BAUSER®

*GRANT AN **EXCELLENT VIEW** WITH BAUSER DISPLAYS*

INTERACTIVE:
- · VISUALISATION
- · INFORMATION
- · CONTROL

Index

As versatile as your requirements: Complete solutions to visualise and control vehicle functions.

Whether installed in utility vehicles for the Off-Highway sectors, in forestry and agricultural applications or in industrial forklift trucks, lawn mowers, communal vehicles, scissor lifts and other specialised vehicles, BAUSER instrument clusters are always in vogue: The clear readability and easy plug-and-play installation allows complete solutions for the cost-efficient supervision and control of the vehicle.

Our wide range of solutions impresses by tailoring standard solutions to OEM requirements in an instant. An excellent view is granted on all kinds of data and error messages can be received on analogue and digital inputs as well as on CAN-Bus communication.

Increased comfort of the driver's cab is provided by an attractive instrument cluster design offering a high-contrast display through to a coloured indication. A variety of engine data like rpm, speed, oil pressure, coolant and oil temperature as well as operating data (operating hours, service intervals, distance travelled) or error messages enable a safe and conscientious operation of the vehicle.

Thanks to enhanced standard features like country-dependent settings of languages and units (metric or imperial) these instruments are suitable to be sold worldwide.

Our creative expertise and long experience in business enable the vehicle-manufacturing sector to gain competitive advantage by technical improvement.

With BAUSER's intelligent standard solutions in hardware and software, any modification and complementary development is carried out easily, rapidly and cost-efficiently. The hardware tooling of the casings covers a wide range of dimensions and shapes as well as different PCB layouts designed for a variety of applications. The use of various micro-controller technologies ensures fast-customised software programming. On receipt of your hard and software specification, the pre-existing standard tooling and software will be amended or complemented, gaining time and saving money.

Do you require a customised front foil with your design and your company logo? We can offer the solution! BAUSER has decades of experience within the electronics and software engineering sector.

As a modern and innovative family owned company with decades of experience in electronics, display and casing technology, we constantly strive to apply new technologies in the product development and the subsequent product industrialisation.

Our long-standing know-how from the product design to the series production guarantees a constant high »Made in Germany« quality level. Our qualified BAUSER-Team consisting of engineers, software developers, graphic designers and commercial assistants supports you at any stage of the project realisation. From the product design, through the electronics and the software application, to the final series production, our TEAM will assist you with the utmost care. The best evidence of this is the »A-level-supplier« rating of international leading OEMs for several years.

BAUSER – excellent in all phases of the project.

Concept and design
Experienced engineers, graphic designers and commercial assistants can work with you to produce your desired product design and functional requirements.

Development
Realise »specifications« in hard and software by constructing prototypes. Existing and well-tested hardware and software tools are adopted for this.

Product industrialisation
Qualify the designed and constructed product through a series of environmental shock and vibration, EMC and electric test ranges for the series production. For this purpose, our quality engineers and partners in the testing laboratories are using specialised and standardised norms and guidelines. At the same time, the necessary production processes for assuring a constant and reliable quality of the product are being designed and realised.

Series production
Manufacture the qualified product according to the quality management ISO 9001:2008. Important testing systems are AOI, ICT, Boundary Scan as well as a PLC for final inspection. A 100% serial parts testing is essential.

Logistics
Organise and control the material flow processes from procurement to series production.

Available in different casing dimensions, the reading of operating data is made especially comfortable with BAUSER displays. The front of the backlit display is protected IP67. At the rear the protection class of IP 65 can be achieved by using a sealed counter connector and a goretex membrane mounted in the casing.

These casings have been designed to be extremely shock and vibration resistant for the harshest applications and have been tested to the current standards for utility vehicles. A CAN-Bus interface enables the communication with other machine components (e.g. the engine control unit) via CANopen or SAE J1939. This interface is also used to configure machine data as well as making software updates keeping the instrument cluster flexible in the field application. The required software tools are made available by BAUSER.

We evolve continuously – with our clients and for our clients to become a system provider for the instrumentation.

Our current development: TFT Colour Display.

Our aim: design and develop system-orientated solutions with our clients.

We have complemented our range of display technologies, which offer different backlight colours, i. e. TN (Twisted Nematic) for 7-segment indication, ASTN (Advanced Super Twisted Nematic) for monochrome Dot-Matrix LCD visualisation by a comfortable and very flexible indication of vehicle data and error messages. These new TFT colour displays are available in the following dimensions 2.8″, 3.5″, 4.3″ and in different resolutions i.e. QVGA 240x320 or 320x240 pixels and WQVGA 480x272 pixels for an »excellent« view irrespective of the viewing position.

Know-how from one single source at the pivot of your vehicles: The Cockpit.

Our clients include well-known manufacturers in the material handling and utility vehicle sector. We have also been supplying internationally recognised OEMs in the automation sector and heating industry for decades.

Simply outline your requirements to us or send us your specifications. We would be pleased to assist you. BAUSER solutions will give you an important advantage as our high level of automation through to the final assembly allows us to simply produce more efficiently.

Structuring production processes and their perfect coordination is what sets us apart. An excellent syntonized logistics with a smooth material flow guarantees economical processes leading to a high productivity with on-time deliveries.

Additional features under development: »video-input for a camera connection« as well as »touch-screen colour displays«.

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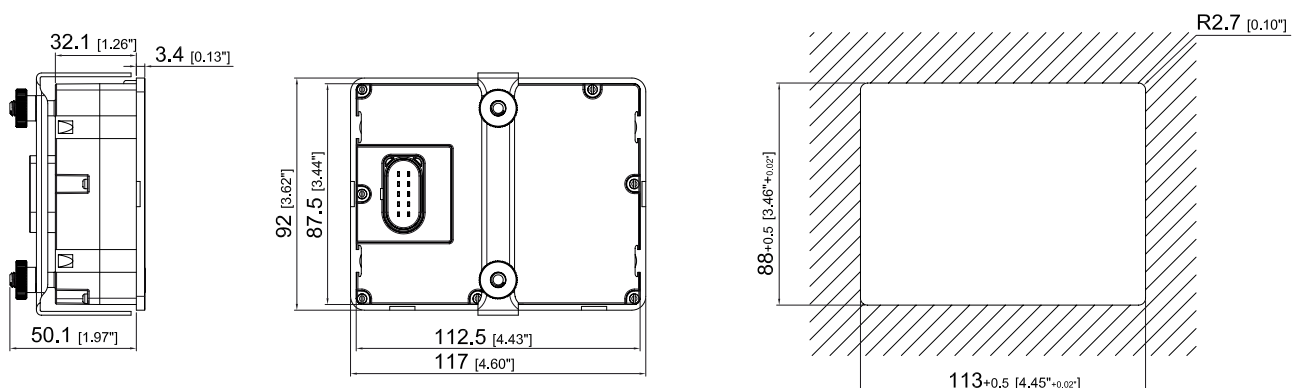**CAN | CANopen | SAE J1939
Emmission Control Tier 4**

BAUSER instrument cluster
with TFT colour display technology
and lots of extras

Excellent visualisation: 3.5″ display, 320x240 pixels, 4 buttons, 4 LED warning lamps, digital and analogue inputs as well as a CAN-bus interface with CANopen or SAE J1939 protocols, RTC with battery backup for date and time, further clear text indications like errors, diagnostic data etc.

Please send us your requirements and we would find a fitting solution for you.

Casing:	Material: PBT-GB30, black Front side: chemical and UV resistant polyester foil Viewing area: low-reflective mineral glass
Display:	3,5″ TFT colour LCD, transmissive
Resolution:	QVGA, 320x240 pixels, 16-bit colour
Aspect ratio:	4:3
Mounting direction:	Horizontal
Warning lamps:	4 LEDs, can be read clearly under direct sunlight
Buttons:	4 buttons with a clear tactile feedback
Electrical interfaces:	2x analogue or digital inputs (custom configuration) 1x digital input 1x voltage supply measuring 1x CAN ISO 11898 interface
Protocol:	CANopen, SAE J1939
Date and time:	Real Time Clock with internal battery backup
Voltage supply:	8…36 VDC
Ambient temperature:	-30°C…+85°C
Storage temperature:	-40°C…+85°C
Electrical connection:	Compatible with 10 pole VW connector type 6X0 973 815
Fixing:	Metal clamps with screws
Protection class:	IP67 front, IP40 back (optionally IP65)
Vibration resistance:	EN 60068-2-64
Shock resistance:	EN 60068-2-27, EN 60068-2-29
EMC:	DIN EN 12895, EN 55022, EN 61000-4-2, -3, -4, -6, ISO 7637-2, -3, ISO 16750-2
Approval:	CE
Options:	Goretex™ membrane, back IP65, backlit buttons, second CAN ISO 11898 interface, buzzer, fixing with 4 snap-in-clamps (shorter mounting depth), custom front foil, mounting direction: vertical, 5 LED warning lamps, electrical connection: Tyco Super Seal, 26 poles, instruments with TFT colour displays in 4.3″, 5″ and 7″ – on request

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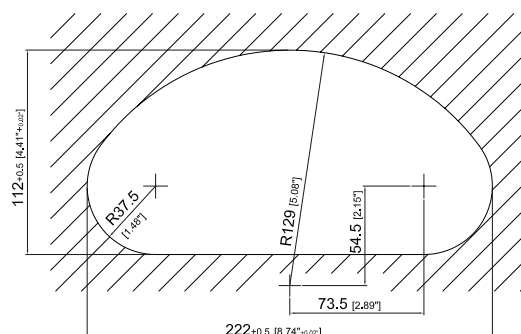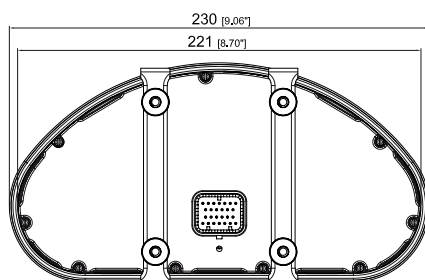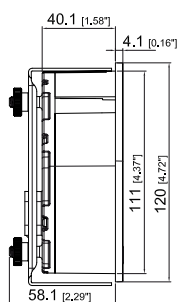| Casing:	Material: PBT-GB30, black Front side: chemical and UV resistant polyester foil Viewing area: low-reflective mineral glass
Square Display:	3,5″ TFT colour LCD, transmissive
Resolution:	QVGA, 320x240 pixels, 16-bit colour
Aspect ratio:	4:3
Round Displays:	2x 26 bar graph segments, TN Technology, backlight: RGB colour LEDs, bar graph segments black
Warning lamps:	21 LEDs, 3 of them RGB colour LEDs, can be read clearly under direct sunlight
Buttons:	2 buttons with a clear tactile feedback
Electrical connection:	3x analogue inputs (custom configuration) 17x digital inputs (1x load resistor for pre-excitation of the alternator) 1x voltage supply measuring 2x FET output, maximum 500 mA 1x CAN ISO 11898 interface
Protocol:	CANopen, SAE J1939
Date and time:	Real Time Clock with internal battery backup
Voltage supply:	8…36 VDC
Ambient temperature:	-30°C…+85°C
Storage temperature:	-40°C…+85°C
Electrical connection:	Tyco Super Seal, 26 poles
Fixing:	metal clamp with screws
Protection class:	IP67 front, IP40 back (optionally IP65)
Vibration resistance:	EN 60068-2-64
Shock resistance:	EN 60068-2-27, EN 60068-2-29
EMC:	DIN EN 12895, EN 13309, EN 55022, EN 55025, EN 61000-4-2, -3, -4, -6, NV 50204, DIN 40839-1, ISO 7637-2, -3
Approval:	CE
Options:	Goretex™ membrane, back IP65, backlit buttons, second CAN ISO 11898 interface, buzzer, fixing with 4 snap-in-clamps (shorter mounting depth), custom front foil, inverted view of TN displays – bar graph segments white (or any other colour)

BAUSER instrument cluster Type 818 – the top solution with much overview and control

The instrument cluster with 3 displays, one square 3.5″ TFT colour display at the centre and two round TN displays, provides you everything to keep the vehicle data under control.

On request the bar graph segments of the round displays can be inverted (coloured segments). The design of the colour display can be custom-designed.

A variety of cluster options are available for you.

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CANopen | SAE J1939

**BAUSER instrument clusters
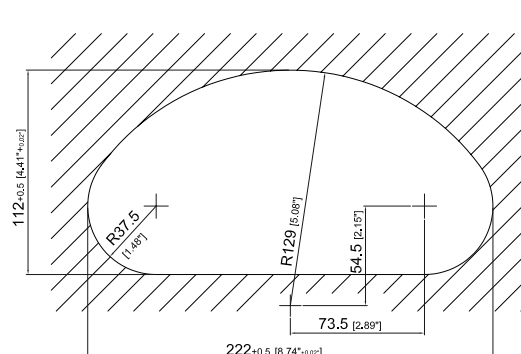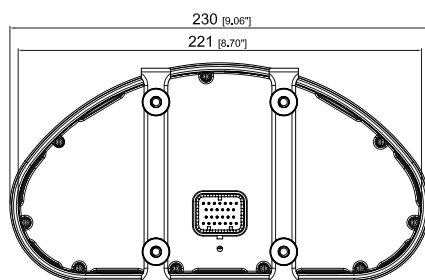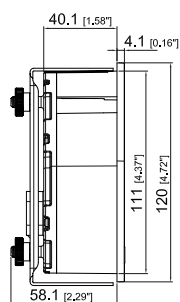Type 813 – the premium solution
with a clear view**

This instrument communicates by
CANopen or SAE J1939 and supplies the
following information for example:

- Fuel level
- Engine revolutions per minute (rpm)
- Speed
- Oil pressure
- Coolant temperature
- Diagnostic messages
- etc.

Indication of error messages is possible.

With inputs for digital and analogue sensors
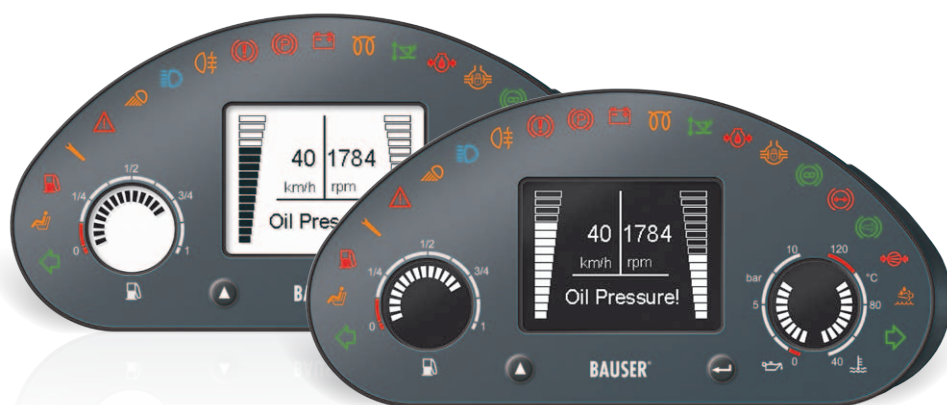(resistance, current, voltage and frequency).

Casing:	Material: plastic PBT, colour black Front side: chemical and UV resistant polyester foil Viewing area: glass with low reflection
LCD indication:	LCD 1: 26 bar graph segments for fuel level LCD 2: 31-segment bar graph display for rpm 5½ x 7 segments for km, km/h, miles, mph, rpm, operating hours, service hours LCD 3: 26 bar graph segments for coolant temperature Backlit: green-yellow
LED indication:	Maximum 21 LEDs, even perfectly readable under direct sunlight, configurable assignment
Buttons:	2 buttons for menu scrolling
Inputs:	Maximum 18x digital – selectable polarity, 2x count, 3x resistance, CAN-Bus
Supply voltage:	8…36 VDC
Current consumption:	Maximum 550 mA @ 12 VDC
Ambient temperature:	-40° C…+85° C
Storage:	-40° C…+85° C
Electrical connection:	Tyco super seal, 26 poles
Fixing:	Two metal clamps with 4 screws
Protection class:	IP67 front, IP40 rear (optional IP65)
Vibration resistance:	EN 60068-2-64, SAE J1378
Shock resistance:	EN 60068-2-27, EN 60068-2-29, SAE J1378
EMC:	EN 12895, DIN 40839-1, EN 13309
Approval:	CE
Options:	Custom front foil, custom LCD indication, LCD backlit blue or white, Gore™ Membran, IP65 on the rear, buttons to set hours and to menu scrolling, real time clock, buzzer, fixing with 4 snap-in clamps, UL, cUL approval.

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**CANopen | SAE J1939
Digital and analogue sensors**

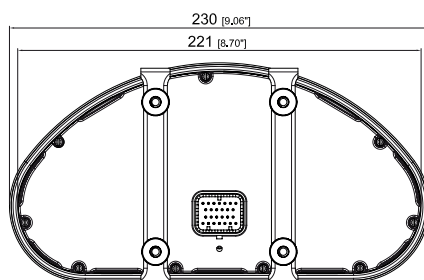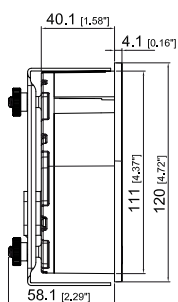| Casing:	Material: plastic PBT Front side: chemical and UV resistant polyester foil Viewing area: glass with low reflection
Display:	1x Dot-Matrix display, 160x128 Dots, ASTN Technology 2x 26 bar graph segments, TN Technology Backlit: white, segments black
LED indication:	Maximum 21 LEDs, configurable assignment Can be read perfectly under direct sunlight
Buttons:	2 buttons with backlit
Electrical interfaces:	16x digital inputs, 3x analogue inputs (R, I, U) 2x Count input (speed, rpm) 1x CAN ISO 11898
Supply voltage:	8…36 VDC
Ambient temperature:	-20° C…+85° C
Storage:	-40° C…+85° C
Electrical connection:	Tyco super seal, 26 poles
Fixing:	Metal clamps with screws
Protection class:	IP67 front, IP40 back (optional IP65)
Vibration resistance:	EN 60068-2-64
Shock resistance:	EN 60068-2-27, EN 60068-2-29
EMC:	EN 12895, EN 13309, DIN 40839-1
Approval:	CE
Options:	Custom front foil, inverted display – segments white, CANopen and/or SAE J1939 software interface, real time clock, Goretex™ membrane, back IP65, buzzer, fixing with snap-in-clamps, casing shorter

**BAUSER instrument cluster
Type 814 – vehicle functions
particularly indicated**

An attractive designed instrument cluster consisting of one Dot-Matrix display and two TN displays with bar graph display.

The two buttons are backlit and used to set the hours as well as to scroll the menu.

21 LEDs with different icons are also perfectly readable outdoor even under direct sunlight.

A variety of cluster options is available to suit most applications.
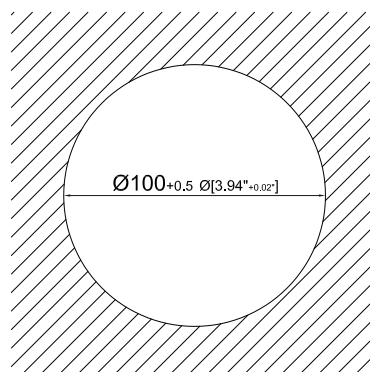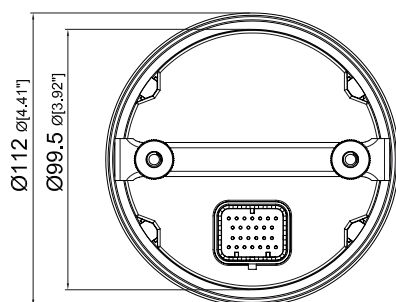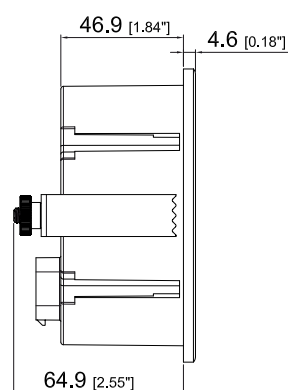
807

CANopen | SAE J1939
Digital and analogue sensors

**BAUSER instrument clusters
Type 807 – comfortable, flexible, economic**

Ample semicircular arch and rectangular LC-Display with maximum 16 LEDs as well as optionally 2 buttons in a casing of 100 mm standard cutout. To fix with a metal clamp and two knurled nuts.

The 21 segments as a full display or divided into 2 bar graph halves as well as the 6 digit 7-segment indication for further values supply a variety of visualisation possibilities.
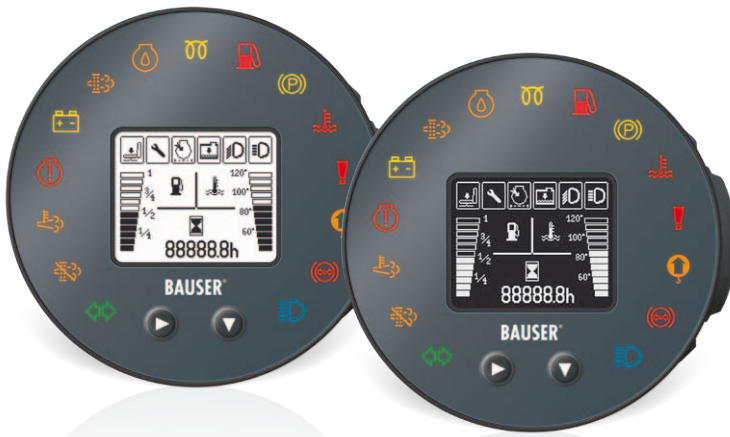
Example application: it is possible to indicate the fuel level and temperature separately and quite below on the display you can find the operating hours, service values or above the additional bar graph indicating the battery voltage.

Casing:	Material: plastic PC-ABS, colour black Front side: chemical and UV resistant polyester foil Viewing area: polycarbonate glass with low reflection
LCD:	2x 10 bar graph segments for temperature and fuel level 1x 12 bar graph segments for voltage 6x 7 segment indication for the following functions: 1. Service hours (maximum 9999 h), 2. Operating hours (maximum 99999,9 h), 3. Speed (km/h) / (mph), 4. Distance (km) / (miles), 5. Revolutions per minute (rpm), 6. Temperature (° C) / (° F), 7. Error codes 4 x 7 segment indication for the clock Backlit: standard: green-yellow
LED indication:	Maximum 16 LEDs, configurable assignment
Inputs:	Maximum 16x digital inputs – selectable polarity, 2x Count input, 3x Resistance
Supply voltage:	8…36 VDC
Current consumption:	Maximum 350 mA @ 12 VDC
Ambient temperature:	-40° C…+85° C
Storage:	-40° C…+85° C
Electrical connection:	Tyco super seal, 26 poles
Fixing:	Metal clamps with 2 screws
Protection class:	IP67 front, IP40 on the rear (optional IP65)
Vibration resistance:	EN 60068-2-64, SAE J1378
Shock resistance:	EN 60068-2-27, EN 60068-2-29, SAE J1378
EMC:	EN 12895, EN 40839-1, DIN 13309
Approval:	CE
Options:	Custom front foil, custom LCD indication, LCD backlit blue or white, viewing area: antiscratch treated, Gore™ Membran – IP65 on the rear, real time clock, buttons to set the time and to scroll the menu, buzzer, CANopen or SAE J1939 protocol, fixing with 4 snap-in clamps, casing shorter, UL, cUL approval

46.9 [1.84"]   4.6 [0.18"]

64.9 [2.55"]

Ø112 [4.41"]   Ø99.5 [3.92"]

Ø100 +0.5 Ø[3.94" +0.02"]

819

Graphic display

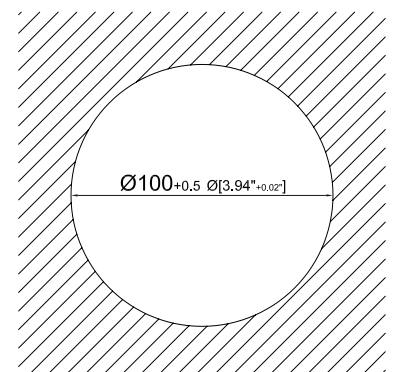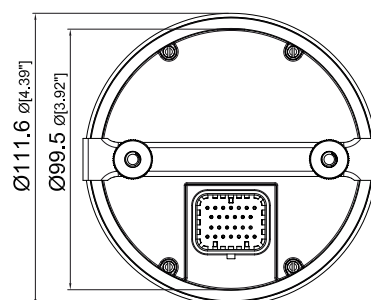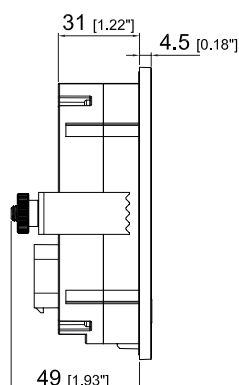|	
Casing:	Material: plastic PC-ABS Front side: chemical and UV resistant polyester foil Viewing area: glass with low reflection
Display:	1x Dot-Matrix display, 160 x 128 Dots, ASTN Technology Backlit: white
LED Indication:	Maximum 15 LEDs, Perfectly readable under direct sunlight
Buttons:	2 buttons with backlit
Electrical interfaces:	16x digital inputs, 3x analogue inputs (R, I, U) 2x Count input (speed, rpm) 1x CAN ISO 11898
Supply voltage:	8…36 VDC
Ambient temperature:	-20° C…+85° C
Storage:	-40° C…+85° C
Electrical connection:	Tyco super seal, 26 poles
Fixing:	Metal clamps with screws
Protection class:	IP67 front, IP40 back (optional IP65)
Vibration resistance:	EN 60068-2-64
Shock resistance:	EN 60068-2-27, EN 60068-2-29
EMC:	EN 12895, EN 13309, DIN 40839-1
Approval:	C E
Options:	Custom front foil, backlit: blue, CANopen and/or SAE J1939 software interface, real time clock, Goretex™ membrane, back IP65, buzzer, fixing with snap-in-clamps, casing shorter, horizontal mounted display, TFT colour display

BAUSER instrument cluster
Type 819 – visualise, communicate and control via graphic displays

Circular instrument with one Dot-Matrix display, 160 x 128 dots, 2 buttons and 15 LEDs.

Indicates excellently the vehicle functions and like all other BAUSER instruments the clusters are constructed to withstand rough applications.

Exactly what our long lasting OEM customers of the vehicle sector rely on.

Further advantages: from one standard solution in hard- and software a rapid custom realisation can be achieved at very attractive prices.

31 [1.22"] 4.5 [0.18"]

Ø111.6 Ø[4.39"] Ø99.5 Ø[3.92"]

49 [1.93"]

Ø100 +0.5 Ø[3.94"+0.02"]

809

CANopen | SAE J1939
Digital and analogue sensors

BAUSER instrument cluster
Type 809 – unconventional,
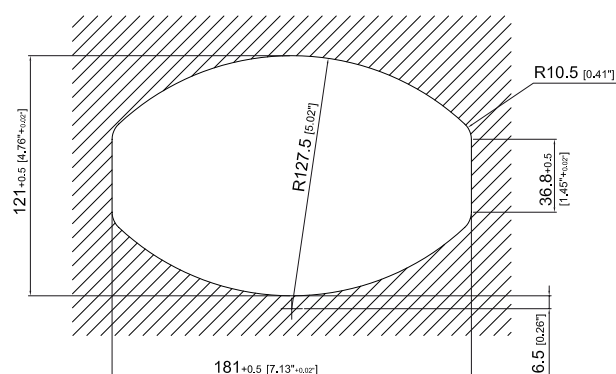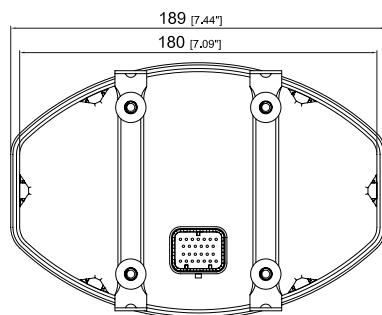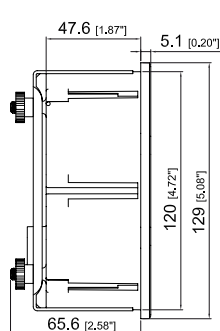### innovative, safe

Ideal for medium and big construction machines, fork lift trucks and utility vehicles as well as for agricultural machines.

With two half-moon displays and one large circular display – amply backlit depending upon the requirements can be supplied with needle animation or with bar graph indication.

Up to 15 vehicle functions and status information can be visualised through the bright shining LEDs – readable even under direct sunlight.

Particular advantage: The service values can be reset comfortably by the code protected front buttons. The front is very robust und highly protected to resist even high pressure cleaning.

Casing:	Material: plastic PC-ABS, colour black Front side: chemical and UV resistant polyester foil Viewing area: polycarbonate glass
LCD:	2x 17 segment indication for temperature and battery voltage (alternatively bar graph) 1x 24 bar graph segments for fuel level (alternatively needle animation) 6x 7 segment indication for the following functions: 1. Speed (km/h) / (mph), 2. Service hours (maximum 9999h), 3. Operating hours (maximum 99999,9h), 4. Real time clock, 5. Voltage, 6. Revolutions per minute (rpm), 7. Temperature (° C) / (° F), 8. Error codes 4x 7 segments for the Real time clock Backlit: standard: green-yellow
LED indication:	Maximum 15 LEDs, configurable assignment
Inputs:	Maximum 16x digital inputs – selectable polarity, 2x Count input, 3x Resistance
Supply voltage:	8…36 VDC
Current consumption:	Maximum 450 mA @ 12 VDC
Ambient temperature:	-40° C…+85° C
Storage:	-40° C…+85° C
Electrical connections:	Tyco super seal, 26 poles
Fixing:	Two Metal clamps with 4 screws
Protection class:	IP67 front, IP40 on the rear (optional IP65)
Vibration resistance:	EN 60068-2-64, SAE J1378
Shock resistance:	EN 60068-2-27, EN 60068-2-29, SAE J1378
EMC:	EN 12895, EN 40839-1, DIN 13309
Approval:	C E
Options:	Custom front foil, custom LCD indication, LCD backlit blue or white, Gore™ Membran – IP65 on the rear, real time clock, buttons to set the time and to scroll the menu, buzzer, CANopen or SAE J1939 protocol, fixing with 6 snap-in clamps -> casing depth: 57.2 mm, UL, cUL approval

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**CANopen | SAE J1939
Digital and analogue sensors**

Casing:	Material: plastic PC-ABS, colour black Front side: chemical and UV resistant polyester foil Viewing area: polycarbonate glass
LCD:	2x 10 segment indication for temperature and fuel level 6x 7 segment indication for the following functions: 1. Speed (km/h) / (mph), 2. Service hours (maximum 9999h), 3. Operating hours (maximum 99999,9h), 4. Real time clock, 5. Voltage, 6. Revolutions per minute (rpm), 7. Temperature (° C) / (° F), 8. Error codes Backlit: standard: green-yellow
LED indication:	Maximum 10 LEDs, configurable assignment
Inputs:	Maximum 10x digital inputs – selectable polarity, 1x Count input, 2x Resistance
Supply voltage:	8…36 VDC
Current consumption:	Maximum 230 mA @ 12 VDC
Ambient temperature:	-40° C…+85° C
Storage:	-40° C…+85° C
Electrical connections:	AMP-Tyco Mini-Universal-Mate-N-Lok splash proof sealed 10 pole and 8 pole
Fixing:	Metal clamps with 2 screws
Protection class:	IP67 front, IP40 on the rear (optional IP65)
Vibration resistance:	EN 60068-2-64, SAE J1378
Shock resistance:	EN 60068-2-27, EN 60068-2-29, SAE J1378
EMC:	EN 12895, EN 40839-1, DIN 13309
Approval:	CE
Options:	Custom front foil, custom LCD indication, LCD backlit blue or white, Gore™ Membran – IP65 on the rear, real time clock, buttons to set the time and to scroll the menu, buzzer, CANopen or SAE J1939 protocol, UL, cUL approval, cutout dimensions: 45.00 mm x 92.00 mm [1.78 inch x 3.62 inch]

**BAUSER instrument cluster
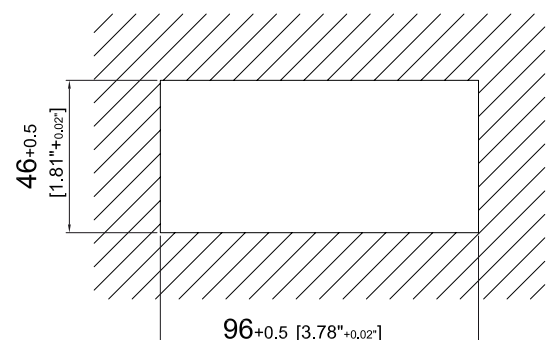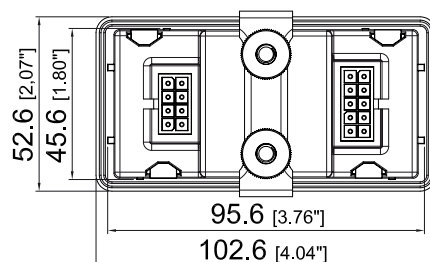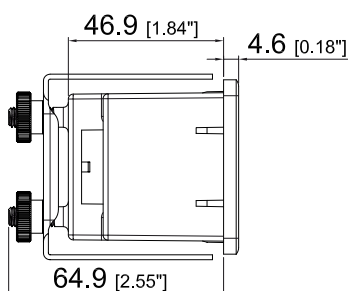Type 808 – shapely, functional,
well thought out**

Attractive looks!
Characteristically: the ample, optionally backlit semicircular arch display.

According to requirements the 21 segments can be used for one single indication or even split into 2 separate indications.

On the display there is a 6 digit 7-segment indication for operating hours, service values or the time. To add to the maximum 10 colour LEDs, which alerts you of disturbances and limit values.

On request an acoustical signal for alert and 2 front buttons can be integrated.

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CANopen | SAE J1939
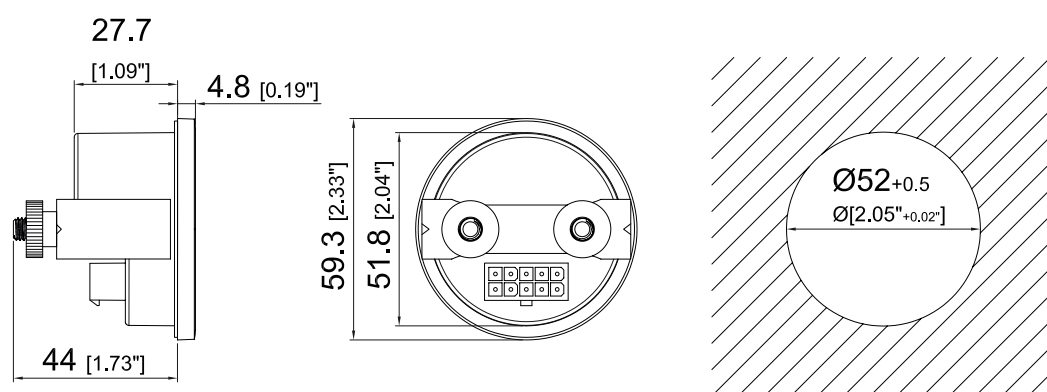**Digital and analogue sensors**

BAUSER instrument cluster
Type 806 – smart, clever, compact and clear

Limited space in your cockpit? The casing of the all round solution has just a cutout of 52 mm, but supplies maximum 3 LEDs and a backlit LCD.

The 6 digit indication visualises for instance: Operating hours, service values and on the 10 segment bar graph you can find the information about the battery discharge level, fuel level or vehicle temperature.

Optionally 2 buttons can be integrated. The 3 alert lamps inform you of disturbances or limiting values.

Casing:	Material: plastic PC-ABS, colour black Front side: chemical and UV resistant polyester foil Viewing area: polycarbonate glass
LCD:	1x 10 bar graph segments for battery discharge level 6x 7 segment indication for the following functions: 1. Operating hours (maximum 99999,9h), 2. Service hours (maximum 9999h), 3. Battery discharge level (%), 4. Error codes Backlit: green-yellow
LED indication:	Maximum 3 LEDs
Inputs:	CAN Bus interface
Supply voltage:	8…28 VDC
Current consumption:	Maximum 80 mA @ 12 VDC
Ambient temperature:	-40° C…+80° C
Storage:	-40° C…+80° C
Electrical connections:	AMP-Tyco Mini-Universal-Mate-N-Lok splash proof sealed, 10 pole
Fixing:	Metal clamp with 2 screws
Protection class:	IP65 front, IP40 on the rear
Vibration resistance:	EN 60068-2-64, SAE J1378
Shock resistance:	EN 60068-2-27, EN 60068-2-29, SAE J1378
EMC:	EN 12895, EN 40839-1, DIN 13309
Approval:	$C \epsilon$
Options:	Custom front foil, alternatively: without front foil, but with glass or plastic front cover and front bezel, 1 or without LED, custom LCD indication, buttons for menu scrolling, buzzer, UL, cUL approval, Digital and analogue Inputs

27.7 [1.09"]   4.8 [0.19"]

59.3 [2.33"]   51.8 [2.04"]

44 [1.73"]

Ø52+0.5
Ø[2.05"+0.02"]

What other products does BAUSER produce?

Battery and time supervision

Visualising the residual capacity and avoiding exhaustive discharge of your batteries

Battery discharge indicators exactly visualise the residual capacity of battery-operated vehicles and protect against exhaustive discharge via the discharge voltage, which can be factory set or adjusted afterwards by the customer. These indicators are individually adaptable to various types of batteries. BAUSER solutions are characterised by excellent readability and many extras. Beside the »fuel gauge« you can also register operating hours and service times.

Operating hour meters and pulse counters

Electronic and electromechanical operating hour meters and pulse counters

Worldwide BAUSER offers the widest range of electronic and electro-mechanical operating hour meters. With the simple and easy to mount products running times of any device can reliably be registered and herewith service interval cycles exactly be planned and guarantee periods supervised.

You will find more about dimensions and approvals under **www.bauser-control.de** on the internet or you can request detailed information directly at BAUSER.

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www.artistic.de

EN-001-2013-03