Serial Text [Data] Displays

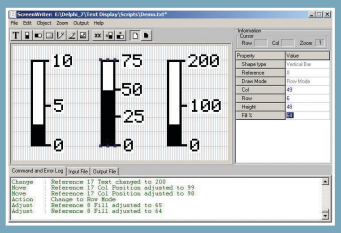


Low cost operator interfaces which are ideal for simple machine and process control applications in hazardous and safe areas.

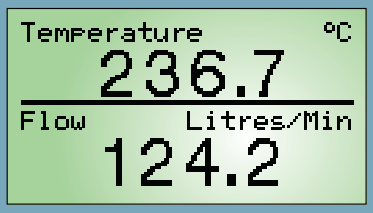
- > **Intrinsically safe and general purpose models.**
- > **Field and panel mounting models with IP66 protection.**
- > **High contrast display with backlight, operator push buttons and two switch outputs.**
- > **Selectable Modbus, BEKA or Legacy protocol.**
- > **General purpose models have RS232 or RS485 ports.**
- > **Displays up to eight variables on one of eleven standard screens, some with bargraphs.**
- > **Free BEKA ScreenWriter software simplifies design of custom screens.**
- > **BA201 galvanic isolator has ATEX, IECEx and FM certification.**

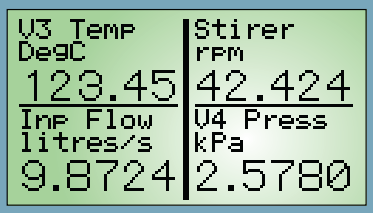
Intrinsically safe

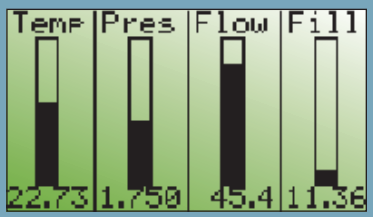
General purpose

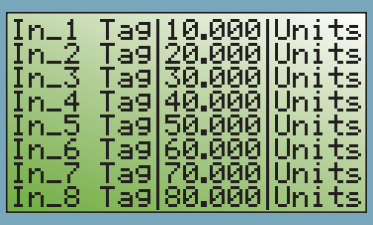


FREE simulation and ScreenWriter software



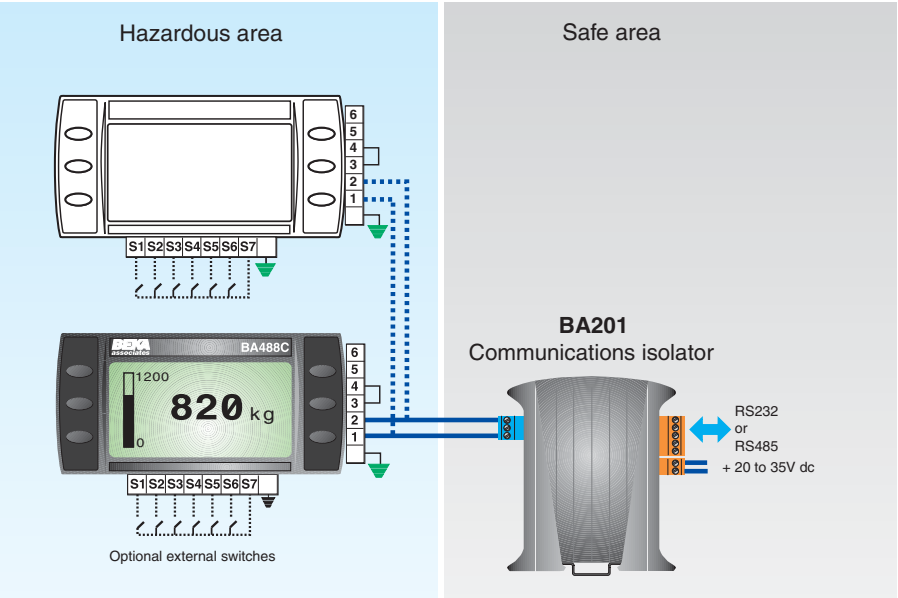






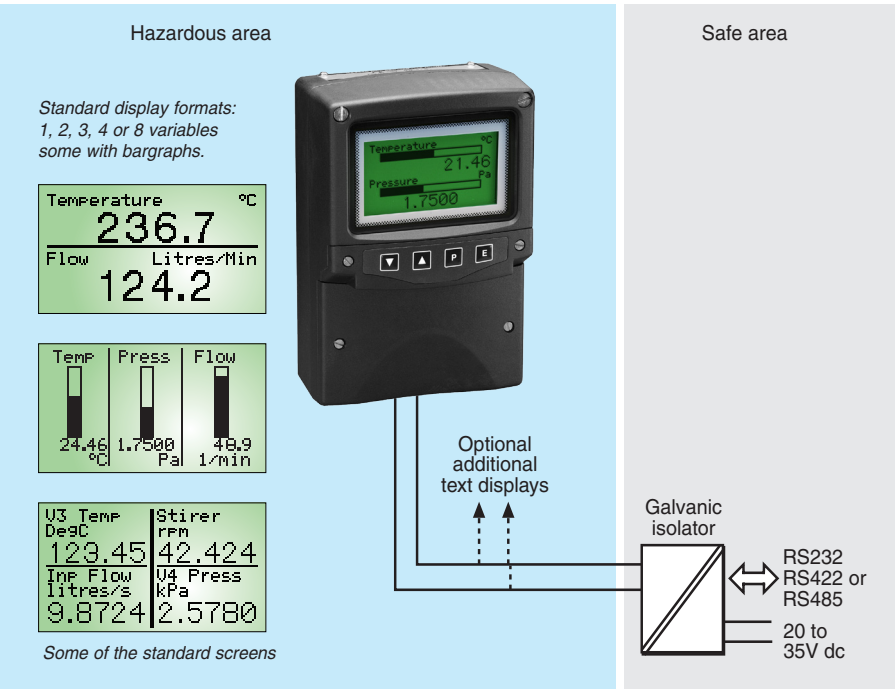
Serial Text [Data] Displays available:

Model No.	Mounting	Operator buttons	Communication	Certification					
				Europe ATEX		International IECEx		USA & Canada	
				Gas	Dust	Gas	Dust	Gas	Dust
Ex i intrinsically safe - for use in Zones 0, 1 & 2 and 20, 21 & 22 where certified									
BA484D	Field	4	Via BEKA BA201 galvanic isolator	✔	✔	✔	✔	✔	✔
BA488C	Panel 144 x 72	6		✔	–	✔	–	✔	–
General Purpose - for use in safe areas									
BA684D	Field	4	RS232 or RS485						
BA688C	Panel 144 x 72	6							



Galvanic Isolator

Model No.	Mounting	Communication	Certification		
			Europe ATEX	International IECEx	USA & Canada
[Ex ia] IIC intrinsically safe associated apparatus					
BA201	35mm DIN rail	RS232 or RS485	✔	✔	✔



BA484D

Serial text [Data] display

Intrinsically safe for use in gas and dust hazardous areas

- **Intrinsically safe ATEX gas *or* ATEX gas & dust *or* FM, cFM & ATEX gas**
  All models have IECEx certification.
- **High contrast display with backlight.**
- **Modbus RTU slave**
- **BEKA and Legacy protocols.**
- **11 standard screen formats.**
- **Four operator push-buttons & two switch outputs.**
- **IP66 field mounting GRP enclosure.**
- **Free simulator and ScreenWriter software.**
- **3 year guarantee**

www.beka.co.uk/ba484d

The BA484D 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 BA484D 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.

Four push-buttons which may be used for operator acknowledgments or controls are included below the display. If larger industrial switches are required, up to six external push-buttons may be connected to the text display. When the remote switches are 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 BA484D 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 BA484D communication parameters and writing each Modbus variable into the BA484D 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 BA484D to replace an MTL643 to provide ATEX certification and a display backlight. No software or galvanic isolator changes are required.

ATEX, FM, cFM & IECEx intrinsic safety certification allows installation in most gas and dust 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 BA484D 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 that allows the BA484D 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 enclosure which is moulded in glass reinforced polyester (GRP), has stainless steel fittings, silicone gaskets and an armoured glass window. Its robust construction provides IP66 protection. A separate terminal compartment allows the BA484D to be installed and terminated without exposing the display electronics.

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	Four push-buttons which can be software interrogated.
External switches	Control may be transferred to six external switches, front panel buttons are inhibited.
Switch cable length	5m max

Outputs Two software controlled switch outputs.

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

Data transmission

Baud rate	0.3, 0.6, 1.2, 2.4, 4.8, 9.6 or 19.2k bps.*
Cable length between isolator(s) & BA484D.	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 to 60°C)
or	Group II Category 1D Ex ia IIIC T80°C Da (Tamb = -40 to 60°C) IP66] *Dust option, see How to order*
Cert. No.	ITS02ATEX2035
Location	Gas Zone 0, 1 or 2: Dust Zone 20, 21 or 22
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 *Option, see How to order*

Standard	3610 Entity
Code	CL I, II, III: Div 1: GP A, B, C, D, E, F & G T4 @ 60°C
File	3025514
Standard	3611 Nonincendive
Code	CL I: Div 2: GP A, B, C & D, T4 @ 60°C CL II, III: Div 2: GP E F & G, T4 @ 60°C
File	3025514

Canada cFM

File No	3032633C

International IECEx

Code	Ex ia IIC T5 Ga (Tamb = -40 to 60°C)
or	Ex ia IIIC T80°C Da (Tamb = -40 to 60°C) IP66] *Dust option, see How to order*
Cert. No	IECEx ITS 07.0020

Environmental

Operating temp	-20 to 60°C (ATEX gas certification -40 to 60°C)
Storage temp	-40 to 85°C
Humidity	To 95% @ 40°C
Enclosure	IP66
EMC	In accordance with EU Directive 2004/108/EC
Immunity	No error for 10V/m field strength between 150kHz and 1GHz.
Emissions	Complies with the requirements for Class B equipment

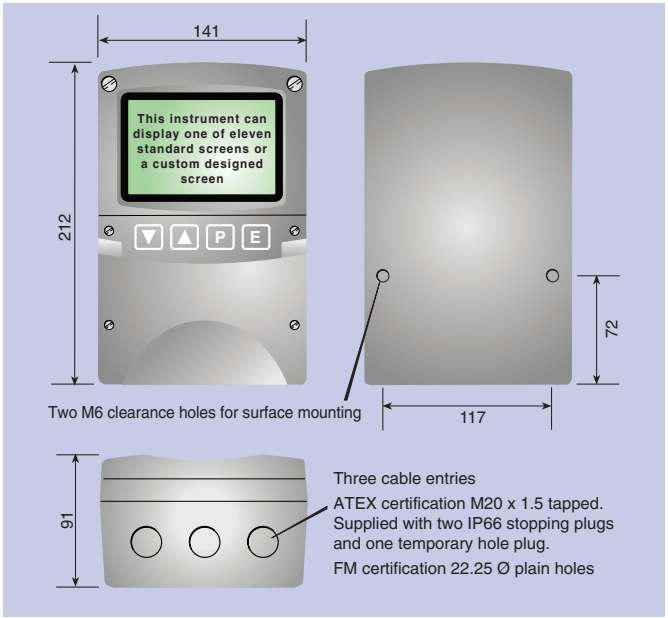
Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm^2 cable.
Weight	1.6kg

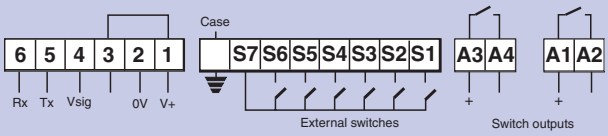
Accessories

Stainless legend plate	Stainless steel plate etched with tagging or applicational information secured to the front of the instrument
Pipe mounting kit	BA392D or BA393

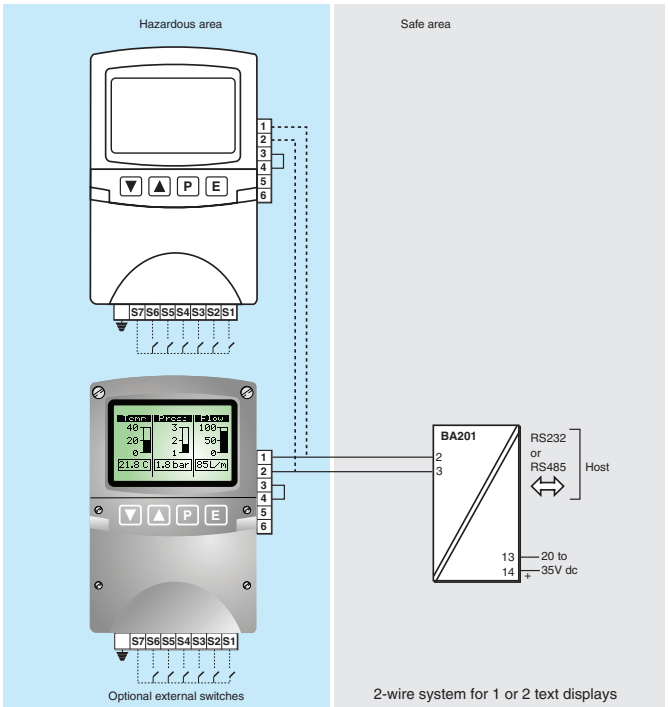
DIMENSIONS (mm)



TERMINAL CONNECTIONS



CONNECTION

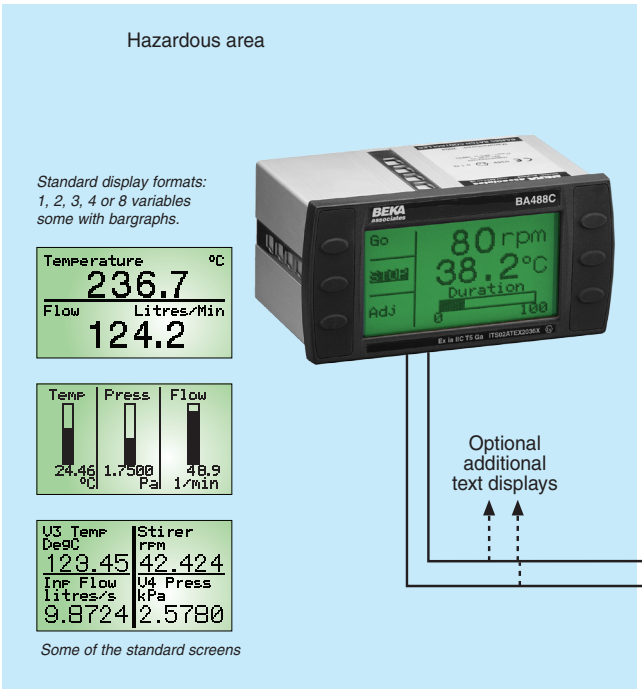


Modbus Guide
Programming Guide
Instrument simulator] May be downloaded from www.beka.co.uk

HOW TO ORDER

	Please specify
Model number	BA484D
Certification	ATEX gas] *All versions have IECEx certification.* ***Note:*** *Cable entries differ for FM & ATEX versions*
or	ATEX gas & dust
or	FM, cFM & ATEX gas

Accessories	**Please specify if required**
Stainless legend plate	Legend
Pipe mounting kit	BA392D or BA393
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



BA488C

Serial text [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

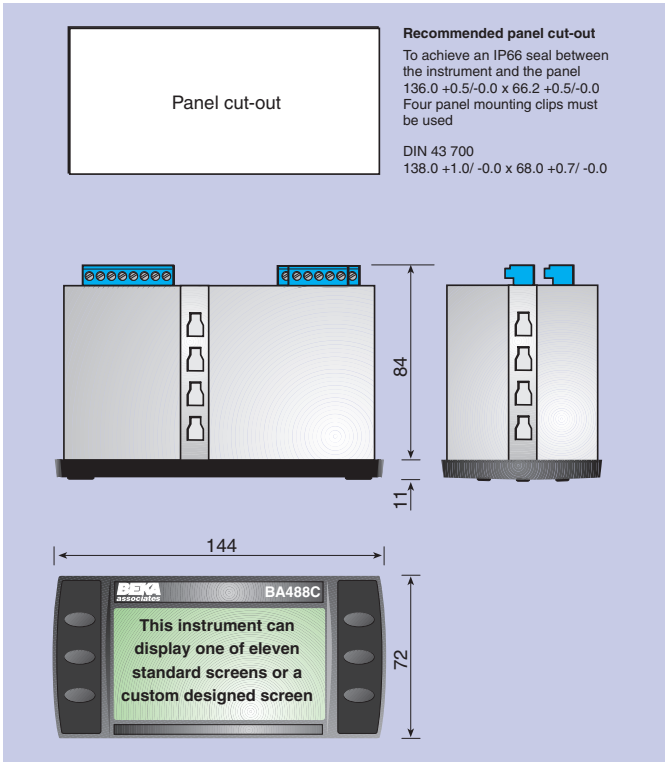
Environmental

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

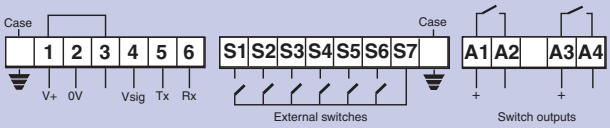
Mechanical

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

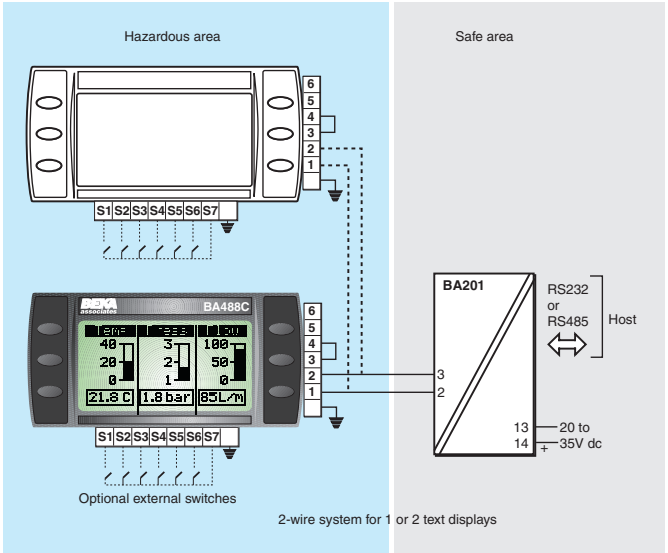
DIMENSIONS (mm)



TERMINAL CONNECTIONS



CONNECTION



Accessories

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

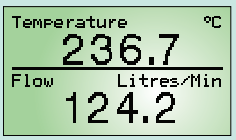
HOW TO ORDER

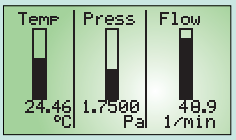
	Please specify
Model number	BA488C
Accessories	**Please specify if required**
Tag strip	Legend
Modbus Guide	Serial Text Display - Modbus Guide
Programming Guide	Serial Text Display – Programming Guide
Instrument simulator	Instrument simulator for personal computer
BEKA ScreenWriter	Custom screen design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

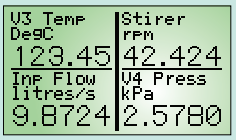
BA684D

Serial text [Data] display

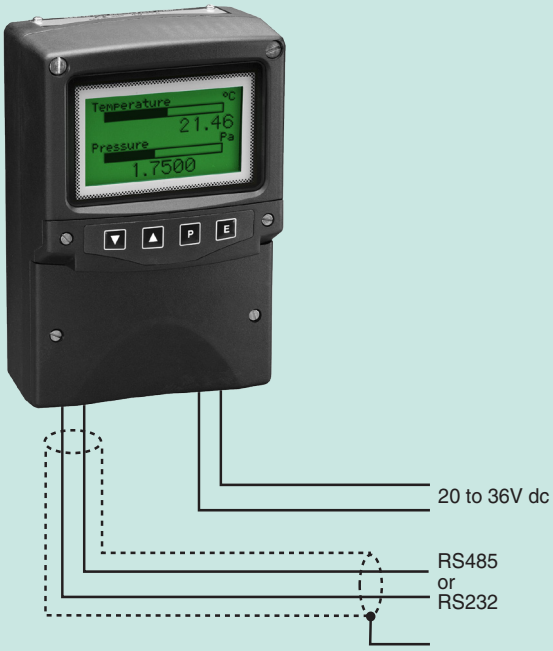
Standard display formats: 1, 2, 3, 4 or 8 variables some with bargraphs.







Some of the standard screens



The BA684D is a dc powered instrument that can display text and simple graphics in a process area. Incorporating four push-buttons and two single pole outputs, the BA684D is a low cost robust operator interface ideal for simple machine and process control applications.

Available with either an RS485 or RS232 port and incorporating Modbus RTU, BEKA and Legacy protocol, the BA684D may be directly connected to many industrial networks and instruments, including new installations and upgrades to existing systems.

A high contrast liquid crystal display incorporates a green backlight allowing the display to be read in all lighting conditions from full sunlight to total darkness. The BA684D text display is therefore suitable for mounting in almost any process location.

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

Two switch outputs, which are controlled via the serial data link, may be used to control a small load such as a valve, actuator or sounder.

Standard screen formats contain one, two, three, four or eight variables, together with units of measurement, tag descriptions and bargraphs on some of the screens. Use of one of these eleven standard screens greatly reduces the amount of programming required and will satisfy most display requirements. If a custom display format is required, this can be developed using BEKA protocol.

The BA684D 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 BA684D communication parameters and writing each Modbus variable into the BA684D 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 allows custom screens using five different font sizes together with, lines, boxes and bargraphs to be produced and stored in non-volatile memory. Simple bit map graphics may be downloaded and stored. Information can also be written to a hidden screen that may be displayed when required.

Legacy protocol enables the BA684D to replace an MTL643 for safe area applications without the need for a galvanic communications isolator and with the added advantage of a display backlight. If required, simple modifications to the host software will allow the enhanced features of the BA684D to be used i.e. five font sizes, simple graphics, additional operator buttons and a second solid state output.

Scripts are a sequence of commands, downloaded to and stored in non-volatile memory by the BA684D 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 that allows the BA684D 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 robust enclosure which is moulded in glass reinforced polyester (GRP), has stainless steel fittings, silicone gaskets and an armoured glass window. Its robust construction provides IP66 protection. A separate terminal compartment allows the BA684D to be installed and terminated without exposing the display electronics.

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

General purpose

- **High contrast display with backlight.**
- **Modbus RTU slave**
- **BEKA and Legacy protocols.**
- **11 standard screen formats.**
- **Four operator push-buttons & two switch outputs.**
- **IP66 field mounting GRP enclosure.**
- **Free simulator and ScreenWriter software.**
- **3 year guarantee**

www.beka.co.uk/ba684d

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

Power supply

Voltage	20 to 36V dc
Current	95mA max

Display

Type	120 x 64 pixel backlit liquid crystal
Size	86.5 x 45mm
Screens	
11 standard formats	1, 2, 3, 4 or 8 variables plus units of measurement & tag information, some include bargraphs.
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	Four push-buttons which can be software interrogated.
External switches	Control may be transferred to six external switches, front panel buttons are inhibited.
Switch cable length	5m max

Outputs

	Two software controlled single pole relay contacts
Rating	250V; 5A ac 30V; 5A dc Reactive loads must be suppressed

Data transmission

Speed	0.3, 0.6, 1.2, 2.4, 4.8, 9.6,19.2, 38.4, 67.6 &115.2k bps.
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

Environmental

Operating temp	-20 to 60°C
Storage temp	-40 to 85°C
Humidity	To 95% @ 40°C
Enclosure	IP66
EMC	In accordance with EU Directive 2004/108/EC.
Immunity	No error for 10V/m field strength between 150kHz and 1GHz.
Emissions	Complies with the requirements for Class B equipment

Mechanical

Terminals	Screw clamp for 0.5 to 1.5mm^2 cable.
Weight	1.6kg

Accessories

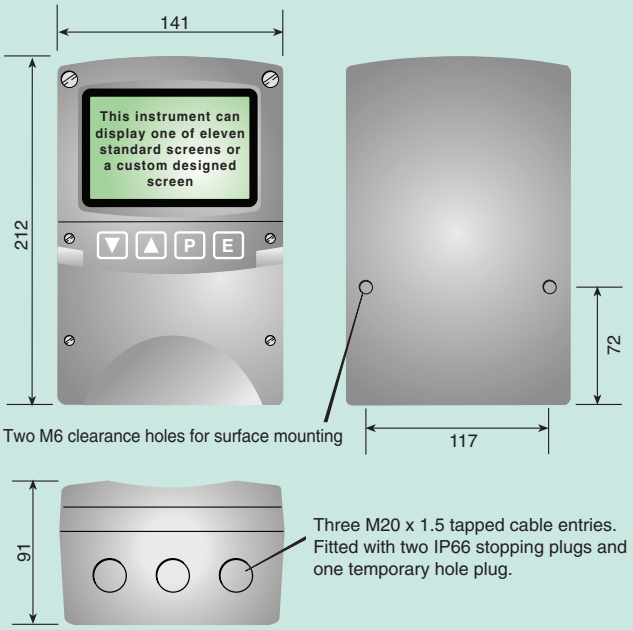
Stainless legend plate	Stainless steel plate etched with tagging or applicational information secured to the front of the instrument
Pipe mounting kit	BA392D or BA393
Modbus Guide	
Programming Guide	] May be downloaded from www.beka.co.uk
Instrument simulator	]

HOW TO ORDER

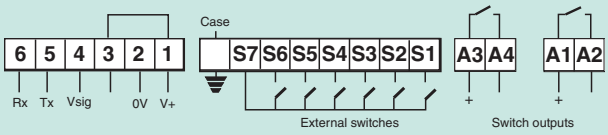
	Please specify
Model number	BA684D
Communication port	RS485 or RS232

Accessories	**Please specify if required**
Stainless legend plate	Legend
Pipe mounting kit	BA392D or BA393
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

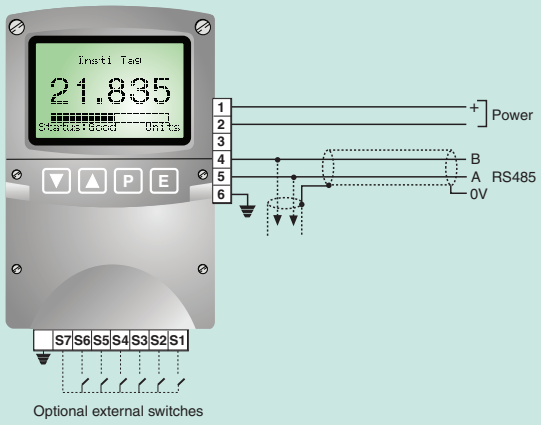
DIMENSIONS (mm)



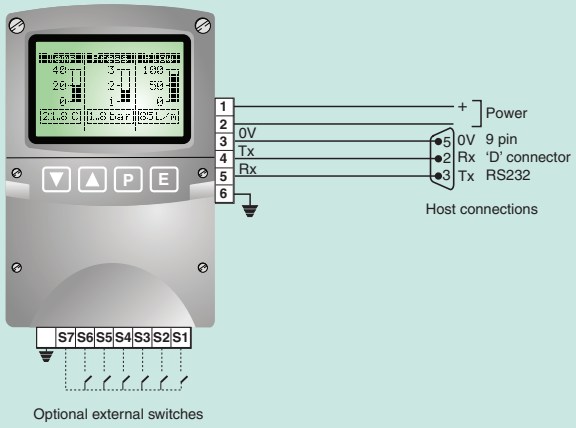
TERMINAL CONNECTIONS



CONNECTION



Connections for RS485 communication

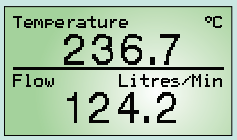


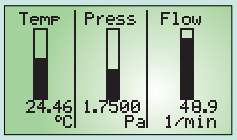
Connections for RS232 communication

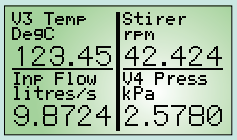
BA688C

Serial text display

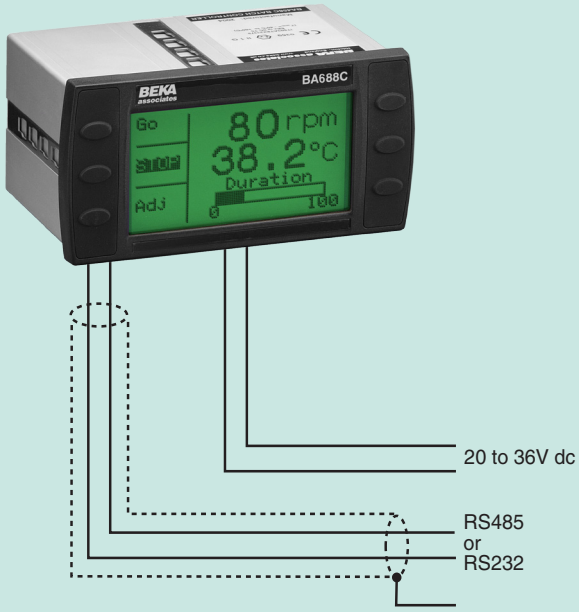
Standard display formats: 1, 2, 3, 4 or 8 variables some with bargraphs.







Some of the standard screens



The BA688C is a dc powered instrument that can display text and simple graphics in a process area. Incorporating six push buttons and two single pole outputs, the BA688C is a robust low cost operator interface ideal for simple machine and process control applications.

Available with either an RS485 or RS232 port and incorporating Modbus RTU, BEKA and Legacy protocol, the BA688C may be directly connected to many industrial networks and instruments, including new installations and upgrades to existing systems.

A high contrast liquid crystal display incorporates a green backlight allowing the display to be read in all lighting conditions from full sunlight to total darkness. The text display is therefore suitable for mounting in control panels or incorporated into measuring instruments.

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 single pole switch outputs, which are controlled via the serial data link, may be used to switch a small load such as a valve, actuator or sounder.

Standard screen formats contain one, two, three, four or eight variables, together with units of measurement, tag descriptions and bargraphs on some of the screens. Use of one of these eleven standard screens greatly reduces the amount of programming required and will satisfy most display requirements. If a custom display format is required, this can be developed using BEKA protocol.

The BA688C 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 BA688C communication parameters and writing each Modbus variable into the BA688C 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 BA688C to replace an MTL644 for safe area applications without the need for a galvanic communications isolator and with the added advantage of a display backlight. No software changes are required and the BA688C will fit into the existing panel cut-out. If required, simple modifications to the host software will allow the enhanced features of the BA688C to be used i.e. five font sizes, simple graphics, additional operator buttons and a second output.

Scripts are a sequence of commands, downloaded to and stored in non-volatile memory by the BA688C 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 BA688C 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 BA688C 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

General purpose

- **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/ba688c

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SPECIFICATION

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Current	95mA max

Display

Type	120 x 64 pixel backlit liquid crystal
Size	86.5 x 45mm
Screens	
11 standard formats	1, 2, 3, 4 or 8 variables plus units of measurement & tag information, some include bargraphs.
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 — Two software controlled single pole relay contacts.

Rating	250V; 5A ac 30V; 5A dc Reactive loads must be suppressed

Data transmission

Speed	0.3, 0.6, 1.2, 2.4, 4.8, 9.6,19.2, 38.4, 67.6 &115.2k bps.
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.

Environmental

Operating temp	-20 to 60°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.

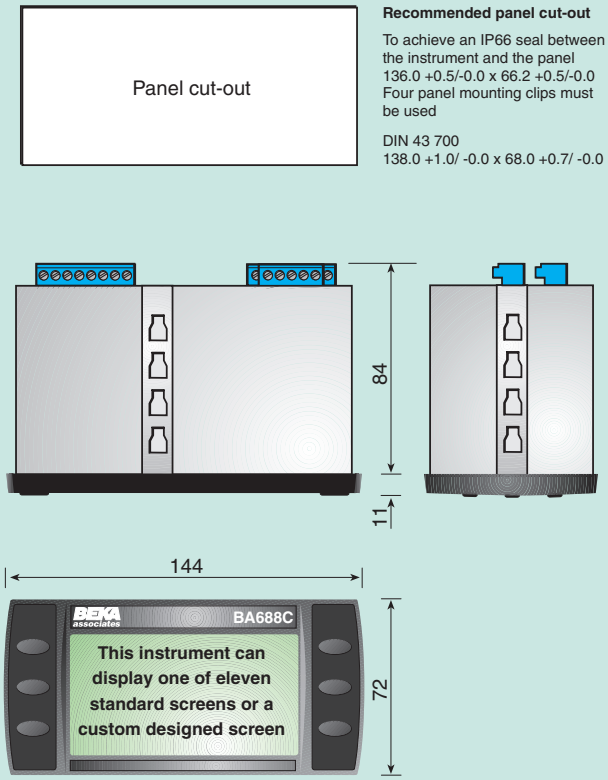
Mechanical

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

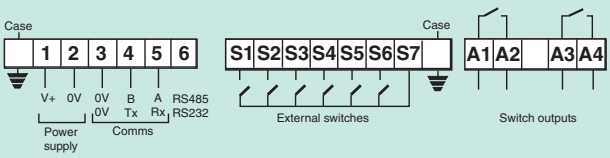
Accessories

Tag number	Thermally printed strip on rear of instrument.
Modbus Guide Programming Guide Instrument simulator	⎫ May be downloaded from www.beka.co.uk ⎭
BEKA ScreenWriter	Custom screen design aid for personal computer.

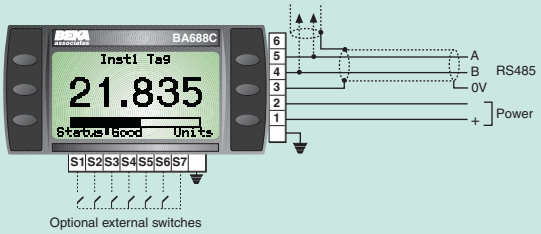
DIMENSIONS (mm)



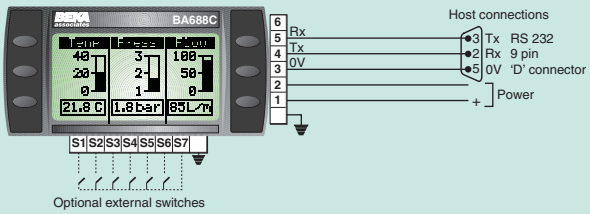
TERMINAL CONNECTIONS



CONNECTION



Connections for RS485 communication



Connections for RS232 communication

HOW TO ORDER

Please specify

Model number	BA688C
Communication port	RS485 or RS232
Accessories	**Please specify if required**
Tag number	Legend
Modbus Guide	Serial Text Display – Modbus Guide
Programming Guide	Serial Text Display – Programming Guide
Instrument simulator	Instrument simulator for use on personal computer.