

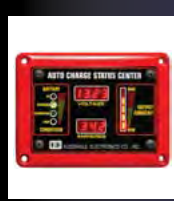
## INDICATORS / METERS



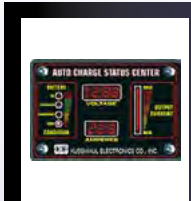
Engine Monitor  
VOTT  
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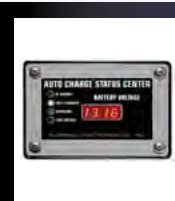
Generator Monitor  
VAAFH  
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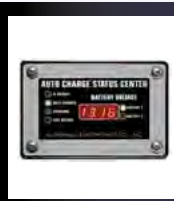
Status Center Digital  
Display With Bar  
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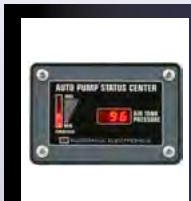
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Status Center  
Digital Display  
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Status Center  
Digital Display  
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Auto Pump Status  
Center Digital Display  
PSI Only  
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Auto Pump Status  
Center Digital Display  
Voltage & PSI  
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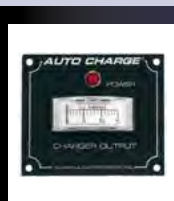
Remote Bar  
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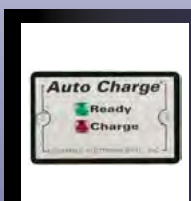
Super Auto Eject  
Deluxe Cover  
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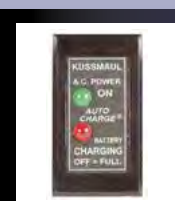
DC Volts &  
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DC Ammeter  
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LED Display  
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LED  
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Vertical Display  
Mount  
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Display Panel  
Rear Seal  
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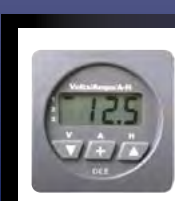
DC/AC Clamp  
Meter  
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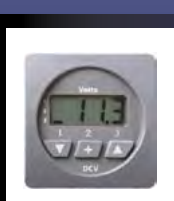
Digital Auto  
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TG-3:  
Temperature  
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Voltmeter Display  
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## Engine Monitor

Digital read out of vital engine data: DC Voltage, Oil Pressure, Temperature, and Tachometer

Audio and visual alarm for out of limit conditions operates from the J1939 can bus input

### Features

- Programmable alarm set points for Oil, Temp, Voltage, and RPM
- Internal audio alarm with a remote alarm output signal
- Input signal wire assembly with a waterproof Deutsch connector
- 4"x4" low profile display
- Waterproof meter face
- \* **New Feature-** User Selectable Baud Rate ( 50, 125, 250, 500 or 1000k bits)



Part Number	Description	Electrical Data		Dimensions			Wgt.
		Input Volts	Input Signal	L	W	H	
023-4400-0	VOTT	9-33V DC	J 1939	4.3"	4.3"	3.5"	2

## Generator/AC System Monitor

Digital read out of vital generator data: AC Voltage, Frequency, Amperage of two 120V legs of 240V circuit, Engine hours

Audio and visual alarm for out of limit conditions

### Features

- 4 functions, all display simultaneously on one screen: Volts, (2) Amps, Frequency
- Hour meter displays when the generator is off
- Programmable alarms: HIGH/LOW for Volts/Frequency and HIGH alarm for Amps (2 lines). Alarm modes: Red warning color with a built in 85db audible alarm, with an output signal for an external alarm relay
- User programmable service hour interval settings and notification
- Waterproof meter face



Part Number	Description	Electrical Data			Dimensions			Wgt.
		Operating Voltage	Sense Voltage	Max. Power	L	W	H	
023-4500-0	VAAFH	9-33 VDC	120/240 VAC	36 kW	4.3"	4.3"	3.5	2

## Generator AC/DC System Monitor

6 functions, all display simultaneously on one screen: Volts, Amps, Frequency, DC Volts, and DC Amps

Audio and visual alarm for out of limit conditions

### Features

- Programmable alarms: HIGH/LOW for AC Volts and Frequency and HIGH alarm for Amps (2 lines). HIGH/LOW for DC Volts and HIGH alarm for DC Amps
- Alarm Modes: Red warning color visual indication, plus built in 85db audible, with output signal for external alarm relay.
- User programmable service hour interval settings and notification
- Waterproof meter face

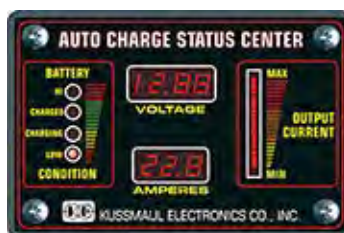


Part Number	Description	Electrical Data		Dimensions			Wgt.
		Input Volts	Input Signal	L	W	H	
091-247	VAAFH AC/DC	9-33V DC	0.100A	4.3"	4.3"	3.5	2

## Status Center Digital Displays With Bar Graph



**091-194X-IND-WT-XX**  
**Watertight Heavy Duty Housing**  
 Size: 5.45" x 3.95"



**091-194X-IND**  
**Standard Housing**  
 Size: 3.2" x 4.7"

These displays provide digital Voltage and Ampere readouts, a 5 segment bar graph indicating the output current, and 4 LED's showing the battery condition. They are available in two different housings: standard and watertight. The watertight housing is available in multiple colors. This display is compatible with the Auto Charge 1000, Auto Charge 1200, Auto Charge 1200 Remote, LPC 20, LPC 40, LPC 80, Pump Plus 1000 and Pump Plus 1200 battery chargers.

**Color Options:** YW WH RD GY BL BLK  
 Yellow      White      Red      Gray      Blue      Black

## Status Center Digital Displays



**091-189-12 (1 decimal place accuracy)**  
**091-189-12-3.5D (2 decimal place accuracy)**  
**Single Battery Display**  
 Size: 3.2" x 4.7"



**091-189-2-12 (1 decimal place accuracy)**  
**091-189-2-12-3.5D (2 decimal place accuracy)**  
**Dual Battery Display**  
 Size: 3.2" x 4.7"

These universal displays are compatible with all vehicles with or without Kussmaul chargers. They display the voltage digitally and indicate the battery condition via LED's. The LED's flash when high or low voltage is sensed. These displays are available in 1 or 2 battery bank models, one or two decimal accuracy, and 12 or 24V systems.

## Auto Pump Status Center Digital Displays



**091-198-12-AP**  
**PSI Only**  
 Size: 3.2" x 4.7"



**091-198-12-PP**  
**Voltage & PSI**  
 Size: 3.2" x 4.7"

These displays are an air pressure sensor with an indicator that displays in PSI. The "AP" display contains a numerical display for PSI and a bar graph. The "PP" display contains a numerical display, a bar graph for PSI, and a 3.5-digit display for battery voltage. They both work in conjunction with an air pressure sensor. The air pressure sensor port is connected to an air supply to measure and display the PSI. The indicator is designed to be mounted on the exterior of a vehicle so that the PSI condition may be easily viewed.

# REMOTE BAR GRAPH DISPLAYS



**091-94-XX**

This universal single battery bank Voltage display may be installed in any 12/24V system



**091-76-XX**

This universal dual battery bank Voltage display may be installed in any 12/24V system (negative ground only)



**091-118-022-XX**

This universal three battery bank Voltage display may be installed in any 12/24V system (negative ground only)



**091-199-001**

This charger specific single battery condition bar graph display is normally supplied with these chargers:

- Auto Charge 1000 PLC
- Auto Charge 35/10
- Auto Charge 1200 Remote
- Pump Plus 1000 PLC
- Pump Plus 1200



**091-39-IND**

This charger specific dual bar graph battery condition display is normally supplied with these chargers:

- Auto Charge 2000 PLC
- Auto Charge 4000
- Pump Plus 2000 PLC



**091-74-IND**

This charger specific three bank voltage display is normally supplied with:

- Auto Charge D2



**091-200-IND**

This charger specific single battery condition bar graph display is normally supplied with these chargers:

- LPC 20
- LPC 45
- LPC 40
- LPC 80



**091-66-IND**

This charger specific dual bar graph battery condition display is labeled "Vehicle" and "Engine" and is normally supplied with these chargers:

- Auto Charge D
- Auto Charge D Pump Plus



**091-234**

This charger specific single battery condition mini bar graph display is an option for the following chargers:

- Auto Charge 1000 PLC
- Auto Charge 1200 Remote
- Pump Plus 1000 PLC
- Pump Plus 1200



**Bar Graph Display**  
091-55-234-XX



**Digital Display**  
091-55-194X-XXX



**Bar Graph Display with Dual LED**  
091-55-239-XXX



**Super Auto Eject Deluxe Covers with Battery Charger Indicators**

Incorporates Auto Eject and Indicator in one product. Extreme Duty Cover with Bar Graph or Digital Display compatible with select single Kussmaul battery chargers or Bar Graph Display with Dual LED Indicator for AC2000 and AC4000 battery chargers. For more information see page 40.



**IN-4**

This display is for the Pump Plus HO Battery Charger/Air Compressor system. It will not operate with other chargers.



**IN-3-XX**

This indicator can be used with any charger. The neon pilot light indicates when power is applied to the vehicle. A DC ammeter is used to measure the battery chargers output current. Please specify ammeter current (15, 20 or 25) when ordering.



**091-11-102-12**

The 091-11-102-12 is a remotely mounted LED battery condition display. This display is used with:

- Auto Charge 12
- Auto Charge 12HO
- Auto Charge 11
- Auto Charge 11HO
- Auto Charge 20

## Display Installation Accessories



**Vertical Display Mount**  
091-91-013

This is an ABS plastic housing designed specifically for any Kussmaul bar graph display. This housing lets you mount your bar graph on the dashboard or anywhere else inside your vehicle. Display sold separately.



**Display Panel Rear Seal**  
091-39-109

This rubber watertight seal was designed specifically for any Kussmaul bar graph display. This seal protects the rear of the bar graph.



**DC/AC Clamp Meter  
380941**

**Features**

- Inductive clamping jaw allows current measurement without disconnecting the wiring or shunt, 0.9" opening
- Accurate data on all major DC/AC electrical functions
- Convenient hand-held device
- Easy-to-read LCD display
- Long easy-grip, color coded, needle-type test probes
- Operates on two AA batteries (provided)
- Protective carrying case included
- Measures and Displays:
  - AC Voltage up to 400V AC
  - AC/DC Current up to 200A
  - Frequency at 50-10 KHz



**TG-3: Temperature Display  
023-4350-0**

**Features**

- Sensor range: -20 to 160° F (-29 to 71° C)
- 3 Zone input
- Full-scale LCD Read out accurate within 1% +/-1 degree
- Five level back lighting "On" LED display
- Programmable HIGH/LOW temperature alarm-activates 85db warning alarm
- Programming via instrument front buttons
- Waterproof face fits a standard 2.125" instrument hole
- Includes (1) remote temperature sensor with 20' cable



**DCE: DC Energy Display  
023-4346-0**

Displays Volts, Amps, energy used, and remaining for 12/24V, up to 500A and 3,000A/h capacity. Monitor Voltage on up to three separate banks to monitor:

1. Charge/discharge amperage
2. Total energy: amp-hours or percent-of-charge
3. Alarms: HIGH/LOW voltage and low amp-hours remaining



**Auto Level  
091-251**

**Optional:  
Level Alarm- with High  
Decibal Audible Alarm  
091-260-S (12V)  
091-260-S-24 (24V)**



Auto Level and Level Alarm  
Kits Available on Request  
Please call Customer Service

**Features**

- 2 Digit LED-Digital Angle Display
- 8 PCB surface mounted LEDs: Green and Yellow
- One wire zero calibration: can be recalibrated
- Auto Orientation Detection: vertical or horizontal
- Waterproof: meets IP 64
- Lexan® overlay
- 3 Axis sensor
- Easy connection to 12V or 24V switched power
- Reverse polarity protected
- Two #8 mounting holes
- **Optional:** Audible Level Alarm
- Includes mounting gasket



**DCV: Voltmeter Display  
023-4348-0**

Three battery bank digital read out for 12/24V battery systems. Includes a HIGH/LOW Voltage alarm built-in. Wires directly to the batteries, no charger connection required. Push button selection of battery bank reading.

**Size:** 2 1/2" Square Face,  
2 1/8" Diameter Mounting  
Hole, 2 3/8" Rear  
Meter Projection