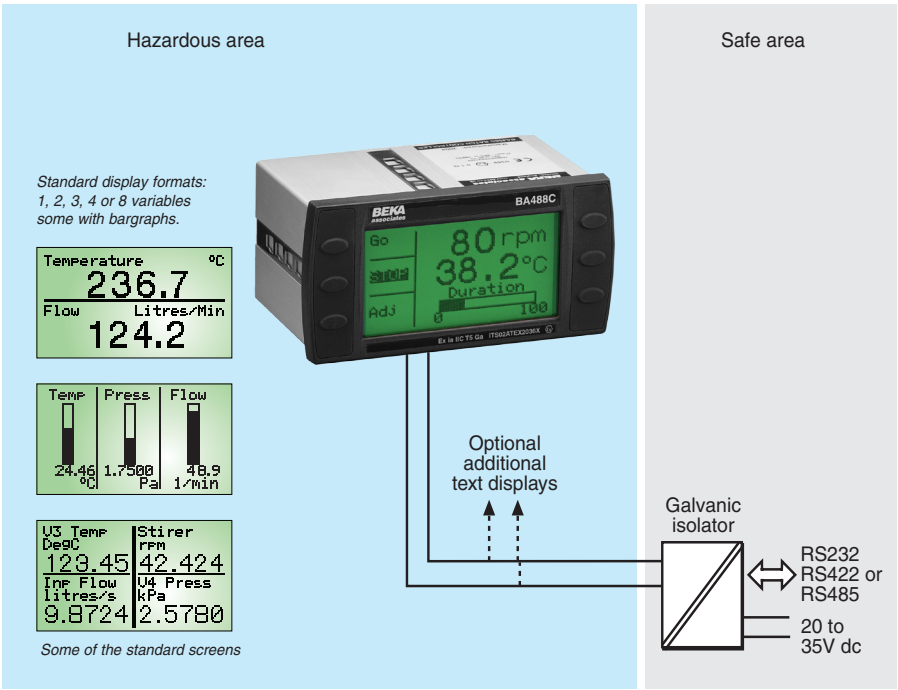


BA488C

Modbus RTU display
Serial Data display

Intrinsically safe for use in gas hazardous areas

- **Intrinsically safe ATEX, FM, cFM & IECEx certified.**
- **High contrast display with backlight.**
- **Modbus RTU slave**
- **BEKA and Legacy protocols.**
- **11 standard screen formats.**
- **Six operator push buttons & two switch outputs.**
- **IP66 front panel**
- **Free simulator and ScreenWriter software.**
- **3 year guarantee**

www.beka.co.uk/ba488c

The BA488C is an intrinsically safe instrument that can display text and simple graphics in a hazardous area. Incorporating six push buttons and two solid state outputs, the BA488C is a low cost operator interface ideal for simple machine and process control applications. Incorporating Modbus RTU, BEKA and Legacy protocol the instrument may be used for new installations or to upgrade existing intrinsically safe systems.

Data and power are supplied via a 2 wire serial data link from a galvanic isolator in the safe area. Two isolators are available, the BA201 has RS232 and RS485 safe area ports and the MTL5051 can be configured with an RS232 or an RS422 port. Both isolators can power and communicate with one or two BA484D serial text displays. Using a 3 wire system, the BA201 can power and communicate with up to four serial text displays.

The high contrast liquid crystal display incorporates a green backlight that is powered by the serial data link enabling the display to be read in all lighting conditions from full sunlight to total darkness.

Six push buttons which may be used for operator acknowledgments or controls are included on the instrument front panel. If larger industrial switches are required, these may be connected to the text display rear terminals. When activated, the front panel push-buttons are automatically disabled.

Two isolated switch outputs, which are controlled via the serial data link, comply with the requirements for simple apparatus and may be used to switch almost any certified intrinsically safe device such as a sounder, beacon or a valve.

Eleven selectable standard screen formats display one, two, three, four or eight variables, with units of measurement, tag descriptions and bargraphs on some screens. The use of a standard display screen format greatly simplifies system design.

The BA488C is a Modbus RTU slave that can display up to eight process variables together with units of measurement and tag descriptions. When used with one of the eleven standard screen formats, no programming is required apart from setting the BA488C communication parameters and writing each Modbus variable into the BA488C Modbus register address map. If a custom screen layout is required in a Modbus system this can be constructed using the BEKA protocol.

BEKA protocol enables custom screen formats to be designed and stored in non-volatile memory using a wide selection of lines, boxes, bargraphs and fonts. Although screens can be manually designed, free BEKA ScreenWriter software which will run on a PC simplifies the process.

Legacy protocol enables the BA488C to replace an MTL644 to provide ATEX certification and a display backlight. No software or galvanic isolator changes are required and the BA488C will fit into the existing panel cut-out.

ATEX, FM, cFM & IECEx intrinsic safety certification allows installation in all gas hazardous areas. Both solid state outputs comply with the requirements for simple apparatus and may be used to switch almost any certified intrinsically safe device such as a sounder, beacon or a valve.

Scripts are a sequence of commands, downloaded to and stored in non-volatile memory by the BA488C text display, that can be executed by the instrument without intervention from the host. For example a routine may be written to monitor the instruments push buttons and to change the displayed screen or variable depending upon which button has been operated.

Pattern matching is a powerful feature which allows the BA488C to capture and display data contained in a proprietary ASCII serial string, such as that from a weighing system or barcode reader primarily intended for printing.

The front panel of the BA488C has IP66 protection and a neoprene gasket seals the joint between the text display and the panel, making it suitable for use in areas that will be hosed.

To simplify system design the instruction manual is supplemented by comprehensive Modbus and programming guides plus a free instrument simulator which will run on a PC. All are available from the BEKA sales office or may be downloaded from www.beka.co.uk

BEKA associates Ltd. Old Charlton Rd. Hitchin, Hertfordshire, SG5 2DA, U.K.
Tel. (01462) 438301 Fax (01462) 453971
e-mail sales@beka.co.uk www.beka.co.uk

SPECIFICATION

Display

Type	120 x 64 pixel liquid crystal.
Size	86.5mm x 45mm.
Backlight	Powered from serial link.
Screens	
Standard format	1, 2, 3, 4 or 8 variables plus bargraph can include units of measurement and tag information
Custom format	See Programming Guide ASCII character set, 5 font sizes.
Hidden screen	May be written to at any time and displayed when required.

Controls

Front panel	Six push buttons which can be software interrogated. Each button function may be displayed on the screen. Buttons may be disabled.
External switches	Control may be transferred to six external switches; front panel buttons are inhibited.
Switch cable length	5m max

Outputs

Contacts	Two software controlled switch outputs. Isolated single pole solid state switch certified as *simple apparatus*.
Intrinsic safety parameters	Ron less than 5Ω + 0.7V Roff greater than 1MΩ Ui = 28Vdc Ii = 200mA Pi = 0.85W

Data transmission

Speed	0.3, 0.6, 1.2, 2.4, 4.8, 9.6 or 19.2k bps.*
Cable length between isolator(s) & BA488C	100m max at Baud rate of 9.6k bps* **Depends upon configuration & type of cable - see instruction manual.*
Format	1 or 2 stop bits; odd, even or no parity bit; 7 or 8 data bits.
Protocol	Selectable Modbus RTU, BEKA or Legacy that is compatible with the MTL643 & MTL644
Address	
Modbus protocol	1 – 247
BEKA protocol	0 – 247] Zero reserved for single
Legacy protocol	0 – 15] instrument applications

Intrinsic safety

Europe ATEX

Code	Group II Category 1G Ex ia IIC T5 Ga (Tamb = -40°C to 60°C)
Cert. No.	ITS02ATEX2036X
	Special condition only apply for installations in Zone 0
Location	Zone 0, 1 or 2
Interface	BA201 (See datasheet)
or	MTL5051 serial communications isolator Input/output RS232 or RS422
2-wire system	Powers one or two text displays
3 wire system	With MTL5025 powers up to four text displays

USA FM

Standard	3610 Entity
Code	CL I; Div 1; GP A, B, C & D T4 @ 60°C
File No	3025514
Standard	3611 Nonincendive
Code	CL I; Div 2; GP A, B, C & D T4 @ 60°C
File No	3025514

Canada cFM

File No	3032633C

International IECEx

Code	Group II Category 1G Ex ia IIC T5 Ga (Tamb = -40°C to 60°C)
Cert. No	IECEx ITS 07.0021X
	Special condition only apply for installations in Zone 0

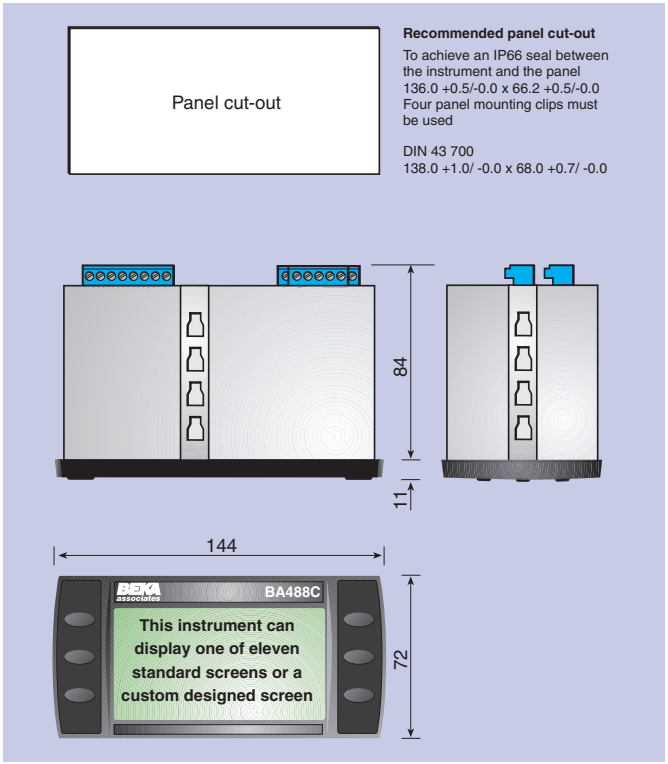
Environmental

Operating temp	-20 to 60°C (certified for use at -40°C)
Storage temp	-40 to 85°C
Humidity	To 95% @ 40°C
Enclosure	Front IP66, rear IP20
EMC	Complies with EMC Directive 2014/30/EU
Immunity	No error for 10V/m field strength between 150kHz and 1GHz.
Emissions	Complies with the requirements for Class B equipment

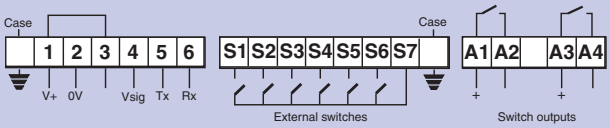
Mechanical

Terminals	Removable with screw clamp for 0.5 to 1.5mm^2 cable.
Weight	0.7kg

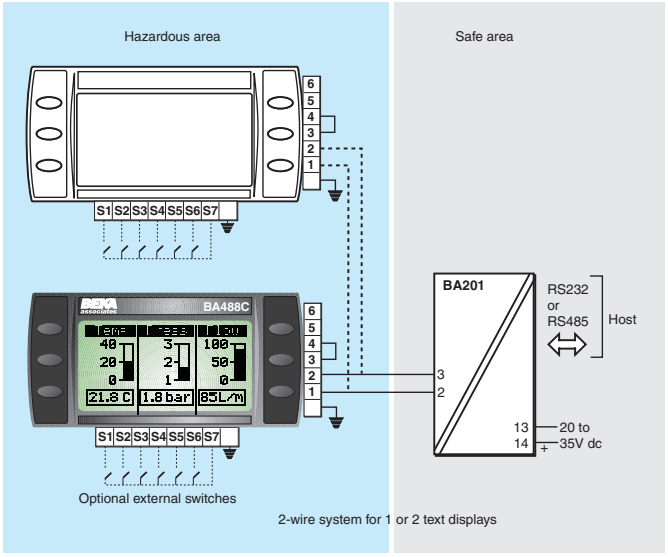
DIMENSIONS (mm)



TERMINAL CONNECTIONS



CONNECTION



Accessories

Tag number	Thermally printed strip on rear of instrument.
Modbus Guide	] May be downloaded from www.beka.co.uk
Programming Guide	
Instrument simulator	

HOW TO ORDER

	Please specify
Model number	BA488C
Accessories	**Please specify if required**
Tag strip	Legend
Modbus Guide	Serial Text Display - Modbus Guide
Programming Guide	Serial Text Display – Programming Guide
Instrument simulator	Instrument simulator for personal computer
BEKA ScreenWriter	Custom screen design aid for personal computer