.com
Tel +44 1767 626444
Fax +44 1767 626446

We design and manufacture standard and custom-special products to help you measure, control and display any physical variable, for a wide range of industries. Products include:-

- Large production displays for OEE, Target, Downtime, Rate, Quality, Weight, Total etc.
- Large message Displays to share important information with all the team
- Panel Meters for Weight, Pressure, Total, RPM, Temperature, Total, Time, Humidity ...
- Chart Recorders and Data loggers for most physical variables
- Bargraph displays in vertical and horizontal format, with or without alarms and comms.
- Days since Last Accident displays
- Signal isolators, transmitters and loop splitters
- Single and 3 phase power monitors for monitoring factory energy usage
- Plant mimic displays with indicator lamps to show machine status
- GPS Precision time receivers and synchronised factory clocks
- Custom designed and built displays to suit your special application
- Custom written PC software
- OEE real time data logging

VISA MasterCard

Your local distributor...

London Electronics Ltd
Thorncote Road
Near Sandy
Bedfordshire SG19 1PU
England

Tel +44 (0)1767 626444
Fax +44 (0)1767 626446

www.london-electronics.com
sales@london-electronics.com

ISO9001:2008