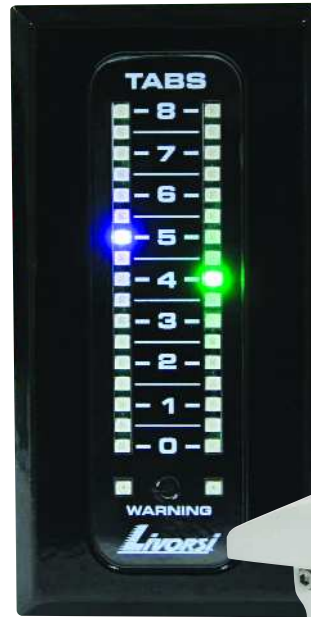




- Position LED Indicators
- Electronic Throttle & Shift Controls
- Digital CAN Bus Gauges
- Trim Tabs
- Exhaust Systems
- Fuel Senders
- Mechanical Controls
- LED Navigation Lights
- Precision Gauges
- Data Gateways
- Sea Strainers
- Accessories
- Wire Harnessing



Volume 2

INDUSTRIAL • MARINE • AUTO • COMMERCIAL



Livorsi Marine, Inc. has been supplying gauges, controls and accessories to the high performance, work boat, commercial and the government sector for 25 years. Livorsi has become standard equipment in major performance boat builders including Baja, Cigarette, Donzi, Formula, Nor-Tech, Skater and Fountain among many others. Our products are synonymous with quality and meet the highest of standards.

715 Center Street
Grayslake, IL 60030
P: 847.752.2700
F: 847.752.2415
E: sales@livorsi.com

www.livorsi.com



When it comes to high-quality, superior performance and stunning display under the hatch, no one can touch CMI. For more than two decades Custom Marine stainless steel headers and exhaust systems have been installed on more National and World Championship power boats than all other brands combined. CMI is now ready to serve the industrial market with industry-leading technologies, top marine engineers and skilled stainless steel fabricators.

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E: cmiinfo@custommarine.com

www.custommarine.com

Custom Application Solutions
If you are in need of products to fit your unique application,
please contact Mike Livorsi at mikel@livorsi.com



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Livorsi DTS Controls- Single Function

Livorsi DTS Controls (Digital Throttle & Shift) provide consistent precise control of your boat using SmartCraft® DTS technology. A license from Mercury Marine allows Livorsi to combine DTS technology with the options and quality of Livorsi controls.

These controls provide smooth and safe shifting. Direct drive of throttle position sensors eliminates the need for engine control cables, thus resulting in a quick response. Designed with a compact body for tight spaces and constructed of stainless steel and billet aluminum for years of dependable service.

Designed to work on all Mercury DTS equipped engines (Verado 150 - 350 SCI, Mercruiser 5.0L - 8.2L, Optimax 225, Mercury Racing 565, 1100, 1350, and Cummins engines that are DTS capable.

- Single, twin, triple and quad engine applications
- Ability to adjust tension for each handle
- Integrated single or twin drive trim switches or momentary up and down switches

Shadow Mode available for automatic throttle synchronization for triple or quad engine applications; where two throttle levers operate three engines or four engines. Requires appropriate Mercury Shadow Mode rigging kit.



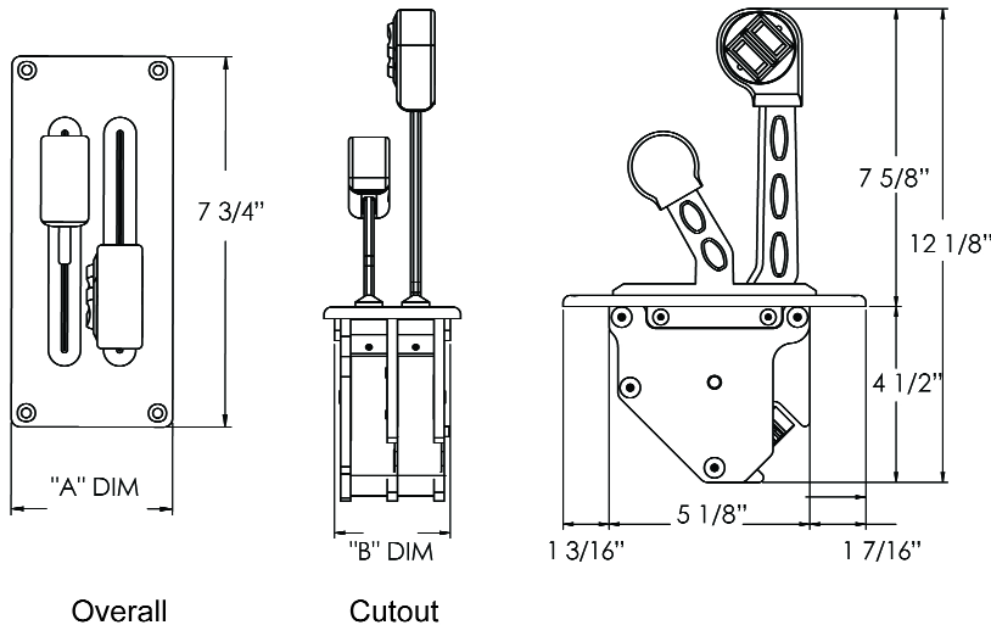
Electrical Requirements

DTS equipped boats require that the electrical systems meet the following guidelines: Use only marine starting batteries with a 1000 mca /800 cca/ 180 amp hour rating or higher. Deep cycle batteries do not deliver the power required for the DTS system.

Notice to Personnel Installing this Kit

The installation of this product requires an installer who is specifically trained to work on Mercury Marine's digital throttle and shift (DTS) systems. The installer must be trained in the proper installation, electronic calibration, and operation of the DTS system. Failure to correctly install this product may make this product and /or the DTS system inoperable or unsafe for use and will void the warranty. Please call Livorsi Marine to find a certified dealer/technician near you.

Livorsi DTS Controls



| Dimensions | | | | |
|--------------|-------------|-----------|-------------|-----------|
| # of Handles | Overall | | Cutout | |
| | A DIM | | B DIM | |
| 2 handle | 3 3/8 in. | 7 3/4 in. | 2 7/8 in. | 5 1/8 in. |
| 3 handle | 4 1/2 in. | 7 3/4 in. | 4 1/64 in. | 5 1/8 in. |
| 4 handle | 5 11/16 in. | 7 3/4 in. | 5 3/16 in. | 5 1/8 in. |
| 6 handle | 8 in. | 7 3/4 in. | 7 1/2 in. | 5 1/8 in. |
| 8 handle | 10 5/16 in. | 7 3/4 in. | 9 13/16 in. | 5 1/8 in. |

| Chrome Base | | | |
|----------------------------------|-------------------|--------------------|-------------------------|
| # of Handles | No Switch | Single Switch | Dual Switch |
| 2 handle | DTSBB11 + color | DTSBB11S + color | DTSBB11D + color |
| 4 handle | DTSBB22 + color | DTSBB22S + color | DTSBB22D + color |
| 6 handle | DTSBB33 + color | DTSBB33S + color | DTSBB33D + color |
| 8 handle | DTSBB44 + color | DTSBB44S + color | DTSBB44D + color |
| Powder Coat Base | | | |
| # of Handles | No Switch | Single Switch | Dual Switch |
| 2 handle | DTSBB11PC + color | DTSBB11SPC + color | DTSBB11DPC + color |
| 4 handle | DTSBB22PC + color | DTSBB22SPC + color | DTSBB22DPC + color |
| 6 handle | DTSBB33PC + color | DTSBB33SPC + color | DTSBB33DPC + color |
| 8 handle | DTSBB44PC + color | DTSBB44SPC + color | DTSBB44DPC + color |
| Mercury DTS Rigging Kits | | | |
| Single Engine | Twin Engine | Triple Engine | Quad Engine |
| 84-892955K04 | 84-893378K04 | 892955K32 | Order (4) Single Engine |
| Mercury Shadow Mode Rigging Kits | | | |
| Triple Engine | Quad Engine | | |
| 8M8025983 | 8M8025984 | | |

Mechanical Controls - Single Function

- For single, twin, triple and quad engines
- Compatible with bucket, jet drives, shifts or throttles
- Enclosed wiring in the handles
- Lever resistance is adjustable while installed in the dash
- Configurations available to operate jet boats, drives and throttle controls

In addition to the part number, please specify when ordering:

1. Handle configuration
shift- shift- throttle- throttle or split configuration
2. Left or right hand thumb placement for trim switches
3. Cant forward or cant backward

Standard Controls

- Constructed of bronze and stainless steel
- Entire unit is powder coated one solid color
- Installation requires the use 33C or 43C series cables,
2 cables per engine: one for shift, one for throttle

Colors:  PL  BK



Billet Controls

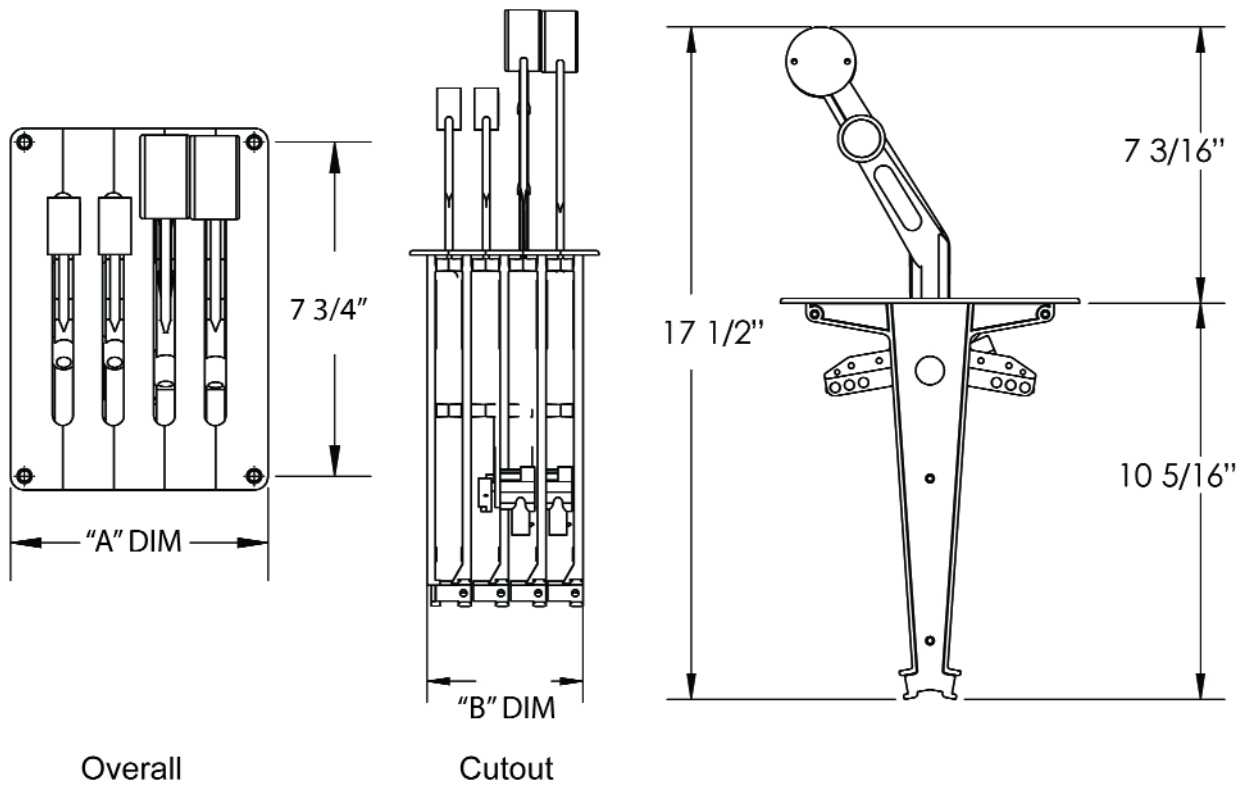
- Constructed of billet aluminum
- Available with bent or straight handles
- Handles and base have a chrome finish
- Base can be powder coated for an extra charge
- Knobs available in color of your choice
- Installation requires the use 33C or 43C series cables,
2 cables per engine: one for shift, one for throttle

Colors:  PL  BK



| Dimensions | | |
|--------------|-----------------------|------------------------|
| # of handles | Overall | Cutout |
| | A DIM | B DIM |
| 2 handle | 3 1/4 in. x 7 3/4 in. | 2 5/8 in. x 6 1/2 in. |
| 3 handle | 4 3/8 in. x 7 3/4 in. | 3 3/4 in. x 6 1/2 in. |
| 4 handle | 5 5/8 in. x 7 3/4 in. | 4 3/4 in. x 6 1/2 in. |
| 6 handle | 7 3/4 in. x 7 3/4 in. | 7 in. x 6 1/2 in. |
| 8 handle | 9 7/8 in. x 7 3/4 in. | 9 3/16 in. x 6 1/2 in. |

Mechanical Controls



Overall

Cutout

| Standard Controls | | | |
|-------------------|---------------|----------------|----------------|
| # of Handles | No Switch | Single Switch | Dual Switch |
| 1 handle | TH1 + color | TH1S + color | TH1D + color |
| 2 handle | TH11 + color | TH11S + color | TH11D + color |
| 3 handle | TH111 + color | TH111S + color | TH111D + color |
| 4 handle | TH22 + color | TH22S + color | TH22D + color |
| 6 handle | TH33 + color | TH33S+ color | TH33D + color |
| 8 handle | TH44 + color | TH44S+ color | TH44D + color |

| Billet Controls- Bent Handle | | | |
|------------------------------|------------------|-------------------|-------------------|
| # of Handles | No Switch | Single Switch | Dual Switch |
| 1 handle | THBRB1 + color | THBRB1S + color | THBRB1D + color |
| 2 handle | THBRB11 + color | THBRB11S + color | THBRB11D + color |
| 3 handle | THBRB111 + color | THBRB111S + color | THBRB111D + color |
| 4 handle | THBRB22 + color | THBRB22S + color | THBRB22D + color |
| 6 handle | THBRB33 + color | THBRB33S+ color | THBRB33D + color |
| 8 handle | THBRB44 + color | THBRB44S+ color | THBRB44D + color |

| Billet Controls- Straight Handle | | | |
|----------------------------------|------------------|-------------------|-------------------|
| # of Handles | No Switch | Single Switch | Dual Switch |
| 1 handle | THBRS1 + color | THBRS1S + color | THBRS1D + color |
| 2 handle | THBRS11 + color | THBRS11S + color | THBRS11D + color |
| 3 handle | THBRS111 + color | THBRS111S + color | THBRS111D + color |
| 4 handle | THBRS22 + color | THBRS22S + color | THBRS22D + color |
| 6 handle | THBRS33 + color | THBRS33S+ color | THBRS33D + color |
| 8 handle | THBRS44 + color | THBRS44S+ color | THBRS44D + color |

Livorsi ETS Controls - Single Function

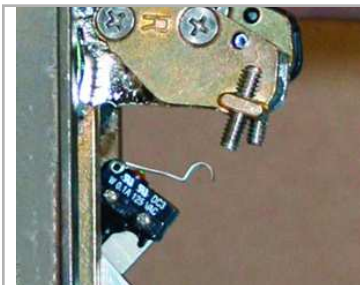
Livorsi ETS Controls (Electronic Throttle & Shift) provide smoother shifting and throttling than traditional controls with the use of dual redundancy potentiometers.

The potentiometers used for these electronic controls contain two independent outputs for redundancy. Fully sealed to meet or exceed IP66/IP67 standards, the potentiometer is impervious to moisture and contamination. It also features excellent temperature stability and is constructed of anti-corrosive material.

- Single, twin or triple engine applications
- Utilizes dual redundancy position sensors
- Shifters can remain mechanical with 33C or 43C cables or can be electronic with micro switches forward and aft
- Bucket controls, shifters or throttles can be stacked together or separate

The following components can be added to your mechanical controls to “electrify” them to communicate with various engines:

Steyr • Cummins • Iveco • Fiat • Yanmar • Banks • Bosch controllers



ESSA switch forward and aft for shift levers



ETPAS dual redundancy pot for throttle lever

Part Numbers: ETPAS or ETPAT (pots)

- Added to throttles or shifts
- 0-5 volt dual redundancy pots

Please specify when ordering:
- For shift or for throttle

Part Number: ESSA

- Waterproof switches, forward and aft that can activate a solenoid to shift a transmission
- One switch is required for each handle
- Connectors with flying leads are supplied

| Description | Part Number |
|---|----------------------|
| single engine assembly 0-5V | ETPAS |
| twin engine assembly 0-5V | ETPAT |
| triple engine assembly 0-5V | (1) ETPAS, (1) ETPAT |
| shift assembly switch - 1 required for each handle | ESSA |
| connector with 18" flying lead 0-5 V pot | ETS5VH |
| Cummins Harness 20 ft | CMDH20 |
| Cummins Harness 25 ft | CMDH25 |
| Cummins Harness 30 ft | CMDH30 |
| Steyr Harness 20 ft | HSTH20 |
| Idle Validation Switch needed for Steyr application | ETSIVS |

See page 7 for control part numbers and dimensions.

Single Engine Binnacle - Electronic Throttle-Mechanical Shift



Product Features:

- Mechanical shift accepts 33c series cables for push or pull applications
- Electric throttle: IP68 sealed dual redundancy, programmable voltage pots
- Built in push button to disengage throttle for warm up
- Constructed of billet aluminum and stainless steel with a robust powder coat finish
- 180° of throw
- Single or dual trim switches
- Adjustable detent and friction
- Small cutout foot print
- Plug-in Deutsch connector for electronic throttle

Colors: PL BK

| # of Handles | No Switch | Single Switch | Dual Switch |
|--------------|-----------|---------------|-------------|
| 1 handle | TBD | TBD | TBD |

Binnacle Mount - Mechanical Throttle & Shift

Product Features:

- Supports outboard and sterndrive configurations using 33c cables
- Add up to 4 momentary switches depending on your application requirements
- Throttle only button
- Adjustable friction settings for throttle and shift

Colors: PL BK

| # of Handles | No Switch | Single Switch | Dual Switch |
|--------------|---------------|----------------|----------------|
| 1 handle | BMCM1 + color | BMCM1S + color | BMCM1D + color |
| 2 handle | BMCM2 + color | BMCM2S + color | BMCM2D + color |
| # of Handles | 3 Switches | | 4 Switches |
| 1 handle | | BMCM1T + color | BMCM1Q + color |
| 2 handle | | BMCM2T + color | BMCM2Q + color |



Control Hardware

33C Series Cables

- Sold in two foot increments
- Sizes range from 10 feet to 38 feet
- Use with Livorsi controls or mechanical indicators
- Stainless steel core
- Chrome plated brass
- 3 1/4" throw
- Threaded ends, size 10x32

| Description | Part # |
|------------------|-------------|
| 33C Series Cable | CA + length |



Neutral Safety Switch

Allows you to start engine only when in neutral. One needed for each shift lever. Included at no charge with your control order.

| Description | Part # |
|---------------|--------|
| safety switch | NSS |

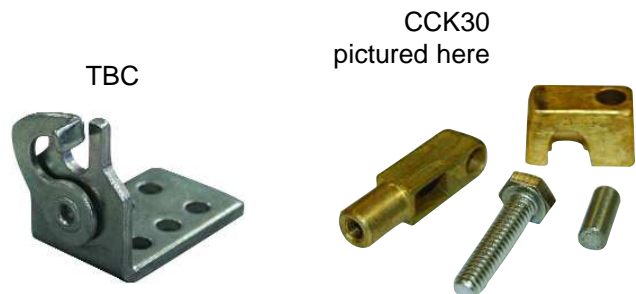
Trim Switches

for Standard, Billet or ETS controls

| Description | Part # |
|---|----------------|
| single no wires | TSSO |
| single w/ wires | TSSW |
| single w/ wires & plate | TSSWP + color |
| single w/ wire, plate & back plate | TSSWPB + color |
| dual w/ wires & plate | TSDWP + color |
| dual w/ wires, plate & back plate | TSDWPB + color |
| Note: will not work on Mercury® controls. | |

Cable Connection Kits

| Description | Part # |
|---|--------|
| Mercury OB 1 shift/1 throttle | CCKOBM |
| Mercury I/O 1 shift/1 throttle | CCKIO |
| OMC OB 1 shift/1 throttle | CCKOBO |
| Cable Connection Kit for 33C (included at n/c with control order) | CCK30 |
| Cable Connection Kit for 43C | CCK40 |
| cable connector 90 degree | QDBJ |
| throttle bracket clip | TBC |



Diode Kits

- 3 amp, 1000V

| Description | Part # |
|---|--------|
| diode kit- diodes only 4 piece kit for twin engine | DK |
| diode plug in harness- twin | DKH2 |
| diode plug in harness- triple | DKH3 |

Throttle Adapter Plates

- Adapts a Mercury® control cutout to accept Livorsi controls
- Made of aluminum
- Available in a white powder coat finish
- 2 handle measures: 3 1/2" W x 9 1/2" L
- 4 handle measures: 5 3/4" x 9 1/4" L

| Description | Part # |
|-------------|--------|
| 2 handle | TAP2W |
| 4 handle | TAP4W |

Industrial Series Gauges

Livorsi Industrial Series gauges are built for resilient performance and durability. Designed for marine, automotive and off road applications.

These analog gauges feature exceptional contrast with bold white graphics and pointer on a black dial.




The old style terminal connections of the gauge have been replaced with waterproof plug in Deutsch connectors. The Deutsch harness (DCH) plugs in to the back of the gauge and the 18 inch wire leads are labeled for your convenience.

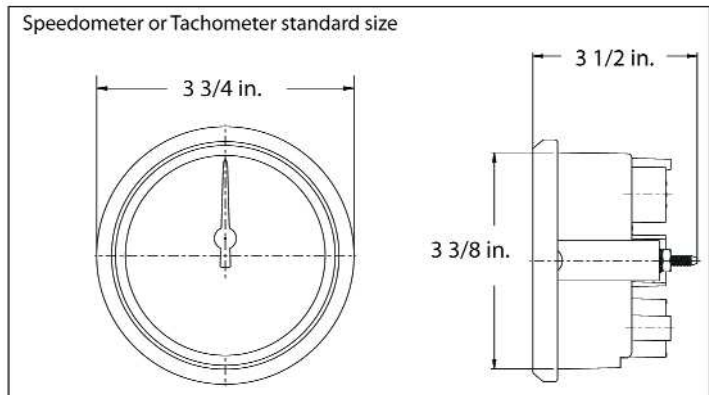
These gauges are available for a 12 or 24 volt system, please specify when placing your order.

- Plug in connectors are waterproof and resist salt corrosion
- Encased in non-ferrous hardware
- Red LED lighting is standard, increases visibility in low light conditions
- Fade resistant powder coated pointers
- SAE rims in black powder coat or polished stainless steel



| Function | cutout size | overall size |
|-------------------|-------------|--------------|
| Tachometer | 3 3/8" | 3 3/4" |
| Speedometer | 3 3/8" | 3 3/4" |
| Other Instruments | 2 1/16" | 2 3/8" |

| Color Codes | |
|-------------|--|
| Dial |  BK |
| Rim |  BK  PSS |



Industrial Series Gauges

Gas Tachometers



6,000 RPM



8,000 RPM



10,000 RPM



12,000 RPM

| Tachometers- Gas | | | |
|--|--------------|-----------------|-------------|
| Description | Part Number | | Requires |
| | black/black | black/stainless | |
| 6,000 RPM | DCS6000BKBK | DCS6000BKPSS | DCH Harness |
| 8,000 RPM | DCS8000BKBK | DCS8000BKPSS | DCH Harness |
| 10,000 RPM | DCS10000BKBK | DCS10000BKPSS | DCH Harness |
| 12,000 RPM | DC12000BKBK | DC12000BKPSS | DCH Harness |
| DCH Harness 12V | | | DCH |
| DCH Harness 24V, used to converts to a 24V | | | DCH24 |
| DCH Harness with Tach Filter- 12V reduces needle spikes from noisy ignitions | | | DCTFH |
| Note: Industrial tachs work on 4, 6, & 8 cylinder V-10 & Merc O/B 6 pulse/12 pole | | | |

Diesel Tachometers



4,000 RPM

| Tachometers- Diesel 4000 RPM | | | |
|---|----------------|-----------------|-------------|
| Description | Part Number | | Requires |
| | black/black | black/stainless | |
| alt driven | DC4000DABKBK | DC4000DABKPSS | DCH Harness |
| mag probe driven | DC4000MPDBKBK | DC4000MPDBKPSS | DCH Harness |
| mechanical signal generator driven | DC4000MSGDBKBK | DC4000MSGDBKPSS | DCH Harness |
| DCH Harness 12V | | | DCH |
| DCH Harness 24V, used to converts to a 24V | | | DCH24 |
| DCH Harness with Tach Filter- 12V reduces needle spikes from noisy ignitions | | | DCTFH |
| All three diesel tachs have the same dial graphics. | | | |

GPS Speedometers - With Recall

Livorsi GPS Speedometers require a NMEA 0183 antenna/receiver.



50 MPH



80 MPH



100 MPH



120 MPH



140 MPH



160 MPH



180 MPH






GPSSQ3 antenna

- Mounts with a 1/4" screw
- Dimensions:
2 3/4" L x 2 3/8" W x 7/8" H

| | |
|-------------|--------------|
| cutout size | overall size |
| 3 3/8" | 3 3/4" |

Color Codes

| | | |
|------|---|-----|
| Dial |  | BK |
| Rim |  | BK |
| |  | PSS |

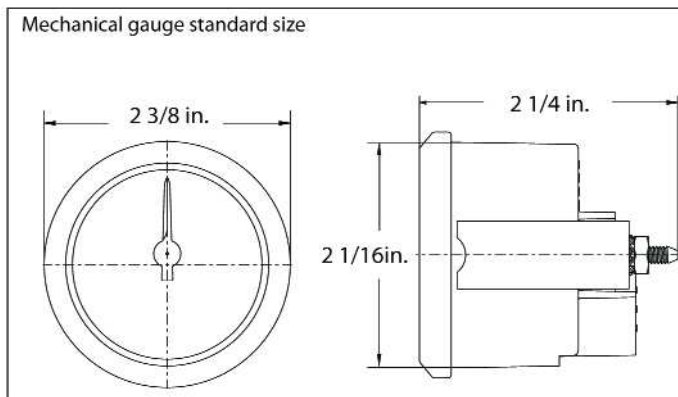
| Description | Part Number | | Notes |
|-------------|-------------|-----------------|---|
| | black/black | black/stainless | |
| 50 MPH | GPSS50BKBK | GPSS50BKPSS | For a GPS Kit, add the letter "K" after the MPH. Kit includes: - speedometer - antenna - memory recall - harness |
| 80 MPH | GPSS80BKBK | GPSS80BKPSS | |
| 100 MPH | GPSS100BKBK | GPSS100BKPSS | |
| 120 MPH | GPSS120BKBK | GPSS120BKPSS | |
| 140 MPH | GPSS140BKBK | GPSS140BKPSS | |
| 160 MPH | GPSS160BKBK | GPSS160BKPSS | |
| 180 MPH | GPSS180BKBK | GPSS180BKPSS | |
| GPS antenna | GPSSQ3 | | |

Note: All GPS speedometers require a NMEA0183 compliant antenna/receiver.

Industrial Series Gauges

Mechanical Gauges

| Description | Part Number | | Requires |
|--------------------------------------|---------------|-----------------|---------------------------------------|
| | black/black | black/stainless | |
| Boost 0-35 PSI | DCSMB35BKBK | DCSMB35BKPSS | hose kit |
| Fuel Pressure 0-15 PSI | DCSMFPBKBK | DCSMFPBKPSS | see page 35 for stainless hoses |
| Fuel Pressure 0-100 PSI | DCSMFP100BKBK | DCSMFP100BKPSS | |
| Oil Pressure 0-100 PSI | DCSMOPBKBK | DCSMOPBKPSS | hose kit |
| Vacuum/Boost 30 in hg/boost20 | DCSMVBBKBK | DCSMVBBKPSS | hose kit |
| Water Pressure 0-35 PSI | DCSMWPBKBK | DCSMWPBKPSS | hose kit |
| Water Pressure 0-60 PSI | DCSMWP60BKBK | DCSMWP60BKPSS | hose kit |
| Hose Kits - not to be used with fuel | | | |
| 10 feet of hose and fittings | HKA | | |
| 25 feet of hose and fittings | HK | | |



boost 0-35 PSI



fuel pressure 0-15 PSI



fuel pressure 0-100 PSI



oil pressure 0-100 PSI



vacuum boost



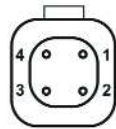
water pressure 0-35 PSI



water pressure 0-60 PSI

Gauge Hardware

4 Pin Connector & Wire Harness
 - 18 inches in length
 - Pre-assembled and labeled



Pin # 1 = BLUE 12v+ illumination
 Pin # 2 = VIOLET 12v+ ignition power
 Pin # 3 = BLACK engine or battery ground
 Pin # 4 = GREEN signal from sender

| DCH Harness | |
|-------------------------|-------|
| 12 volt system | DCH |
| 24 volt system | DCH24 |
| 12 volts w/ tach filter | DCTFH |

Livorsi can provide you with the necessary parts to build your own Deutsch harnesses.

Example:

Parts needed to build a complete DCH connector harness:

- A. (1)- 4 pin connector plug
- B. (1)- 4 pin wedge lock
- C. Appropriate contacts for connectors

| Connector Parts | |
|-----------------------------|-------------|
| Description | Part Number |
| 2 Pin - mechanical lights | |
| 2 pin connector plug | DC2CPLUG |
| 2 pin connector wedge lock | DC2CWL |
| 4 Pin - electrical gauges | |
| 4 pin connector plug | DC4CPLUG |
| 4 pin connector wedge lock | DC4CWL |
| 8 Pin - power distribution | |
| 8 pin connector plug | DC8CPLUG |
| 8 pin connector wedge lock | DC8CWL |
| 12 Pin - power distribution | |
| 12 pin connector plug | DC12CPLUG |
| 12 pin connector wedge lock | DC12CWL |
| dummy plug | DCDP |
| contacts for 16 gauge wire | DCC1416 |
| Hand Crimper | DCHCS |

| Description | Part Number |
|---|-------------|
| Senders | |
| Fuel Pressure 0-60 PSI / 0-90 PSI | GSFP60/90 |
| Fuel & Water Pressure 0-15 PSI | GSFP/WP |
| Isolated Ground for Water Temperature | GSWT1/8I |
| Oil Pressure 0-80 PSI | GSOP80 |
| Oil Pressure 0-100 PSI | GSOP |
| Oil / Water Temperature 100-320°F Water Temperature 100-250°F 1/8" thread | GSOT1/8 |
| Pressure 400 PSI | GSP400 |
| Water Temperature- Merc OB Kit | GSWTM |
| Water Temperature 100-280°F 1/8" thread | GSWT1/8 |
| Bushing Kit 1 /4", 3/8" and 1/2" fittings | GSBKK1 |
| Memory Tach Recall includes black box, switch plate, switch and boot | |
| recall with black switch plate | MTRBK |
| recall with white switch plate | MTRW |
| Hose Kit for Mechanical Gauges not to be used with fuel 1/8 in ID | |
| 10 feet of hose and fittings | HKA |
| 25 feet of hose and fittings | HK |

See page 45 for fuel level & water level senders.

Industrial Series Gauges

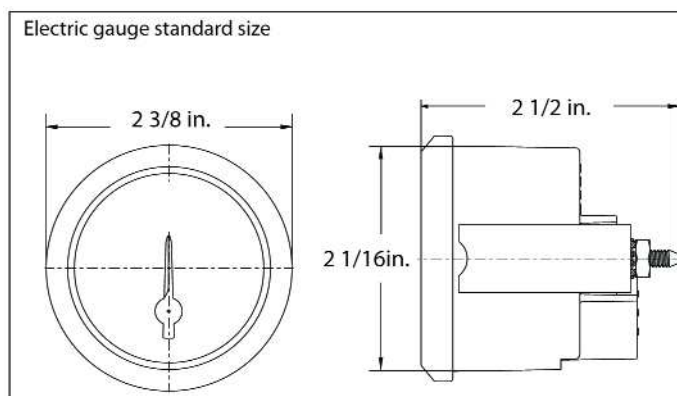
Electric Gauges




These electric gauges require the use of a four pin Deutsch connector wire harness (unless otherwise noted) that we call a DCH harness.

We offer these harnesses pre-assembled for 12V or 24V systems, with labeled wire leads 18 inches in length. Please specify when ordering.



| Description | Part Number | | Requires |
|----------------------------------|-------------|-----------------|-------------------------------|
| | black/black | black/stainless | |
| Boost 60 PSI | DCSB60BKBK | DCSB60BKPSS | - |
| Fuel Level 0-90 OHMS | DCSFLGMBKBK | DCSFLGMBKPSS | DCH/DCH24, fuel level sender |
| Fuel Level 240-33 OHMS | DCSFLBKBK | DCSFLBKPSS | DCH/DCH24, fuel level sender |
| Fuel Pressure 0-15 PSI | DCSFPBKBK | DCSFPBKPSS | DCH/DCH24, GSFP/WP |
| Fuel Pressure 0-90 PSI | DCSFP90BKBK | DCSFP90BKPSS | DCH/DCH24, GSFP60/90 |
| Hourmeter | HMBKBK | HMBKPSS | - |
| Oil Pressure 0-80 PSI | DCSOP80BKBK | DCSOP80BKPSS | DCH/DCH24, GSOP80 |
| Oil Temperature 140-340° F | DCSOTBKBK | DCSOTBKPSS | DCH/DCH24, GSOT1/8 |
| Transmission Temp 140-340° F | DCSTTBKBK | DCSTTBKPSS | DCH/DCH24, GSOT1/8 |
| Trimmer Merc & Yamaha 10-90 OHMS | DCSTMMBKBK | DCSTMMBKPSS | DCH/DCH24 |
| Trimmer OMC 88-1 OHMS | DCSTMOBKBK | DCSTMOBKPSS | DCH/DCH24 |
| Voltmeter 8-18V | DCSVMBKBK | DCSVMBKPSS | DCH/DCH24 |
| Voltmeter 22-32V | DCSVM24BKBK | DCSVM24BKPSS | DCH/DCH24 |
| Water Level | DCSWLBKBK | DCSWLBKPSS | DCH/DCH24, water level sender |
| Water Temperature 100-250° F | DCSWTABKBK | DCSWTABKPSS | DCH/DCH24, GSOT1/8 |
| Water Temperature 100-280° F | DCSWTBKBK | DCSWTBKPSS | DCH/DCH24, GSOT1/8 |
| DCH Harnesses- pre-assembled | | | |
| 12 volt system, 18 inch leads | DCH | | |
| 24 volt system, 18 inch leads | DCH24 | | |



| Color Codes | |
|-------------|--|
| Dial |  BK |
| Rim |  BK  PSS |

Industrial Series Gauges



boost 60 PSI



fuel level



fuel pressure 0-15 PSI



fuel pressure 0-90 PSI



hourmeter



oil pressure 0-80 PSI



oil temperature 140-340° F



transmission temp 140-340° F



trimmer



voltmeter 8-18 V



voltmeter 22-32 V



water level



water temperature 100-250° F



water temperature 100-280° F

Specify 12V or 24V

Vantage View®



For SmartCraft®,
NMEA 2000®,
SAE J1939 and
GM MEFI engines

The Vantage View® system comprises of a Master Tachometer that reads information directly from the ECM/ECU. The Master Tachometer contains a LCD screen in which the user is able to view the performance data, Faults and Warnings of the boat or vehicle. All Vantage View® gauges utilize 270° digital stepper motors that accurately display data in real time. While these instruments are digital, they were designed with the traditional styling of analog gauges. Fluorescent fade resistant pointers and large bold graphics make these instruments easy to ready at a glance.

User programmable warning alarms, simplified rigging and rugged construction makes this line of instruments an exceptional tool for monitoring the performance of a vehicle, workboat or powerboat.

Faults and Warnings

Vantage View® alerts you of Faults and Warnings with blinking icons on the Master Tachometer LCD screen. Faults are a problem reported by the ECM/ECU that warrants stopping the engine. Warnings alert you of potential problems as reported by the ECM/ECU.

Speed

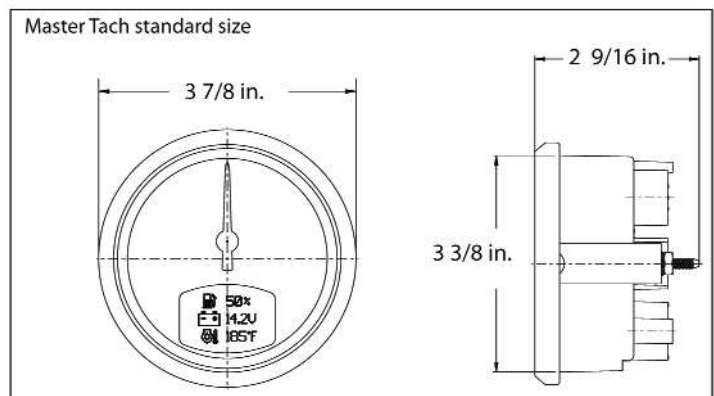
Vantage View® reads both CAN (NMEA 2000® and SAE J1939) and serial (NMEA 0183) based speed inputs.

Fuel Tank and Engine Trim Calibration

The newest feature of the Vantage View® system is the ability to calibrate the fuel tank and engine trim, ensuring utmost accuracy. The Master Tachometer can monitor up to two fuel tanks with the option to use an analog signal or CAN Bus information. The Engine Trim feature also allows for one analog or one CAN Bus signal.

Programmable Alarms

In addition to factory set Fault and Warnings, users can tailor up to 15 alarms to their individual needs. When triggered, pop-up alerts appear on the LCD screen and the bright LED warning light illuminates on the corresponding slave gauge.



Tachometers



VJS4KBKPLR



VJS7KPLPLR



VJS7KBKPSR

Each engine requires its own Master Tachometer

- LCD displays up to 10,000 RPM
- Up to 6 slave gauges may be daisy chained to the Master Tachometer
- Marine configured tachs display “Total Hours”
- Automotive/industrial configured tachs display “Total Miles”
- Have the ability to record and reset three trip logs
- The user can set up 10 parameters of their choice to display in the main screens. Choose between single or three parameter display.

Menu navigation requires the use of either a control pod (controls up to 4 engines) or the VV switch control module, see page 21 for part numbers.

Compatible with NMEA 2000®, J1939 & MEF14 protocol

| Description | Part Number | Requires |
|-------------------|-------------|--|
| 4000 RPM black | VJS4KBK | Corresponding Master Harness, slave harnesses and a control pod or switch assembly |
| 4000 RPM platinum | VJS4KPL | |
| 7000 RPM black | VJS7KBK | |
| 7000 RPM platinum | VJS7KPL | |



Control Pod twin engine

Compatible with SmartCraft® protocol

| Description | Part Number | Requires |
|-------------------|-------------|--|
| 4000 RPM platinum | VSCS4KPL | Corresponding Master Harness, slave harnesses and a control pod or switch assembly |
| 7000 RPM platinum | VSCS7KPL | |

Color Codes

| | | | |
|------|-----|-----|-----|
| Dial | PL | BK | |
| Rim | BKR | PLR | PSR |



Vantage View®

Speedometers



VJS60PLPLR



VJS80PLBKR



VJS100BKPSR

| Color Codes | | | |
|-------------|-----|-----|-----|
| Dial | PL | BK | |
| Rim | BKR | PLR | PSR |



VJS120PLPSR



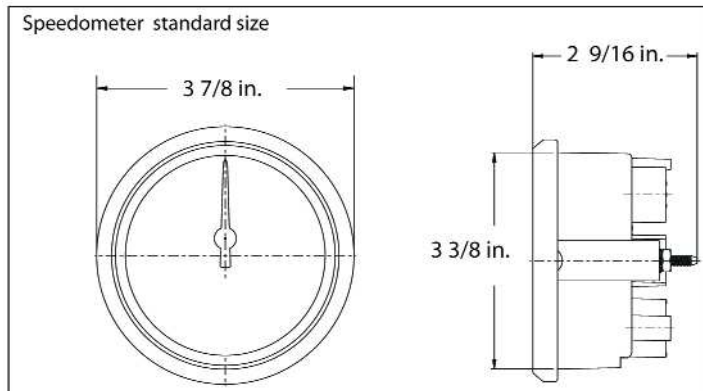
VJS160BKPSR



GPSRAQ3VV antenna
 - Mounts with a 1/4" screw
 - Dimensions:
 2 3/4" L x 2 3/8" W x 7/8" H

- Vantage View® reads both CAN and GPS based speed inputs.
- CAN based inputs include water or ground speed references.
- Using the GPS based input requires the device to be NMEA 0183 compliant.
- If more than one speed source exists, users can view all speed data on the Master Tachometer LCD by selecting View Parm's from the Main Menu.

Note: If using the GPS input option, Vantage View® requires the use of Livorsi GPS antenna part number: GPSRAQ3VV. Other GPS antenna models may not work with Vantage View®.



| Description | Base Part Number |
|-------------------------------------|------------------|
| 60 MPH | VJS60 |
| 80 MPH | VJS80 |
| 100 MPH | VJS100 † |
| 120 MPH | VJS120 |
| 160 MPH | VJS160 † |
| GPS Antenna | |
| 1 second (1Hz) | GPSRAQ3VV |
| † Note: Available with a black dial | |

FWA Gauge- Fault Warning Alarm







This gauge provides five discrete illuminated visual indicators and multiple outputs. Outputs include a dedicated audible alarm and one set of relay output contacts for secondary alarms or additional engine protection devices.

This FWA gauge is needed in order for Vantage View® to receive built in Faults and Warnings from Cummins Diesel engines when a Diesel View display is not present.

FWA gauge will work on all engine protocols except for Mercury Gas SmartCraft® engines.

Available with a black dial only. 2 1/8" cutout

| Description | Part Number |
|-------------|----------------------|
| fwa gauge | VJSFWABK + rim color |

| Color Codes | |
|-------------|---|
| Dial |  BK |
| Rim |  BKR  PLR  PSR |

VV Switch Control Module

- One assembly needed per engine
- Requires two 1/2 in. cutout for toggle switches

VVSAW assembly includes:

- Two switches & two boots
- DCC contacts for easy installation

| Description | Part Number |
|-----------------------------|--------------|
| switch control module | VVSAW |
| mode switch only | TSMF |
| up/down switch only | TSMFM |
| black switch boot | TSRBBK |
| plate only (2 3/4 in diam.) | PSSP + color |



Control Pod

- Control up to 4 Master Tachometers with one pod
- Uses waterproof momentary buttons
- Twin, triple and quad control pods have a polished selector knob to toggle between Master Tachometers

| Description | Part Number | |
|---------------|-------------|-----------|
| | Black | Platinum |
| single engine | VVCPSABK | VVCPSAPL |
| twin engine | VVCPTABK | VVCPTAPL |
| triple engine | VVCPTRABK | VVCPTRAPL |
| quad engine | VVCPQABK | VVCPQAPL |



Control Pod twin engine

Vantage View®

Slave Gauges

- Slave gauges must be connected to the Master Tachometer via the slave harness daisy chain
- 270 degree sweep with digital stepper motors
- LED warning lights illuminate when programmed alarms are triggered (setup through the Master Tachometer)
- Fluorescent orange pointers
- Back lit with red LED lighting

| Compatible with NMEA 2000®, SmartCraft®, SAE J1939 | |
|---|-------------|
| Description | Part Number |
| boost 0-35 PSI † | VJSB |
| fuel level 1 † | VJSFL1 |
| fuel pressure 90 PSI † | VJSFP90 |
| oil level 1 | VJSOL1 |
| oil pressure 0-80 PSI † | VJSOP |
| oil temperature 0-280°F † | VJSOT |
| trim drive port (left) † | VJSTDP |
| trim drive stbd (right) † | VJSTDS |
| voltmeter 10-16V † | VJSVM |
| water pressure 30 PSI | VJSWP30 |
| water pressure 60 PSI | VJSWP60 |
| water temperature 100-240°F † | VJSWT |

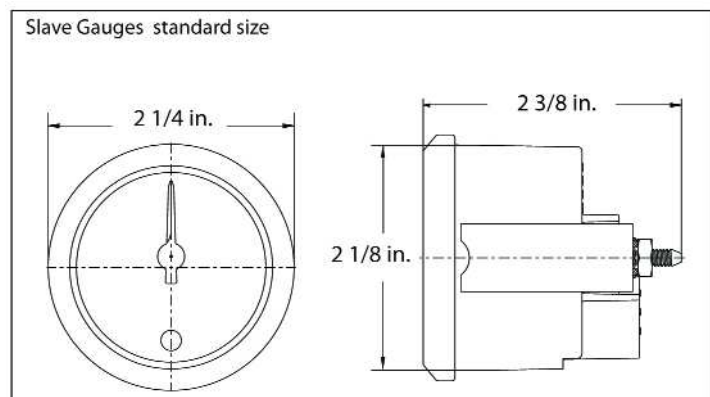
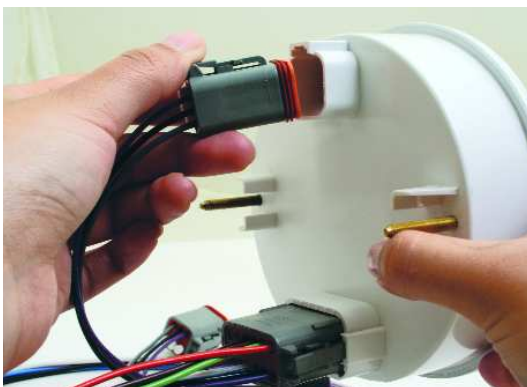
Note: † Available with a black dial

| Additional gauges available for SmartCraft® only | |
|---|-------------|
| Description | Part Number |
| fuel level 2 † | VJSFL2 |
| oil level 2 | VJSOL2 |

| Slave Gauges- NMEA 2000® - Ilmor compliant | |
|--|-------------|
| Description | Part Number |
| voltmeter- alternator 10-16V † | VVNISVMA |
| water pressure 30 PSI † | VNSWP30C |

Note: † Available with a black dial

| Color Codes | |
|-------------|--|
| Dial | <div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;"> PL </div> <div style="text-align: center;"> BK </div> </div> |
| Rim | <div style="display: flex; align-items: center; gap: 10px;"> <div style="text-align: center;"> BKR </div> <div style="text-align: center;"> PLR </div> <div style="text-align: center;"> PSR </div> </div> |



Vantage View®



boost 0-35 PSI



fuel level 1



fuel level 2



fuel pressure 0-90 PSI



oil level 1



oil level 2



oil pressure 0-80 PSI



oil temperature 100-280° F



trim drive port (left)



trim drive starboard (right)



voltmeter 10-16



water pressure 0-30 PSI



water pressure 0-60 PSI

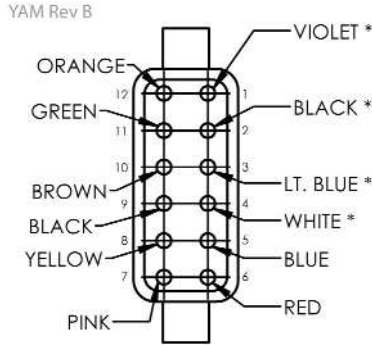


water temperature 100-240° F

See page 27
for Slave
Harnesses

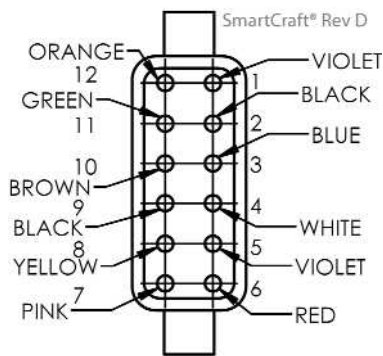
Harnesses

SAE J1939/Indmar Master Harness length: 36 in. ± .5 in.



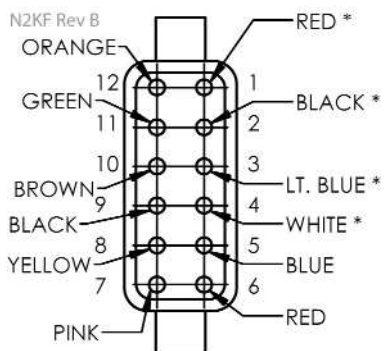
| Part Number | | VVMHJI |
|-------------|----------|-------------------|
| Wire Label | | |
| # | Color | Label |
| 1 | Violet | Switched Positive |
| 2 | Black | Ground |
| 3 | Lt. Blue | CAN L |
| 4 | White | CAN H |
| 5 | Blue | Lighting |
| 6 | Red | Battery |
| 7 | Pink | Analog |
| 8 | Yellow | NMEA 0183 |
| 9-12 | - | to amp connector |

SmartCraft® Master Harness length: 36 in. ± .5 in.



| Part Number | | VVMHSC |
|-------------|--------|-----------|
| Wire Label | | |
| # | Color | Label |
| 7 | Pink | Analog |
| 8 | Yellow | NMEA 0183 |

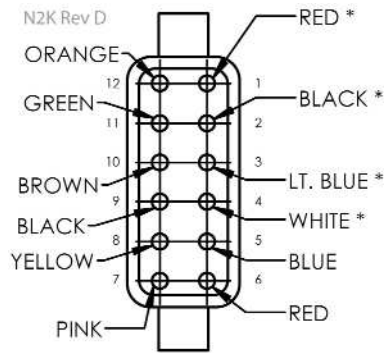
NMEA 2000® Micro C Female Master Harness length: 36 in. ± .5 in.



| Part Number | | VVMHN2KF |
|-------------|--------|-----------|
| Wire Label | | |
| # | Color | Label |
| 5 | Blue | Lighting |
| 6 | Red | Battery |
| 7 | Pink | Analog |
| 8 | Yellow | NMEA 0183 |

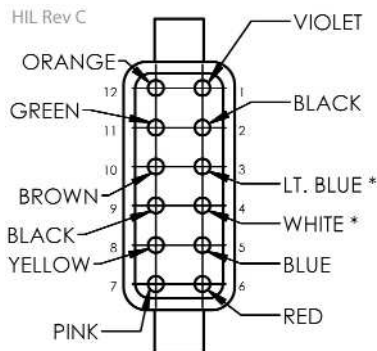
Harnesses

NMEA 2000® Micro C Male Master Harness
length: 36 in. ± .5 in.



| Part Number | | VVMHN2K |
|-------------|--------|-----------|
| Wire Label | | |
| # | Color | Label |
| 5 | Blue | Lighting |
| 6 | Red | Battery |
| 7 | Pink | Analog |
| 8 | Yellow | NMEA 0183 |

Ilmor Micro C Male Master Harness
length: 36 in. ± .5 in.



| Part Number | | VVMHIL |
|-------------|--------|-------------------|
| Wire Label | | |
| # | Color | Label |
| 1 | Violet | Switched Positive |
| 2 | Black | Ground |
| 5 | Blue | Lighting |
| 6 | Red | Battery |
| 7 | Pink | Analog |
| 8 | Yellow | NMEA 0183 |

Slave Harnesses



| Long Slave Harness | | |
|--------------------|------------|-------------|
| Description | Length | Part Number |
| 2 gauge | 27 1/2 in. | VVSH2L |
| 4 gauge | 53 1/2 in. | VVSH4L |
| 6 gauge | 78 1/2 in. | VVSH6L |

| Short Slave Harness | | |
|---------------------|------------|-------------|
| Description | Length | Part Number |
| 2 gauge | 17 in. | VVSH2S |
| 4 gauge | 37 1/2 in. | VVSH4S |
| 6 gauge | 54 1/2 in. | VVSH6S |

| Analog Input Parameters Table | | | |
|-------------------------------|--------------|-----------------------------------|------------------|
| Parameter | Range | Analog Input | LCD Display Name |
| Block Pressure | 0-200 PSI | 240-33Ω/10-180Ω | Block Press |
| Boost Pressure | 0-200 PSI | 240-33Ω/10-180Ω | Boost Press |
| Brake Application Pressure | 0-200 PSI | 240-33Ω/10-180Ω | Brake Appl Pr |
| Brake Primary Pressure | 0-200 PSI | 240-33Ω/10-180Ω | Brake Prim Pr |
| Brake Secondary Pressure | 0-200 PSI | 240-33Ω/10-180Ω | Brake Sec Prs |
| Coolant Level | 0-100% | 240-33Ω/10-180Ω/0-90Ω | Coolant Level |
| Engine Oil Level | 0-100% | 240-33Ω/10-180Ω/0-90Ω | Eng Oil Lvl |
| Engine Oil Pressure | 0-200 PSI | 240-33Ω/10-180Ω | Eng Oil Press |
| Front Air Pressure | 0-150 PSI | 240-33Ω/10-180Ω/0-90Ω | Front Air |
| Fresh Water Level | 0-100% | 240-33Ω/10-180Ω/0-90Ω | Fresh Wat Lvl |
| Fuel Delivery Pressure | 0-200 PSI | 240-33Ω/10-180Ω | Fuel Press |
| Fuel Level 1 | 0-100% | 240-33Ω/10-180Ω/0-90Ω/Centroid 3 | Fuel Level 1 |
| Fuel Level 2 | 0-100% | 240-33Ω/10-180Ω/0-90Ω/Centroid 3 | Fuel Level 2 |
| Generic Level | 0-100% | 240-33Ω/10-180Ω/0-90Ω | Misc Level |
| Generic Pressure | 0-400 PSI | 240-33Ω/10-180Ω | Misc Pressure |
| Hydraulic Oil Level | 0-100% | 240-33Ω/10-180Ω/0-90Ω | Hydr Oil Lvl |
| Hydraulic Oil Pressure | 0-200 PSI | 240-33Ω/10-180Ω | Hydr Oil Pres |
| Inside Temperature | -4 - 104 °C | 10K Thermistor | Inside Air Tm |
| Outside Temperature | -4 - 104 °C | 10K Thermistor | Outsde Air Tm |
| Rear Air Pressure | 0-150 PSI | 240-33Ω/10-180Ω/0-90Ω | Rear Air |
| Rudder Angle | -100° - 100° | 240-33Ω/10-180Ω/0-90Ω | Rudder Angle |
| Steering Angle | -100° - 100° | 240-33Ω/10-180Ω/0-90Ω | Steer Angle |
| Transmission Oil Level | 0-100% | 240-33Ω/10-180Ω/0-90Ω | Trns Oil Lvl |
| Transmission Oil Pressure | 0-400 PSI | 240-33Ω/10-180Ω | Trns Oil Pres |
| Trim | 0-100% | 240-33Ω/10-180Ω/ 0-90Ω/167-10Ω | Trim Position |
| Washer Fluid Level | 0-100% | 240-33Ω/10-180Ω/0-90Ω | Washer Level |
| Waste Water Level | 0-100% | 240-33Ω/10-180Ω/0-90Ω | Waste Wat Lvl |
| Water Temperature | -4 - 104 °C | 10K Thermistor | Water Temp |
| GPS Compass | 0-360° | NMEA 0183 | GPS Compass |
| GPS Heading | 0-360° | NMEA 0183 | GPS Heading |
| GPS Speed | 0-200 MPH | NMEA 0183 | GPS Speed |
| Latitude | -180° - 180° | NMEA 0183 | Latitude |
| Longitude | -180° - 180° | NMEA 0183 | Longitude |
| Speed (Water Reference) | 0-200 MPH | NMEA 0183 | Water Speed |
| Water Depth | 0-999' | NMEA 0183 | Water Depth |
| Water Temperature | -4 - 104 °C | NMEA 0183 | Water Temp |

| Faults or Warnings | | |
|-----------------------------|--------------------|---|
| Description | Faults or Warnings | |
| Warning Over Heat | Over-heat | W |
| Warning Low Oil Pressure | Low Oil Press | W |
| Warning Low Voltage | Low Voltage | W |
| Warning High Voltage | High Voltage | W |
| Warning Over Speed | Over Speed | W |
| Warning Water in Fuel | Fuel | W |
| Warning Guardian Active | Guard Active | W |
| Warning Check Engine | Check Engine | W |
| Oil Fault | Oil | F |
| Guardian/Check Engine Fault | Guard/Ck Eng | F |
| CAN Fault | CAN Bus | F |
| Water in Fuel Fault | Fuel | F |
| Voltage Fault | Voltage | F |
| Coolant Temperature Fault | Coolant Temp | F |





SAE J1939

MEFI4A/B

MEFI5

MEFI6

MoTeC

OBDII

NOTE:
Each engine has its own factory set Warnings and/or Faults. These cannot be changed.

A Warning or Fault icon will appear on the LCD screen to alert the user of a potentially serious problem with the engine.

Mercury® MercMonitor

MercMonitor featuring the Mercury® Gateway converts SmartCraft® engine and system data to NMEA 2000®/J1939 protocol for use on NMEA 2000®/J1939 multi-function displays and gauges.



Engines
NMEA 2000®
Outboards & Sterndrives



Systems
Trim Tabs &
Depth Sounders



GPS
Chartplotters
Pucks/Receivers



Gauges
NMEA 2000®
compatible



Displays
NMEA 2000®
compatible

ECO-Screen



Not Optimized



Optimized

The ECO-Screen feature constantly monitors engine RPM, boat speed, fuel consumption and engine trim† to automatically calculate and guide you to your best fuel economy settings.

No calibration required.

| NMEA 2000®/J1939† Out/In Supported | Data Level |
|---------------------------------------|------------|
| RPM | 1 · 2 · 3 |
| Voltage | 1 · 2 · 3 |
| Oil Pressure | 1 · 2 · 3 |
| Coolant Temperature | 1 · 2 · 3 |
| Tank Level Fuel | 1 · 2 · 3 |
| Trim Position | 1 · 2 · 3 |
| Water Pressure | 1 · 2 · 3 |
| GPS Speed/COG/ Lat-Lon (in only) | 1 · 2 · 3 |
| Check Engine Alarm | 1 · 2 · 3 |
| Fuel Flow | 2 · 3 |
| Engine Hours | 2 · 3 |
| Boost Pressure ⁵ | 2 · 3 |
| Oil Temperature ⁵ | 2 · 3 |

5 Available on Mercury Verado
† J1939 limits signals and data levels

| NMEA 2000® Only Out/In Supported | Data Level |
|-------------------------------------|------------|
| Multiple Tank Levels | 2 · 3 |
| Tabs | 2 · 3 |
| Depth | 2 · 3 |
| Sea Water Temp | 2 · 3 |
| Paddle speed | 2 · 3 |
| Pitot Speed | 2 · 3 |
| Rudder Angle | 3 |
| Gear Pressure ⁶ | 3 |
| Gear Temp ⁶ | 3 |
| Fuel Pressure | 3 |

6 Available on Cummins MerCruiser Diesel Engines
†† Digital Trim sender required for full functionality.

Cutout: 3 3/8"

Overall: 3 3/4"

| Merc Monitor Kits | | Part Number |
|-------------------|---|-------------|
| Data Level 1 | Single Engine- Troll Control- NMEA 2000 | 879337K51 |
| Data Level 2 | Single Engine- RPM SmartTow- NMEA 2000 | 879338K51 |
| Data Level 3 | Multi Engine- RPM SmartTow- NMEA 2000 | 879337K52 |
| Data Level 3 | Multi Engine- SmartTow Pro- NMEA 2000 | 879339K51 |

NOTE: This MercMonitor is needed to transmit SmartCraft® information to our Adjustable Position LED Indicators. See page 36

Mercury® Gateways

The new Mercury Gateway converts engine and system data to NMEA 2000® protocol for use on non-Mercury gauges and displays such as our Adjustable Position LED Indicators. See page 36



Included with Gateway:

- Module,
- 4 mounting screws,
- 2 zip ties
- N2K Tee
- installation instructions

Note: Gateway will not provide operation power for devices on the NMEA 2000® network.

| Description | Part Number |
|-----------------------|-------------|
| single engine gateway | 8M0065207 |
| multi-engine gateway | 8M0065208 |

Livorsi provides an array of NMEA 2000® harnessing and accessories, see page 42

| Signal | J1939 PGN | Mode |
|---------------------|----------------|------|
| RPM | 61444 / 0xF004 | TX |
| Voltage | 65271 / 0xFE7F | TX |
| Coolant Temperature | 65262 / 0xFEE4 | TX |
| Fuel Level | 65276 / 0xFEFC | TX |
| Fuel Flow | 65266 / 0xFE72 | TX |
| Oil Pressure | 65263 / 0xFEEF | TX |
| Boost Pressure | 65270 / 0xFE76 | TX |
| Engine Hours | 65253 / 0xFEE5 | TX |
| Manufacturer ID | 61182 / 0xEEFE | TX |
| Alarm Data | 65226 / 0xFECA | TX |

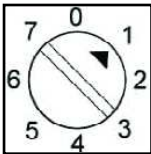
| Signal | NMEA2K PGN | Mode |
|---------------------|------------------|---------|
| RPM | 127498 / 0x1F20A | RX / TX |
| Coolant Pressure | 127489 / 0x1F201 | RX / TX |
| Speed | 128259 / 0x1F503 | RX / TX |
| RPM | 127488 / 0x1F200 | RX / TX |
| Voltage | 127489 / 0x1F201 | RX / TX |
| Coolant Temperature | 127489 / 0x1F201 | RX / TX |
| Fuel Pressure | 127489 / 0x1F201 | RX / TX |
| Fuel Level | 127505 / 0x1F211 | RX / TX |
| Fuel Tank Size | 127505 / 0x1F211 | RX / TX |
| Fuel Flow | 127489 / 0x1F201 | RX / TX |
| Oil Pressure | 127489 / 0x1F201 | RX / TX |
| Oil Temperature | 127489 / 0x1F201 | RX / TX |
| Gear Temp | 127493 / 0x1F205 | RX / TX |
| Gear Pressure | 127493 / 0x1F205 | RX / TX |
| Boost Pressure | 127488 / 0x1F200 | RX / TX |
| Trim Position | 127488 / 0x1F200 | RX / TX |
| Rudder Angle | 127245 / 0x1F10D | RX / TX |
| Depth | 128267 / 0x1F50B | RX / TX |
| Depth Offset | 128267 / 0x1F50B | RX / TX |
| Sea Water Temp | 130310 / 0x1FD06 | RX / TX |
| Engine hours | 127489 / 0x1F201 | RX / TX |
| Manufacturer ID | 060928 / 0xEE00 | RX / TX |
| Alarm Data | 127489 / 0x1F201 | RX / TX |
| Tabs | 130576 / 0x1FE10 | RX / TX |
| Battery | 127508 / 0x1F214 | RX / TX |
| ISO Acknowledge | 059392 / 0x0E800 | RX / TX |
| Course Over Ground | 129026 / 0x9F802 | RX / TX |
| Speed Over Ground | 129026 / 0x9F802 | RX / TX |
| GPS Position | 129025 / 0x1F801 | RX / TX |
| Address Claim | 060928 / 0xEE00 | RX / TX |
| Product Info | 126996 / 0x1F014 | RX / TX |

Livorsi Data Gateway

With the Livorsi Data Gateway you can import CAN (Controller Area Network) MEFI ECU engine data to a NMEA 2000® device and display engine data. See following pages for information transmitted. The engine info that displays is the same data that your engine builder or tuner can pull up on their laptops using advanced software. Livorsi's Data Gateway simply plugs into your NMEA2000 device from the gateway using a standard NMEA 2000® Tee connector. On the engine side it will interface by CAN+ / CAN- wires to gather the info and send it off to a screen and or gauges.

Use the gateway on an older engine to convert the data into NMEA 2000® language for use with Vantage View gauges or a NMEA 2000® navigation device such as Garmin, Lowrance or Raymarine. Please note that engine data is only transmitted if there is a sensor to support it.

Use this gateway to translate info onto our state of the art Vantage View Gauges on page 18

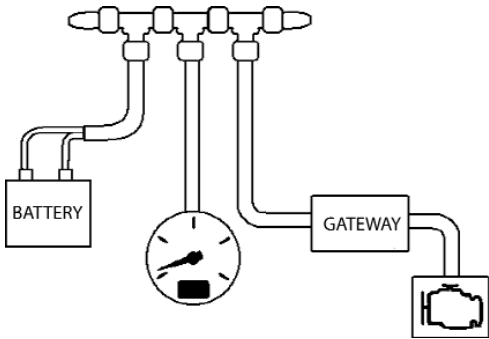


The selection switch is used to select the engine instance when multiple engines are used, as well as to select whether the engine is naturally aspirated or boosted.

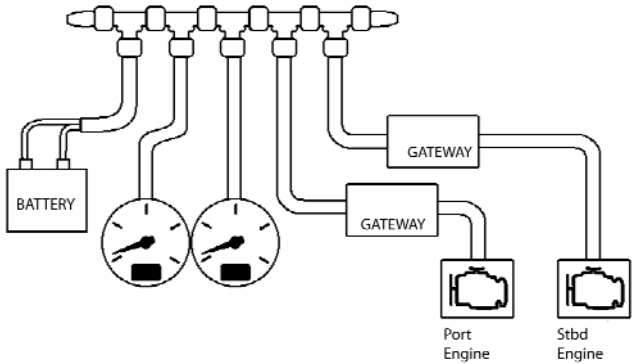
| Description | Part Number |
|--------------|-------------|
| data gateway | MEFI4G |
| rigging kit | MEFI4RK |

Engine Configuration for MercMonitor, Mercury Gateway or the Livorsi Data Gateway

Single Engine Configuration



Twin Engine Configuration



Livorsi Data Gateway

| NMEA 2000 Output Parameters | | | | |
|------------------------------------|--------------------------|--------------------------|--------------------------|-------|
| Parameter | MEFI4A | MEFI4B | MEFI5/6 (J1939) | OBDII |
| Air Temperature | X | X | X | X |
| Barometric Pressure | X | X | X | X |
| Battery Potential | X | X | X | X |
| Boost Pressure | X | X | X | X |
| Engine Coolant Temperature | X | X | X | X |
| Engine Coolant Pressure | X | X | X | |
| Engine Fuel Rate | X | X | X | X |
| Engine Hourmeter | X | X | X | |
| Engine Inlet Air Temp | | | | |
| Engine Percent Load | NA (EEC2) ² | NA (EEC2) ² | X1 | X |
| Engine Oil Pressure | X | X | X | X |
| Engine Oil Temperature | X | X | X | X |
| Engine Speed | X | X | X | X |
| Engine Percent Torque | NA (EEC2) ² | NA (EEC2) ² | | |
| Fuel Level | | | | X |
| Fuel Pressure | NA (EFL/P1) ² | NA (EFL/P1) ² | X | X |
| Run Time Since Start | | | | X |
| Throttle Position | NA (LFE) ² | NA (LFE) ² | X ¹ | X |
| Vehicle Distance (Since DTC clear) | | | | |
| Vessel Speed | X | X | NA (MEFI4B) ² | X |
| Current Gear | | | | |
| Engine Discrete Status: | | | | |
| Check Engine | X | X | | |
| Rev Limit Exceeded | X | X | | |
| Low Oil Pressure | X | | | |
| Low System Voltage | X | | | |
| Low Oil Level | X | | | |
| General Warning 1 | X | | | |
| General Warning 2 | X | | | |
| Low Fuel Pressure | X | | | |
| Emergency Stop Mode | X | | | |
| Engine Over Temp | X | | | |
| SAE J1939 Output Parameters | | | | |
| Parameter | MEFI4A | MEFI4B | MEFI5/6 (J1939) | OBDII |
| Air Temperature | X | X | X | X |
| Barometric Pressure | X | X | X | X |
| Battery Potential | X | X | X | X |
| Boost Pressure | X | X | X | X |
| Engine Coolant Temperature | X | X | X | X |
| Engine Coolant Pressure | X | X | X | |
| Engine Fuel Rate | X | X | X | X |
| Engine Hourmeter | X | X | X | |
| Engine Inlet Air Temp | | | | X |
| Engine Percent Load | NA (EEC2) ² | NA (EEC2) ² | X | X |
| Engine Oil Pressure | X | X | X | X |
| Engine Oil Temperature | X | X | X | X |
| Engine Speed | X | X | X | X |
| Engine Percent Torque | | | X | |
| Fuel Level | | | | X |
| Fuel Pressure | NA (EFL/P1) ² | NA (EFL/P1) ² | X | X |
| Run Time Since Start | | | | N2K |
| Throttle Position | NA (LFE) ² | NA (LFE) ² | X | X |
| Vehicle Distance (Since DTC clear) | | | | X |
| Vessel Speed | X | X | NA (MEFI4B) ² | X |
| Current Gear | | | | X |

Electronic Foot Pedal

- Currently designed to control the throttle on PCM and Marine Power engines.
- These pedals may be calibrated for MEFI5 and 6 engines. (call for details)
- This completely electronic design eliminates problematic cables from bow to stern.
- A sensor is used to send the position information from the pedal to the ECU on the engine.
- Fully sealed to IP68 specifications, this sensor is waterproof and highly durable.
- Plug and play waterproof Deutsch connectors make for a quick and easy installation.
- Solid rugged design, made of billet aluminum with an anodized finish to prevent corrosion.
- Aggressive anti-slip features are built right into pedal for confident non-slip throttling.
- Private Labeling available



| Description | Part Number |
|----------------|-------------|
| Foot Pedal | EFP101 |
| | |
| Harness Length | Part Number |
| 12 feet | CHPCM12 |
| 15 feet | CHPCM15 |
| 23 feet | CHPCM23 |

LED Pop Up Bow Light

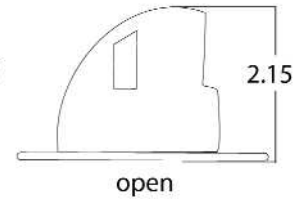
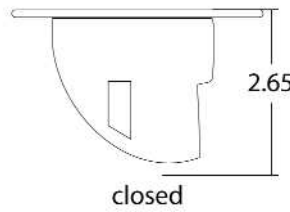
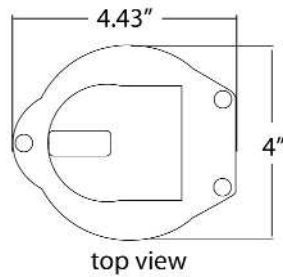


- Port and starboard light in one housing
- Marine grade 316 stainless steel
- Folds down flush when closed
- USCG approved for 2 nautical miles
- LED lights stay cool to the touch
- Optional cup for water run-off
- Light with cup measures 3 1/4" deep
- Light has 3 1/2" diameter cutout

| Description | Part Number |
|-------------------|-------------|
| bow light | LEDPUBL |
| water run off cup | LEDPUBLWC |



shown closed
with optional cup

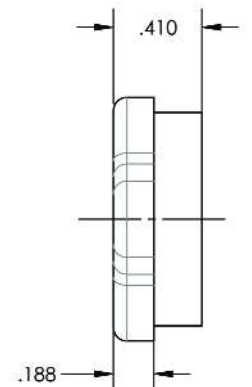
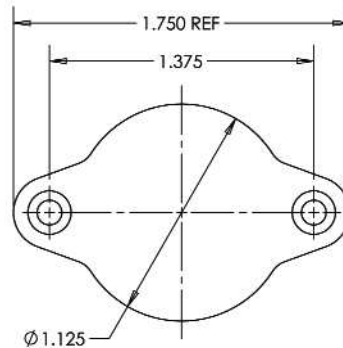
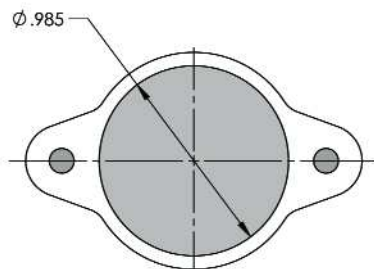


LED Courtesy Lights



- Not certified for use as navigation lights
- Housing is machined from billet aluminum
- Environmentally sealed
- Bright LED can illuminate engine compartments

| Description | Part Number |
|-------------|-------------|
| red | LEDR |
| green | LEDG |
| white | LEDW |



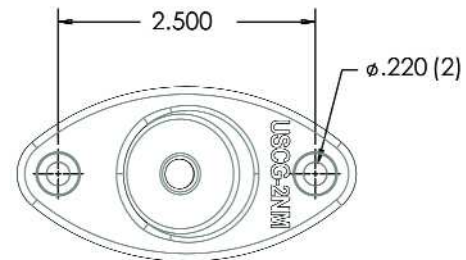
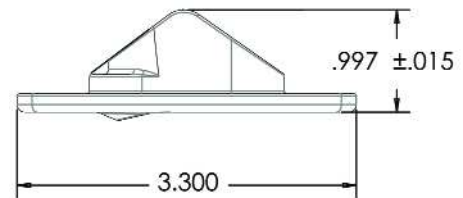
LED Navigation Lights



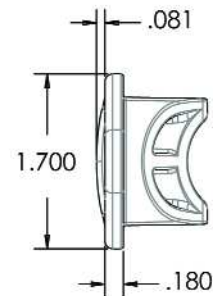
These Livorsi LED nav lights only consume 1/10th of an amp at 14 volts. This means a longer life and less rigging time replacing lights. These lights are to be used on any vessel up to 65 feet and have a visibility of 2 nautical miles.

Designed to be mounted on a vertical surface, to allow the light pattern to be unobstructed from view.

- Visible for 2 nautical miles
- For use on boats up to 65 feet
- Marine grade 316 stainless steel
- Available for 12 or 24 volt systems
- Completely waterproof, environmentally sealed
- NMMA accepted
- USCG approved for 2 nautical miles
- Meets ABYC standards

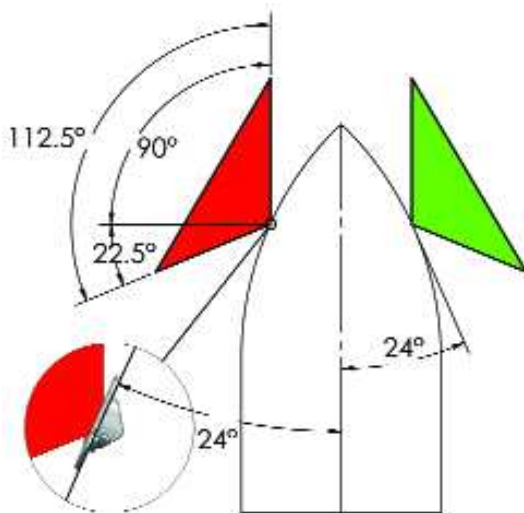


| Description | Part Number |
|-------------------|-------------|
| port - red | LEDNL2R |
| starboard - green | LEDNL2G |
| adapter plate | LEDNLAP |



ABYC Section A-16: The starboard sidelight showing green, and the port sidelight showing red, from dead ahead to 22.5° abaft the beam (90° + 22.5° + 112.5°) on their respective sides.

Mounting angle for navigation lights is 24° relative to centerline of boat.



LEDNLAP
8" L x 2 1/4" W x 1/8" thick

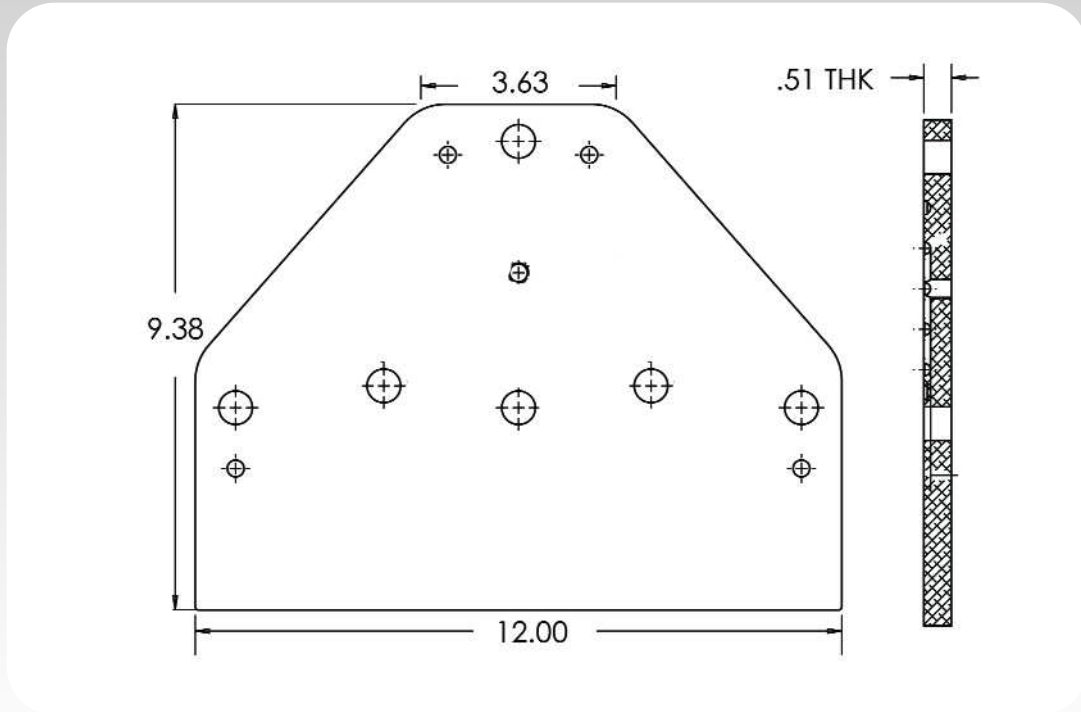
Hydraulic Trim Tabs



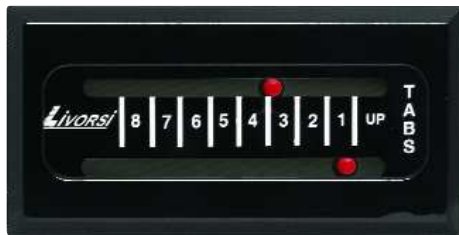
- These heavy duty hydraulic trim tabs meet the demand of boats operating at high speeds or in rough water conditions.
- For boats from 25 to 40 feet
- Tabs incorporate a hinge constructed of extruded aluminum with a 1/2" stainless steel pin to provide unmatched strength and reliability even with large jet pumps being activated.
- Tabs are fabricated from stainless steel and billet aluminum which are hard-coat anodized for years of corrosion free operation.
- Accommodates a 12°,16° or 90° transoms, 12V or 24V systems



Mounting Plate Dimensions



For Tab Indication, see page 47 for our Mechanical Indicators



| Trim Tab Kits Description | Part Number |
|---------------------------|-------------|
| 24 volt system | MTK24V |
| 12 volt system | MTK12V |

| Hoses For Trim Tab Kits | | |
|-------------------------|------------------|-----|
| Hose Description | Hose Part Number | Qty |
| 30 inch | SSBH30IN | 1 |
| 34 inch | SSBH34IN | 1 |
| 60 inch | SSBH60IN | 1 |
| 90 inch | SSBH90IN | 1 |
| 21 feet | SSBH21FT | 1 |
| 26 feet | SSBH26FT | 1 |

Adjustable Position LED Indicators

Displays position for tabs, drives, jackplates, rudder indicator, fuel and water level

Compatible With:

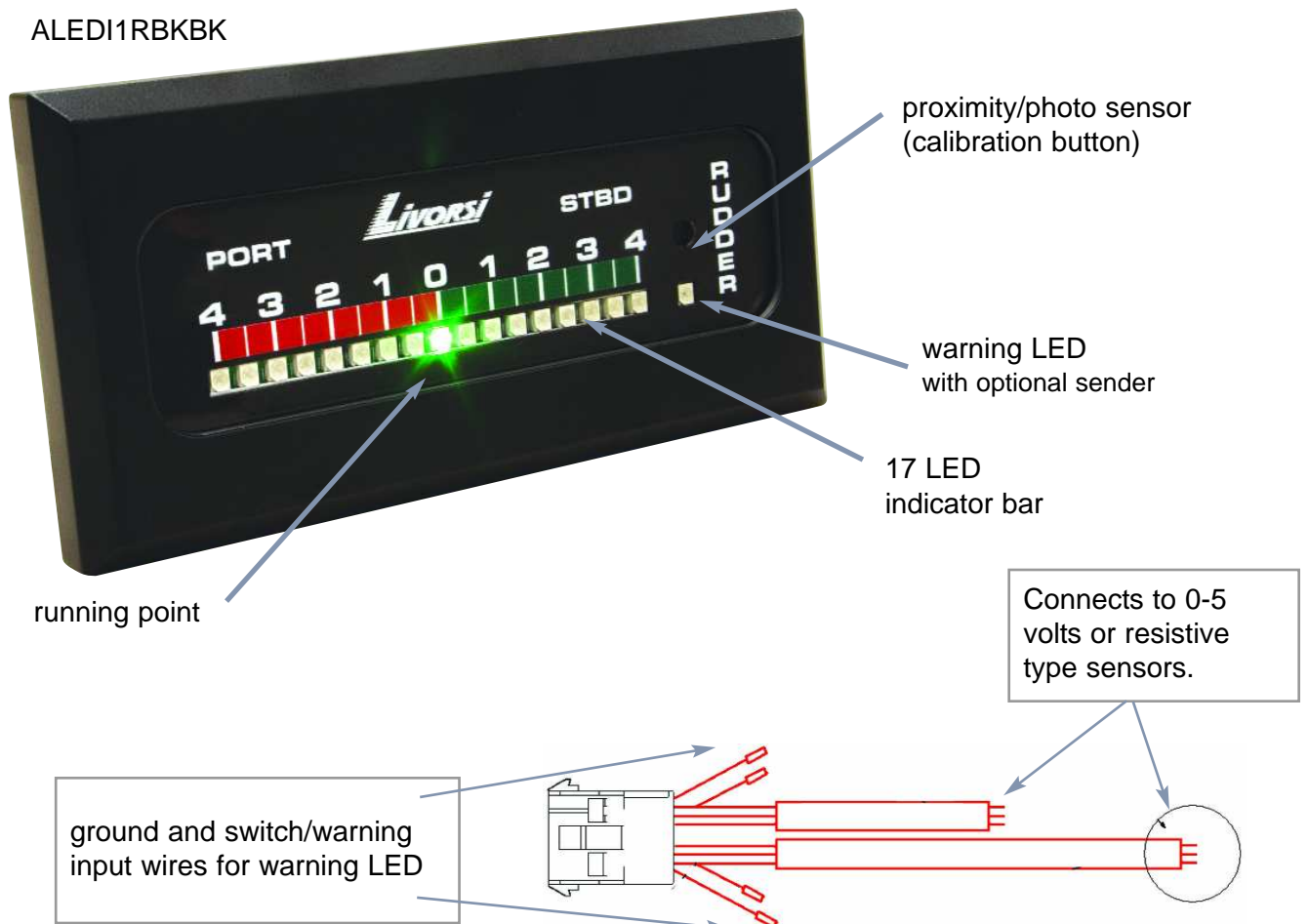
- NMEA 2000® (Rx + Tx) Devices
- J1939 (Rx + Tx) Devices
- Resistive Sensors (ohms)
- SmartCraft® (with Gateway)
- 0-5 Volt Sensors

The LED position indicators eliminate the need for mechanical 33C cables which are typically used for drive and tab indication. These cables have a tendency to deteriorate, will fail over time, and are inaccurate due to lost cable motion. With the Adjustable Position LED indicators, mechanical cables are replaced by more reliable network wiring that allows 'plug n play' connectivity into existing tab or drive position sensors.

If you do not have drive trim or tab sensors, we have the solution. For applications or retrofits that do not have electronic position sensors, Livorsi can provide you with a mechanical to electronic converter solution so that you may take advantage of the accuracy and benefits of Livorsi's LED Indicators.

What sets these displays apart from anything else is the single middle green LED. During calibration, this LED display can be set to indicate 50% of actuator travel, fuel level or whatever you are monitoring. What makes it so special is that it allows you to establish the optimum running angle - or sweet spot (not at 50%), to dial-in the vessel for optimal running efficiency so the novice boater always runs at the correct trim.

ALEDI1RBK BK

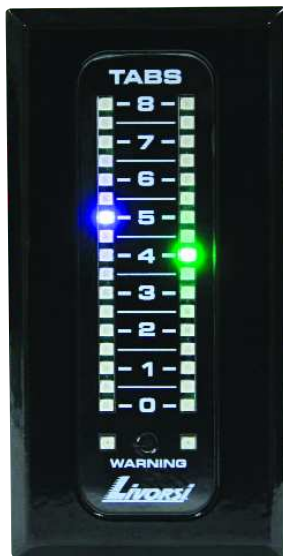


Adjustable Position LED Indicators

No matter what information you are looking to display (fuel level, drive trim, tab position, etc.), the data is brought into the communication network with plug and play harnessing and is received (Rx) via the network cable to the LED indicator for display.

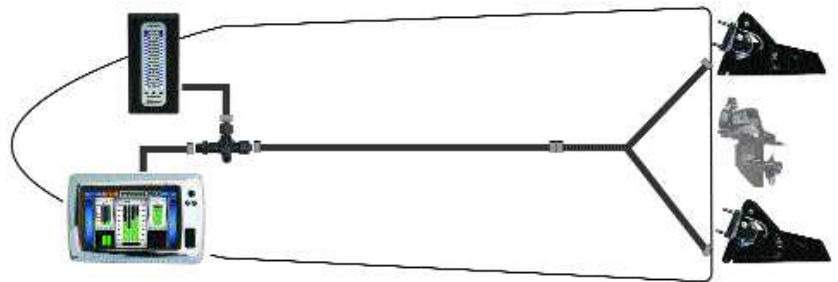
The LED indicator can also transmit (Tx) this information via CAN bus to other compatible displays such as Garmin, Lowrance or Raymarine via NMEA 2000®, SmartCraft® (with Gateway) or J1939 protocols.

If your boat is already transmitting (Tx) NMEA 2000® data (tabs, drives, fuel level, water level, rudder angle, etc.), simply plug the indicator into the NMEA 2000® backbone to begin displaying the desired feature on the indicator.



completely potted to eliminate exposure to the elements

Receive and Transmit Information between the indicator and screen display



- Simple plug and play installation, eliminates clumsy cables
- No cables means, no loss of motion
- All electronics are environmentally potted
- Built-in photo sensor automatically adjusts to ambient light with 250 brightness intensity levels
- Has the ability to compensate for non-linear tanks giving you accurate readings
- 0-5 volt or resistive type sensors (adjustable)
- 1 to 4 slot configurations, vertical or horizontal

Dimensions

1 or 2 slot indicator: 2 1/2" W x 4 5/16" H overall
requires (2) 1-1/8" cutouts for wiring

3 or 4 slot indicator: 3 11/16" W x 4 5/16" H overall
requires (4) 1-1/8" cutouts for wiring

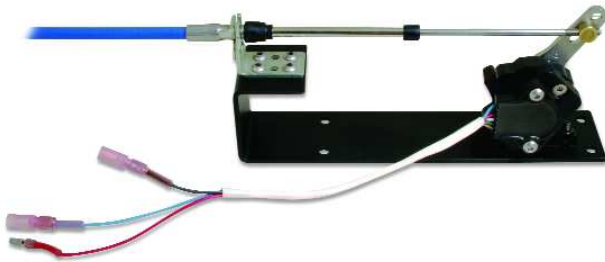
Adjustable Position LED Indicators

Voltage or Resistance Sensors

Tabs, drives, jack plates, fuel level, water level and rudder indicator applications must have a resistance or voltage type sensor present for this system to operate. Below are some of the options.

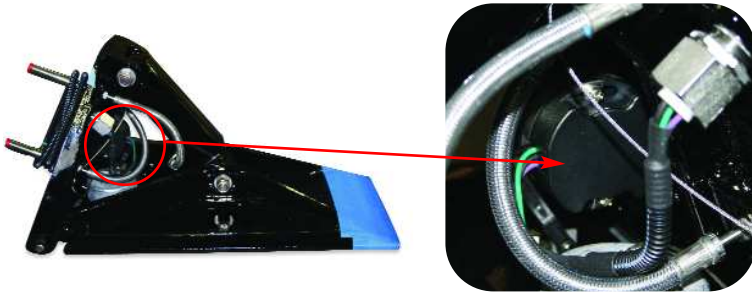
Mechanical to Electric Converter 0-5 Volts
(cable not included)

Converts the mechanical signal to an electric signal.
Bolts on the inside of the transom with a short cable to the unit.



| Description | Part Number |
|----------------------|-------------|
| converter | CBME5V |
| Cables for Converter | |
| 3 ft | CA3 |
| 4 ft | CA4 |
| 5 ft | CA5 |

Mounted pot on Mercury trim tab 0-5 Volts



Tabs 2010 or newer should contain the 5 volt sensor
Tabs 2006-2010 model #'s 280S and 380S should have a bracket to add the sensor

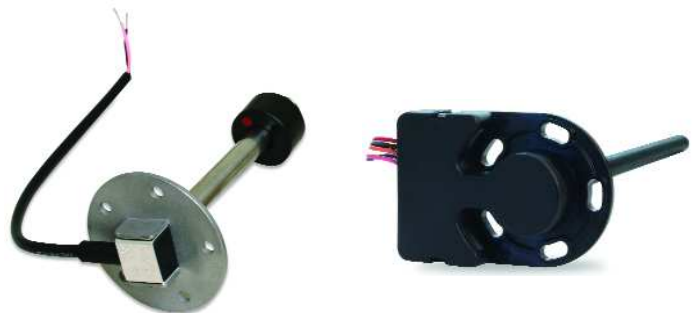
Mercury drive pot 0-5 Volts
Part Number: 863187A1



Retrofitted tabs-
Mercury pot 0-5 Volts



Fuel or water level resistive type sensors
240/33 ohms



NOTE: Must know at time of placing your order, if sender is a 2 or 3 wire sender

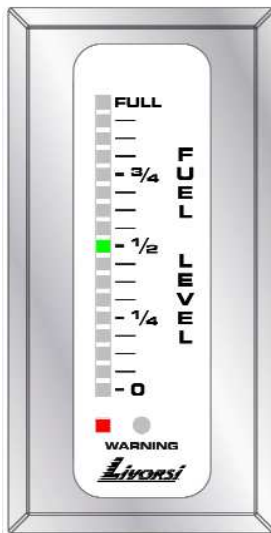
Calibration

Calibration is performed via the proximity/photo sensor on the front of the indicator

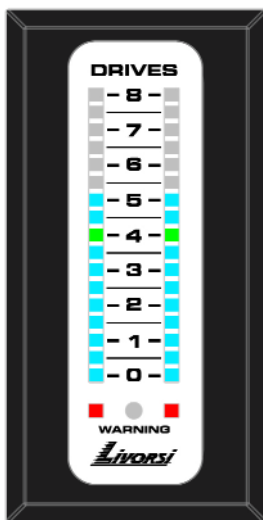
Inputs may be calibrated using either a 2 or 3 point method:
minimum / maximum – or minimum / maximum / center running point (green LED)

Has the ability to compensate for non-linear tanks (fuel or water), giving you accurate readings

Each bar is made of 17 LEDs for high precision resolution (indication)
of the sensor position/level



pointer style



fill bar

LED Lighting Options Include:

Pointer Style-
one LED pointer displays your position/level

Fill Bar type-
multiple LEDs lit in a row, beginning from the top or bottom

The green LED in the center may be calibrated to show optimal level position for Drives, Tabs, etc.

The red LED at the bottom of the indicator can be used as a warning light

Built-in light sensor automatically adjusts to ambient light with 250 brightness intensity levels

Analog Inputs

Each slot accommodates two analog inputs. One analog input drives the indicator bar, the other drives the optional red warning LED located at the bottom of the slot.

Warnings may include (but are not limited to):
Oil pressure, water temperature or low fuel with optional switch to close sensor.

Power Supply

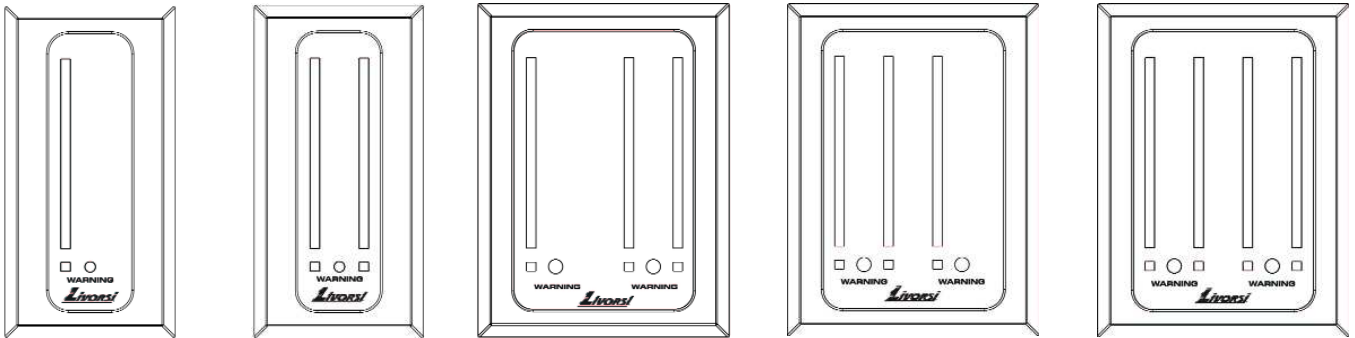
Wide input supply voltage of 7-32 VDC, with reverse polarity protection

Adjustable Position LED Indicators

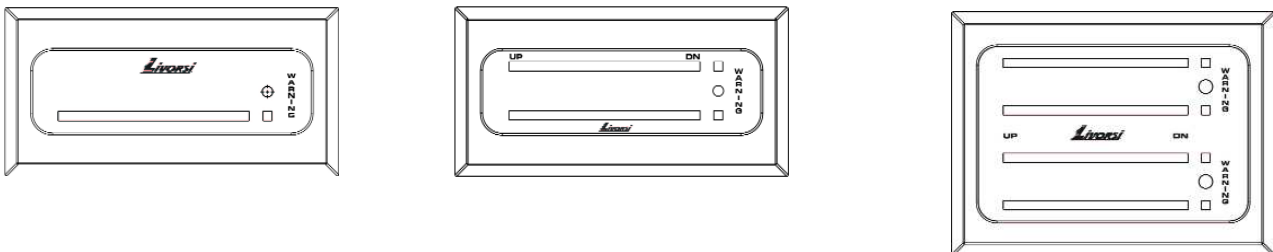
Building Your Indicator Part Number

| | | FIRST ITEM DATA | SECOND ITEM DATA | CARD COLOR | FRAME COLOR | ORIENTATION |
|-------------|-------|--|--|--|--|--------------------------------|
| | | 1 or 2 slot | 3 or 4 slot | | | |
| Part Number | ALEDI | 2D | 2T | PL | PL | V |
| | | 1 Drive = 1D 2 Drives = 2D 1 Tab = 1T 2 Tabs = 2T 1 Fuel = 1F 2 Fuel = 2F 1 Jack Plate = 1J 2 Jack Plate = 2J 1 Rudder = 1R 2 Rudder = 2R | 1 Drive = 1D 2 Drives = 2D 3 Drives = 3D 4 Drives = 4D 1 Tab = 1T 2 Tabs = 2T 3 Tabs = 3T 4 Tabs = 4T 1 Fuel = 1F 2 Fuel = 2F 1 Jack Plate = 1J 2 Jack Plate = 2J | Platinum = PL White = W Black = BK | Platinum = PL White = W Black = BK | Vertical = V Horizontal = H |

Examples of Vertical Layouts



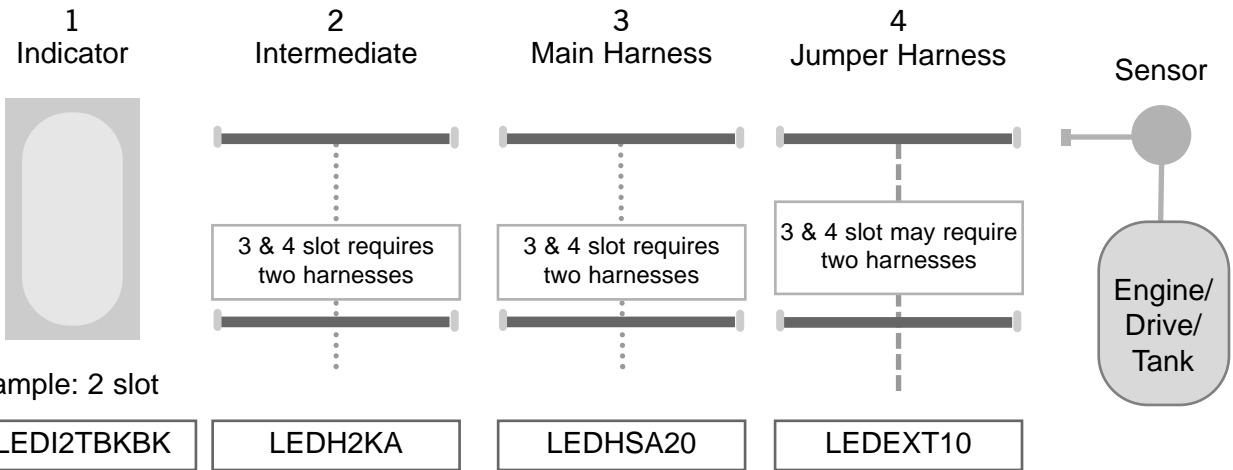
Examples of Horizontal Layouts



NOTE: A 50% restocking fee will be charged for all returned Adjustable Position LED Indicators.

Adjustable Position LED Indicators

Parts To Order











| Harness Options | | Part Number |
|---|---|-------------|
| 2 | Intermediate To Main Harness | |
| | Intermediate to NMEA receive only- 3 feet (must use gateway for SmartCraft®) | LEDHNM30 |
| | Intermediate to Deutsch- Analog In only- No NMEA transmit- 12 inch | LEDHINT |
| | Intermediate to Deutsch Fully Populated- Analog In-transmit/receive NMEA- 12 inch | LEDH2KA |
| | Intermediate to Deutsch Dual- Analog In- No NMEA transmit- for 3 or 4 slot- 12 inch | LEDHLINB |
| 3 | Main Harness to Jumper Harness | |
| | Main Harness 20 feet | LEDHSA20 |
| | Main Harness 25 feet | LEDHSA25 |
| | Main Harness 30 feet | LEDHSA30 |
| | Main Harness 40 feet | LEDHSA40 |
| 4 | Jumper Harness to Sensor Input | |
| | Tab/Drive/Fuel Jumper Single 5 feet | LEDHEXTS |
| | Tabs/Drives/Fuel Jumper Dual 10 feet | LEDHEXT10 |
| | Tabs/Drives/Fuel Jumper Dual 15 feet | LEDHEXT15 |
| | Mercury SmartCraft® Drive Jumper Single (Y Cable) 5 feet | LEDHYS |
| | Mercury SmartCraft® Drive Jumper Dual (Y Cable) 5 feet | LEDHYD5 |
| | Mercury SmartCraft® Drive Jumper Dual (Y Cable) 10 feet | LEDHYD10 |
| | Mercury SmartCraft® Drive Jumper Dual (Y Cable) 15 feet | LEDHYD15 |
| Mechanical to Electric Converter 0-5 Volts | CBME5V | |
| 33 C Series Cables for Mechanical to Electric Converter | | |
| 3 feet | CA3 | |
| 4 feet | CA4 | |
| 5 feet | CA5 | |
| Fuel or Water Level Sensors see page 49 | | |

NOTE: Before ordering your Mercury SmartCraft® Drive Jumper harness, first verify which type of drive sensor you have: the 3-wire 0-5 volt sensor or the 2-wire resistive sensor.

NMEA 2000® Harness

Livorsi can supply you with the necessary cables and connectors to expand your NMEA 2000® network. Below is a chart of in-stock parts, for more options please call Livorsi Marine for pricing and availability.

Toll free: 877.548.5900 or 847.752.2700

| | | |
|---|---|---|
|  |  |  |
| single T connector Part Number: 010-11078-00 | 120 Ohm female terminator Part Number: 010-11081-00 | 120 Ohm male terminator Part Number: 010-11080-00 |
|  |  | Mercury Gateway page 27 |
| backbone/drop cable 2 ft Part Number: 000-10068-001 | single power cable Part Number: 010-11079-00 | |
|  |  |  |
| backbone/drop cable 6 ft Part Number: 010-11076-00 | backbone/drop cable 15 ft Part Number: 000-10070-001 | backbone/drop cable 25 ft Part Number: 000-10071-001 |

Custom Wire Harness Solutions



Livorsi is ready to meet your short to medium run mechanical and electrical cable assembly requirements.

- Engineering design support to help maximize efficiencies
- Electro-mechanical assembly, process development, fabrication and testing
- Semi-automated wire and cable cutting and stripping for quick change-over
- Ultrasonic wire welding
- Semi-automated terminal crimping
- Custom wire labels to identify individual wires; decreases assembly time and errors
- Soldering

Livorsi utilizes state-of-the-art equipment from top manufacturers like Komax, Stapla, Cami and Shimpo.



Komax BT 722 wire terminal crimper with crimp force technology

Cutter/Stripper

Cuts and strips wire and cable to precise programmed length.
individual wires · multi-conductor cable · wire braid · phone wire · full strip · half strip · partial strip

Wire Terminal Crimper

A semi-automated machine that provides precise and consistent compression of wire terminals, ensuring accurate in-process crimp height, crimp force and strips. Terminal types include: Molex · AMP · Deutsch · Hirose · Others

Ultrasonic Wire Welder

Helps reduce design time and component costs by integrating 100% quality monitored ultrasonic splice welded wires into your wire and cable harnesses. High electrical integrity with strong metallurgical bonds ensures a reliable connection between various gauges of wire.



Quality Assurance Testing

In addition to in-process quality assurance, we perform 100% quality control final testing on all wire harness assemblies.

- Cable Eye Testing
- Pull Force Gauge
- LCD Video Microscope
- Value Added Wire Assembly



The Raw Water Flow System

Safe guard your cooling system from costly damage with Livorsi's Raw Water Flow System

The Raw Water Flow system indicates your engine's water flow volume. This system warns you of a potential problem or danger that would otherwise not be indicated by a water pressure gauge alone, preventing cosmetic and structural damage to expensive exhaust headers, intercoolers and other cooling systems.



What is Water Flow?

Water flow is a real indication of water surging through a cooling system such as: exhaust headers, sea strainers, impellers, Gen sets, intercoolers and any other marine or industrial applications that utilize water flow.

Why You Need It.

Many people confuse water flow with water pressure; many OEM engine manufacturers measure water pressure in different areas of the motor. Water pressure may not be telling you the real story of water flow.

The danger may be lurking in the water flow which could be caused by: A plugged heat exchanger, extensive debris build-up in the intercooler or sea strainer, a kinked hose, worn impeller, water pickups not collecting enough water for cooling system.

Low water flow results in; cosmetic and structural damage to expensive exhaust headers caused by burned impellers or the clogging and damage of intercoolers or strainers.

How It Works

Calibration of the system is set at idle and at wide open throttle (WOT). This will generate the cooling system's normal operating range. When water flow rises or drops more than 20% from that range (regardless of RPM), it will trip the alarm illuminating the built-in LED light; an optional audible alarm may be added. The LED light shines with intensity, making it visible in direct sunlight.

Easy to Install

Pick the size of the hose and mount the Tee in-line on the output side of a sea strainer or sea pump. The paddle wheel sensor installs in the Tee and can be easily removed for inspection.



The Raw Water Flow system consists of:

- 2 5/8" panel mounted gauge with internal warning light
- Bronze Tee
- PCB board
- Harness
- Paddle wheel transducer

| Color Codes | |
|-------------|--|
| Dial | <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; background-color: #cccccc;"></div> PL <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; background-color: #000000;"></div> BK </div> |
| Rim | <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; background-color: #000000; color: white; padding: 2px 5px;">BKR</div> <div style="border: 1px solid black; background-color: #cccccc; padding: 2px 5px;">PLR</div> <div style="border: 1px solid black; background-color: #e0e0e0; padding: 2px 5px;">PSR</div> </div> |

| Water Flow Kits 2 5/8" cutout, 2 3/4" overall | | |
|---|--|------|
| Tee Fitting Size | Base Part Number | |
| 1 inch I.D. hose | WFG + dial color + rim color + rim style + | 1 |
| 1.25 inch I.D. hose | Race Rim- R | 1.25 |
| 1.5 inch I.D. hose | Mega Rim- M | 1.50 |

FLS Senders

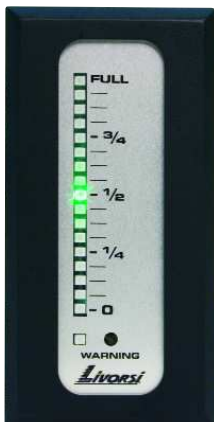
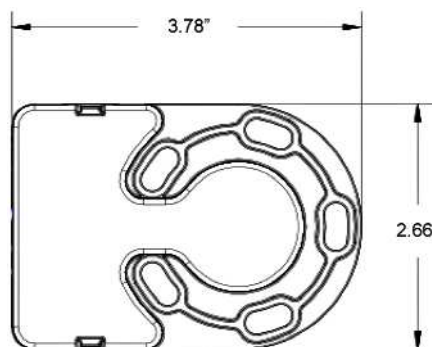
For fuel, diesel and water

Simple Cut & Calibration Method

- For use with fuel, diesel and water - not intended for holding tanks (Gray Water)
- Works by sensing pressure so additives to fuel (Ethanol) will not affect accuracy
- Simple cut & calibration procedure
- Senders use microcontroller driven sensor technology for a high degree of accuracy +/- 2 %
- Designed to be a replacement for the standard fuel sender with a standard SAE bolt hole pattern
- Adjustable SAE J1810 5 bolt pattern makes installation much easier, allows for a 15° of rotation adjustment
- Cap is constructed of a fuel compatible, durable nylon
- No moving parts to break or wear out for years of trouble free service
- Standard is 240-33 ohms, other ranges available upon request, please specify
- 0-5 volt or 4-20 milliamps available upon request.
- Dampened to provide smooth operation of pointer
- 12 volt standard or 24 volt systems, please specify



bolt pattern



Match these senders with our Adjustable Position LED Indicators, page 36

Ask us about Holding Tank (gray water) senders.

| 240-33 OHMS 12 Volt Senders | Part Number |
|---|-------------|
| 12 inch, | FLS12 |
| 24 inch | FLS24 |
| 36 inch | FLS36 |
| 48 inch | FLS48 |
| Cut & Calibrate | CC FL |
| Other resistance ranges available upon request. | |

Autocal Fuel Level Senders

How It Works

AutoCal Fuel Level senders work by measuring capacitance. Electronics in the head convert the measured capacitance between the inner-sensing tube and the grounded outer tube to the programmed output of ohms or volts.

- No moving parts to wear out or break
- Fuel level reading unaffected motion
- Installs in the standard SAE 5 bolt pattern
- 2 terminal sender works on both 12 or 24 volts
- 240-33 ohms in stock, other ohm resistances available upon request
- Not recommended for mixed fuels

When ordering, specify:(1)- depth of tank, (2)- gas, diesel or gasohol

| 240-33 ohms Sender Length | Part Number |
|------------------------------|-------------|
| 0-12 inch | AFLS12 |
| 13-24 inch | AFLS24 |
| 25-36 inch | AFLS36 |
| 37-48 inch | AFLS48 |

| 240-33 ohms Sender Length | Part Number |
|------------------------------|-------------|
| 49-60 inch | AFLS60 |
| 61-72 inch | AFLS72 |
| Cut & Calibrate | CC FL |



Fuel, Diesel and Water Level Senders

An electronic sender suitable for fuel, diesel and water.

- Constructed to meet/exceed all applicable ISO, NMMA, ABYC and USCG standards
- Standard SAE 5 hole pattern
- Constructed of 316 stainless steel
- Fully insulated to protect against voltage inside the tank
- The float is the only moving part of the sensor minimizing mechanical failure

How It Works

Measurement is achieved by a series of reed switches positioned inside the level tube. The float with built in magnets then triggers the reed relays generating a potential - free resistance with an ohm value that increases or decreases.

| 240-33 ohms Sender Length | Part Number |
|------------------------------|-------------|
| 4 inch | SFW4 |
| 5 inch | SFW5 |
| 5.5 inch | SFW5.5 |
| 6 inch | SFW6 |
| 7 inch | SFW7 |
| 8 inch | SFW8 |
| 9 inch | SFW9 |
| 10 inch | SFW10 |
| 11 inch | SFW11 |
| 12 inch | SFW12 |
| 13 inch | SFW13 |

| 240-33 ohms Sender Length | Part Number |
|------------------------------|-------------|
| 14 inch | SFW14 |
| 16 inch | SFW16 |
| 18 inch | SFW18 |
| 20 inch | SFW20 |
| 22 inch | SFW22 |
| 24 inch | SFW24 |
| 26 inch | SFW26 |
| 28 inch | SFW28 |
| 30 inch | SFW30 |
| 32 inch | SFW32 |
| 34 inch | SFW34 |
| 36 inch | SFW36 |



Other resistance outputs, lengths or senders with a 1 1/4" or 1 1/2" NPT are available upon request.

Ultra Thin

Livorsi indicators feature a no-slack spring load assist, eliminating slack in the cable giving you a faster indication of your drives and tabs.

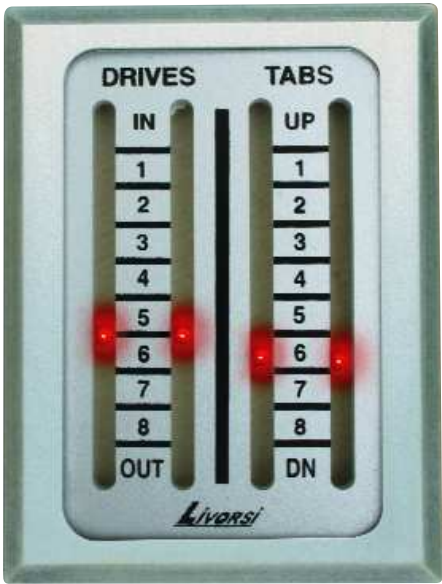
High intensity LED pointers are bright enough to see in direct sunlight with low power consumption.

- Dash mounted indicator
- Your choice of LED pointers or fluorescent red pointers
- Aluminum and composite construction
- Adaptable to any actuator with 3 1/4" throw

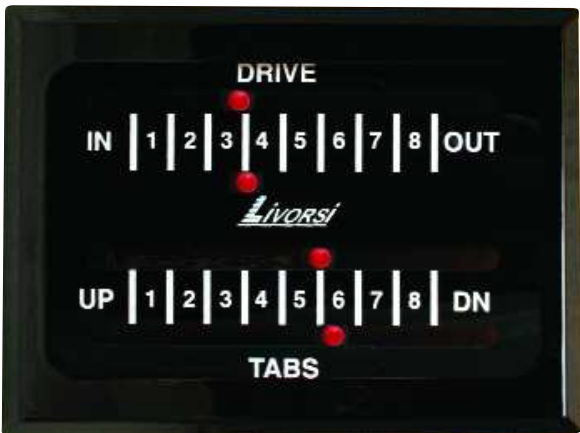
| Ultra Thin face dimensions | |
|----------------------------|-----------------|
| 3 or 4 slot | 3 3/4" W x 5" H |

| Indicators w/ LED Pointers | | | |
|--|---------------------|---|--------------------|
| UMILED | + number of slots + | S | card & frame color |
| Specify: direction of cable entry, horizontal or vertical layout, number of drives, tabs, etc. | | | |

| Indicators w/ Fluorescent Pointers | | | |
|---|-----------|--------------|-------------|
| | | Part Numbers | |
| # of drives | # of tabs | black | platinum |
| 1 drive | 2 tabs | UMI1D2TBKBK | UMI1D2TPLPL |
| 2 drives | 2 tabs | UMI2D2TBKBK | UMI2D2TPLPL |
| Specify: direction of cable entry, horizontal or vertical layout | | | |



UMILED4SPLPL
vertical layout
LED pointers



UMI2D2TBKBK
horizontal layout
standard pointers

Mechanical Indicators

Standard Size

- Dash mount indicator
- Your choice of LED pointers or fluorescent red pointers
- Aluminum and composite construction
- Adaptable to any actuator with 3 1/4" throw

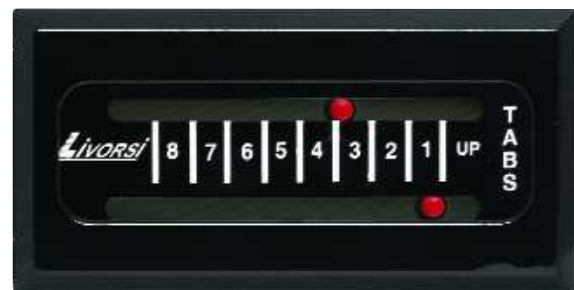
| Standard size face dimensions | |
|-------------------------------|-----------------|
| 1 or 2 slot | 2 1/2" W x 5" H |
| 3, 4 or 5 slot | 5" W x 5" H |

| Indicators w/ LED pointers | | | |
|---|---------------------|---|----------------------|
| MILED | + number of slots + | S | + card & frame color |
| Specify: direction of cable entry, horizontal or vertical layout number of drives, tabs, etc. | | | |

| Indicators w/ Fluorescent Pointers | | | |
|---|-----------|-------------|------------|
| # of drives | # of tabs | Part Number | |
| | | black | platinum |
| 0 drives | 2 tabs | MI2TBKBK | MI2TPLPL |
| 1 drives | 0 tabs | MI1DBKBK | MI1DPLPL |
| 1 drives | 2 tabs | MI1D2TBKBK | MI1D2TPLPL |
| 2 drives | 0 tabs | MI2DBKBK | MI2DPLPL |
| 2 drives | 2 tabs | MI2D2TBKBK | MI2D2TPLPL |
| 3 drives | 0 tabs | MI3DBKBK | MI3DPLPL |
| 3 drives | 2 tabs | MI3D2TBKBK | MI3D2TPLPL |
| Specify: direction of cable entry, horizontal or vertical layout | | | |



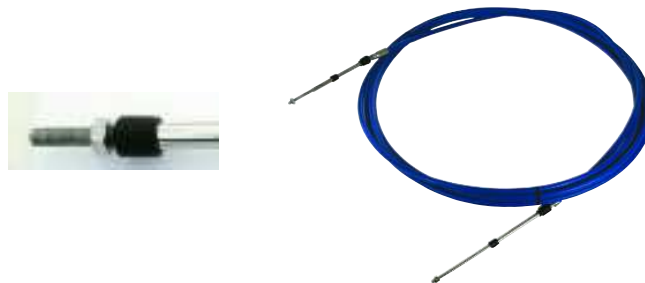
MILED2SBKBK
vertical layout
led pointers



MI2TBKBK
horizontal layout
standard pointers

33C Series Cables

- Sold in two foot increments
- Sizes range from 10 ft. to 38 ft.
- Stainless steel core
- Chrome plated brass
- 3 1/4" throw
- Thread size 10x32



| Description | Part # |
|------------------|-------------|
| 33C Series Cable | CA + length |

Trim Panels

- Military spec rocker switches
- Sealed and waterproof
- No exposed screws
- Powder coated aluminum

When ordering specify

- Panel color
- Switch cover colors:
red, white or translucent



Panel dimensions

3 3/4" W x 3 3/4" H



T = Tabs
D = Drives
O = Override



| Wired Panels | |
|-------------------|-------------|
| Description | Part Number |
| 1 drive 2 tabs | TP1D2T |
| 2 drives | TP2D |
| 2 drives/override | TP2DO |
| 3 drives | TP3D |
| 2 tabs | TP2T |
| 2 tabs/override | TP2TO |

| Unwired Panels | |
|-------------------|-------------|
| Description | Part Number |
| 1 drive 2 tabs | UTP1D2T |
| 2 drives | UTP2D |
| 2 drives/override | UTP2DO |
| 3 drives | UTP3D |
| 2 tabs | UTP2T |
| 2 tabs/override | UTP2TO |

Cable Thru Hull Fittings

Used with mechanical indicators to connect 33C cables to actuators.



THF



THFB



THAB



THA



QDBJ

| Cable Thru Hull Fittings for 33 C Series Cables | |
|---|-------------|
| Description | Part Number |
| stainless steel 90° | THF |
| stainless steel 45° | THA |
| solid billet stainless steel 90° | THFB |
| solid billet stainless steel 45° | THAB |
| quick disconnect stainless steel 10x32 thread, OD 3/8" | QDBJ |

Steering Wheels

All Wheels

- 13 1/2" diameter
- 6 bolt pattern
- 10-32 thread pitch
- Black hub
- Center cap
- Mounting screws



Isotta Carbon Fiber

Part Number ISWK13CFBK



Momo- Spargi

platinum MSSWPPL



Momo- Ponza

platinum MPSSWPPL



Momo- Linosa

Part Number MLSW



Stainless Steel

Fishing Wheel w/ Knob

hub is not used with this wheel

Part Number GWSSFK



Stainless Wheel w Knob

Part Number GWSSK



Momo- Budelli

Part Number MBSWP

Billet Aluminum Hub Adapter



- Wheel Hub Adapter
- 3 inches deep
 - 6 bolt pattern
- Includes:
- Hub
 - Center cap
 - Mounting screws

| Description | Part Number |
|-------------|-------------|
| black | HABK |
| platinum | HAPL |

Anodized Optima Battery Box



- Withstands the weight of 250 lbs person
- Machined from billet aluminum
- Black anodized finish is non-corrosive
- Box cover has a slip resistant surface
- Can be stringer mounted
- Measures: 11 15/16" L x 8" W x 6 5/8" H

| Description | Part Number |
|---------------|-------------|
| box and cover | BBBO34A |

Accessories

Fire Extinguishers & Mounts

FE Bar Mount

- Machined of billet aluminum
- Fits 1 1/2", 1 3/4" and 2" tubing
- Black powder coat finish
- Quick release pin



FE Flat Mount

- Machined of billet aluminum
- Black powder coat finish
- Quick release pin



Fire Extinguisher

- Encased in marine approved chrome
- Dry ABC extinguisher
- 2 1/2 lbs, refillable
- Extinguisher and mounts are sold separately

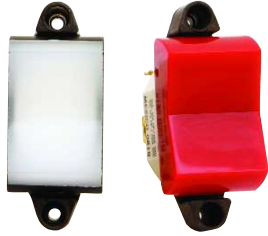
| Description | Part Number |
|-------------------|-------------|
| fire extinguisher | FE |
| bar mount | FEBMKBK |
| flat mount | FEMBK |

Grab Handles



| Stainless Steel Grab Handle | |
|---|-----------|
| 10 1/2" center to center 11 3/4" overall | GHSSS11BK |
| 15 1/4" center to center 16 1/2" overall | GHSSS16BK |

Switches



Military Rocker Switches

- Military type specs
- Environmentally sealed
- 15 amps at 28 VDC
- .94" X 1.51" cutout

| | |
|---|-----------------|
| Single Pole | |
| mom on/off/mom on | MRSSMFM + color |
| Double Pole | |
| mom on/off/mom on | MRSDMFM + color |
| Military Cover | MC + color |
| covers available: red, white or translucent | |



Military Toggle Switches

- Military type specs
- Environmentally sealed
- 15 amps at 28 VDC
- 1/2" cutout with screw terminals
- Lift / lock lever

| | |
|-------------|---------|
| Single Pole | |
| on/off | MTSSNF |
| on/off/on | MTSSNFN |
| mom on/off | MTSSMF |
| Double Pole | |
| on/off | MTSDNF |

Electric Hatch Actuator



- Safe working load limit of 400 lbs.
- Heavy duty motor allows for locking of hatches
- Marine grade stainless steel housing
- Lifts 2X as fast and has 2X the power of other electric actuators
- A more cost-effective alternative to hydraulic and pneumatic models
- 12 VDC

| Description | Closed | Open | Part Number |
|-------------|--------|--------|-------------|
| 4" throw | 10.32" | 14.32" | SSA4 |
| 8" throw | 14.32" | 22.32" | SSA8 |
| 12" throw | 18.32" | 30.32" | SSA12 |
| 16" throw | 22.32" | 38.32" | SSA16 |
| 18" throw | 24.32" | 42.32" | SSA18 |
| 24" throw | 30.32" | 54.32" | SSA24 |

Mounting Hardware

| | |
|---|-------|
| bracket only washers & bolts not included | HAB |
| adjustable bracket only washers & bolts not included | HABT |
| quick release pin | HAQRP |
| mounting kit includes bracket, sleeve washer & bolts | HAMK |



HAQRP
stainless steel/aluminum



HAB
stainless steel



HABT
aluminum

Low Lux Night Vision Camera

The Low Lux Night Vision camera is a safety device that extends your work hours on the water. The black and white picture allows for safe maneuvering of waterways or when docking. Use as a stand alone device or an enhancement to radar. The 25 mm low lux camera connects to any monitor with a RCA video jack, or add a DVR to record your trip.



The camera can be mounted permanently or use the optional vacuum mount for quick and easy removal. Measuring only 6" in length and 3.5" in diameter the camera is small enough to be stored after usage to prevent theft. This camera is a valuable tool in extending your time on the water, yet is priced far below thermal imaging systems.

Works with all types of vessels -
From ships, work boats, yachts, commercial boats to small run a-bouts and fishing boats.

The camera is sealed to IP66 rating and meets Coast Guard electrical standards. This assures that the camera will always deliver a reliable and high quality video image. Splash proof and damage resistant. Very durable and water tight for on deck mounting locations.

Match this camera with a DVR recorder for up to one week of continuous trouble free recording at a low cost.

| Specifications | |
|---------------------|---|
| Camera Type | Low Lux |
| Input Power | 12V DC + or hardwire to a switch to power the camera |
| Current | Less 1 amp |
| Diameter and Length | 3.5" diam. x 6" (camera housing) |
| Resolution | 570TVL |
| LUX | 0.0003 Lux |
| Picture Element | 437K pixels |
| Rating | IP66 |
| Lens Focal Length | 25mm std. |
| Angle of View | 19.9 degrees |
| Camera Warranty | 3 years |
| Video Outputs | Composite RCA video jack, BNC composite video with standard 20 foot cable provided, RG 59 low loss coax cabling |



With a small amount of ambient light the low lux camera will give the operator a detailed picture unlike thermal.

| Description | Part Number |
|----------------|-------------|
| low lux camera | CNVLLW |
| vacuum mount | CVMR |



With over two decades of experience in the industry, Custom Marine, Inc. is committed to producing premium marine exhaust systems.

CMI is your #1 source for stainless exhaust!

CMI relies on a technological expertise in designing and manufacturing high-quality mufflers, exhaust systems and components to withstand some of the harshest environments on earth - offshore race boats and military assault crafts.

Examples of CMI Products:

- Water jacketed exhaust elbows
- Off road/sand car headers
- Automotive exhaust
- Blanketed elbows
- Custom applications available
- Compatible with all engine manufacturers
- In house design and CAD capabilities
- Various alloy options also available
- Many finish options
- Exhaust tips
- Risers



off-road and automotive applications



Water Pick Ups



- Made from high grade 304L domestic stainless steel
- Extremely low drag design
- Fully adjustable to fine tune block pressure
- Large 1 1/4" ID fittings for high demand water systems

| Description | Part Number |
|---|-------------|
| Rotary Adjustment pick-up | 39205 |
| Vertical Adjustment pick-up to be used for higher transom locations | 39200 |

Transom Tips

CMI offers both baffled and non-baffled stainless steel transom tips to fit most marine engine installations. CMI's baffled transom tips are available in either straight cut or down-turned configurations and include a replaceable internal flapper which acts as a noise reducer and qualifies as a baffle as required by certain ordinances.

Flapper Style Tips:

Both external and internal flapper versions available.

Baffle Style Tips:

Available in single baffle design or multiple baffle to reduce exhaust noise and protect against water ingestion.

Turbo Tips:

Designed to reduce sound levels and produce a mellow exhaust note verses a harsh tone.

Down Turned Tips:

Available with the transom tip incorporated or as a clamp on style. Achieve quieter dB with the external version of an underwater system.

Flapper Style



Turbo Tip



Down Turn

Angle End

Straight End



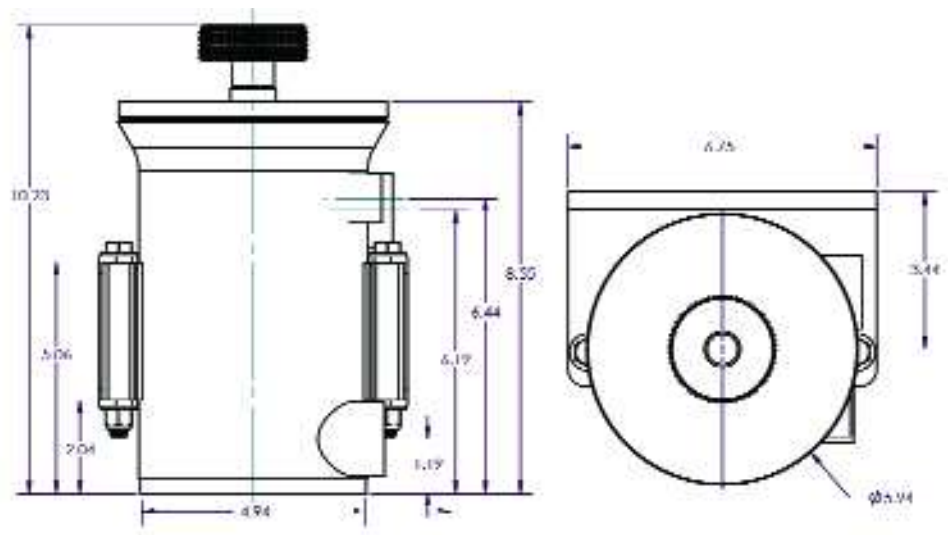
| Description | Part Number |
|---|-------------|
| Baffled Tip, Straight-Cut | 39105 |
| Baffled Tip, Down-Turned | 39135 |
| Polished Stainless Steel Exhaust Tip w/ single plane baffle | 39295 |
| Rebuild Kit for 39295 Includes single plane baffle and rubber flap | 41320 |
| 4 inch Ø Polished Stainless Steel Exhaust Tip Angle end | 39221 |
| 4 inch Ø Polished Stainless Steel Exhaust Tip Straight end | 39213 |

SS Sea Strainer



- Stainless steel construction
- Two bungs measure 1", one bung measures 1/2"
- 60 GPM flow at 22 PSI
- High impact 1" acrylic lid
- Removable stainless steel basket with easy lift handle
- Optional floor mount brackets & fittings available

| Description | Part Number |
|------------------------|-------------|
| same side bungs | SS5SS |
| straight through bungs | SS5ST |



SS Sea Strainer Fittings



SSPRV



GSSFS



GSSF90



GSSF45



SSFMB

| Description | Part Number |
|--|-------------|
| 1/2" NPT adjustable blow off valve | SSPRV |
| 1" NPT to 1 1/4" slip on | GSSFS |
| 1" NPT to 1 1/4" slip on 90 degree fitting | GSSF90 |
| 1" NPT to 1 1/4" slip on 45 degree fitting | GSSF45 |
| floor mount brackets- pair | SSFMB |

HP Sea Strainer

- Available in a 5", 6" or 8" diameter can, any height needed
- Easy to clean and maintain and very serviceable
- Can be plumbed from 3/4" pipe to 2" pipe
- High quality polished finish
- Universal bracket for either side of your stringer
- 100 PSI maximum
- Inlet and outlet fittings are 1 1/4" NPT
- Flush/pressure relief fitting is 1/2" NPT

Part Number 39146



High Flow Fittings

- For use with HP Sea Strainer
- Made never to starve your engine of water
- Available in all sizes from 3/4" pipe to 2" pipe
- Available in straight to 180 degrees, in 30 degree increments
- High quality mandrel bends
- Bright polished finish to give your engine compartment the "bling" you want



| | | |
|---|---|---|
| 3/4" NPT to 1" Hose, Straight Part Number 19650 | 1 1/4" NPT to 1 3/8" Hose Barb, 45° Part Number TBD | 1 1/4" NPT to 1 3/8" Hose Barb, 45° Part Number TBD |
| 3/4" NPT to 1" Hose, 90° Part Number 19580 | 1 1/4" NPT to 1 3/8" Hose Barb, 60° Part Number TBD | 1 1/4" NPT to 1 3/8" Hose Barb, 60° Part Number TBD |
| 1" NPT to 3/4" NPT Adapter Part Number 19600 | 1 1/4" NPT to 1 3/8" Hose Barb, 90° Part Number TBD | 1 1/4" NPT to 1 3/8" Hose Barb, 90° Part Number TBD |
| 3/4" NPT Plug Part Number 19140 | 1 1/4" NPT to 1 3/8" Hose Barb, 130° Part Number TBD | 1 1/4" NPT to 1 3/8" Hose Barb, 130° Part Number TBD |
| 1" NPT Plug Part Number 19155 | 1 1/4" NPT to 1 3/8" Hose Barb, 150° Part Number TBD | 1 1/4" NPT to 1 3/8" Hose Barb, 150° Part Number TBD |
| 1" Hose to 3/4" Hose Barb, 90° Part Number 19100 | 1 1/4" NPT to 1 3/8" Hose Barb, 180° Part Number TBD | 1 1/4" NPT to 1 3/8" Hose Barb, 180° Part Number TBD |
| 1" Hose to 1" Hose Barb, 90° Part Number 19330 | 1" Hose to 1" Hose Barb, 90° Part Number 19330 | |
| 1 1/4" NPT to 1 3/8" Hose Barb, Straight Part Number TBD | 1 1/4" NPT to 1 3/8" Hose Barb, Straight Part Number TBD | |
| 1 1/4" NPT to 1 3/8" Hose Barb, 30° Part Number TBD | 1 1/4" NPT to 1 3/8" Hose Barb, 30° Part Number TBD | |

Terms and Conditions

WARRANTY

All Livorsi Marine® products carry a limited one year warranty for repair or replacement at Livorsi's discretion. All Livorsi Marine® products are warranted to be free of defects in material and workmanship. Users/Customers of Livorsi Marine®/Livorsi® products agree not to hold Livorsi Marine, Inc., its owner or employees responsible for any damages occurring by improper installation or use of Livorsi Marine® or Livorsi® products. The company, owner or its employees will not be liable for more than the cost of the original product and in no event will Livorsi Marine® or Livorsi® be liable for special, indirect or consequential damages of any kind whatsoever.

RETURNS

All returns must have an assigned RGA Number (Returns Goods Authorization). Please call Steve Miller at 847-752-2706 or email returns@livorsi.com to receive an RGA Number. Please allow at least 24 hours for a return call or email. Any packages without a RGA number will be refused. For warranty questions please call 847-752-2706 or email returns@livorsi.com.

For further questions or technical help go to www.livorsi.com and click on Tech Tools or contact Fred Ortega at fredo@livorsi.com or Matt Ward at mward@livorsi.com

A minimum 15% restocking charge may apply to any returned items. Merchandise must be returned with shipping charges prepaid. Returns sent freight collect will be refused. Please enclose a copy of the original purchase invoice with return. Livorsi Marine, Inc. will not accept returns past 60 days. Credit will not be issued on custom or private label gauges.

PRODUCTS

Due to changes in technology, customer demand and company direction, products may change without notice. Check our website for updated products and availability. Regardless of our line of products, our goals remain the same: QUALITY, OPTIONS AND AVAILABILITY!!

PAYMENT TERMS

Individuals may pay by Visa, MasterCard, American Express, or cashiers check. Companies may pay by Visa, MasterCard, American Express, check, C.O.D. or on Net terms with prior credit approval.

PRICES

All prices are subject to change without verbal or written notice. Our price lists are intended as a guideline only. No responsibility is assumed for errors or omissions on product or pricing information. Possession of discount price list does not guarantee those prices to customer.

ORDER PLACEMENT

You may phone 847-752-2700 or fax 847-752-2415 or mail your orders to Livorsi Marine®, 715 Center Street, Grayslake, IL 60030. You may also e-mail your order to sales@livorsi.com. Please be sure to include your name, address, phone number and specific ordering requests.

FREIGHT

All orders will be shipped UPS or Fedex, unless specified by customer. All orders are shipped F.O.B. Grayslake, Illinois. Any claims for shortage of product must be reported to Livorsi Marine® within 24 hours of receipt of order. If the shipment arrives damaged, contact the shipper directly, not Livorsi Marine®. Do not return damaged product to Livorsi Marine®. Handling charges are based on the speed and type of shipment requested. i.e. \$5 -ground, \$6- 3day, \$8- 2day, \$10-next day, \$15 International. Dropship fees may be charged if shipping to an address different from the billing address. An additional charge may be applied if customer requests special shipping company or instructions.

REFUSED SHIPMENTS

Shipments returned to Livorsi Marine® marked "refused" or "not in when driver called" will cause the customer's buying status to be frozen until related handling and shipping charges are paid. Refusal of shipment does not release the customer from paying the related handling and shipping charges. Repeated refusal or returned shipments may cause the customer's buying status to be revoked.



Moose Boats

Metal Shark



Brunswick Commercial

