Top of Car Digital Audio Unit (TOC DAU)

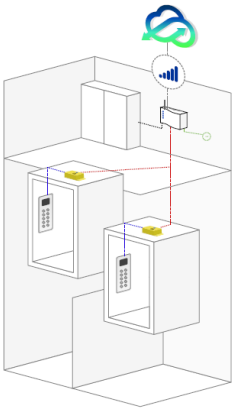
(CAN Bus, LPBus, integrated back-up battery with pictograms and intercom compatibility)

Installation guide

MU-84100MK100-EN

Product reference: AC-DAT18-120-F-0L-XXX

Product image



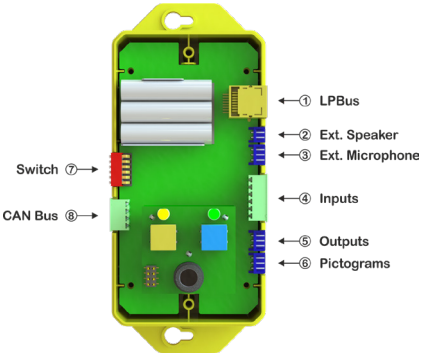
Typical design of LPBus TOC DAU audio unit.

The TOC DAU is a digital audio unit which is mounted above the car and connected to a DCP via a 2-wire or 4-wire CAN bus, usually located in the engine room.

A microphone and loudspeaker can be used in the car and external 12 Vdc or 24 Vdc pictograms can also be controlled. It also allows for audio communication with the engine room via the "intercom" function.

There are also two programmable outputs.

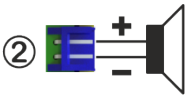
CONNECTIVITY



1. LPBus

The LPBus can be connected to external audio units and other compatible devices.
Refer to the product-specific installation guides for more information.

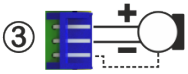
2. External loudspeaker



The external speaker output, with its auto-detect feature, allows the installer to mount an individual speaker unit closer to the user if required.

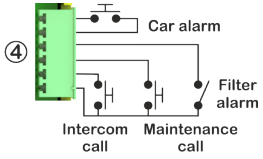
IMPORTANT! To avoid any damage to the device, use only the speaker supplied by Microkey with its corresponding connector.

3. External microphone



The external microphone, with its auto-detect feature, allows the technician to install a microphone closer to the area where the user is most likely to speak into (in most cases, behind the keypad)

4. Inputs

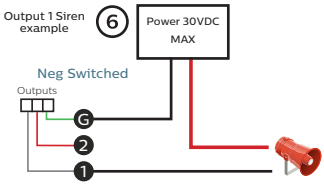


The different pushbuttons/switches must be connected according to the adjacent diagram. They must be voltage-free contacts and can be set as N/O or N/C via the configuration parameters of the unit.

See table of parameters

Car alarm	Car alarm button. For public use.
Filter alarm	The car alarm signal can be filtered, so that it is not activated when the car is stationary and the doors are open.
Maintenance Call	For technicians and/or maintenance workers only. A call to a specific telephone number can be generated.
Intercom Call	A call to the engine room is generated.

5. Outputs



The unit has two programmable outputs. These can be configured via the parameters of the unit (See parameters).

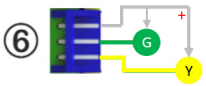
Cable		
Ground Green	Output 2 Brown	Output 1 White

The connection of an exterior alarm is a typical application. Each output provides Gnd (-) to the connected load. It must be powered via an external power supply and, if necessary, be backed up to a battery. Each output can switch a maximum voltage of 30 Vdc and sink a maximum current of 0.2 Amp. Exceeding these limits may cause the unit to malfunction.

Value	Description
0	Permanent Standby Output
1	Permanently activated output
2	Filter alarm push button
3	Alarm push button without filter
4	Error in the last test or DCP disconnected
5	Damaged or disconnected battery error

DAU Parameter	Description	Parameter Value (Default)	SIREN
P145	Output 1	2	3
P146	Output 2	3	-
Program by SMS: Pin1234.p1453			
Possible programmable settings: 0=Permanently on standby, 1=Permanently activated, 2=Filter alarm button, 3=Alarm button without filter, 4=Error in last periodic test or DCP disconnected, 5=Battery error or battery disconnected.			
C = car number to be checked or programmed			

6. External pictograms



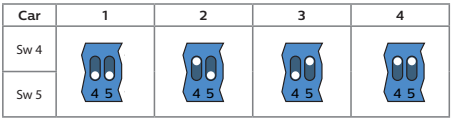
According to EN-81-28, the unit contains the two required pictograms. However, if necessary, two external pictograms can be connected to the unit.

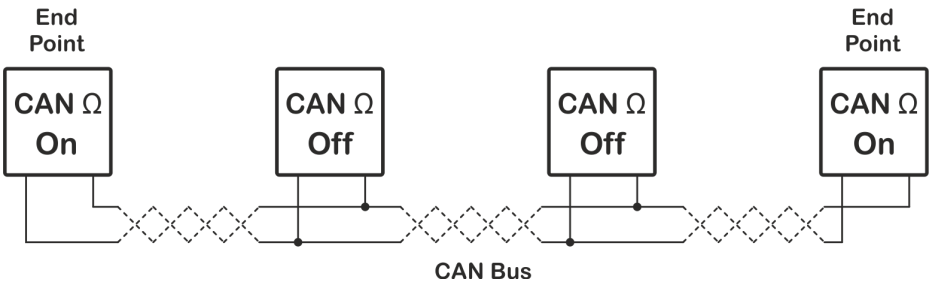
The SW1-1 switch allows the voltage to be chosen which is then supplied to those identical (12 or 24 Vdc) (See Description of SW1 functions).

This voltage will stay the same even in the event of a power failure, as the battery of the main audio unit in the car has a back-up battery.

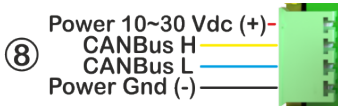
IMPORTANT! The maximum current that the unit can provide is 40 mA. It is designed to provide 20 mA to each pictogram. It is very important to not exceed the combined consumption of 40 mA. If it is exceeded, the unit will automatically disconnect the voltage supply to the pictograms.

7. SW1 Switches

Parameter	Description	Default válue
	Voltage of the pictograms	Off = 24V On= 12V
	Internal battery	Off= Disconnected On = Connected
	Reserve	Unused
	Car number. Each installation can cover up to 4 cars. The car number must be indicated in order to identify where the alarm has sounded. There must be a car "1" in each installation.	
	CAN Bus EOL	It must be activated (On) only in the final car of the installation. It must remain deactivated (Off) for the other cars.

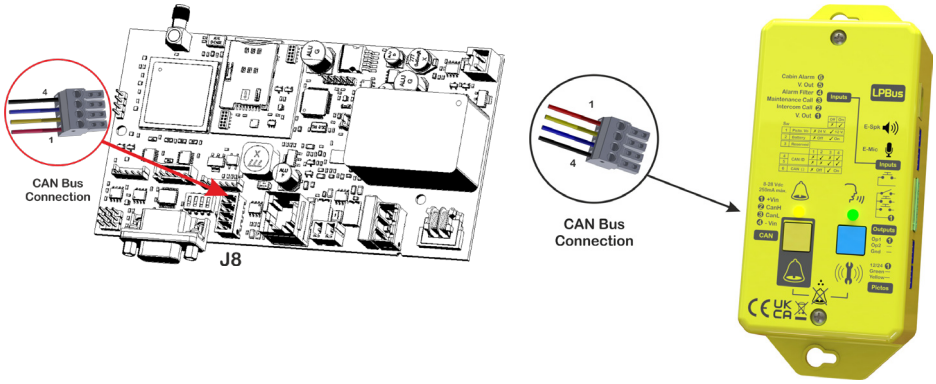


8. CAN Bus



Terminals 1 and 4 correspond to the power supply of the unit. Terminals 2 and 3 correspond to the CAN Bus itself.

The power supply can originate from the DCP in the installation or from an alternative power source. In the first instance, all 4 wires must be connected to the DCP. In the second instance, only the two CAN Bus wires should be connected to the DCP (2-3) and the power supply wires (1-4) should be connected to the power source intended for this instance.



LED INDICATORS

EN-81-28 Standards		
Yellow	Green	Current status of unit
○	○	Standby
●	X	Alarm activated
X	●	Communication established
☀	☀	Error in last test (*)

○ Off ● On ☀ Flashing

*If the last test call has not been completed, the two indicators will light up alternately until the problem has been resolved and a successful test call can be made.

PROGRAMMING

The TOC DAU is configured via the DCP. This can be done via the intercom or remotely via the Avire Hub or by SMS.

1. Avire Hub

The Avire Hub URL is avirehub.avire-global.com. Please contact your local sales office for information on how to access the Avire Hub.

2. SMS Commands

All parameters can be configured via SMS. Each SMS message must begin with "PINxxxx", which is the access code for programming and reading the parameters. The factory default PIN is "1234". If you wish to modify several parameters within the same SMS, the parameters must be separated by a comma ",". To check any parameters, "?" must be added to the end of the command line.

1. Programming parameters

Pin1234, PCxxy....y,PCxxy...y (Send)

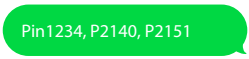
1234 = Factory default PIN (replace with established PIN)

P1xxy….y	P	Indicates the parameter.
	C	Indicates the car number needing to be programmed.
	xx	Indicates the parameter number needing to be programmed.
	y…y	Indicates the value to be assigned to the parameter.

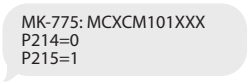
Example:

To configure parameters 14=0 and 15=1 of car 2

Send:



Response:



2. Checking parameters

Pin1234, PCxx?,PCxx? (Send)

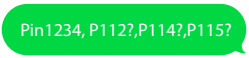
1234 = Factory default PIN (replace with established PIN)

P1xxy….y	P	Indicates the parameter.
	C	Indicates the car number needing to be checked.
	xx	Indicates the parameter number needing to be checked.
	?	Indicates that the checking of a parameter has been requested.

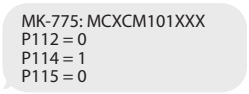
Example:

To check the value of parameters 12, 14 and 15 of car 1.

Send:



Response:



3. Programming/checking of paramaters via telephone

By connecting an analogue telephone to the DCP of the installation, the parameters of the TOC DAU can be checked or programmed. The unit responds via a digitalised voice.

1. Programming parameters

Firstly, enter the PIN of the unit: *#*1234*#* ➞ Select option (Audio response)

Change parameter "xx" to the value "yy": *Cxx#yy# ➞ Correct/incorrect command (Audio response)

Notes: "1234" is the factory default PIN; replace with the PIN already established.
"C" indicates car number 1-4.

2. Checking parameters

Firstly, enter the PIN of the unit: *#*1234*#* ➞ Select option (Audio response)

Check parameter xx: *Cxx* ➞ Parameter xx is...yyyy (Audio response)

Notes.- 1234 is the factory default PIN; replace with the PIN already established.
"C" indicates car number 1-4.

"yyyy" is the value programmed within the parameter.

VOICE MESSAGE INDICATING LOCATION

A voice message indicating the location can be recorded to identify the installation. This function can be found in the DCP.

An analogue phone connected to the DCP is used to record the message.

Firstly, enter the PIN of the unit *#*1234*#* ➞ Select option (Audio response)

To start recording, enter *075#... (start speaking and press # to finish)

To listen to the recording, enter *074* ➞ The recorded message is then played back.

DIRECT COMMANDS

Direct commands are those that perform an immediate action on the unit and are, therefore, not configuration parameters. The following table lists the direct action commands available.

Command	Description
PC01	End of alarm (EOA)
PC02	Clear alarm (CA)
PC05	Clear low battery
PC09	Reset to factory default settings*.
PC10	Reset the unit* (reset)
C = car number needing to be accessed.	

*You must enter the security password as a parameter for these commands.

The security password is: "1234567890".

Example:

To reset the TOC DAU 1 for car 1

Send: Pin1234, P11012345867890

COMMANDS

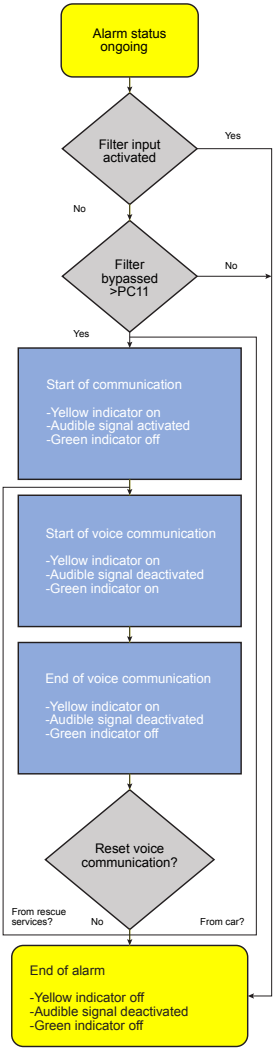
The following table indicates the main parameters that can be configured on the DAU:

Parameter	Description	Default value (*)
PC04	Select whether the countdown is played or not and with which buttons (0-4) 0=NO, 1=voice with alarm button, 2=voice with all buttons, 3=siren with alarm button, 4=siren with all buttons	1
PC07	Direct the first call to the DCP telephone (0=No, 1=Yes)	0
PC08	Bypass filter time of alarm (0-30 sec.)	10
PC09	Reset to factory default settings	n/a
PC10	Reset the unit	n/a
PC11	Alarm button countdown timer (0-5 sec.)	3
PC12	Alarm filter input (0=disabled, 1=activated, 2=activated via communications)	1
PC13	Alarm cancellation via pushbutton (0=No, 1=Yes)	0

PC14	Wait for alarm acknowledgement (ACK) (0=No, 1=Yes) (**)	1
PC15	Wait for end of alarm (EOA) (0=No, 1=Yes)	0
PC16	Car privacy mode (0=disabled, 1=enabled) (***)	1
PC17	Intercom push button normally open=0, closed=1	0
PC18	Maintenance alarm button normally open=0, closed=1	0
PC19	Alarm button normally open=0, closed=1	0
PC22	Call retry attempts in case of alarm (0-9)	5
PC23	Call retry attempts in case of maintenance alarm (0-9)	3
PC24	Car microphone volume (0-9)	5
PC25	Car speaker volume (0-9)	5
PC26	Car voice messages volume (0-9)	5
PC27	Floor Announcements	1
PC28	Language and order of car voice messages (****) 1=Spanish, 2=Portuguese, 3=Italian, 4=English, 5=German, 6=French	400000
PC29	Time between alarm calls (0-9)	0
PC30	Filter input normally open=0, closed=1	0
PC31	Caller ID P100 (8 digits, "00000000" - "99999999")	00000000
PC33	Battery check 0= NO, 1= YES, internal battery	1
PC35	Configuration of VDS protocol 0= No VDS, 1 = VDS without callback, 2-9 = VDS callback 1min to 4.5min in 30 sec breaks	0
PC45	Configuration of output 1 (see page 3)	2
PC46	Configuration of output 2 (see page 3)	3
PC47	Send audio to the car unit when the alarm input of the unit is activated.	0
PC53	Cancel test failure display with front LEDs	0
PC54	Selection of speaker and microphone used when inputs are activated. 0 = automatic mode, 1 = external speaker, external microphone, 2 = internal speaker, internal microphone, 3 = external speaker, internal microphone, 4 = internal speaker, external microphone.	
C = car number to be checked or programmed		

- (*) The default values indicated are for the model intended for the UK. They may vary according to customer requirements.
- (**) If the alarm acknowledgement is activated, the technician must press "0" to confirm that it has been received. Otherwise, another call will be generated to the next programmed number.
- (***) The car microphone is always deactivated, except when an alarm condition occurs.
- (****) Up to 6 languages can be used simultaneously. For example, if the first language required is English and the second is Spanish, 410000 must be programmed.

OPERATION OF UNIT ACCORDING TO EN81-28



The alarm process can be initiated from the yellow button on the unit or from the "Car alarm" input (See Connectivity section 4).

There is a filter that must be bypassed via the "Filter alarm" input (see Connectivity section 4).

Once the established pressing time (PC11) has elapsed, the process for calling rescue services begins.

The alarm process is outlined in the adjacent diagram.

The alarm status continues until the trapped persons have been rescued.

A telephone call from the car or from outside can be generated while the alarm is sounding. In this case, the filters do not operate and the call is processed immediately.

Once the trapped persons have been rescued, the alarm process should be reported as completed (EOA).

There are two ways to carry out the EOA process:

1. By simultaneously pressing two buttons on the front of the TOC DAU.
2. By simultaneously activating the "intercom call" and "maintenance call" inputs ((See section 4).

The unit will return to "Standby" after the EOA.

The parameters indicated must be configured as:

PC14 = 1 and PC15 = 1

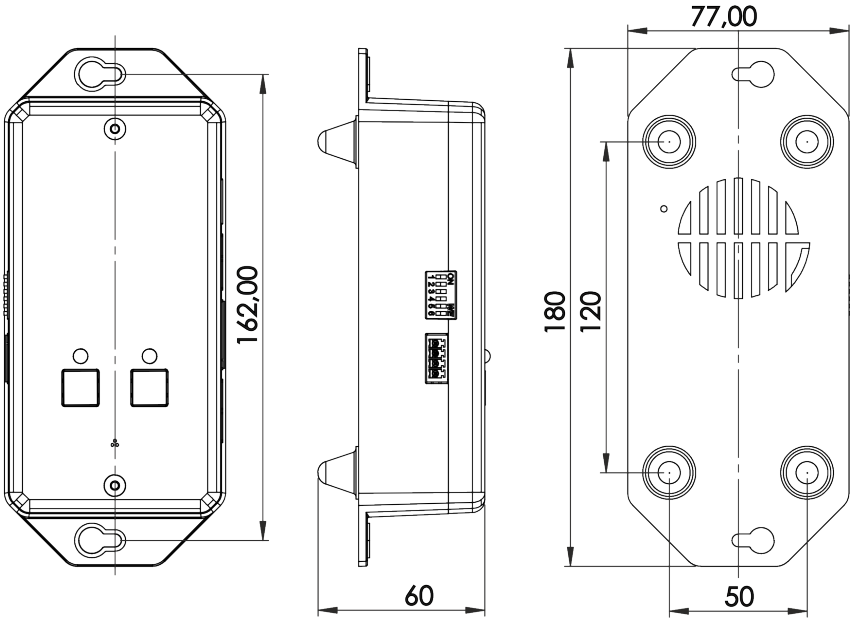
DECLARATION OF CONFORMITY

Microkey declares that this product complies with the essential requirements and other relevant provisions of the following Directives: EN81-28, 2014/30/EU; 2014/33/EU and 2011/65/EU.

DISPOSAL OF ELECTRICAL/ELECTRONIC EQUIPMENT

The existence of this symbol on the product or on the packaging means that this product cannot be disposed of as household waste. It is the responsibility of the user to deliver this product to a Recycling Collection Point or alternatively, it must be returned to Avire to manage its recycling properly.

DIMENSIONS OF THE UNIT



NOTES

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