Universal Controller Plus (MCS-32), Complementary Expansion Products and Multi-Way Switch Units

The Universal Controller Plus (MCS-32) is a user programmable device for managing hazard warning lights and power related functions on Emergency Services vehicles. Although the standard unit incorporates a 100 watt siren with both UK and European tones, a version without this function is also available. Incorporating a host of discrete on/off and various data protocol inputs and outputs this device can control a wide variety of applications and if that’s not enough it also comes with a comprehensive set of specialised software modules specifically developed to meet the needs of current emergency services vehicles.

The main feature of this device is its ability to be fully ‘user’ programmed via a PC (usually a Laptop). Any input or combinations of inputs can be used to control any output or combination of outputs as operationally specified for vehicles used by the Emergency or Recovery Services. The human machine interface is normally done via one of many Multi-Way Switch Units or individual switches. In addition to this, under certain conditions, the MCS-32 will operate with some industry standard switches that are already in circulation or acquired from new. Also, if operationally required for larger systems the MCS-32 can control up to 4 Multi-Way and/or discrete individual switches.

The programming software is supplied free of charge with the device and allows the user to create ‘Configuration Files’ unique to each application that can be easily amended or upgraded if required, thus, eliminating the need to add or remove relays and wires to an installation should the original specification change.

The primary function of the unit is to control a vehicle lightbar in conjunction with other peripheral light heads, particularly when interaction with other vehicle functions such as opening the tail gate or handbrake operation are required. Where the human interface is via a wide variety of switching devices ranging from 7 up to 20-Way Universal Multi-Way hand-held or dash switches through to simple arrays of discrete latching and/or momentary switches.

When a Multi-Way Switch unit is used, it is programmed using the MSC-32 software allows each switch function to be uniquely defined in terms of being either a single or a multi-functional switch (hot key) along with one of 8 colours.

The unit also has the ability to interface with vehicle CAN Bus signals to be obtained directly from its electronic control systems, such as the ECU, rather that picking up from the electrical/electronic signal associated with a particular vehicle function such as an indicator or brake light. RSG has a comprehensive library of CAN Bus data that is available to users of the MCS-32.

In addition to controlling blue lights and sirens the MCS-32 can also communicate with other devices usually found on an Emergency Services vehicle such as Data Recorders and MDT’s this is usually achieved via it’s CAN Bus or RS232/RS485 connections that in turn communicates with the vehicles Can Bus or CiA447 protocols if required.

For help with installation and fault finding the MCS-32 is fitted with 24 diagnostic LEDs, each of which can display one of three indication colours (green, amber and red) to give immediate feedback without the need for a PC connection.

If the MCS-32 does not contain sufficient switching functions in its own right, additional expansion units such as the Universal Controller Plus Slave (MCS-32S), Universal Load Switch (MCS-5E) and Universal Lighting Breakout Controller (MCS-LBC) can be added to expand the system. Alternatively, if the MCS-32 is over specified for an application the smaller Universal Controller Lite (MCS-16), Universal 100 Watt Siren (MCS-6E) can be used along with the appropriate Multi-Way Switch unit. In addition to all that, some specialised modules like an Audio Intercom Controller, 4-way Relay Expansion Unit and Extractor Fan Module are also available. All of these and more complimentary devices are shown in brief on the opposite page and in more detail further on in this brochure.
Universal Controller Plus (MCS-32) Devices Overview

Control Units 2:10-2:17

Universal Controller Plus (MCS-32)
UNI-PLS-XXX
A multi-functional control system for the operation of rooftop lighting, secondary lighting and power management.
The MCS-32 features 32 outputs and 24 configurable inputs and the option of a built-in siren. Power management functions include run lock, split charging, load shedding and headlight flash some of which can be implemented via the vehicle CAN Bus system.
See page 2:10 for product specifications.

Universal Controller Plus Slave (MCS-32S)
UNI-SLV-XXX
A Universal Controller Plus Slave (MCS-32S) unit that sits alongside and is activated by a Universal Controller Plus (MCS-32).
This unit is specifically designed to support the MCS-32 when additional outputs and inputs are required.
This unit is also available with a built-in siren if required.
See page 2:12 for product specifications.

Universal Controller Lite (MCS-16)
UNI-LIT-001
A multi-functional control unit that contains everything required to control a complete vehicle mounted hazard warning system.
The MCS-16 features 16 outputs and 16 configurable inputs and the option of a built-in siren. Power management functions include run lock, split charging, load shedding and headlight flash some of which can be implemented via the vehicle CAN Bus system.
See page 2:14 for product specifications.

Expansion Units 2:19-2:25

Universal Load Switch (MCS-SE)
UNI-LDS-002
The Universal Load Switch is ideal for the control of basic hazard warning lighting systems.
It has 4 multi-functional operating modes that are simply selected via a DIP switch as well as 2 CAN Bus ports allowing multiple units to be joined together.
See page 2:19 for product specifications.

Basic Stand-alone 100w Siren (MCS-SSA)
PAA-167-03
Ideal for applications where space is limited and an economic Siren device is required, where no interface (data bus type) to complementary equipment or PA function is required.
Supplied with Yelp, Wail and Air Horn Tones as standard, other tones available upon request.
See page 2:22 for product specifications.

Universal Lighting Breakout Controller (MCS-LBC)
UNI-LBC-001
The Universal Lighting Breakout Controller takes a CAN Bus encoded signal and converts into a set of up to 10 conventional signals to turn lights and/or other control units on and off.
Measuring only 77mm x 77mm and only 20mm deep the unit can fit almost anywhere.
Typical applications include inside a lightbar to convert from multi-wired input to 2 wired CAN Bus input.
See page 2:20 for product specifications.

Audio Intercom Controller (MCS-AIC)
UNI-AIC-001
A compact audio control unit that can provide automatic announcements and pre-recorded verbal messages and/or provide intercom facilities between persons in vehicles with separate front and rear compartments.
Can be used as a stand alone device or in conjunction with the Universal Controller Plus (MCS-32).
See page 2:24 for product specifications.

Universal Controller Plus Slave (MCS-32S)
UNI-SLV-XXX
A Universal Controller Plus Slave (MCS-32S) unit that sits alongside and is activated by a Universal Controller Plus (MCS-32).
This unit is specifically designed to support the MCS-32 when additional outputs and inputs are required.
This unit is also available with a built-in siren if required.
See page 2:12 for product specifications.

4-Way Relay Expansion Module (MCS-RP4)
UNI-RP4-001
Expands the ability of the MCS-32 or MCS-16 by providing 4 x relay outputs that can be used as simple switching contacts.
Provides reverse polarity signals not achievable directly from electronic switching devices.
See page 2:23 for product specifications.

Switch Units 2:27-2:31

Universal Multi-Way Handsets
An extremely versatile range of fully programmable handsets to suit a variety of applications.
Each button can be independently configured in terms of operation, legends and colours. Therefore they are the ideal interface for controlling vehicle based hazard warning systems.

Universal Multi-Way Switch Panels
A range of fully programmable Switch panels designed to be permanently mounted into the vehicle dashboard.
As with the handsets each button can be independently configured in terms of operation, legends and colours. The ideal interface for controlling vehicle hazard warning systems.
See page 2:30-2:32 for product specifications.

Universal Hand Held Microphones
UNI-MIC-004 and UNI-MIC-005
A dynamic, hand held device designed for use in a variety of mobile and fixed station applications.
The microphone offers extremely low sensitivity to hum pick-up and low susceptibility to radio frequency interference and is supplied with a 1m curly cord.
UNI-MIC-004 for use with 100w Siren (MCS-SE), UNI-MIC-005 for use with Universal Controller Plus (MCS-32).
See page 2:23 for product specifications.
Universal Controller Plus (MCS-32)

For the operation of vehicle rooftop lighting, secondary lighting and power management

PRODUCT OVERVIEW

The Universal Controller Plus (MCS-32) consists of a main control box which contains everything required to control a vehicle mounted hazard warning system, typically comprising rooftop lighting, secondary hazard warning lights and audio equipment. It has 32 outputs and 24 configurable inputs with power management functions including runlock, split charging, load shedding and headlight flash, plus many more, some of which may be implemented via the vehicle CAN Bus system. It also includes a logic switch module to facilitate the control of a Gateway radio with voice alerts.

Operate the controller through one of our range of fully compatible hand held or dash mounted switch units and you have an economical hazard warning control system that does not compromise on features or functionality.

System Intelligence

The main control unit is supplied with default settings that will suit a variety of applications, however it can be simply customised to match the end users specific application by plugging in to a laptop/desktop PC and utilising the ‘easy to use’ complimentary software.

Human Machine Interface (HMI)

We have developed a collection of switch units specifically designed to interface with the Universal Controller Plus (MCS-32). They range from a 5-way switch unit through to a 16-way flush/DIN mount unit, with every conceivable combination in between. Handsets have the facility to operate a Public Address (PA) system via an integral microphone and the option to allocate any button to operate the Push to Talk (PTT) feature. Full details are given later in this catalogue.

One Source, One Solution

In order to simplify the installation process each unit is supplied fully loaded with all the necessary features and functions to implement a comprehensive system. Simply enable the required function via the ‘easy to use’ software.

Logic Functions

An abundance of logic functions means complex applications are no longer difficult to implement, particularly where certain operations are interlinked with others. So, carrying out ‘and/or’ functions and implementing ‘do this when’ or ‘stop this when’ are simple to apply together with the facility to alter functions allowing continual client synchronisation.

System Configuration

This is a simple 3-stage process which entails enabling and labelling inputs and outputs, configuring the system operation and downloading the application onto the unit. This operation need only be done once, when completed it can be simply be transferred onto other units via a laptop.

UNIVERSAL CONTROLLER PLUS (MCS-32) COMPONENTS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNI-PLS-001</td>
<td>Universal Controller Plus (MCS-32) with Siren, 12/24v</td>
</tr>
<tr>
<td>UNI-PLS-002</td>
<td>Universal Controller Plus (MCS-32-NS) without Siren, 12/24v</td>
</tr>
<tr>
<td>UNI-PRO-002</td>
<td>Universal MCS Software CD</td>
</tr>
<tr>
<td>ACC-256</td>
<td>MCS Programming Lead and CD</td>
</tr>
</tbody>
</table>
General Features and Functions

OUTPUTS
32 Outputs:
- Hi Power Outputs
  - 20 Amps per channel
  - Current limiting
  - Multi flash patterns
  - Timer shutdown
  - Voltage drop out
- 12 Low Power Outputs
  - 600mA per channel
  - Positive or Negative switching
  - Provide monitoring signal inputs (not high impedance)
  - Negative polarity to switch low power relays
- 4 Medium Power Outputs
  - 2.5 Amps per channel
  - Positive & Negative polarity switching
  - Provide monitoring signal inputs
  - Drive relays
  - Small motors
  - 2 diode pairs built in for headlight and/or tail light flashers
  - Output to data logger
  - Electronic Fuses
    - Electronically adjustable
    - Electronically tripped

INPUTS
- 24 Configurable Inputs
  - 12 negative switching
  - 12 positive switching
  - Software configurable
- 4 Standard Inputs
  - Mic input
  - Radio input
  - Reset
  - Standby

MULTI-WAY SWITCH OPTIONS
- Universal Multi-Way handset can be fully configured using the MCS software
- Single or up to 4 handsets

SERIAL DATA PORT
- RS485 protocol
- RS232 - via adaptor
- Link with third party MDT terminals
- USB Port

CAN OR CAN TYPE DATA PORT
- Link to RSG complementary devices such as a lightbar
- Link to other industry new standard devices
- Link with legacy equipment

USER INTERFACE
- 24 illuminated status indicators
- Indicates flash pattern
- Communication status
- Provides output status
- Green - OK
- Red - Over current
- Amber - Low voltage

SPECIFICATION
- 12/24 volt operation
- 100 Amps total output
- Spec 5 approved
- e-approved

Software Operational Modules

100 WATT SIREN
- Supports 8 or 11 ohm speakers
- Can be enabled from an input or handset
- Air horn input
- HRT positive or negative activation
- Multiple siren tones selected from software
- Monitor signal active when siren on
- PA and radio re-broadcast facility
- UK and European sounds
- City Mode volume reduction feature
- Workshop mode volume suppression feature for testing
- Can be linked with other MCS siren devices to give two vehicle effect

LOAD SHEDDING MODULE
- Via internal or external monitoring
- Automatic in conjunction with other equipment activation

FAN CONTROL MODULE
- Outputs
  - 3 dedicated runlock outputs (2 with diodes)
  - Additional outputs assigned from software
- Enable Inputs
  - Inputs assigned in software
  - From handset, handbrake, remote button etc.
  - High or Low inputs
- Reset Inputs
  - Inputs assigned in software
  - From brake light, remote button etc.
  - High or Low inputs

HEADLIGHT FLASH
- Dedicated outputs x 4 (with built-in diodes) to control headlights and/or complementary flashing lamps

GATEWAY RADIO CONTROLLER
- Automatically switches between the Main & Gateway Radio (for built-up areas) within a 30 second window for the driver to exit the vehicle
- Automatic handbrake detection

ADDITIONAL FEATURES
- 16 x AND logic modules
- 16 x OR logic modules
- 32 x timer modules (1 second increments)

Compatible with the full range of:
Universal Multi-Way Handsets and Switch Panels as well as Cyclic, Momentary and Latching Switches

See page 5:42-5:43 for typical system specifications
Universal Controller Plus Slave (MCS-32S)
A device to expand the input and output functions of the Universal Controller Plus (MCS-32)

PRODUCT OVERVIEW

The ‘Slave’ Universal Controller Plus (MCS-32S) is effectively a duplicate of the standard Universal Controller Plus (MCS-32) that would act as its ‘Master’ Control Unit.

The ‘Slave’ unit therefore replicates most of the ‘Masters’ features and functions, but not all of them as this would not be practical to achieve when one device is subordinate to the other.

In brief the ‘Slave’ has 32 outputs and 24 configurable inputs combined with siren functions.

The features not included in this device, because practically they can only be performed by the ‘Master’ Control Unit are: Run Lock, Split Charging, Gateway Radio Controller, PA & Radio Re-broadcast and connection to the Audio Interface Controller.

Operation and monitoring of the ‘Slave’ Controller is executed through a 2-Way proprietary CAN Bus data link with the ‘Master’ Control Unit. Therefore as the ‘Slave’ only accepts proprietary CAN there is no direct monitoring of vehicle CAN signals.

System Intelligence

Although the ‘Slave’ unit has some self contained intelligence the ‘Master’ control unit has overall command of the system. Also where as the ‘Master’ will come with pre-set-up standard default settings the ‘Slave’ will effectively be supplied as a clean device and that would need programming via dedicated USB port using the free complimentary PC software.

Human Machine Interface (HMI)

This will be exclusively via the ‘Master’ control unit as the ‘Slave’ has no facility to connect with our range of Multi Functional switch panels/handsets. However, discrete switches for Human Interface and/or Machine Trips can be connected into the relevant inputs if required.

One Source, One Solution

In order to optimise the installation process each unit is supplied fully loaded with all the necessary operating features and functions to implement a basic system, by simply enabling the required function via the ‘easy to use’ software.

Logic Functions

Like the ‘Master’ unit the ‘Slave’ also contains an abundance of logic functions meaning complex applications are no longer difficult to implement, particularly where certain operations are interlinked with other functions. So performing ‘and/or’ functions and implementing ‘do this when’ or ‘stop this when’ are simple to apply together with the facility to alter functions allowing ‘end user’ requests to be simply implemented.

System Configuration

As with the ‘Master’ units this is a simple 3-Stage process which entails enabling and labelling inputs and outputs, configuring the system operation and downloading the application onto the unit. This operation need only be done once, when completed it can be simply transferred onto other units via a laptop.

UNIVERSAL CONTROLLER PLUS SLAVE (MCS-32S) COMPONENTS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNI-SLV-002</td>
<td>Universal Controller Plus Slave (MCS-32S-NS) without Siren, 12/24v</td>
</tr>
<tr>
<td>ACC-256</td>
<td>MCS Programming Lead and CD</td>
</tr>
<tr>
<td>UNI-PRO-002</td>
<td>Universal Controller Plus (MCS-32) Software version X or higher</td>
</tr>
</tbody>
</table>

MCS-32 MASTER & MCS-32S SLAVE COMPARISON CHART

<table>
<thead>
<tr>
<th>FEATURES &amp; FUNCTIONS</th>
<th>UNIVERSAL CONTROLLER PLUS (MCS-32) MASTER</th>
<th>UNIVERSAL CONTROLLER PLUS (MCS-32S) SLAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outputs</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Inputs</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Multi-Way Switches</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Discrete Switches</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Serial Data Port</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Vehicle CAN</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Headlight Flash</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>100 Watt Siren</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Load Shedding</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fan Control</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Saloon Lights</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Cabinet Anti-Tamper</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Audio Intercom</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Split Charge Controller</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Run Lock Controller</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>User Interface</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Logic &amp; Timer Modules</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Universal Controller Plus Slave (MCS-32S) Control Unit

General Features and Functions

OUTPUTS
32 Outputs:
- 16 Hi Power Outputs
  - 20 Amps per channel
  - Current limiting
  - Multi flash patterns
  - Timer shutdown
  - Voltage drop out
- 12 Low Power Outputs
  - 600mA per channel
  - Positive & Negative polarity switching
  - Provide monitoring signal inputs (not high impedance)
  - Negative polarity to switch low power relays
- 4 Medium Power Outputs
  - 2.5 Amps per channel
  - Positive & Negative polarity switching
  - Provide monitoring signal inputs
  - Drive relays
  - Small motors
- 2 diode pairs built in for headlight and/or tail light flashers

INPUTS
- 24 Configurable Inputs
  - 12 negative switching
  - 12 positive switching
  - Software configurable
  - External reset
  - Standby input
- 2 Standard Inputs
  - Reset
  - Standby
  - There are no audio inputs available on this device

HANDSET CONFIGURATION
There is no facility to provide this function as this is performed solely by the MCS-32 Master Control Unit

USER INTERFACE
- 24 illuminated status indicators
- Indicates status of some internal functions, but not all as these will be available on the MCS-32 Master Control Unit
- Communication status
- Provides output status
- Green - OK
- Red - Over current
- Amber - Low voltage

Software Operational Modules

LOAD SHEDDING MODULE
- Via internal or external monitoring
- Automatic in conjunction with other equipment activation

FAN CONTROL MODULE
- Control up to 4 intake/extractor fans
- Reverses power supply to fans
- Optional 4-way Relay Expansion Module

SAŁON LIGHTING MODULE
- Ideal to control internal ambulance lighting
- Manual, semi and full automatic operation

CABINET ANTI-TAMPER MODULE
- Monitor 16 ambulance medical lockers
- Ideal for monitoring medical consumables/medicines
- Cabinet re-stock indication

AUDIO INTERCOM CONTROLLER
- This function is not available on this device as it is performed solely by the MCS-32 Master Control Unit

SPLIT CHARGE CONTROLLER
- This function is not available on this device as it is performed solely by the MCS-32 Master Control Unit

RUN LOCK CONTROLLER
- This function is not available on this device as it is performed solely by the MCS-32 Master Control Unit

HEADLIGHT FLASH
- Dedicated outputs x 4 (with built-in diodes) to control headlights and/or complementary flashing lamps

ADDITIONAL FEATURES
- 16 x AND logic modules
- 16 x OR logic modules
- 32 x timer modules (1 second increments)

100W SIREN
2 MODE INPUTS
16 HI POWER OUTPUTS
4 MEDIUM POWER OUTPUTS
2 MODE INPUTS
12 LOW POWER OUTPUTS
STATUS INDICATOR PANEL
CAN BUS
24 STANDARD INPUTS

See page 5:43 for typical system specifications
Universal Controller Lite (MCS-16)
For the operation of vehicle rooftop lighting, secondary lighting and power management

PRODUCT OVERVIEW
The Universal Controller Lite (MCS-16) consists of a main control box which contains everything required to control a 'complete' vehicle mounted hazard warning system, typically comprising of a rooftop lightbar, secondary hazard warning lights and audio equipment. It has 16 outputs and 16 standard inputs with power management functions including run lock, split charging, load shedding and headlight flash, plus many more, some of which may be implemented via the vehicle CAN Bus system. It also includes a logic switch module to facilitate control of auxiliary add-on devices such as: Gateway Radio Controller, Audio Interface Controller (Intercom with pre-recorded 'voice' alerts) and Fan Controller.

Operate the controller through one of our range of fully compatible hand held or dash mounted switch units and you have an economical hazard warning control system that does not compromise on features and functions.

System Intelligence
The main control unit is supplied with default settings that will suit a variety of applications, however it can be simply customised to match the end user's specific application by plugging into a laptop/desktop PC and utilising the 'easy to use' complimentary software.

Human Machine Interface
We have developed a collection of switch units that have been specifically designed to interface with the Universal Controller Lite (MCS-16). They range from a 7-Way handset through to a 16-Way flush/DIN mount unit, with every conceivable combination in between. Handsets have the facility to operate a Public Address (PA) system via an integral microphone and the option to allocate any button to operate as the Push to Talk (PTT) feature. Full details are given later in this catalogue.

One Source, One Solution
In order to simplify the installation process each unit is supplied fully loaded with all the necessary features and functions to get a comprehensive system implemented. Simply enable the required functions via the 'easy to use' software.

Logic Functions
An abundance of logic functions means complex applications are no longer difficult to implement, particularly where certain operations are interlinked with other functions. So performing and/or functions and implementing 'do this when' or 'stop this when' are simple to apply together with the facility to alter functions allowing requested client updates to be simply implemented.

System Configuration
This is a simple 3-Stage process which entails enabling and labelling inputs and outputs, configuring the system operation and downloading the application onto the unit. This operation need only be done once, when completed it can be simply be transferred onto other units via a laptop.

UNIVERSAL CONTROLLER LITE (MCS-16) COMPONENTS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNI-LIT-001</td>
<td>Universal Controller Lite (MCS-16) with Siren, 12/24v</td>
</tr>
<tr>
<td>UNI-LIT-002</td>
<td>Universal Controller Lite (MCS-16) without Siren, 12/24v</td>
</tr>
<tr>
<td>ACC-256</td>
<td>MCS-32 Programming Lead and CD</td>
</tr>
<tr>
<td>UNI-PRO-002</td>
<td>Universal Controller Software CD</td>
</tr>
</tbody>
</table>

Cable, Connector, Adaptor and Pin Kit
Universal Controller Lite (MCS-16) Control Unit

Software Operational Modules

100 WATT SIREN
- Supports 8 or 11 ohm speakers
- Can be enabled from an input or handset
- Air horn input
- HRT positive or negative activation
- Multiple siren tones selected from software
- Monitor signal active when siren on
- P5
- UK and European sounds
- City Mode volume reduction feature
- Workshop mode volume suppression feature for testing
- Can be linked with other MCS Siren devices to give 2 vehicle effect

LOAD SHEDDING MODULE
- Via internal or external monitoring
- Automatic in conjunction with other equipment activation

FAN CONTROL MODULE
- Control up to 4 intake/extractor fans
- Reverses power supply to fans
- Optional 4-way relay expansion module

SALOON LIGHTING MODULE
- Ideal to control internal ambulance lighting
- Manual, semi and full automatic operation

CABINET ANTI-TAMPER MODULE
- Monitor 16 ambulance medical lockers
- Ideal for monitoring medical consumables/medicines
- Cabinet re-stock indication

AUDIO INTERCOM CONTROLLER (operates with external device)
- Announce pre-recorded messages
- Duplex or simplex intercom

SPLIT CHARGE CONTROLLER
- Monitors primary battery voltage
- Output drives charging solenoid to charge secondary battery
- Solenoid in and out voltage programmable

RUN LOCK CONTROLLER
- Outputs
  - 1 dedicated runlock output
  - Additional outputs assigned from software
- Enable Inputs
  - Inputs assigned in software
  - From handset, handbrake, remote button etc.
  - Hi or Lo inputs
- Reset Inputs
  - Inputs assigned in software
  - From brake light, remote button etc.
  - Hi or Lo inputs

HEADLIGHT FLASH
- Dedicated outputs x 2 (with built-in diodes) to control headlamps and/or complementary flashing lamps

GATEWAY RADIO CONTROLLER (operates with external device)
- Automatically switches between the Main & Gateway Radio (for built-up areas) within a 30 second window for the driver to exit the vehicle
- Automatic handbrake detection

ADDITIONAL FEATURES
- 16 x AND logic modules
- 16 x OR logic modules
- 32 x timer modules

General Features and Functions

OUTPUTS
16 Outputs:
- 8 High Power Outputs
  - 20 Amps per channel
  - Current limiting
  - Multi flash patterns
  - Timer shutdown
  - Voltage drop out
- 4 Low Power Outputs
  - 600mA per channel
  - Positive & Negative polarity switching
  - Provide monitoring signal inputs
  - Negative polarity to switch low power relay
- 4 Medium Power Outputs
  - 2.5 Amps per channel
  - Positive & Negative polarity switching
  - Provide monitoring signal inputs
  - Drive relays
  - Small motors
- 2 diode pairs built in for headlight and/or tail light flashers
- Output to data logger
- Electronic Fuses
  - Electronically adjustable
  - Electronically tripped

INPUTS
- 16 Configurable Inputs
  - 8 negative switching
  - 8 positive switching
  - Software configurable
  - External reset
  - Standby input
- 3 standard Inputs
  - Mic input
  - Reset
  - Standby

MULTI-WAY SWITCH OPTIONS
- Universal Multi-Way handset can be fully configured using the MCS software
- Single or up to 4 handsets

SERIAL DATA PORT
- USB x 1
- Link with third party MDT terminals

CAN OR CAN TYPE DATA PORT
- Link to RSG complementary devices such as a lightbar
- Link to other industry new standard devices - CAN Bus
- Link with legacy equipment - PWM

USER INTERFACE
- 24 illuminated status indicators
- Indicates flash pattern
- Communication status
- Provides output status
- Green - OK
- Red - Over current
- Amber - Low voltage

SPECIFICATION
- 12/24v operation
- 100 Amps total output
- Spec S approved
- 12v version only e-approved

Compatible with the full range of:
Universal Multi-Way Handsets and Switch Panels as well as Cyclic, Momentary and Latching Switches
MCS-8 Universal Controller
Compact Multifunctional Control System for the operation of vehicle rooftop lighting, secondary lighting and power management

PRODUCT OVERVIEW

The MCS-8 Universal Controller consists of a main control box which contains everything required to control a ‘complete but optimised’ vehicle mounted hazard warning system, typically comprising of a rooftop lightbar, secondary hazard warning lights and audio equipment. It has 4 high power outputs, 4 dual purpose inputs and medium power outputs and 6 dedicated inputs. It also includes power management functions including run lock, split charging, load shedding and headlight flash, plus many more, some of which may be implemented by listening in to the vehicle CAN Bus system. It also includes a logic switch module to facilitate control of auxiliary add-on devices such as: Gateway Radio Controller, Audio Interface Controller (Intercom with pre-recorded ‘voice’ alerts) and Fan Controller.

Operate the controller through one of our range of fully compatible hand held or dash mounted switch units and you have an economical hazard warning control system that does not compromise on features and functions.

System Intelligence
The MCS-8 is usually supplied as an unprogrammed unit as free PC software for setting up unique configurations, user manuals and training are available on request. Also once a satisfactory configuration has been created it can be transferred to any number of units by use of a laptop.

Human Machine Interface
We have developed a collection of switch units that have been specifically designed to interface with the MCS-8 Universal Controller. They range from a 7-Way handset through to a 16-Way flush/DIN mount unit, with every conceivable combination in between. Handsets have the facility to operate a Public Address (PA) system via an integral microphone and the option to allocate any button to operate as the Push to Talk (PTT) feature. Full details are given later in this catalogue.

One Source, One Solution
In order to simplify the installation process each unit is supplied fully loaded with all the necessary features and functions to get a comprehensive system implemented. Simply enable the required functions via the ‘easy to use’ software.

Logic Functions
An abundance of logic functions means complex applications are no longer difficult to implement, particularly where certain operations are interlinked with other functions. So performing and/or functions and implementing ‘do this when’ or ‘stop this when’ are simple to apply together with the facility to alter functions allowing requested client updates to be simply implemented.

System Configuration
This is a simple 3-Stage process which entails enabling and labelling inputs and outputs, configuring the system operation and downloading the application onto the unit. This operation need only be done once, when completed it can be simply be transferred onto other units via a laptop.

COMPACT UNIVERSAL CONTROLLER (MCS-8) COMPONENTS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNI-EIG-001</td>
<td>MCS-8 Universal Controller with Siren, 12/24v</td>
</tr>
<tr>
<td>UNI-EIG-002</td>
<td>MCS-8 Universal Controller without Siren, 12/24v</td>
</tr>
<tr>
<td>ACC-256</td>
<td>MCS Programming Cable and CD</td>
</tr>
<tr>
<td>UNI-PRO-002</td>
<td>Universal Controller Software CD</td>
</tr>
</tbody>
</table>

Cable, Connector, Adaptor and Pin Kit
General Features and Functions

OUTPUTS
8 Outputs:
- 4 High Power Outputs
  - 20 Amps per channel - see current ratings
  - Current limiting
  - Multi flash patterns
  - Timer shutdown
  - Voltage drop out
- Medium Power Outputs
  - 2.5 Amps per channel
  - Positive or Negative switching (configurable via software)
  - Can also be used as inputs
  - Ideal for monitoring or special functions
- Drive relays
- Small motors
- Monitor outputs
- 1 diode pair built in for headlight and/or tail light flashers
- Output to data logger
- Electronic Fuses
  - Electronically adjustable
  - Electronically tripped

INPUTS
10 Outputs:
- 6 Dedicated and 4 Shared Inputs
  - 10 Positive Inputs (Configurable as negative via software)
  - Software configurable
- Multi-Way Switch Options
  - Universal Multi-Way handset can be fully configured using the MCS software
  - Single or up to 4 handsets

SERIAL DATA PORT
- USB Programming Port

CAN DATA PORT
- Listen in to Vehicle CAN Bus
- Link to RSG complementary devices such as a lightbar
- Link to other industry new standard devices
- Link with legacy equipment

LIN BUS SUPPORT
- Optional LIN Bus compatible devices

USER INTERFACE
- 16 illuminated status indicators
- Indicates flash pattern
- Communication status
- Provides output status when applicable
- Green - OK
- Red - Over current
- Amber - Low voltage

CURRENT RATINGS
- Complete system 50 Amps (including 7 Amps for siren operation)
- Bank A: 40 Amp (Siren, Hi Power O/P 1, Low Power, O/P’s 1 and 2
- Bank B: 40 Amp (Siren, Hi Power O/P’s 3 and 4, Low Power, O/P’s 3 and 4
- Bank P: 20 Amp (Hi Power output 2)

SPECIFICATION
- 12/24v operation

Software Operational Modules

100 Watt Siren (Optional)
- Supports 8 or 11 ohm speakers
- Can be enabled from an input or handset
- Air horn input
- HRT positive or negative activation
- Multiple siren tones selected from software
- Monitor signal active when siren on
- PA and radio re-broadcast facility with adjustable volumes
- UK and European sounds
- City Mode volume reduction feature
- Workshop mode volume suppression feature for testing
- Sounds when low voltage detected (optional)

Load Shedding Module
- Via internal or external monitoring
- Automatic in conjunction with other equipment activation

Fan Control Module
- Control up to 4 intake/extractor fans
- Reverses power supply to fans

Saloon Lighting Module
- Ideal to control internal ambulance lighting
- Manual, semi and full automatic operation

Cabinet Anti-Tamper Module
- Monitor 16 ambulance medical lockers
- Ideal for monitoring medical consumables/medicines
- Cabinet re-stock indication

Audio Intercom Controller (operates with external device)
- Announce pre-recorded messages
- Duplex or simplex intercom

Split Charge Controller
- Monitors primary battery voltage
- Output drives charging solenoid to charge secondary battery
- Solenoid in and out voltage programmable

Run Lock Controller
- Outputs
  - Run Lock outputs assigned in software (diodes to be fitted as required)
- Enable Inputs
  - Inputs assigned in software
  - From handset, handbrake, remote button etc.
  - Hi or Lo inputs
- Reset Inputs
  - Inputs assigned in software
  - From brake light, remote button etc.
  - Hi or Lo inputs

Headlight Flash
- Dedicated outputs (with built-in diodes) to control headlights and/or complementary flashing lamps

Gateway Radio Controller
- Automatically switches between the Main & Gateway Radio (for built-up areas) within a 30 second window for the driver to exit the vehicle
- Automatic handbrake detection

Additional Features
- 16 x AND logic modules
- 16 x OR logic modules
- 32 x timer modules

Compatible with the full range of: Universal Multi-Way Handsets and Switch Panels as well as Cyclic, Momentary and Latching Switches
Section 2:

Complementary Expansion Products

In the event that the Universal Controller Plus (MCS-32) does not contain sufficient functions in its own right, additional expansion units can be added to substantially increase operating capacity.

We have various expansion units for a variety applications including:

Universal Load Switch (MCS-5E)

By connecting a Universal Load Switch to a Universal Controller Plus you add 5 outputs, thereby increasing the outputs from 32 to 37. The inputs are also increased by potentially up to 7 making a potential total of 31 inputs.

It is possible to add up to 8 Universal Load Switches to a Universal Controller Plus thereby increasing outputs to a maximum of 72 and inputs to a maximum of 80.

The Universal Load Switch is also a control unit in its own right, ideal for controlling basic hazard warning lighting systems, see page 2:19 for more details.

Universal Lighting Breakout Controller (MCS-LBC)

By connecting a Universal Lighting Breakout Controller to a Universal Controller Plus you add 10 outputs, thereby increasing the outputs from 32 to 42. The inputs are also increased by 4 making a total of 28 inputs.

It is possible to add up to 8 Universal Lighting Breakout Controllers to a Universal Controller Plus thereby increasing outputs to a maximum of 112 and inputs to a maximum of 56.

The Universal Lighting Breakout Controller is classed as an expansion modules however it can be used with other devices to convert a multi-wired input to a CAN Bus input, see page 2:20 for more details.

Universal 100w Siren (MCS-SE)

Connecting a Universal 100w Siren to a Universal Controller Plus increases the siren sound for added audible impact.

The Universal 100w Siren can also operate as a stand-alone device providing input and output capabilities, see page 2.21 for more details.

Basic Stand alone 100w Siren (MCS-SSA)

Connecting a Basic Stand-alone 100w Siren to a Universal Controller Plus increases the siren sound for added audible impact, see page 2.22 for more details.

Audio Intercom Controller (MCS-AIC)

Connecting an Basic Audio Intercom Controller to a Universal Controller Plus adds a voice message warning capability as well as an intercom facility, see page 2:23 for more details.

4-way Relay Expansion Module (MCS-RP4)

By connecting a 4-way Expansion Module to a Universal Controller Plus you add 4 high powered outputs to the existing 32 standard outputs, see page 2:23 for more details.

To help with understanding and specifying of Universal Controller Plus systems we have included a range of diagrams illustrating typical system set-ups which including the majority of the items above, see pages 5:43-5:45 for more details.

Universal Load Switch (MCS-5E) UNI-LDS-002

The Universal Load Switch is ideal for the control of basic hazard warning lighting systems.

It has 4 multi-functional operating modes that are simply selected via a DIP switch as well as 2 CAN Bus ports allowing multiple units to be joined together.

See page 2.19 for product specifications.

Universal Lighting Breakout Controller (MCS-LBC) UNI-LBC-001

The Universal Lighting Breakout Controller takes a CAN Bus encoded signal and converts it into a set of up to 10 conventional signals to turn lights and/or other control units on and off.

Measuring only 77mm x 77mm and only 20mm deep the unit can fit almost anywhere. Typical applications include inside a lightbar to convert from multi-wired input to 2 wired CAN Bus input.

See page 2.20 for product specifications.

Basic Stand alone 100w Siren (MCS-SSA) PAA-167-03

Ideal for applications where space is limited and an economic Siren device is required, where no interface (data bus type) to complementary equipment or PA function is required.

Supplied with Yelp, Wail and Air Horn tones as standard, other tones available upon request.

See page 2.22 for product specifications.

Audio Intercom Controller (MCS-AIC) UNI-AIC-001

A compact audio control unit that can provide automatic announcements and pre-recorded verbal messages and/or provide intercom facilities between persons in vehicles with separate front and rear compartments.

Can be used as a stand alone device or in conjunction with the Universal Controller Plus (MCS-32).

See page 2.24 for product specifications.

4-Way Relay Expansion Module (MCS-RP4) UNI-RP4-001

Expands the ability of the MCS-32 or MCS-16 by providing 4 x relay outputs that can be used as simple switching contacts.

Provides reverse polarity signals not achievable directly from electronic switching devices.

See page 2.23 for product specifications.
Universal Load Switch (MCS-5E) UNI-LDS-002

A device that can expand the input and output functions of the Universal Controller Plus (MCS-32) or use as a stand-alone device to control hazard warning lights or link with the Universal 100W Siren (MCS-5E) to create a basic hazard warning system

PRODUCT OVERVIEW

One application for the Universal Load Switch (MCS-ULS) is to boost the inputs and outputs of a Universal Controller Plus (MCS-32).

The addition of a single Universal Load Switch increases outputs by 5 and inputs by potentially up to 7. Up to 8 Universal Load Switches can be added increasing the maximum amount of outputs from 32 to 72 and inputs potentially from 24 to 80.

This device is also ideal as a control hub for basic blue and amber hazard warning lighting systems. When used in conjunction with a siren it provides a cost effective Emergency Services System. Separate data sheets are available for further details.

As well as having 4 operating modes depending upon the application required, it also has two CAN Bus ports to allow multiple units to be linked together and/or linkage to other devices such as switch panels and sirens with CAN Bus connections, including RSG’s range of Universal Controllers.

- 4 Multi Functional Operating Modes
  Simply selected via DIP switches to get:
  Mode 1 - 5-way solid state relay pack
  Mode 2 - Headlight flasher, run lock and single solid state relay
  Mode 3 - Headlight flasher and 3 solid state relays
  Mode 4 - Runlock and 3 solid state relays

- Independently Settable Over Current Protection
  - Each solid state relay channel can have its current limit independently set to 5, 10, 15 or 20 amps via DIP switches, ideal for load management applications
  - Eliminates the need for external low current fusing per channel. Only a single high current fuse is required

- Under voltage protection
  - This feature can be enabled and disabled via a single DIP switch. When enabled, outputs are inhibited when the supply voltage drops below 12.1 volts
Universal Lighting Breakout Controller (MCS-LBC) UNI-LBC-001

A device that can expand the input and output functions of the Universal Controller Plus (MCS-32) or used in conjunction with other devices to convert/increase inputs and outputs

PRODUCT OVERVIEW

One application of the Universal Lighting Breakout Controller (MCS-LBC) is to boost the inputs and outputs of a Universal Controller Plus (MCS-32).

The Universal Lighting Breakout Controller takes a CAN Bus encoded signal and converts it into a set of up to 10 conventional on/off (12 volts on and 0 volts off) signals to turn lights and/or other control units on and off.

By connecting a Universal Lighting Breakout Controller to a Universal Controller Plus you add 10 outputs, thereby increasing the outputs from 32 to 42. The inputs are also increased by 4 making a total of 28 inputs.

Measuring 77mm x 77mm and only 20mm deep the unit can fit almost anywhere including such applications as:

- Inside a lightbar to convert from multi wired input to two wired CAN Bus input (plus positive and negative connections)
- Light head ‘Breakout Box’ to create nodes at front, rear or elsewhere in the vehicle
- Low cost control head to expand systems based on other ‘Universal’ range devices that would typically be the Universal Load Switch or Universal 100w Siren

Below is typical connection diagrams for a lightbar and rear lighting control.

**Typical connections within lightbar** - install internal or external to lightbar

**Typical connections to rear lights** - install at rear of vehicle

**Product Dimensions** UNI-LBC-001

- 2 CAN BUS CONNECTORS
- 4 INPUTS
- 10 OUTPUTS
- 4 POWER INPUTS
Universal 100w Siren (MCS-SE) UNI-SIR-001

Operates as a stand-alone device with optional input and output capabilities as well as PA and Radio Re-broadcast facilities. Also when connected to other compatible Universal MCS Siren devices creates a ‘two siren’ sound effect from one vehicle.

PRODUCT OVERVIEW

Use as a stand-alone device or as part of a blue’s and two’s system. A compact 100w siren unit which operates at both 12v and 24v, meaning only one device to stock. Also includes a PA facility when an optional microphone is fitted.

MCS-SE functions and features:
- 12v and 24v operation
- Interconnects to related products via proprietary CAN Bus
- Can be enabled from an input or compatible multi-way switch
- Hands free operation via the HRT (Horn Ring Transfer) feature enables scrolling through pre-selected siren tones
- Selectable UK & European siren sounds with Air/Bull horn option
- Siren active output (ideal as Data Recorder Input)
- PA & radio re-broadcast facility
- Supports 8 and 11 ohm speakers
- City mode volume reduction feature
- Workshop mode volume suppression feature for testing

The MCS-SE can also be linked with other compatible siren devices to create a ‘two siren’ sound effect from one vehicle when used with one of the following devices:
- MCS-32 Universal Controller Plus UNI-PLS-001
- MCS-SE Universal 100 Watt Siren UNI-SIR-001
- MCS-SSA Basic Stand-alone Siren PAA-167-03

With the following system functions and features:
- Tones from each unit will be different
- Tones from each device will be un-synchronised to give a two vehicle effect
- Dual 100Watt Siren outputs via two separate 100 Watt speakers

Absolute Maximum Ratings
- 34 volts DC supply voltage
- 15 Amps maximum
- 4 milliamps typical standby current - switch de-activated
- 22 milliamps typical standby current - switch activated
- 35 milliamps maximum standby current - switch activated
- -20ºC to 70ºC standby temperature
- -20ºC to 65ºC operating temperature

Power
- 1 x DC on pluggable adaptor (15 Amp fuse must be used)
- 1 x Ground/chassis connection (should be rated to handle 15 Amps or more)

Digital Inputs
- 3 x positive/negative switched
- 2 x positive switched (HRT, Airhorn)
- 2 x negative switched (HRT, Airhorn)

Analog monitoring
- Incoming system voltage sense
- Internal temperature monitor
- Siren system current monitor
- System has cooling using internal fan

Outputs
- 3 x high or low switching 500 milliamps rated transistors with internal re-settable fuse protection
- 100w siren speaker output 8 or 11 ohm selectable

Communication
- 1 x CAN Bus 2.0 full speed interface

OPTIONAL MICROPHONE AVAILABLE
SEE PAGE 2:21 FOR DETAILS

UNIQUE FEATURE
YELP & WAIL AT THE SAME TIME!
Connect two compatible units together via CAN port for un-synchronised output of two different siren sounds at the same time simulating multiple vehicles form ONE car.
Basic Stand-alone 100w Siren Amplifier (MCS-SSA) PAA-167-03
Operates as a stand-alone device. When connected to other compatible Universal MCS Siren devices creates a ‘two siren’ sound effect from one vehicle.

PRODUCT OVERVIEW
Use as an economic stand-alone device or as part of a blue’s and two’s system. A compact 100w siren unit which operates at both 12v and 24v, meaning only one device to stock.

MCS-SSA functions and features:
• 12v and 24v operation
• Interconnects to related products via proprietary CAN Bus
• Can be enabled from an input or compatible multi-way switch
• Hands free operation via the HRT (Horn Ring Transfer) feature enables scrolling through pre-selected siren tones
• Selectable UK siren sounds with Air/Bull horn option
• Siren active output (ideal as Data Recorder Input)
• On board status LEDs
• Supports 8 and 11 ohm speakers
• City mode volume reduction feature
• Workshop mode volume suppression feature for testing

The MCS-SSA can also be linked with other compatible siren devices to create a ‘two siren’ sound effect from one vehicle when used with one of the following devices:
• MCS-32 Universal Controller Plus UNI-PLS-001
• MCS-SE Universal 100 Watt Siren UNI-SIR-001

With the following system functions and features:
• Tones from each unit will be different
• Tones from each device will be un-synchronised to give a two vehicle effect
• Dual 100Watt Siren outputs via two separate 100 Watt speakers

Absolute Maximum Ratings
• 34 volts DC supply voltage
• 15 Amps maximum
• 4 milliamps typical standby current - switch de-activated
• 22 milliamps typical standby current - switch activated
• 35 milliamps maximum standby current - switch activated
• -20°C to 70°C standby temperature
• -20°C to 65°C operating temperature

Power
• 1 x DC on pluggable adaptor (15 Amp fuse must be used)
• 1 x Ground/chassis connection (should be rated to handle 15 Amps or more)

Digital Inputs
• 1 x positive/negative switched
• 1 x positive switched (HRT, Airhorn)
• 1 x negative switched (HRT, Airhorn)

Analog monitoring
• Incoming system voltage sense
• Internal temperature monitor
• Siren system current monitor

Outputs
• 100w siren speaker output 8 or 11 ohm selectable

Communication
• 1 x CAN Bus 2.0 full speed interface

Product Dimensions PAA-167-03

UNIQUE FEATURE
YELP & WAIL AT THE SAME TIME!
Connect two compatible units together for an un-synchronised output of two different siren sounds at the same time simulating multiple vehicles from ONE car.
4-Way Relay Expansion Module (MCS-RP4) UNI-RP4-001

Expands the ability of the MCS-32 or MCS-16 by providing 4 x Relay outputs that can be used as simple switching contacts or specifically for controlling up to 2 Extractor Fan motors by providing reverse polarity signals not achievable directly from electronic switching devices.

PRODUCT OVERVIEW

The 4-Way Relay Expansion Module (MCS-RP4) simply consists of 4 change over relays in a robust enclosure controlled via the MCS-32 CAN Bus link.

Each relay can be independently controlled or operated in conjunction with one another by a dedicated ‘software module’ within the MCS-32 or MCS-16. In addition each relay coil can be powered independently if required and as well as having on-board fuses.

Specification
- 4 x 20 Amp Relays
- 12 Volt coil
- 20 Amp fuse on ‘mover’ contact
- Relay coils reverse voltage diode protected

Typical Extractor Fan Application
- Can do simple manual start and stop functions in forward and reverse direction
- Can implement automatic stop/start of forward and reverse directions
- Supports single, double or triple button operation
- See RSG technical bulletin for full details of this application

Overall Dimensions: 187mm (w) x 77mm (d) x 36mm (h)

Universal Hand Held Microphones UNI-MIC-003 and UNI-MIC-005

UNI-MIC-003 for use with the Universal 100w Siren (MCS-SE).
UNI-MIC-005 for use with the Universal Controller Plus (MCS-32) and Universal Controller Lite (MCS-16).

PRODUCT OVERVIEW

A dynamic, hand-held communications device designed for use in a variety of mobile and fixed station applications, including Police, Fire, Ambulance, Public Utility and similar applications.

The microphone offers extremely low sensitivity to hum pick-up and low susceptibility to radio frequency interference and is supplied complete with a 1m curly cord which extends up to 3 metres.

They fit naturally and comfortably in the hand and are not adversely affected by heat or humidity. The moulded plastic case is immune to oil, grease, fumes, salt spray, sun, rust and corrosion, and is outstanding in its ability to withstand mechanical shocks and vibration.

- Version UNI-MIC-005 - dynamic microphone with pre-amp
- Version UNI-MIC-003 - dynamic microphone without pre-amp
- Frequency response from 200Hz to 3000Hz
- Profilled and optimised for voice communications
- Low susceptibility to radio-frequency interference
- Rugged and dependable under all operating conditions
- Durable curly cord for professional use
- Low sensitivity to hum
- High impact moulded plastic case
- Comfortable to the touch in hot or cold weather

HAND HELD MICROPHONE COMPONENTS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNI-MIC-003</td>
<td>Microphone for MCS-SE Siren</td>
</tr>
<tr>
<td>UNI-MIC-005</td>
<td>Microphone for MCS-32 and MCS-16 controllers</td>
</tr>
<tr>
<td>13-1250</td>
<td>Microphone Mounting Clip - Dash Half (spare)</td>
</tr>
<tr>
<td>19-1394</td>
<td>2 metre extension lead</td>
</tr>
<tr>
<td>19-1346</td>
<td>6 metre extension lead</td>
</tr>
</tbody>
</table>
Audio Intercom Controller (MCS-AIC) UNI-AIC-001

Connect to a Universal Controller Plus (MCS-32) to add voice information warning messages as well as an intercom facility.

PRODUCT OVERVIEW

A compact audio control unit that can provide automatic announcements and pre-recorded verbal messages and/or provide intercom facilities between persons in vehicles with separate front and rear compartments such as Box Ambulances and Prison Vans. Where the unit can be used either as a stand-alone device or in conjunction with our Universal Controller Plus (MCS-32) to provide more interactive control with other vehicle functions. As such the device can be set-up in three different modes of operation:

- Pre-recorded Message Announcement in conjunction with MCS-32
- Stand-alone Audio Intercom Controller Kit
- Pre-recorded Message Announcement and Audio Intercom Controller Kit in conjunction with MCS-32

Pre-Recorded Message Announcement Mode:

When the Audio Intercom Controller (AIC) device is set-up in this mode either a single or multiple pre-recorded messages, stored on a micro SD memory card (not supplied), can be broadcast through the unit when it is controlled by our Universal Controller Plus (MCS-32) device. To allow total flexibility with the message content, that are normally verbal announcements with or without sound effects, these are first recorded using the Windows Wave application on a PC and then downloaded on to a SD memory card that is then inserted into the AIC.

Audio Intercom Controller Mode:

When the AIC device is set-up in this mode (either with or without the MCS-32) it can be used as either a Simplex (1-Way) or Duplex (2-Way) Intercom system, depending upon the desired operating method for particular types of vehicles and their associated operational practises. Where for example ‘speaking priority’ can be allocated to either the front or rear operator depending whether the Push to Talk (PTT) switch is either latching or momentary in action. Also when used in conjunction with the MCS-32 device the Intercom facility can have the PTT function associated with a Multi-Way Switch button, as well as being linked-in with other vehicle operations such as when the blue’s & two’s are active.

Combined Pre-Recorded Message Announcement and Audio Intercom Controller Mode:

When the AIC device is set-up in this mode it acts as a devices that both Announces Pre-Recorded Messages as well as acting as an Intercom however, due to the potential complex of this application this mode can only be applied when used in conjunction with our MCS-32 device. Typical applications of each of these three configurations are shown on the opposite page.

General Features and Functions

The unit is designed so it may be discreetly mounted behind a panel with microphones and speakers positioned in convenient and accessible locations.

- Clear voice communication between front and rear vehicle compartments
- Messages stored on Micro SD card (not supplied)
- Can broadcast pre-recorded (defined and/or approved) messages
- Optional ignition sense input to switch on and off via ignition
- Compact size
- Built-in heat sink for constant operation
- 2 x active microphone and control switches are supplied separately so can match operational requirements and vehicle interior aesthetics
- Standard speakers, microphones and PTT switches are available from RSG if required
- If required PTT switches can be buttons associated with MCS-32

Multi-Way Switches

- Audio Accessories

Various Loudspeakers Available

Contact our sales team to discuss requirements.

Pre-wired Microphone Kit UNI-MIC-007

Dynamic microphone pre-wired to 3.5mm stereo jack plug with pre amp. Suitable for standard panel mounting.

Latchling PTT Switch 16-1093

Round latching switch with LED ‘ON’ indicator.

Momentary PTT Switch 16-1431

Round momentary switch with LED ‘ON’ indicator.

TYPICAL VOICE ANNOUNCEMENT MESSAGES FOR SPECIFIC APPLICATIONS

<table>
<thead>
<tr>
<th>PUBLIC TRANSPORT</th>
<th>MEDICAL PATIENT TRANSPORT</th>
<th>REFUSE COLLECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• BEWARE DOORS CLOSING</td>
<td>• BEWARE RAMP DEPLOYING</td>
<td>• BEWARE BIN TIPPING</td>
</tr>
<tr>
<td>• DOORS OPENING - LIGHT VEHICLE</td>
<td>• BEWARE RAMP RETRACTING</td>
<td>• BEWARE BIN LOWERING</td>
</tr>
<tr>
<td>• DOORS OPENING - ENTER VEHICLE</td>
<td>• HOLD TIGHT VEHICLE ABOUT TO MOVE</td>
<td>• WARNING VEHICLE REVERSING</td>
</tr>
<tr>
<td>• CAUTION RAMP DEPLOYING</td>
<td>• HOLD TIGHT VEHICLE STOPPING</td>
<td>• WHITE NOISE ‘REVERSING’</td>
</tr>
<tr>
<td>• CAUTION RAMP RETRACTING</td>
<td>• MEDICAL STORE OPEN</td>
<td>• WARNING VEHICLE MANOEUVRING</td>
</tr>
<tr>
<td>• HOLD TIGHT VEHICLE ABOUT TO MOVE</td>
<td>• MEDICAL SAFE OPEN</td>
<td>• WARNING VEHICLE TURNING RIGHT</td>
</tr>
<tr>
<td>• HOLD TIGHT VEHICLE STOPPING</td>
<td>• WARNING VEHICLE REVERSING</td>
<td>• WARNING VEHICLE TURNING LEFT</td>
</tr>
<tr>
<td>• KINDLY HAVE CORRECT FARE OR CARD READY</td>
<td>• WHITE NOISE ‘REVERSING’</td>
<td>• CAUTION VEHICLE COMPACTING</td>
</tr>
</tbody>
</table>

Audio Intercom Controller (MCS-AIC) COMPONENTS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNI-AIC-001</td>
<td>Audio Intercom Controller Unit (MCS-AIC)</td>
</tr>
<tr>
<td>UNI-PRO-002</td>
<td>Universal Controller Plus (MCS-32) Software</td>
</tr>
<tr>
<td>UNI-MIC-007</td>
<td>AIC Microphone and Pre-Amp Kit - Pre-wired</td>
</tr>
<tr>
<td>16-1093</td>
<td>Latching PTT Switch</td>
</tr>
<tr>
<td>16-1431</td>
<td>Momentary PTT Switch</td>
</tr>
<tr>
<td>PCH-102-18</td>
<td>32GB Micro SD HC Class 10 Memory Card</td>
</tr>
</tbody>
</table>

Audio Accessories

Various Loudspeakers Available

Contact our sales team to discuss requirements.

Pre-wired Microphone Kit UNI-MIC-007

Dynamic microphone pre-wired to 3.5mm stereo jack plug with pre amp. Suitable for standard panel mounting.

Latchling PTT Switch 16-1093

Round latching switch with LED ‘ON’ indicator.

Momentary PTT Switch 16-1431

Round momentary switch with LED ‘ON’ indicator.
Typical Application Schematic UNI-AIC-001

Product Dimensions UNI-AIC-001

See page 5:41 for typical system specifications
Section 2: Universal Multi-Way Switch Units

An extremely versatile range of fully programmable switch units with user defined legends to suit a variety of applications.

There are two types of Multi-Way switch units. The first being a range of Handsets with a minimum of 7 up to a maximum 16 individual buttons including a built-in microphone and push to talk (PTT) if required. The second being DIN/Flush mounted units for installation on/in the vehicle console area, these are available with a minimum of 5 and a maximum of 16 buttons where audio output would be achieved via a hand held microphone with a PTT switch. In addition we are able to develop switch units to specific vehicle/space requirements as shown opposite.

Each switch can be independently configured in terms of operation, legend designation and even back light colour, therefore they are the ideal interface for controlling a variety of vehicle based hazard warning systems including the Universal Controller Plus (MCS-32). A selection of these switch units are also compatible with the Universal Controller (CVS-012).

Main Features

- One of the most slimline range of switch units available in the market today
- Meets automotive protrusion regulations
- Fully programmable at source and/or by customer
- Each switch can have a multi-function ‘HOT’ key action depending on required function
- Handset versions have a built-in microphone. Any switch can then be programmed to act as PTT (Push To Talk) when used in conjunction with Public Address (PA) equipment
- DIN/Flush mount units require a separate microphone with PTT switch
- Adjacent buttons can be combined for extra visual impact
- Interactive buttons for interactive lighting functions and audio warnings - one button turns others on or off
- 3 stage back illumination - low brightness when OFF, high brightness when ON and both levels dimmed at night
- Back light colour can be set to suit switch function
- A fully tactile, one piece wipe clean keypad with ‘positive clicks’ provides positive feedback
- Multiple mounting options for each type of switch unit

Each button can operate independently or in conjunction with other buttons, as well as having unique legends, therefore each device would need to be uniquely configured. A configuration specification sheet is available which allows you to initially define the solution required along with the associated switch unit which will depend upon the level of control necessary. Once programmed customers can then implement further audio and visual applications via the control system it is linked with such as the MCS-32 or CVS-012.

See page 2:25-2:27 for Multi-Way Handsets
See page 2:28-2:29 for Multi-Way DIN/Flush Fit Switch Units
Universal Multi-Way Switch Units

Universal handsets and switch units at a glance

This page shows the current standard range of Universal Multi-Way Handsets and Switch Units.

It is possible to combine 2 small buttons that are side by side when horizontal or above and below each other when vertical thereby creating one large (double) button with dual functionality as well as increased visual impact.

Combining buttons will require engineering input which will in turn mean a longer lead time than a standard unit.

<table>
<thead>
<tr>
<th>Mini Handset (MCS-T8) UNI-MIN-XXX</th>
<th>8 or 7 buttons. The 2 bottom buttons join together to make one button that can have dual functions making a 7-way unit.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handset only, supplied with rubber surround and dashboard clip.</td>
<td>Can be dash mounted via M4 inserts on reverse or inset into dash via custom made aperture.</td>
</tr>
<tr>
<td>Optional PTT</td>
<td>105mm x 48mm x 14.6mm not including rubber surround</td>
</tr>
<tr>
<td>111mm x 56mm x 19mm including rubber surround</td>
<td>Option 1: 8-way (8 small buttons) Option 2: 7-way (6 small and 1 double button)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Midi Handset (MCS-T10) UNI-MID-XXX</th>
<th>10, 9 or 8 buttons. The 2 bottom buttons join together to make one button that can have dual functions making a 9-way unit, the 4 bottom buttons join together to make two double buttons that can have dual functions making an 8-way unit.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handset only, supplied with rubber surround and dashboard clip.</td>
<td>Can be dash mounted via M4 inserts on reverse or inset into dash via custom made aperture and optional quick fit rubber boot.</td>
</tr>
<tr>
<td>Optional PTT</td>
<td>140mm x 48mm x 14.6mm not including rubber surround</td>
</tr>
<tr>
<td>146.5mm x 56mm x 19mm including rubber surround</td>
<td>Option 1: 10-way (10 small buttons) Option 2: 9-way (8 small and 1 double button) Option 3: 8-way (6 small and 2 double buttons)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MaxiPlus Handset (MCS-T16) UNI-MXH-XXX</th>
<th>16, 15 or 14 buttons, the 2 bottom buttons join together to make one button that can have dual functions making a 15-way unit, the 4 bottom buttons join together to make two double buttons that can have dual functions making a 14-way unit.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handset only, supplied with rubber surround and dashboard clip.</td>
<td>Can be dash mounted via M4 inserts on reverse or inset into dash via custom made aperture.</td>
</tr>
<tr>
<td>Optional PTT</td>
<td>150mm x 48mm x 14.6mm not including rubber surround</td>
</tr>
<tr>
<td>156mm x 56mm x 19mm including rubber surround</td>
<td>Option 1: 16-way (16 small buttons) Option 1: 15-way (14 small and 1 double button) Option 1: 14-way (12 small and 2 double buttons)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Universal Handset Plus (MCS-T17) UNI-HAP-XXX</th>
<th>16 buttons, 12 small buttons and 4 slightly larger buttons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handset only, supplied with rubber surround and dashboard clip.</td>
<td>Optional PTT via an externally operated grab switch</td>
</tr>
<tr>
<td>154.5mm x 63mm x 14.6mm not including rubber surround or PTT switch</td>
<td>162mm x 71mm x 19.5mm including rubber surround, not including PTT switch Option 1: 16-way (12 small and 4 large buttons)</td>
</tr>
</tbody>
</table>

Examples of combining 2 small buttons to create 1 double button, buttons must be adjacent to each other.

Note: Slimline and Maxi units have alternative designs which include large buttons, these are not 2 buttons combined nevertheless they cannot be combined to make one button.

Slimline Flush Fit Switch Unit (MCS-F5) UNI-SLM-XXX

• 5 small buttons or 4 small buttons and 1 large button. The large button on this option is NOT 2 buttons combined this is simply an alternative design. |
| Flush fit only, no rubber surround. |
| No PTT | 124mm x 32mm x 14.6mm Option 1: 5-way (5 small buttons) Option 2: 5-way (4 small and 1 large button) |

Maxi DIN/Flush Switch Unit (MCS-F14) UNI-MAX-XXX

• 3 options available - 2 with 14 buttons and 1 with 13 buttons. |
| Option 1 - 14 buttons - small buttons |
| Option 2 - 14 buttons - 12 small buttons and 2 large buttons | The large buttons on this option are NOT 2 buttons combined this is simply an alternative design. |
| Option 3 - 13 buttons - 12 small buttons plus the 2 bottom buttons join together to make one button that can have dual functions making a 13-way unit. |
| DIN mount or Flush fit only, no rubber surround. |
| No PTT | 176mm x 46mm x 14.6mm Option 1: 14-way (14 small buttons) Option 2: 14-way (12 small and 2 large buttons) Option 3: 13-way (12 small and 1 double button) |

MaxiPlus DIN/Flush Switch Unit (MCS-F16) UNI-MXF-XXX

• 16 or 15 buttons. The 2 bottom buttons join together to make one button that can have dual functions making a 15-way unit. |
| DIN mount or Flush fit only, no rubber surround. |
| No PTT | 176mm x 46mm x 14.6mm Option 1: 16-way (16 small buttons) Option 2: 15-way (14 small and 1 double button) |

Mega20 Flush Switch Panel (MCS-F21) UNI-MUL-XXX

• 20 buttons, 14 small buttons, 1 double button and 5 slightly larger buttons |
| Flush fit in custom made aperture, no rubber surround. |
| No PTT | 150mm x 84mm x 14.6mm Option 1: 20-way (14 small buttons, 1 double button and 5 large buttons) |
Universal Multi-Way Switch Units

Section 2: Universal Multi-Way Handsets

Mini Handset (MCS-T8) UNI-MIN-XXX

Available as a 7-Way or 8-Way Handset as standard, also configurable as a 4-Way, 5-Way and 6-Way unit.

The Universal Multi-Way Mini Handset is available as a 7-Way and 8-Way handset as standard, but can also be configured as a 4, 5 or 6-Way device if required.

Our standard Mini handset configuration consists of 8 small buttons or 7 buttons (six small and one double) with the appropriate legend and key colour, however, by combining 2 small buttons to make 1 large one the unit can have as few as 4 buttons if required.

Additionally any button can be programmed for use as PTT (Push To Talk) when activating the built-in microphone.

Small in size, this unit can be mounted in a variety of ways for both overt and covert applications. This flexibility is achieved as the reverse of the handset has M4 threaded inserts for the addition of a microphone type clip and bracket or to facilitate permanent mounting. A flexible, removable, non-slip, protective rubber surround encases the unit resulting in a robust, hard wearing, professional switch solution.

- 8 or 7 buttons, the bottom two buttons join together to make one button that can have dual functions making a 7-Way handset
- Small buttons can also have dual function increasing versatility
- Button colours are defined by the LED back light, therefore they have no colour when the handset is ‘Off’
- Optional programmable PTT (push-to-talk)
- All configurations compatible with Universal Controller Plus (MCS-32)
- 7-way handset compatible with Universal Controller (CVS-012)

Overall dimensions:
111mm (h) x 56mm (w) x 19mm (d) including rubber surround

Midi Handset (MCS-T10) UNI-MID-XXX

Available as an 8-Way, 9-Way and 10-way Handset as standard, also configurable as a 5-Way, 6-Way and 7-Way unit.

The Universal Multi-Way Midi Handset is available as an 8-Way, 9-way and 10-way handset as standard, but can also be configured as a 5, 6 or 7-Way device if required.

Our standard Midi handset configuration consists of 10 small buttons, 9 buttons (8 small and one double) or 8 buttons (6 small and 2 double) with the appropriate legend and key colour, however, by combining 2 small buttons to make 1 large one the unit can have as few as 5 buttons if required.

Additionally any button can be programmed for use as PTT (Push To Talk) when activating the built-in microphone.

Small in size, this unit can be mounted in a variety of ways for both overt and covert applications. This flexibility is achieved as the reverse of the handset has M4 threaded inserts for the addition of a microphone type clip and bracket or to facilitate permanent mounting. A flexible, removable, non-slip, protective rubber surround encases the unit resulting in a robust, hard wearing, professional switch solution.

It is also possible to inset the handset into the vehicle console area with the use of a custom made quick fit rubber shroud (ACC-316).

- 8, 9 or 10 buttons, two buttons join together to make one large button that can have dual functions to make an 8 or 9-Way handset
- Small buttons can also have dual function increasing versatility
- Button colours are defined by the LED back light, therefore they have no colour when the handset is ‘Off’
- Optional programmable PTT (push-to-talk)
- All configurations compatible with Universal Controller Plus (MCS-32)
- 9-way handset compatible with Universal Controller (CVS-012)

Overall dimensions:
146.5mm (h) x 56mm (w) x 19mm (d) including rubber surround
MaxiPlus Handset (MCS-T16) UNI-MXH-XXX

Available as an 14-Way, 15-Way and 16-way Handset as standard, also configurable between 8 and 13 buttons

The Universal Multi-Way MaxiPlus Handset is available as an 14-Way, 15-way and 16-Way handset as standard, but can also be configured to have between 8 and 13 buttons if required.

Our standard MaxiPlus handset configuration consists of 16 small buttons, 15 buttons (14 small and one double) or 14 buttons (12 small and 2 double) with the appropriate legend and key colour, however, by combining 2 small buttons to make 1 large one the unit can have as few as 8 buttons if required.

Additionally any button can be programmed for use as PTT (Push To Talk) when activating the built-in microphone.

Small in size, this unit can be mounted in a variety of ways for both overt and covert applications. This flexibility is achieved as the reverse of the handset has M4 threaded inserts for the addition of a microphone type clip and bracket or to facilitate permanent mounting. A flexible, removable, non-slip, protective rubber surround encases the unit resulting in a robust, hard wearing, professional switch solution.

- 14, 15 or 16 buttons, two buttons join together to make one large button that can have dual functions to make a 14 or 15-Way handset
- Small buttons can also have dual function increasing versatility
- Button colours are defined by the LED back light, therefore they have no colour when the handset is ‘Off’
- Optional programmable PTT (push-to-talk)
- All configurations compatible with Universal Controller Plus (MCS-32)

Overall dimensions:
156mm (h) x 56mm (w) x 19mm (d) including rubber surround

Universal Handset Plus (MCS-T17) UNI-HAP-XXX

The Universal Handset Plus is a 16-Way handset that was developed specifically for use with our range of Universal control units matching traditional styling whilst utilising state of the art technology.

The Handset Plus consists of 12 individual function buttons, 2 special buttons (Clear All and Walk Test) and 2 combination buttons based upon established tactile switch technology that can be ‘user’ programmed to suit a wide variety of applications.

A total of 16 buttons with the appropriate legend and key colour as well as optional PTT (push to talk) via an externally operated grab switch.

This switch unit is designed to be mounted adjacent to the vehicle centre console via a microphone type clip and bracket. A flexible, removable, non-slip, protective rubber surround encases the unit resulting in a robust, hard wearing, professional switch solution.

- 16 buttons
- Small buttons can also have dual function increasing versatility
- Button colours are defined by the LED back light, therefore they have no colour when the handset is ‘Off’
- Optional PTT (push-to-talk) grab switch
- Compatible with Universal Controller Plus (MCS-32)
- Compatible with Universal Controller (CVS-012)

Overall dimensions:
162mm (h) x 71mm (w) x 19.5mm (d) including rubber surround
**Slimline Flush Fit Switch Unit (MCS-F5)**

**UNI-SLM-XXX**

Available as a 5-Way switch unit comprising 5 small buttons or 4 small buttons plus 1 large button.

The 5-Way Slimline Switch Unit was specifically developed to sit alongside MDT units within General Purpose and Fast Response emergency services and utility vehicles, particularly those that utilise the One Box Single Vehicle Architecture (OBSVA) Solution.

Our standard Slimline switch unit consists of 5 buttons (5 small or 4 small and one large) with appropriate legend and key colour. This unit can be formatted vertically or horizontally as required, see below for typical switch layouts. As this switch unit is designed primarily for permanent mounting within a dashboard, public address would be implemented via the separate hand held microphone with integral PTT switch.

Designed to be a permanently mounted switch panel the reverse of the unit has two M4 threaded inserts to facilitate the use of a mounting bracket (not supplied) or fix directly to the surface.

- 5 small buttons or 4 small and 1 large button
- Buttons can also have dual function increasing versatility
- Button colours are defined by the LED back light, as they have no colour and are unlit when the MCS-32 is ‘off’
- Permanent mount only
- For PTT use Universal Hand Held Microphone (UNI-MIC-005)

Overall dimensions: 124mm (h) x 32mm (w) x 14.6mm (d)

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**Maxi DIN/Flush Mount Switch Unit (MCS-F14)** **UNI-MAX-XXX**

Available as a 14-Way and 13-Way DIN/Flush mount switch unit as standard, also configurable between 7 and 12 buttons.

The Universal Multi-Way Maxi Switch Unit was developed to fit within a standard radio DIN slot. It is available as a 13-Way, and 14-Way switch unit as standard, but can also be configured to have between 7 and 12 buttons if required.

The Maxi switch unit has 3 versions available which consist of a 14 small button version or a 14 button version with 12 small and 2 larger buttons and a 13 button version with 12 small buttons and 1 double button, with appropriate legend and key colour. However, by combining 2 small buttons to make one large button it can have as few as 7 buttons if required.

This unit can be formatted vertically or horizontally as required, see below for typical switch layouts. As this switch unit is designed primarily for permanent mounting within a dashboard, public address would be implemented via a separate hand held microphone with integral PTT switch.

This unit can be set into the vehicle dashboard via a DIN slot for a flush fit or mounted onto it with the use of a mounting bracket via the two M4 threaded inserts to facilitate the use of a mounting bracket (not supplied) or fix directly to the surface.

- 14 small buttons or 12 small and 2 large buttons or 12 small buttons and 1 double button
- Buttons can also have dual function increasing versatility
- Button colours are defined by the LED back light, as they have no colour and are unlit when the MCS-32 is ‘off’
- Permanent mount only
- For PTT use Universal Hand Held Microphone (UNI-MIC-005)

Overall dimensions: 176mm (h) x 46mm (w) x 14.6mm (d)
MaxiPlus DIN/Flush Mount Switch Unit (MCS-F16) UNI-MXF-XXX

Available as a 16-Way and 15-Way DIN/Flush mount switch unit as standard, also configurable between 8 and 14 buttons.

The Universal Multi-Way MaxiPlus Switch Unit was developed to fit within a standard radio DIN slot. It is available as a 15-Way, and 16-Way switch unit as standard, but can also be configured to have between 8 and 14 buttons if required.

The MaxiPlus switch unit has 2 versions available which consist of a 16 small button version or a 15 button version with 14 small and 1 double button, with appropriate legend and key colour. However, by combining 2 small buttons to make one large button it can have as few as 7 buttons if required.

This unit can be formatted vertically or horizontally as required, see below for typical switch layouts. As this switch unit is designed primarily for permanent mounting within a dashboard, public address would be implemented via a separate hand held microphone with integral PTT switch.

The unit can be set into the vehicle dashboard via a DIN slot for a flush fit or mounted onto it with the use of a mounting bracket (not supplied) via the two M4 threaded inserts to facilitate the use of a mounting bracket or fix directly to the surface.

- 16 small buttons or 14 small buttons and 1 double button
- Buttons can also have dual function increasing versatility
- Button colours are defined by the LED back light, as they have no colour and are unlit when the MCS-32 is ‘off’
- Permanent mount only
- For PTT use Universal Hand Held Microphone (UNI-MIC-005)

Overall dimensions: 176mm (h) x 46mm (w) x 14.6mm (d)

Mega20 Custom Designed Flush Mount Switch Unit (MCS-F21) UNI-MUL-XXX

The Mega20 Switch Panel is a custom designed, vehicle specific unit that was developed for use in the console of a Skoda Octavia Scout where the ashtray is removed and the unit is set into the remaining space. Therefore if quantities of units required justify the commercial outlay custom designed units are available for any make and model of vehicle.

Although the Mega 20-Way Switch Panel has an array of 15 simple switch actions it also has 5 illuminated indicators to show the status of certain vehicle conditions.

A diagram showing the function of each key is shown below, from this you will see that some keys can initiate more than one function. A good example of this is the ‘999’ button, when pressed it turns on several functions at once usually when the vehicle and its officers are responding to an emergency (999) situation.

As with other handsets and switch units in the range the buttons are back illuminated in a colour of your choice.

- 15 small buttons and 5 indicators
- Small buttons can also have dual function increasing versatility
- Button colours are defined by the LED back light, as they have no colour and are unlit when the MCS-32 is ‘off’
- Permanent mount only
- For PTT use Universal Hand Held Microphone (UNI-MIC-005)

Facia dimensions: 150mm (w) x 84mm (h)