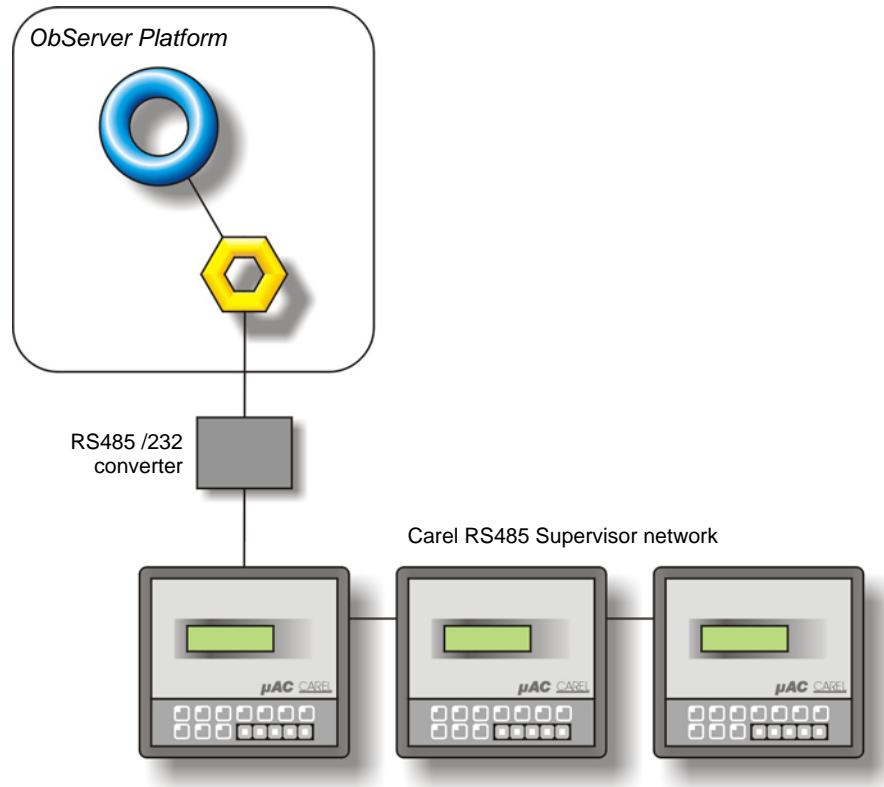


Product Engineering Guide

OSM v10 Carel v20

Introduction

The Carel OSM links the range of Carel air-conditioning and refrigeration packaged controls to ObServer. The OSM connects to a network of up to 31 Carel controllers each fitted with an RS485 serial card.



Supported Range

Carel OEM controls are badged by various air-conditioning and refrigeration manufacturers, including Airedale, Climaveneta, Klima-Therm, McQuay, RC Group, Trane, Uniflair, York, and many others. Each version of controller is fitted with application firmware tailored to the final product. Values in the controller are accessed as a list of analogue, integer and digital values. To understand the list you will require a description of these values from the manufacturer.

The driver is compatible with the following units when fitted with the **RS485** interface card. An RS232 to RS485 converter is required for the COM port.

- pCO₂, pCO₁, mP20
- pCO₂
- μAC/FCM, microAC

The driver is also compatible with the following units with additional hardware.

- ASM2, mP3/hP3 – this requires an RS232 to RS422 converter for the COM port
- μChiller – requires a Carel ISA72 interface card

The OSM can generally access the following from each unit:

- Remote start and stop of the unit;
- Reading and setpoint adjustment of regulation and alarm parameters;
- Acquisition of the output status;
- Reading of temperature and humidity measured by the sensor of the unit;
- Acquisition of the alarm status.

Notes

The Carel system does not report alarms to ObServer. If alarms are needed then an alarm generation device, such as AlarmGen, will be required. For more information, search the North Helper application for 'Alarm'.

The Carel system does not provide logging facilities to ObServer. If logging of values is needed then a LogMax device will be required. For more information, search the North Helper application for 'Log'.

Engineering

Step 1 – Install OSM

The Carel OSM is installed automatically with all ObSys editions. Refer to the 'ObSys CD sleeve' for details on how to install ObSys.

Step 2 – Configure Carel System

The Carel units can be networked using the RS485 Supervisor network, to which the OSM is connected. Please note the pLAN network is used for communication between controllers only.

The terms used in this section may vary between manufacturer versions. The unit address should be unique on the supervisor network. A baud rate of 19200 is recommended.

μAC

Fit the RS485 serial card (ref. MAC2SER000) to the μAC display unit.

From the μAC display, access the user parameters by pressing the 'Alarm' key for 5 seconds. Enter the user password and configure the following parameters:

Parameter	Description	Value
Ho	Address of μAC on supervisor network	1...200
HP	Baud rate of supervisor network	1=1200, 2=2400, 3=4800, 4=9600, 5=19200

pCO

Fit the RS485 serial card (ref. PCO1004850 or PCOSER0000) to the 9-pin connector J7 on the pCO card. If applicable, set the jumper to RS485 communication.

From the display, access the service menu and configure the following parameters:

Menu	Parameter	Value
Remote Control	I/O via Serial	Yes,No
	Id #	1...16
	Speed	1200, 2400, 4800, 9600, 19200

pCO²

Fit the RS485 serial card (ref. PCO2004850) to the serial card expansion slot in the pCO² unit.

From the display, access the user parameters by pressing the 'Prog' key. Enter the user password and configure the following parameters on page Pf:

Parameter	Value
Identific. number for BMS	1...200
Comm. Speed	1200, 2400, 4800, 9600, 19200
Protocol type	Carel

From the manufacturers parameters (accessed by pressing 'Menu' and 'Prog') the following parameter can also be set to allow control from the Compass Point:

Menu	Parameter	Value
Configuration	BMS Network	Yes,No

ASM2

Carel ASM2 cards are networked using RS422 and will require an RS232/RS422 converter (Carel ref: CONV422CL1) connected to the Com port at one end, and a closing (Carel ref: 98C145C025) at the other. The ASM2's are then connected between via a T connector (Carel ref: 98C145C019).

For each of the ASM2's connected to the Carel RS422 network, configure its address using the 4-way DIP-switch SW1. The address should be unique on the network in the range 1 to 15.

Step 3 – Connect COM Port to Carel System

Connect the Carel supervisor network cable to the RS485 terminal block of the RS485/232 converter. Refer to the section '[Cable](#)' below for details of the cable.

Step 4 – Plug in Carel OSM to ObServer

Use object-engineering software, such as ObView, to locate the ObServer Setup object. Assign the Carel OSM to an available channel. Refer to the '[ObServer v10 Application Engineering Guide](#)'.

Note: After inserting the OSM, your engineering software may need to re-scan the ObServer object in order to view the OSM.

Step 5 – Configure Carel OSM

The COM port, baud rate, direct connect, and maximum address on the supervisor network are configured using objects. Use object engineering software, such as ObView, to view and modify the objects within the OSM.

Step 6 – Access Objects within the Carel System

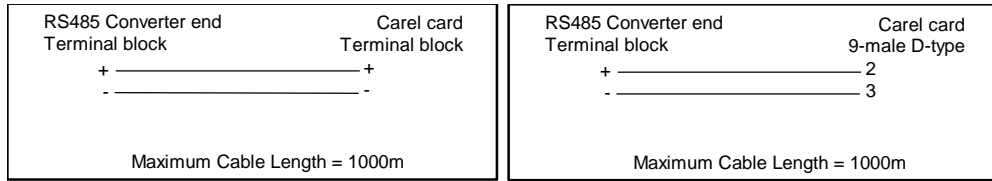
The driver scans the Carel supervisor network for available units. The driver then polls the attached units for their values and stores these within the OSM.

Values from the Carel system are made available as objects from ObServer. Any object software that is connected to the ObServer can access these objects.

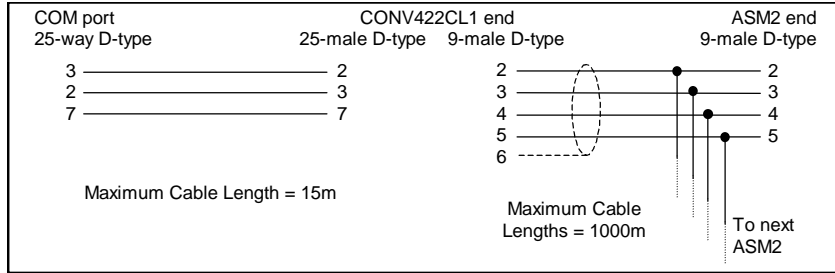
Engineering Reference

Cable Specification

The cable between the RS485 converter and the Carel RS485 serial card is as follows. Refer to the RS485/232 converter documentation for details of the cable from converter to COM port.



The cable between COM port and the Carel 232/422 converter for ASM2 units is as follows:



Objects

When the OSM is loaded the following objects are created within ObServer, use object software to access these objects.

Object ^[1]	Label	R/W	Type
Sc	Carel System connected to channel c	-	Carel ^[2]
Mc	Carel Module connected to channel c	-	[OSM v10\Carel v20]

Notes

- [1] The ObServer channel number, c, is a number in the range 1...64.
- [2] This object has a variable content and as such requires scanning. If a network of controllers is attached the object has the type [Carel v20]. If a single unit is attached with the 'direct connect' option set, the object has the type [Carel v20\Unit]. If the controller is a fixed-function μ AC the object has the type [Carel v20\MicoAC].

Notes

Revision History

Version	Build Date	Details
1.0	6/7/98	Released
1.0	29/3/99	Mod: Update 'Comms Status' timer when 'no values changes' message received. Driver reports communications fault.
2.0	1/03/03	Major driver redesign implementing all current Carel protocol versions up to 3.0s