



smartswitch
INFORMATION = CONTROL



Dear Fellow Mariner,

If you treasure the life and adventure of boating as I do; and value the importance of the safety and reliability that quality products can bring to our sport; you will appreciate this line of products from Smart Switch Technologies of New Zealand.

Our design effort has been focused on providing clear visibility into a variety of vessel operations while providing the captain straight-forward and logical control options. With these objectives in mind, Smart Switch has produced a family of products that enable monitoring and control of on-board operations, crucial to the safe, efficient, and trouble-free operation of ocean-going vessels.

Vessel operations encompassed by our product family include:

- Tank monitoring and control
- Bilge monitoring and pump/fan control
- Navigation light monitoring and control
- Marine toilet control
- General alarm monitoring
- Fuel transfer

Designed and built in New Zealand under strict ISO 9000 quality standards, these state-of-the-art systems have been supplied to the marine industry since 2002.

Today they are proving themselves on hundreds of vessels in and around Australia and South Pacific, New Zealand, USA, Asia and Europe.

Our Research and Development Team has spent considerable time and effort in developing, designing and producing these systems specifically for the marine environment using proven techniques and materials which will ensure a long life at sea.

The technology we have employed has been used successfully for more than twenty years in the most demanding factory floor environments around the world. Generally referred to as 'distributed intelligence' or 'network-based systems', this

technology, when properly enhanced for the demands of the marine environment, provides a robust platform for vessel operations.

The beauty of these products lies not only in the sophistication of their operation – you will appreciate the many features which demonstrate a practical understanding of vessel operations – but also their ease of installation and superior reliability - an unbeatable combination.

For new vessels and those undergoing retrofit, the value of network systems is obvious. A simple 2-wire network cable (as used for telephone installations) can be laid throughout the vessel and be up to 1000 metres in length. 100% solid-state, silicon sealed Input/Output.

Units used for monitoring and control, are mounted near the actual devices (tanks, bilges, etc), and tied to the network cable. LCD Display Units, used for status display, alarms, and control can be located anywhere on board and connected to the network cable. This combination of 'plug-and-play' components provides a dedicated system, easily installed and easily understood by both installers and owners.

Review the details of these systems as presented in this catalogue. I think you will agree that they represent a true breakthrough in marine control systems and confirm our objective to provide systems designed and built for life at sea.

Good sailing,



Neil Gilmore
Chief of Design, Smart Switch.



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As Smart Switch products are under constant development,
all specifications are subject to change without notice.
Please contact your distributor if you have any queries.

8 Channel Tank Controller TC-8000



Monitor and Control up to 8 tanks from one location.

The **TC-8000 Controller** provides an intelligent networked solution for the monitoring and control of up to eight tanks. The diagram (right) shows a typical system layout. The system consists of the TC-8000 display controller (as seen above) up to eight HB-200 or HB-200/P tank controllers and any number of optional RD-800 repeater displays communicating via a 2-wire network cable with a maximum cable length of 1000 metres

TC-8000 DISPLAY CONTROLLER:

Is a powerful tank monitor and control system.

- Full control from one central location on your boat.
- Visual indication of tank level, seacock position and pump status.
- Turn holding tank macerator pump on/off manually or automatically.
- Turn water maker on/off manually or automatically.
- Visual and audible tank full and fault alarms.
- Three modes of operation: manual, auto grey or auto all.
- Mode change is key switch selectable.
- Displays in Litres or Gallons and Percentage.
- Two display modes available (*see right*).
- All tanks are name programmable giving tank location and type, e.g. Aft Port, Grey Tank.

HB-200 or HB-200/P:

Is a controller which manages the tank pump, the electric seacock, tank high output and provides an input for the fluid level sensor.

- Teach-in for level sensor with four point interpolation for irregular shaped tanks.
- Controls the pump and provides the input for the level sensor.
- Reversed output for tanks programmed as either fresh water or fuel, enabling water maker or fuel transfer pumps to turn on when empty and off when full.
- Tank high level output which can be connected to the toilet controller, which disables the toilet when the holding tank is full.
- Interface to seacock interlock switch.
- Internal pump on/off override switch for tank servicing and cleaning.
 - HB-200/P features level sensor, tank high output and pump.
 - HB-200 features level sensor and tank high output.

RD-800:

Repeater Display (optional extra).

- Connect any number of these to allow convenient tank monitoring from anywhere on the vessel.



8 Channel Tank Controller TC-8000

EIGHT CHANNEL HOLDING TANK CONTROLLER SYSTEM LAYOUT FOR MODEL TC-8000

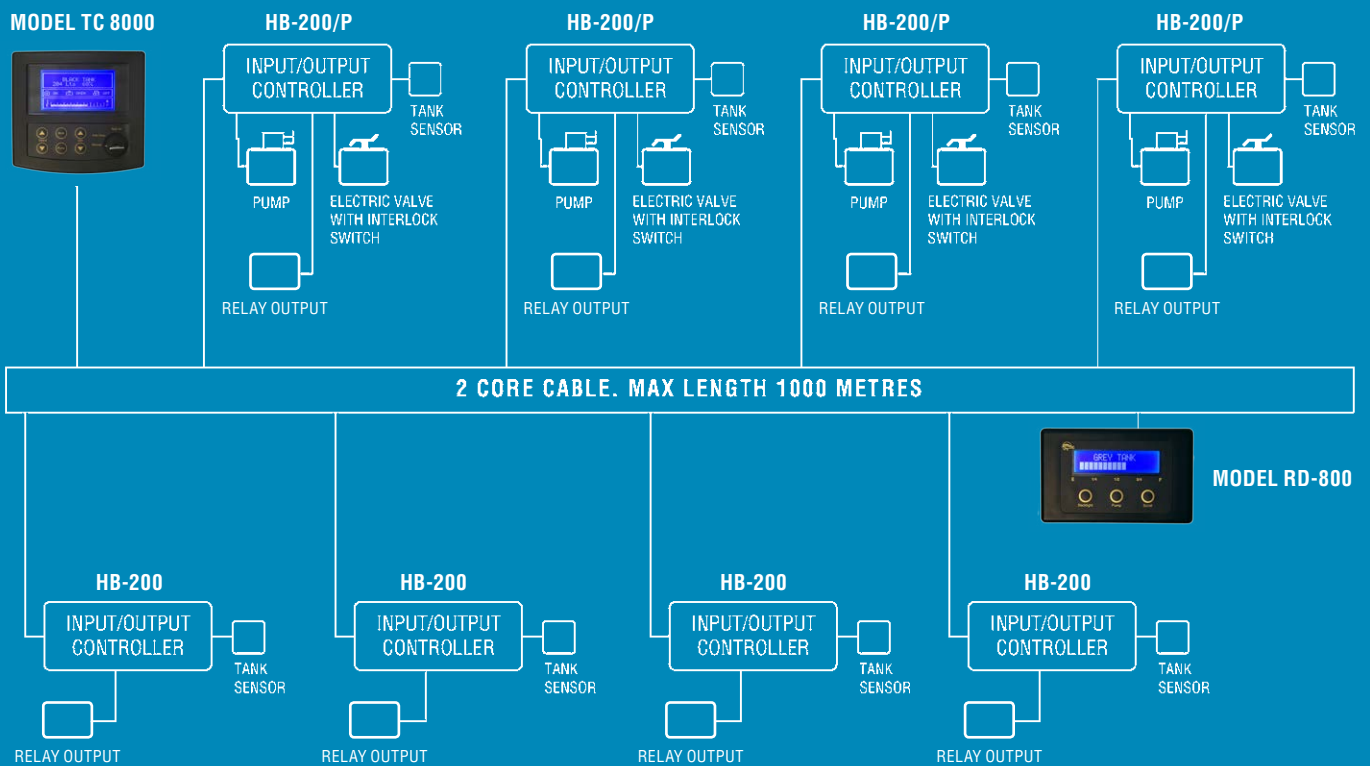
Any device can sit anywhere on this two core BUS cable. Any combination of HB-200 and/or HB-200/P (up to eight) can be connected plus, any number of repeater displays (model RD-800).

NOTE: The HB-200/P has the pump and valve option while the HB-200 does not.

DISPLAY MODES: 1



2



Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 5 Milliamps (without backlight)
Backlight | Reverse polarity protected | Network cable length=1000m | Voltage & EMI Protected
Data Retention: 50 years (without power)

4 Channel Tank Monitor TM-4000



Monitor and control up to 4 tanks from one location.

The **TM-4000 Controller** provides an intelligent networked solution for the monitoring and control of up to four tanks. The diagram (right) shows a typical system layout. The system consists of the TM-4000 display controller (as seen above) up to four HB-200 or HB-200/P tank controllers and any number of optional RM-400 repeater displays communicating via a 2-wire network cable with a maximum cable length of 1000 metres.

TM-4000 DISPLAY CONTROLLER:

Is a powerful tank monitor and control system.

- Full control from one central location on your boat.
- Visual indication of tank level and pump status.
- Turn holding tank macerator pump on/off manually.
- Turn water maker on/off manually or automatically.
- Visual and audible tank full and fault alarms.
- Displays in Litres or Gallons and Percentage.
- All tanks are name programmable giving tank location and type, e.g. Aft Port, Grey Tank.

HB-200 or HB-200/P:

Is a controller which manages the tank pump, tank high output and provides an input for the fluid level sensor.

- Teach-in for level sensor with four point interpolation for irregular shaped tanks.
- Controls the pump and provides the input for the level sensor.
- Reversed output for tanks programmed as either fresh water or fuel, enabling water maker or fuel transfer pumps to turn on when empty and off when full.
- Tank high level output which can be connected to the toilet controller which disables the toilet when the holding tank is full.
- Internal pump on/off override switch for tank servicing and cleaning.
 - HB-200/P features level sensor, tank high output, pump and control .
 - HB-200 features level sensor and tank high output.

RM-400:

Repeater Display (optional extra).

- Connect any number of these to allow convenient tank monitoring from anywhere on the vessel.

Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 12 Milliamps (with backlight off)
Backlight | Reverse polarity protected | Network cable length=1000m | Voltage & EMI Protected
Data Retention: 50 years (without power)



4 Channel Tank Monitor **TM-4000**

FOUR CHANNEL TANK MONITOR SYSTEM LAYOUT FOR MODEL TM-4000

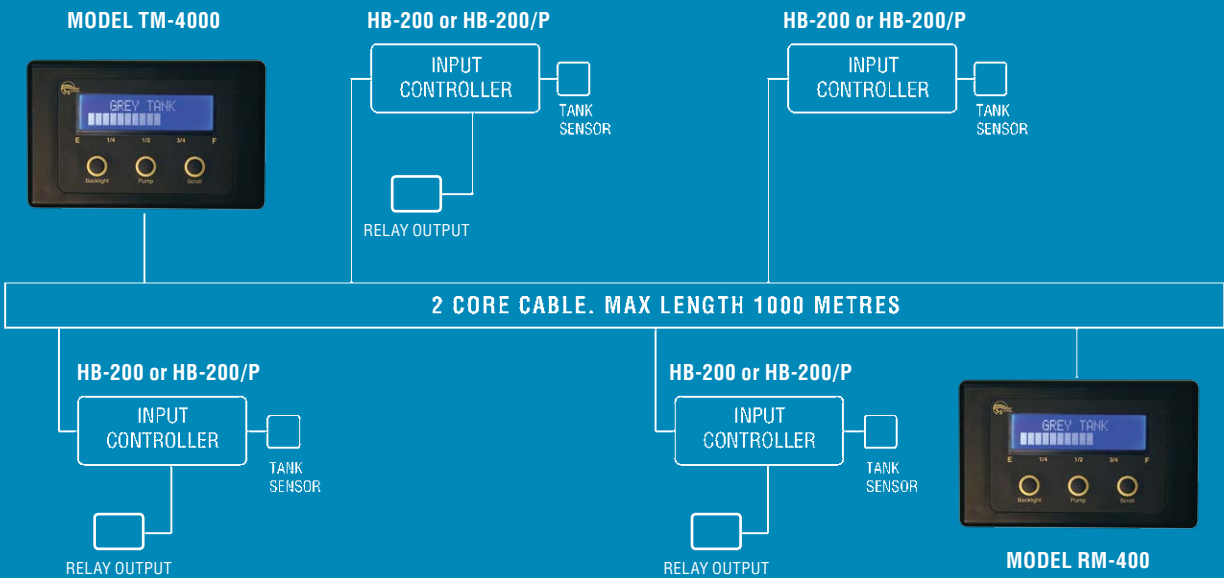
Any device can sit anywhere on this two core BUS cable. Any combination of HB-200/P and or HB-200 (up to four) can be connected plus, any number of repeater displays (model RM-400).

NOTE: The HB-200/P has the pump and valve option while the HB-200 does not.

DISPLAY MODES: 1



2



Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 5 Milliamps (without backlight)
Backlight | Reverse polarity protected | Network cable length=1000m | Voltage & EMI Protected
Data Retention: 50 years (without power)

Tank & Battery Monitor TD-4000



Monitor and control up to 4 tanks or batteries, or a combination of both.

In addition to accuracy and reliability the TD-4000 comes standard with many intelligent features to measure up to four tanks, four batteries, or a combination of both. The Smart Switch TD-4000 tank sensor is suitable for diesel, petrol, grey, freshwater and black tanks*. It is suitable for all tank construction materials including stainless steel, plastic and fibreglass. Simple to install, the TD-4000 comes with two setup options depending on regular or odd tank shape. Two point calibration for regular shaped tanks (low and full) and five point calibration for odd shaped tanks.

FEATURES

- Two or five point calibration means you can monitor any shaped tanks.
- Solid-state micro processor display head means accurate tank readings.
- Four inputs so you can monitor up to four tanks/batteries.
- Two display modes allow tank info to be read in percentages and litres/gallons/volts or bar graph.
- Programmable alarms means alarm when Grey/Black tanks are full or Fresh/Fuel are empty.

- 12-24 Volt auto-sensing.
- Back-light on or off.
- Name individual tanks/batteries i.e. Fresh Port, Black, Grey or house, aux battery or as required.
- Attractive blue LCD display with white text for easy to read display.

BATTERY

- Battery Monitor (BAT-100) monitors 0-30 volt DC.
- The TD 4000 can monitor up to 4 batteries. Add a BAT-100 for each battery.

TANKS

- Add up to 4 tank sensors to monitor up to 4 tanks.
- Use a SEN-250 for tanks up to 2.5 metres.
- Use a SEN-100 for tanks 1 metre tall.
- Use a US-200 ultrasonic sender for top mounting.

BATTERY

- Add up to 4 battery monitors. One BAT-100 is required per battery.

***WARNING:** If your black tank is fitted with a charcoal filter, this could restrict the airflow to the tank causing problems with the pressure sender readings. See the 'Tips and Tricks' manual available online at smartswitch.co.nz for solution or fit an ultrasonic sender for black tanks.

Supply Voltage: 12 ~ 24 Volts DC (Auto sensing) | Quiescent Current: 12 Milliamps (with backlight off)
Backlight | Reverse polarity protected | Network cable length=1000m | Voltage & EMI Protected
Data Retention: 50 years (without power). For further information visit: www.smartswitch.co.nz



Programmable Controllers

SDP-003/SDP-006 (dual)

SDT-003/SDP-006 Programmable Controller

By following the simple instructions you can set this timer from 1 second to 240 days. 12 or 24 volt auto-sensing, the Smart Switch Programmable Timer is a versatile general purpose timer/controller which will control any one of a number of applications.

TWO TIMERS IN ONE. PROGRAM IN FIVE SIMPLE STEPS.

Following the simple instructions, you can program this timer from 1 second to 240 days for both ON and OFF timers. The SDP-003/SDP-006 can also be programmed to start with either the ON or the OFF timer. These Dual Programmable Timers are versatile general-purpose timers/controllers which can manage a variety of applications.



PROGRAMMABLE TIME OPTIONS:

- Option 1 sets seconds from 1 to 240.
- Option 2 sets minutes from 1 to 240.
- Option 3 sets hours from 1 to 240.
- Option 4 sets days from 1 to 240.

PLEASE SEE MANUAL FOR INPUT TRIGGER OPTIONS:

The SDP-003 has different input trigger functions than the SDP-006. As with any Smart Switch product, the SDP-003 and SDP 006 are designed and purpose-built for use at sea.

Supply Voltage: 12 or 24 Volts DC | Auto sensing | Quiescent Current: 12 mA @ 12 Volts
Output Load 40 amps @ 12 Volts DC | Input Trigger: 5 ~ 37 Volts DC. | Voltage & EMI Protected
Data Retention: 40 years | Reverse Polarity Protected

8 Channel Bilge Controller BC-8000



Monitor and control up to 8 bilges from one location.

The BC-8000 Controller provides an intelligent networked solution for the monitoring and control of up to eight bilge areas. The diagram (right) shows a typical system layout. The system consists of the BC-8000 display controller (as seen above) up to eight BC-100 or BC-100/P controllers and one (optional) RB-800 repeater displays. The system communicates via a 2-wire network cable with a maximum cable length of 1000 metres.

BC- 8000 DISPLAY CONTROLLER:

Is a powerful bilge control system.

- Full control from one central location on your boat.
- Delay pump on and off time (programmable).
- Pump on alarm time (programmable).
- Visual status display for each bilge area showing pump status, low sensor status, last pump run time, number of pump runs, program and operate modes.
- Turn bilge pumps on/off manually or automatically
- Visual and audible alarm for any fault conditions eg, high water, low sensor fault, pump fault, time alarm.
- Two master modes of operation automatic or semi-automatic.
- Individual modes auto or manual.
- All bilge areas are name programmable giving location e.g. (Aft Port)(Engine Room) (Mid-Ship Starboard)

BC-100 or BC-100/P I/O UNIT:

Are controllers which manage the pump, relay, and high/low sensors.

- Automatically goes into standalone mode if communication with the BC-8000 is lost giving normal operation if either the high or low sensors turn on.
- Controls the pump and provides the input for the high and low sensors.
- Pump output = 88 amps @ 12 VDC.
- Operates with any standard float switch or Smart Switch FS-2A.
- Alarm relay = 3 amp inductive.
- Supplied in two different models:
 - BC-100/P features hi and low sensors, alarm relay, and pump output
 - BC-100 features hi and low sensors and alarm relay

RB-800:

This Remote Display is an optional extra and may be connected anywhere on the vessel for convenient monitoring of the bilge.

Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 26 Milliamps (with backlight off) | Backlight
Reverse polarity protected | Network cable length=1000m | Voltage & EMI Protected
Programmed Data Retention: 50 years (without power)



8 Channel Bilge Controller **BC-8000**

SYSTEM OVERVIEW

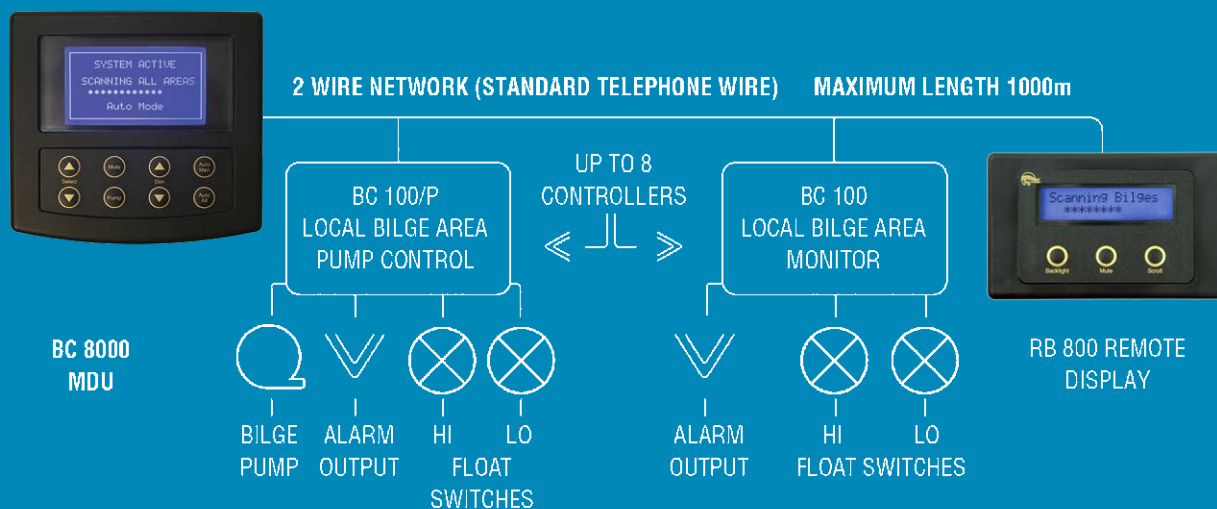
The **BC-8000 Bilge Controller** has been developed for intelligent intervention and controlling pumps in up to 8 bilge areas.

It is a network system consisting of the BC-8000 Master Display Unit and up to eight I/O Units located in bilge compartments. In addition as an option, the RB-800 Remote Display Unit may be added to provide remote bilge status anywhere on the vessel. All devices are interconnected by a 2-wire network cable similar to that used for telephone installations.

The Master Display Unit (MDU) controls communication with all attached I/O Units and provides monitoring of all bilge areas from a central location. System components may be located anywhere on the network cable and the cable may be up to 1000 metres in length.

These features are unique to the BC-8000. They provide maximum flexibility to locate components on-board the vessel while minimising wiring costs.

Builders and retrofitters can now offer reasonably priced systems, while providing boat owners with outstanding visibility into conditions in their bilge areas, allowing a variety of control options under both normal and abnormal conditions.



Alarm Monitor AL-8000



Monitor up to 32 alarms from one location.

The **AL-8000 Alarm Monitor** provides an intelligent networked solution for the monitoring up to 32 different alarms. The diagram (right) shows a typical system layout. The system consists of the AL-8000 display controller (as seen above), up to four AL-100 units and one (optional) repeater display. Communication to these is via a 2-wire network cable with a maximum cable length of 1000 metres.

AL-8000 DISPLAY CONTROLLER:

Is the master display unit.

- Visual and audible alarm for any fault condition.
- 4 x overrides (engine running overrides for engine alarms).
- 8 inputs have programmable delays (5 seconds to 10 minutes).
- All alarms tone programmable (with tone or without tone or repeating tone).
- Alarms are name programmable e.g. (High Bilge) (Engine Room Fire) (Oil Pressure) (Water in Fuel).

AL-100:

Input module.

- Eight inputs.
- Each input can be set for:
 - normally open and closing to +VDC on fault
 - 2k2 line resistor for supervised line
 - normally open and closing ground on fault
 - normally ground and opening on fault
- One relay output = 3 amp inductive:closes on any fault.

RD-800:

The **RD-800 Repeater Display** is an optional extra and may be connected anywhere on the vessel for convenient monitoring.

Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 26 Milliamps (with backlight off)
Reverse polarity protected | Network cable length =1000m | Voltage & EMI Protected
Programmed Data Retention: 50 years (without power) | Backlight



Alarm Monitor **AL-8000**

SYSTEM OVERVIEW

The **AL-8000 Alarm Monitor** has been developed to allow monitoring of up to 32 different inputs.

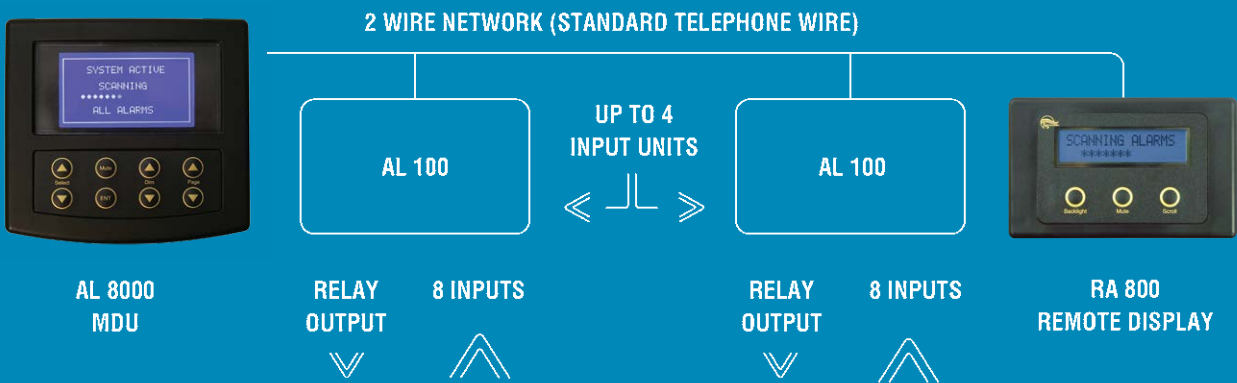
It is a network system consisting of the AL-8000 Master Display Unit and up to four AL-100 Input Units located anywhere on the vessel. In addition and as an option, the RA-800 Remote Display Unit may be added to provide fault status anywhere on the vessel.

All devices are interconnected by a 2-wire network cable similar to that used for telephone installations.

The Master Display Unit (MDU) controls communication with all attached Input Units. System components may be located anywhere on the network cable and the cable may be up to 1000 metres in length.

These features are unique to the AL-8000 and provide maximum flexibility to locate components on board the vessel while minimising wiring costs.

Builders and retrofitters can now offer reasonably priced systems, while providing boat owners with outstanding visibility into any navigational light failure.



NAV Light Monitor NV-8000



Monitor and control up to 16 NAV lights from one location

The **NV-8000 NAV Light Monitor** provides an intelligent networked solution for monitoring and controlling up to 16 different NAV lights. The diagram (right) shows a typical system layout. The system consists of the NV-8000 display controller (as seen above) and up to 2 NV-100 units and one optional NR-800 repeater display which communicate via a 2-wire network cable with a maximum cable length of 1000 metres.

NV-8000 DISPLAY CONTROLLER:

Master display unit.

- Visual and audible alarm for any faulty light.
- Every circuit monitored for faults (bulb failure, power failure and wire break).
- Control to turn lights ON and OFF.
- 6 programmable groups.
- Join any light to any group (all lights will activate when the group is selected).
- Will detect currents as low as one LED.
- All alarms are name programmable e.g. (Port) (Anchor) (NUC 1).

NV-100:

Input/output module (LED Lamps only)

- Eight separate light inputs/outputs.
- One relay output = 3 amp inductive: closes on any fault.

NV-600:

Input/output module (normal incandescent lamps)

- Eight separate light inputs/outputs.
- One relay output = 3 amp inductive: closes on any fault.

NR-800:

The **NR-800 Repeater Display** is an optional extra and may be connected anywhere on the vessel for convenient monitoring.

Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 26 Milliamps (with backlight off) | Backlight
Reverse polarity protected | Network cable length=1000m Voltage and EMI Protected

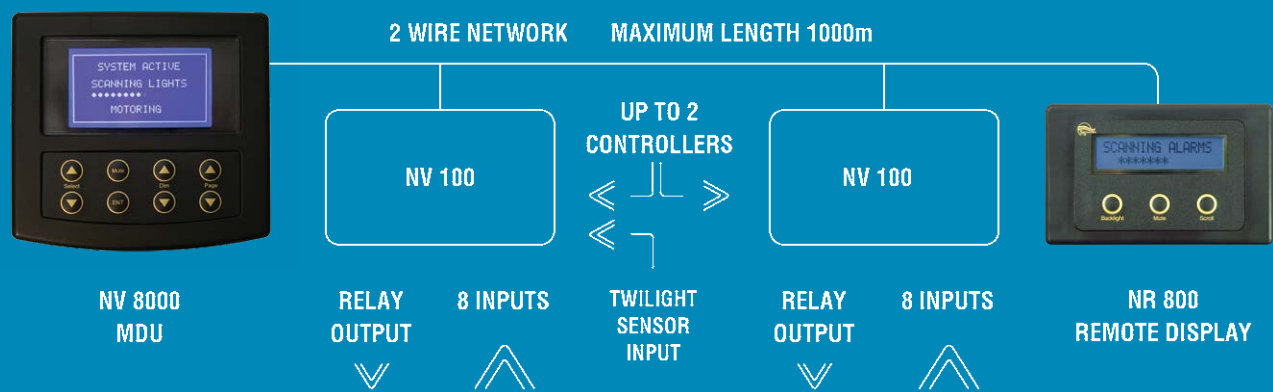


NAV Light Monitor NV-8000

SYSTEM OVERVIEW

The **NV-8000 NAV Light Monitor** has been developed to allow monitoring and control of up to 16 different lights. It is a network system consisting of the NV-8000 Master Display Unit and up to two NV-100 or NV-600 units located anywhere on the vessel. In addition, as an option the NR-800 Remote Display units can be added to provide fault status anywhere on the vessel.

All devices are interconnected by a 2-wire network cable similar to that used for telephone installations. The Master Display Unit (MDU) controls communication with all attached Input Units. System components may be located anywhere on the network cable and the cable may be up to 1000 metres in length.



NAV Light Monitor NV-2000



Monitor up to 32 NAV lights from one location.

The NV-2000 NAV Light Monitor provides an intelligent networked solution for the monitoring up to 32 different NAV lights. The diagram (right) shows a typical system layout. The system consists of the NV-2000 display controller (as seen above) up to 4 NV-100 units and any number of NR-800 repeater displays. Communication is via a 2-wire network cable with a maximum cable length of 1000 metres.

NV-2000 DISPLAY CONTROLLER:

Is the master display unit.

- Visual & audible alarm for any faulty light.
- Every circuit monitored for faults (bulb failure, power failure & wire break).
- Will detect currents as low as one LED.
- All alarms are name programmable e.g. (Port) (Anchor) (NUC 1).

NV-100:

Input/output module (LED Lamps only)

- Eight separate light inputs/outputs.
- One relay output = 3 amp inductive:closes on any fault.

NV-600:

Input/output module (normal incandescent lamps)

- Eight separate light inputs/outputs.
- One relay output = 3 amp inductive:closes on any fault.

NR-800:

The NR-800 Repeater Display is an optional extra and may be connected anywhere on the vessel for convenient monitoring.

Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 12 Milliamps (with backlight off)
Backlight Reverse polarity protected | Network cable length=1000m | Voltage and EMI Protected



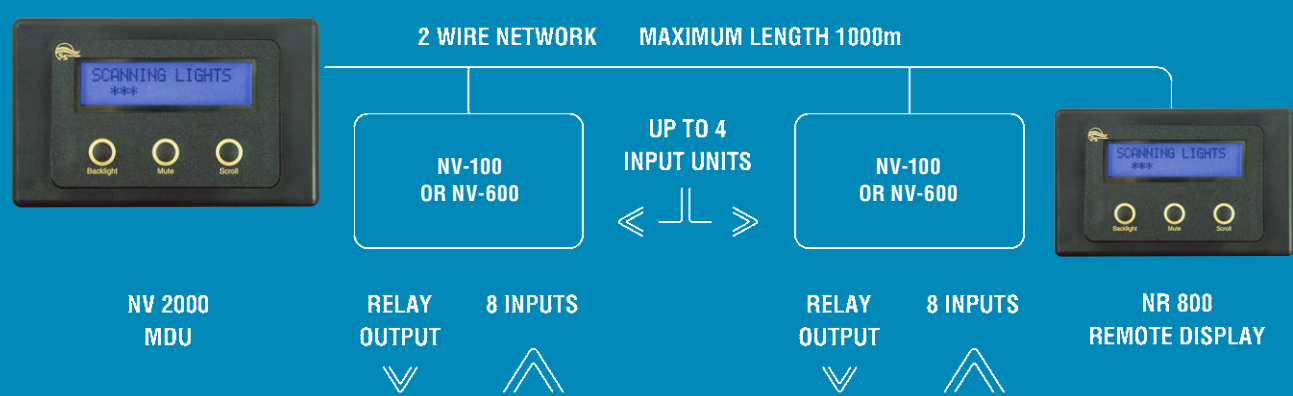
NAV Light Monitor NV-2000

SYSTEM OVERVIEW

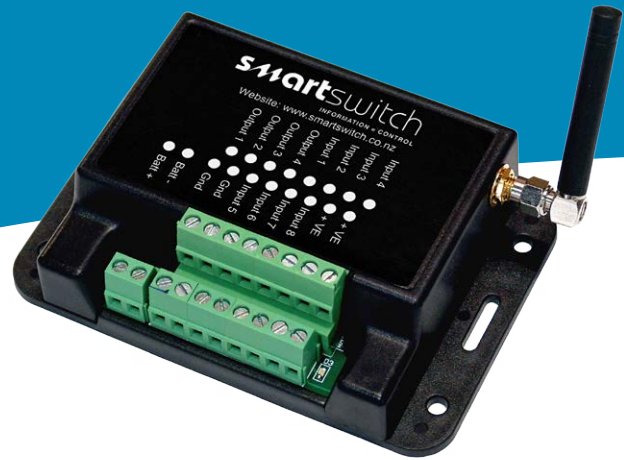
The **NV-2000 NAV Light Monitor** has been developed to allow monitoring of up to 32 different lights. It is a network system consisting of the NV-2000 Master Display Unit up to four NV-100 or NV-600 units located any where on the vessel.

In addition, and as an option, the NR-800 Remote Display Units may be added to provide fault status anywhere on the vessel.

All devices are interconnected by a 2-wire network cable similar to that used for telephone installations. The Master Display Unit (MDU) controls communication with all attached Input Units. System components may be located anywhere on the network cable which may be up to 1000 metres in length.



SMS Controller SMS-8



Control your boat via SMS

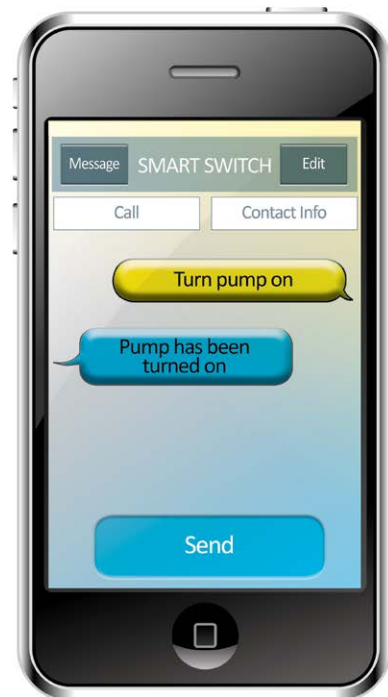
Turn on the fridge/freezer, under water lighting, air conditioner or any other device via SMS.

Receive information from the boat - shore or power disconnect, intruder alarm, bilge pump running, high water bilge and much more, all from your mobile phone.

Easy to use, easy to install.

FEATURES

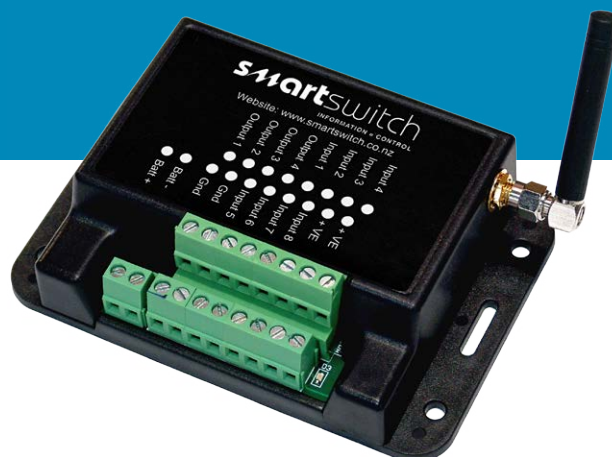
- Connects to either 2G or 3G Network.
- Eight Inputs.
 - four positive switching inputs.
 - four negative switching inputs.
 - user programmable input names.
 - programmable input delays.
 - programmable latching or non-latching inputs.
 - programmable normally open or normally closed input.
- Four outputs.
 - user programmable output names.
- Link any input with any output.
- Monitors its own supply voltage.
- Low battery alarm.
- Receive Input or Output status at any time.
- Up to 6 users.
- All changes and setup made by SMS from your mobile phone (no need for a computer).
- Size = 117mm x 78mm x 30mm.



Supply Voltage: 12 ~ 30 Volts DC | Auto sensing
Quiescent Current: 20 Milliamps | Data Retention 10 years(without power)



SMS Controller SMS-8 GPS



Control or locate your boat via SMS

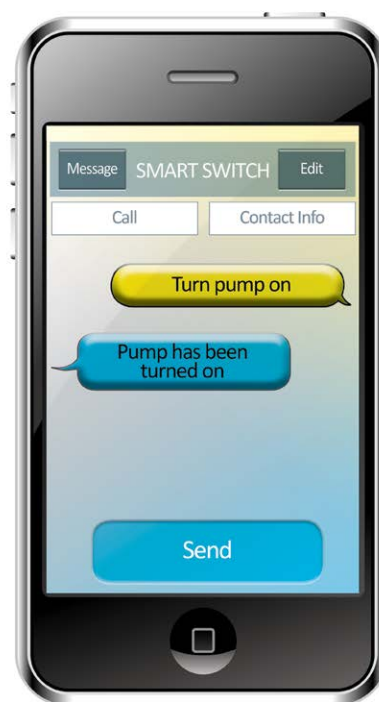
Turn on the fridge/freezer, under water lighting, air conditioner or any other device via SMS.

Receive information from the boat - shore or power disconnect, intruder alarm, bilge pump running, high water bilge and much more, all from your mobile phone.

Easy to use, easy to install.

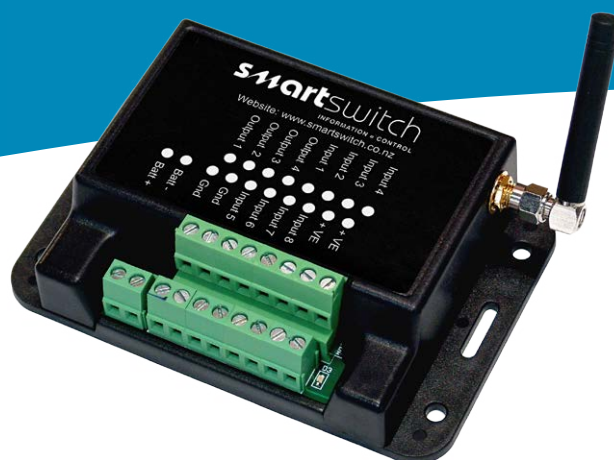
FEATURES

- Connects to either 2G or 3G Network.
- Get current GPS location.
- Set up Geo-fence alarm.
- Eight Inputs.
 - four positive switching inputs.
 - four negative switching inputs.
 - user programmable input names.
 - programmable input delays.
 - programmable latching or non-latching inputs.
 - programmable normally open or normally closed input.
- Four outputs.
 - user programmable output names.
- Link any input with any output.
- Monitors its own supply voltage.
- Low battery alarm.
- Receive Input or Output status at any time.
- Up to 6 users.
- All changes and setup made by SMS from your mobile phone (no need for a computer).
- Size = 117mm x 78mm x 30mm.



Supply Voltage: 12 ~ 30 Volts DC | Auto sensing
Quiescent Current: 20 Milliamps | Data Retention 10 years(without power)

SMS Controller SMS-4



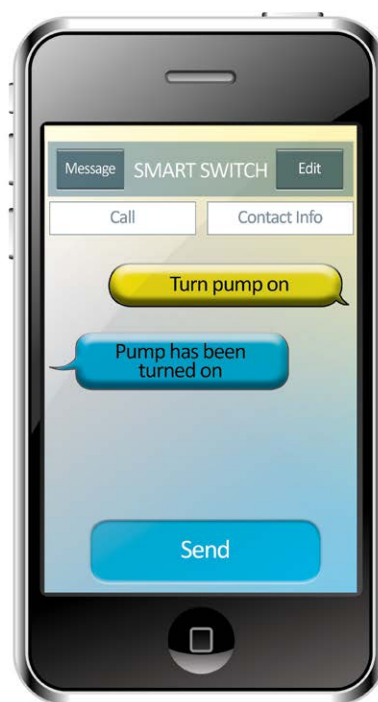
Control your boat via SMS

Turn on the fridge/freezer, under water lighting, air conditioner or any other device via SMS. Receive information from your boat - shore power disconnect, intruder alarm, bilge pump running, high water bilge and much more, all from your mobile phone.

Easy to use. Easy to install.

FEATURES

- Connects to either 2G or 3G Network
- Four Inputs
 - user programmable input names.
 - programmable input delays.
 - programmable latching or non-latching inputs.
 - programmable normally open or normally closed input.
- Four Outputs
 - user programmable output names.
- Link any input to any output.
- Monitors its own supply voltage.
- Low battery alarm.
- Receive Input or Output status at any time.
- Up to 5 users.
- All changes and setup made by SMS from your mobile phone (no need for a computer).
- Size: 117mm x 78mm x 30mm.



Supply Voltage: 10 ~ 30 Volts DC (Auto sensing) | Quiescent Current: 20 Milliamps
Reverse polarity protected | Voltage & EMI Protected



SMS Controller SMS-2



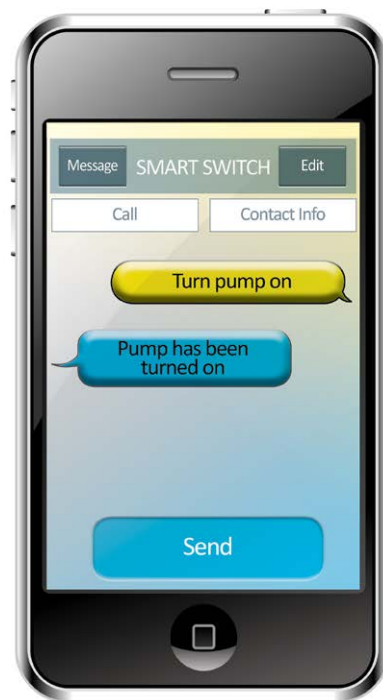
Control your boat via SMS

Turn on the fridge/freezer, under water lighting, air conditioner or any other device. Receive information from your boat - shore power disconnect, intruder alarm, bilge pump running, high water bilge... etc. all from your mobile phone.

Easy to use. Easy to install.

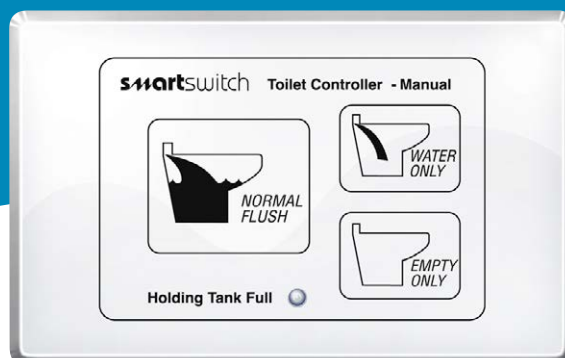
FEATURES

- Connects to 2G OR 3G Network.
- Two Inputs:
 - user programmable input names.
 - programmable input delays.
 - programmable latching or non-latching inputs.
 - programmable normally open or normally closed input.
- Two Outputs:
 - user programmable output names.
 - link any input to any output.
- Monitors its own supply voltage.
- Low battery alarm.
- Receive Input or Output status at any time.
- Up to 5 users.
- All changes and setup made by SMS from your mobile phone (no need for a computer).
- Size: 117mm x 78mm x 30mm.



Supply Voltage: 10 ~ 30 Volts DC (Auto sensing) | Quiescent Current: 20 Milliamps
Reverse polarity protected | Voltage & EMI Protected

Deluxe Toilet Controller STS-220



Remote, fresh or salt water flushing

The unique **Smart Switch Deluxe Programmable Toilet Control** was designed for all electric marine toilets with remote, fresh or salt water flushing, supply via an inlet pump or water solenoid valve. The stylish control panel provides fully automatic programmed flushing when the auto touch pad is pushed or provides independent operation of the inlet or discharge pumps for maintenance or line clearance when the manual touch pads are used.

Inbuilt troubleshooting features and toilet pump protection are standard. Other features include: automatically sensing of your vessels supply voltage and self-adjusting to suit 12, 24 or 32-volt systems and protection from radio interference.

This model is truly versatile, with two different timing sequences built in. This feature is user program selectable (change modes in a flash).

Easy installation and easy operation, the switch control panel comes in either black, white, brushed stainless steel or polished brass making this an attractive product to suit most interiors.

As with all Smart Switch products, the Deluxe Toilet Controller employs state-of-the-art microcomputer technology.

Supply Voltage: 12, 24 or 32 Volts DC (Auto-sensing) | Quiescent Current: Zero Amps | EMI protected
Data Retention: 40 years | Motor Output: 88 Amps Continuous 160 Amps Peak | Valve Output: 44 Amps Continuous
88 Amps Peak | Reverse Polarity | Over Voltage Over Temperature Short Circuit Over Current Protected | Open Circuit Detection



Toilet Controller SMF-001



Fully automatic programmed flushing

The unique **Smart Switch Programmable Toilet Controller** was designed for all electric marine toilets with a single motor/pump flushing system. The stylish control panel provides fully automatic programmed flushing when either button is pushed.

This unit features a full and half flush cycle, providing for a water/holding tank save mode. Features include:- Automatic voltage sensing as well as 'Over Temperature', 'Short Circuit' and 'Over Current' protection'.

Easy Installation and easy operation the switch control panel comes in either black, white, brushed stainless steel or polished brass, making this an attractive product to suit most interiors.

This product employs state-of-the-art microcomputer technology.

Supply Voltage: 12, 24 or 32 Volts DC (Auto-sensing) | Quiescent Current: Zero Amps | EMI protected
Data Retention: 40 years | Motor Output: 88 Amps Continuous 160 Amps Peak | Reverse Polarity | Over Voltage Over
Temperature Short Circuit Over Current Protected | Open Circuit Detection

Fire Alarm System FR-1600



Monitor up to 16 Zones

The **FR-1600 Fire Monitor** provides an intelligent networked solution for the monitoring up of up to 16 zones. The system consists of the FR-1600 display (as seen above), two FR-100 8 zone sensor input units, and up to two FEC-6 engine room relay units (optional). This system allows for the monitoring of up to two cylinder release doors and cylinder fill/empty switches.

The system communicates via a 2-wire network cable with a maximum cable length of 1000 metres.

FR-1600 DISPLAY UNIT

Features include:

- Full indication from one central location on your boat.
- Visual indication of fire or fault.
- Audible indication of fire or fault.
- Isolate any zone.
- All zone names programmable eg. saloon, engine room, upper deck, master cabin.
- Backlight.

FR-100

The Zone Controller which manages the sensors.

- 8 separate zone inputs.
- Output relays x 2.
- 10 A resistive @ 24VDC.
- Relay 1 and Relay 2 close on fire detection.
- Relay 2 opens when all zones OK.

FEC-6

The engine room controller unit (optional).

- 6 relays.
- Output relay 1 to 4 = 10 A resistive @ 24VDC.
- Output relay 5 & 6 = 1 A resistive @ 30VDC.
- Relay 4 activated on a programmable timer.
- Relay 5 opens when alarm is muted.
- 4 inputs (for extinguisher cylinder empty/fill switches).

Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 12 milliamps (with backlight off)
Backlight Reverse polarity protected | Network cable length = 1000m | Voltage & EMI protected
Data retention: 50 years (without power)



Fire Alarm System **FR-1600**

SYSTEM OVERVIEW

The **FR-1600**, **FR-8000** and **FR-4000** have been developed to allow monitoring of up to 16, 8 or 4 zones. Each zone can have up to 18 sensors attached.

It is a network system consisting of the FR-1600, FR-8000 or FR-4000 Master Display and one or two FR-100 eight zone inputs.

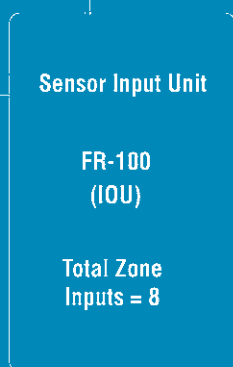
All devices are interconnected by a 2-wire network cable, similar to that used for telephone installations.

The Master Display Unit (MDU) controls communication with the attached Input and Output units. The network cable can be up to 1000 metres in length.

FR 8000 Master Display Unit



Sensor

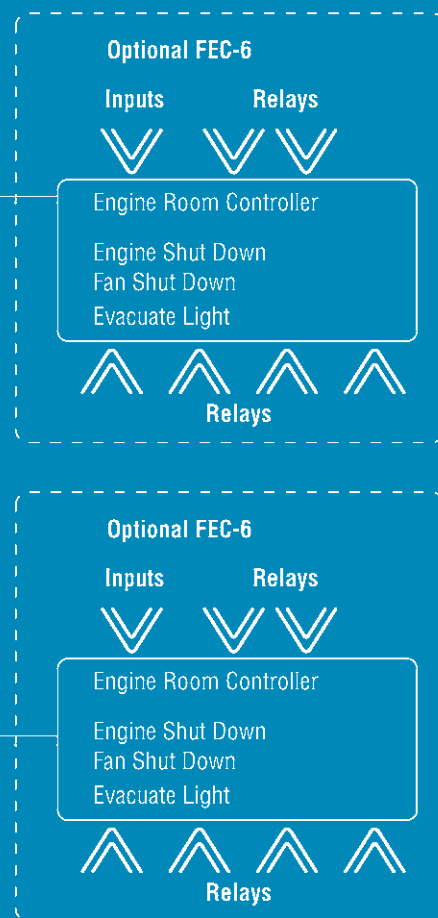


4 core cable e.g. cat 5 (max length = 1000m)

+ VDC
GND
Coms +
Coms -

Battery Neg -
Battery Pos +

Aux Battery Neg -
Aux Battery Pos +



Fire Alarm System FR-8000



Monitor up to 8 zones

The FR-8000 Fire Monitor provides an intelligent networked solution for the monitoring up to 8 zones. The system consists of the FR-8000 display (as seen above), one FR-100 8 zone sensor input unit, and up to two FEC-6 engine room relay units (optional). This system allows for the monitoring of up to two cylinder release doors and cylinder fill/empty switches.

The system communicates via a 2-wire network cable with a maximum cable length of 1000 metres.

FR-8000 DISPLAY UNIT

Features include:

- Full indication from one central location on your boat.
- Visual indication of fire or fault.
- Audible indication of fire or fault.
- Isolate any zone.
- All zone names programmable eg. saloon; engine room; upper deck; master cabin.
- Backlight.

FR-100

The zone controller which manages the sensors.

- 8 separate zone inputs.
- Output relays x 2.
- 10 A resistive @ 24VDC.
- Relay 1 and Relay 2 close on fire detection.
- Relay 2 opens when all zones OK.

FEC-6

The engine room controller unit (optional).

- 6 relays.
- Output relay 1 to 4 = 10 A resistive @ 24VDC.
- Output relay 5 & 6 = 1 A resistive @ 30VDC.
- Relay 4 activated on a programmable timer.
- Relay 5 opens when alarm is muted.
- 4 inputs (for extinguisher cylinder empty/fill switches).

Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 12 milliamps (with backlight off)
Backlight Reverse polarity protected | Network cable length = 1000m | Voltage & EMI protected
Data retention: 50 years (without power)



Fire Alarm System **FR-4000**

Monitor up to 4 zones

The FR-4000 Fire Monitor provides an intelligent networked solution for the monitoring up of up to 4 zones. The system consists of the FR-4000 display (as seen right), one FR-100 8 zone sensor input unit.

The system communicates via a 2-wire network cable with a maximum cable length of 1000 metres.

FR-4000 DISPLAY UNIT

Features include:

- Full indication from one central location on your boat.
- Visual indication of fire or fault.
- Audible indication of fire or fault.
- Isolate any zone.
- All zone names programmable eg. saloon, engine room, upper deck, master cabin.
- Backlight.



FR-100

The zone controller which manages the sensors.

Features include:

- 8 separate zone inputs (only 4 used for FR-4000).
- Output relays x 2.
- 10 A resistive @ 24VDC.
- Relay 1 and Relay 2 close on fire detection.
- Relay 2 opens when all zones OK.

Supply Voltage: 12 - 32 Volts DC (Auto sensing) | Quiescent Current: 12 milliamps (with backlight off)
Backlight Reverse polarity protected | Network cable length = 1000m | Voltage & EMI protected
Data retention: 50 years (without power)

SmartBilge Float Switch & Controller BSW-1000



A reliable alternative to the old technology

Smart Switch employs state-of-the-art microprocessor technology ensuring long term reliability in all our systems so you can trust Smart Switch to operate faultlessly and bring you home safely, every journey.

The **SmartBilge BSW-1000** kit includes the Float Switch with 1.5 metres of 2 core cable, and the controller. The float switch can be mounted on the floor or side wall of the bilge area. The controller must be mounted in a clean dry area.

Features include:

- LOW FLOAT INPUT - Primary Floatswitch activation.
- HIGH FLOAT INPUT - Additional high water level alarm.
- ALARM OUTPUT - Sounds when pump runs over one minute or upon detecting high water.
- AUTO/OFF/MANUAL INPUTS - Full control from dash board.
- PUMP OUTPUT - Solid state output (MOSFET), no moving parts or contacts to burn out vastly improving switch life.
- 'ON' TIME DELAY Set at 5 seconds - Programmable delay 'ON' means no false pump triggering for improved pump life.
- 'OFF' TIME DELAY Set at 5 seconds - Programmable delay 'OFF' so the pump runs 5 seconds after the float has switched off to clear any excess water in the exit tube.
- RUNS PUMPS UP TO 40 AMPS

Additional options:

- **HIGH WATER FLOAT SWITCH**
 - Optional high water float switch sounds upon detecting water. (Part No. FS-2A).
- **AUTO/MANUAL ON/OFF SWITCH**
 - Optional switch to turn bilge pump On/Off or place in Auto mode (see right). Dash mounted and connected to controller via a simple data cable. (Part No. AM-100).



Supply Voltage: 12 ~ 24 volts DC (Auto Sensing) | Quiescent Current: 13 Milliamps | Reverse polarity Protected | Voltage & EMI protected
ORDER INFORMATION: Part No. BSW 1000 = Smart Bilge containing one Floatswitch and one I/O controller box. Part No. FS-2A = High Floatswitch and Part No. AM-100 = Auto/Manual/Off switch.



Water Sensor FS-2A

Built for harsh conditions

This rugged, compact, slosh protected bilge water sensor switch is for use on vessels of all sizes.

Built for harsh conditions, it is compatible with seawater and a variety of fuels, gasoline, hydraulic and lube oils and provides stable level detection in contaminated, turbulent liquids.

By connecting the water sensor to the Smart Switch **Bilge Controller (BC-8000)**, you can control any area where water is not wanted.

SPECIFICATIONS

- Switching capacity, Max Watts 50.
- Switching capacity, Max Volts DC 200.
- Switching capacity, Max Volts AC 200.
- Switching capacity, Max Amps 0.5.

Contact form normally open.

Max operating temperature 80°C.

- Material PP.
- Useful Specific Gravity 0.7.
- Water trigger level approx. 10mm.
- Cable length = 2 metres.

Part No. FS-2A.



Sen-S/S Pressure Sensor SEN-S/S



The Sen-S/S Pressure Sensor

The unique **Smart Switch Pressure Sensor** is a solid-state pressure sensor offering numerous advantages over conventional probes or float switches. The Pressure sensor constantly measures the fluid pressure within the tank, ensuring highly accurate and reliable monitoring at all times. With no moving parts, this solid-state technology provides efficient, innovative designs for a new generation of Smart Switch products such as the TD-4000, TM-4000 or TC-8000.

FEATURES

- THREAD = 1/4" - NPT.
- Housing = 316 Stainless Steel.
- Connector = Packard.
- Solid-state - no moving parts to jam or clog.
- Compact size.
- High accuracy.
- Suitable for all types of tank materials.
- Suitable for black, grey, fresh water, diesel and petrol.
- Safe to use.

RANGE OF TANK ADAPTORS AVAILABLE - MODELS

SEN-S/S100 SENSOR:

Pressure, Stainless steel, 1/4" NPT, Max 1 metre.

SEN-S/S250 SENSOR:

Pressure, Stainless steel, 1/4" NPT, Max 2.5 metre.

SEN-S/S400 SENSOR:

Pressure, Stainless steel, 1/4" NPT, Max 4 metre.

Other sizes are available on request.

TANK ADAPTORS

The pressure sensor can be adapted to any tank by one of the following means:

- Directly to tank side. Simply screw the sensor into a pre-existing female 1/4" NPT thread.
- On the tank side using the Side Wall Adaptor (for thin walls - eg. stainless steel).
- To tank top using the Top Mount Spear.

ORDERING INFORMATION

SEN-SS (see models above)

AD-100 Side Wall

AP-001 3/4" BSP to 1/4" NPT Acetal Plastic

AD-110 3/4" BSP to 1/4" NPT Stainless (316)

SP-600 Tank Spear. Top mount, S/S, 600mm, without sensor

SP-1200 Tank Spear. Top mount, S/S, 1200mm, without sensor



Solid-state Pressure Sensor SEN-S/S TOP MOUNT

The Smart Switch Top Mount Solid-state Pressure Sensor

The unique Smart Switch pressure sensor is a solid-state pressure sensor offering numerous advantages over conventional probes or float switches. The Pressure sensor constantly measures the fluid pressure within the tank, ensuring highly accurate and reliable monitoring at all times. With no moving parts, this solid-state technology provides efficient, innovative designs for a new generation of Smart Switch products such as the TD-4000, TM-4000 or TC-8000.

FEATURES

The SEN-S/S Sensor range is suitable for water, waste or fuel.

The Top Mount Spear is a pressure sensor mounted at the top of a sealed stainless steel tube.

The mounting is industry standard SAE-5 mounting pattern

- Solid-state (no moving parts to jam or clog).
- Compact size.
- High accuracy.
- Suitable for all types of tank materials.
- Suitable for black, grey, fresh water, diesel and petrol.
- Safe to use.

RANGE OF TANK ADAPTORS AVAILABLE - MODELS

- **SEN-B300 - 600** (600mm long).
- **SEN-B300 - 1200** (1200mm long).

Other sizes are available on request.



ORDERING INFORMATION

SEN-B300-600 TOP MOUNT (600MM LONG)

SEN-B300-1200 TOP MOUNT (1200MM LONG)

Other sizes available on request

Interface NMEA-0183



Interface to any NMEA-0183 device

The **NMEA-0183** allows an interface from any Smart Switch product to any NMEA-0183 input system. The Smart Switch network communicates via a 2-wire network cable with a maximum cable length of 1000 metres.

NMEA-0183 Interface:

- Smart Switch network = RS-485.
- NMEA-0183 output = RS-232.

Smart Switch RS-485 network bus



Supply Voltage: 12 – 32 Volts DC (Auto sensing) | Quiescent Current: 15 Milliamps
Reverse polarity protected | RS-485 cable length=1000m | Voltage & EMI Protected



Spy Interface IF-100

Spy Interface IF-100

The IF-100 allows spying on any Smart Switch product network and giving one relay output based on information received. The IF-100 can connect anywhere on the Smart Switch network.



Spy Interface features:

Spy on bilge system giving an input to the alarm system based on the following example

- If any high water sensor is on.
- If any pump is on.
- If any smoke detector is on.

Spy on tank system giving output for remote light

- If any tank is full.
- If any transfer or discharge pump is on.

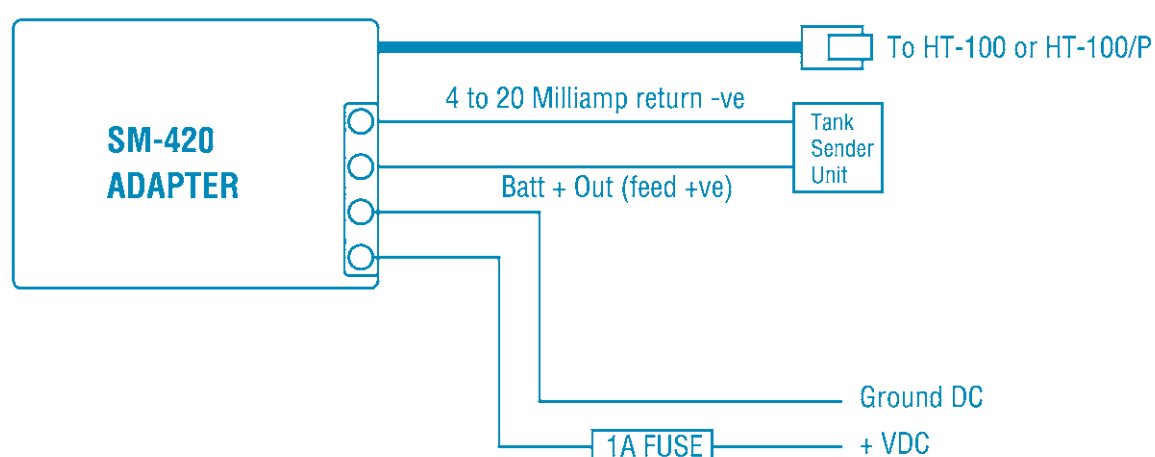


Supply Voltage: 12 ~ 32 Volts DC (Auto sensing) | Quiescent Current: 15 Milliamps | Relay connections: Common Normally open Normally closed Reverse polarity protected | RS-485 cable length=1000m | Voltage & EMI Protected

Adapter SM-420

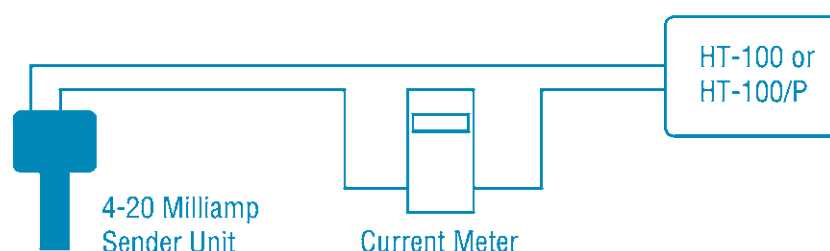
Adapter SM-420

The **SM-420 Adapter** has been designed to interface from any 4 to 20 milliamp tank sender unit to the Smart Switch HT-100 or HT-100/P Tank Control System.



Calibration

The tank calibration is preformed inside the HT-100 or HT-100/P therefore before starting ADJUST the tank sensor probe for the FULL 4 to 20 milliamp current swing. Calibration can now be done as per the manual for the TC-8000 or TM-4000 unit.





Adapter SM-180

Adapter SM-180

The **SM-180 Adapter** has been designed to interface to either a VDO (10 to 180 ohm) or Teleflex (240- 33 ohm) sender. Switchable link for VDO or Teleflex.

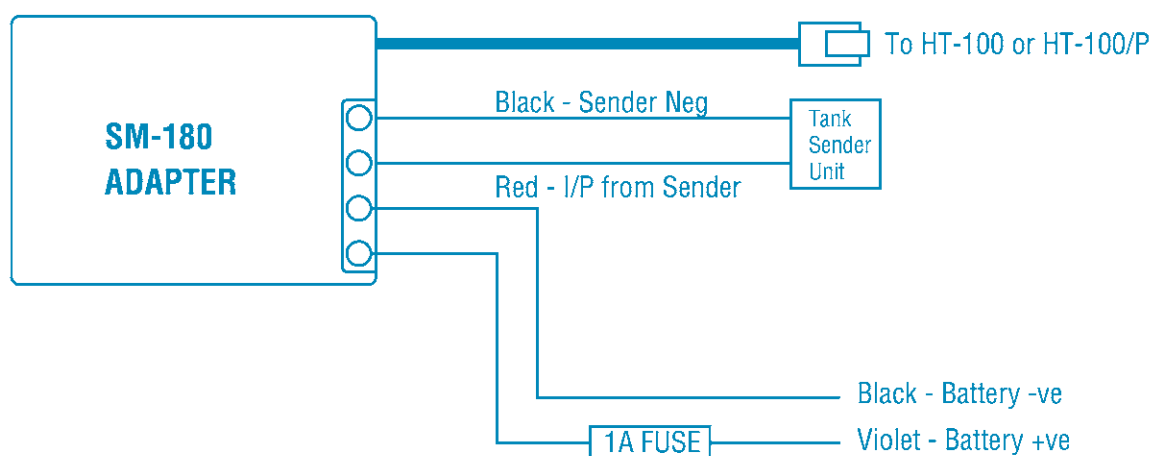
Spy Interface features:

Spy on bilge system giving an input to the alarm system based on the following example.

- If any high water sensor is on.
- If any pump is on.
- If any smoke detector is on.

Spy on tank system giving output for remote light.

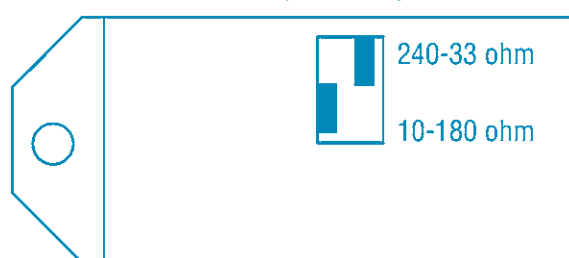
- If any tank is full.
- If any transfer or discharge pump is on.



Calibration

The tank calibration is preformed inside the HT-100 or HT-100/P. See tank monitoring system manual.

Jumper Settings



Interface Controller PR-100

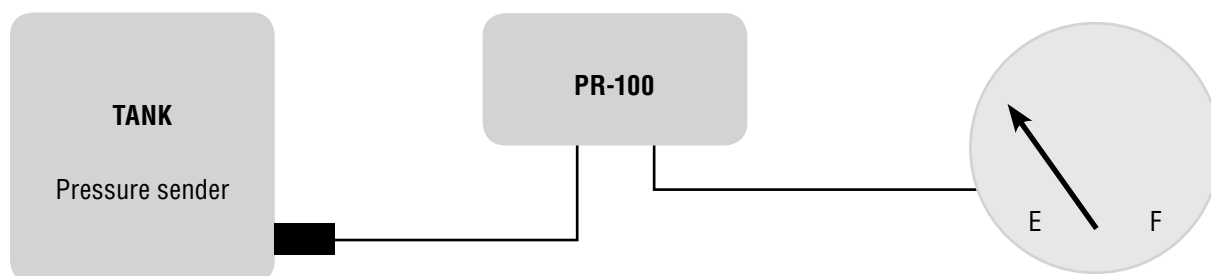


PR-100

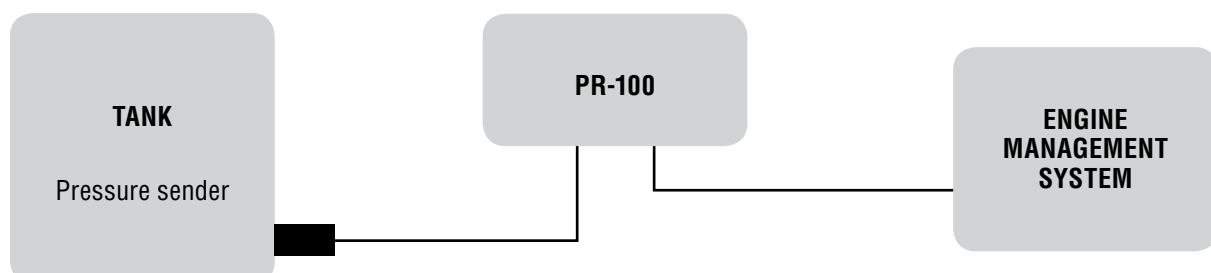
The **PR-100 Interface Controller** has a pressure sender input and a 10 - 80 ohms or 33 - 230 ohms output.

This interface enables the use of either 2 or 5 point pressure sender input with a resistive output enabling you to connect to either an analogue gauge or an engine management system that requires a resistive sender input.

EXAMPLE 1



EXAMPLE 2







smartswitch
INFORMATION = CONTROL

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