



SEMINAR B

Brugine
March 2002

CAREL



Communication standards and Carel solutions

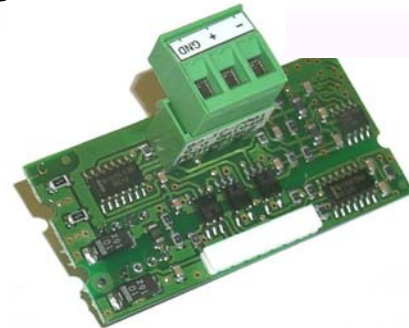


Modbus

All Carel controllers: GATEWAYMBO

pCO² – Direct connection through

- RS232 serial card PC0200MDM0
- RS485 serial card PC02004850
- BIOS version 2.15 or higher
- application software managing the specific system variables



pCO¹, pCO^C – *In the near future*

Direct connection through

- RS232 serial card PC0100MDM0 (available)
- RS485 serial card PC01004850 (available)

BACnet

All Carel controllers : GATEWAYBNO

Availability: only as prototype

Compatibility with the BMS software must be checked

Price List: as per gateway Modbus

TEST situation:

- Johnson Controls (Italy) : laboratory test
- TRANE (France) : waiting for official approval
- Delta Controls (Canada) : in progress; Delta must fix a bug in its BMS software (OrcaView) before going on.
- Siemens BAT (Italy) : in progress.
- Contacts with Alerton and Automated Logic Controls (USA)



Third Party Protocols

The same hardware used for Modbus and BACnet gateways is used for several “third party protocol” gateways:

OTE (Carel to OTE)

RC (RC to Carel)

Microtech (USA) – McQuay (Carel to Microtech):

available in April



LonWorks

pCO^2 and $pCOB$: available

pCO^1 and pCO^c : prototypes in 1 month

Remember that:

1. The card must be programmed depending on the application program
2. pCO application software must be adapted

LonMark profiles:

- **Chiller Profile**: firmware available, software in progress
- **SCC (Space Comfort Controller)**: planned

Many field installations: above all France Telecom



Metasys



Cooperation with Johnson Controls is still working with success

pCO and pCO² are officially compatible

Refer to Johnson Controls Milan, Mr. Dario Sala

Trend

pCO_2 and pCO_1 (*and pCO_c in the near future*) are now Trend compatible through a new serial interface card

PC0100CL^{PO}

Technical characteristics:

Serial interface: Current Loop

Microcontroller: 16 bit CPU, 8MHz

Memory: 256KB Flash for code

20KB RAM for data

User interface:

1 green led for LAN status

10 way dip switch: address and baud rate selection



Code and Price List

TREND handles the configuration and the supply of the interface card.

Trend can be contacted directly at Tel.
+44 (0) 1403211888

Carel will not supply no 

PRICE: not yet defined by Trend

NOTE:

The card needs to be programmed using Trend tools according to the pCO application program (every application can be Trend compatible)



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Roadmap

ROADMAP

Today: prototypes (test performed by Airedale)

End of March: pre-series

End of April: production



GSM and SMS

All Carel controllers: PlantWatch, PlantVisor

pCO² – Direct GSM and SMS management through:

- RS232 serial card PC0200MDM0
- BIOS version 2.34 or higher
- application software managing the specific system variables

pCO¹, **pCO₂** (*in the near future*) – through:

- RS232 serial card PC0100MDM0

EasyTools: version 101.0.00

Receiving commands via SMS allowed

pCOB – Only GSM management



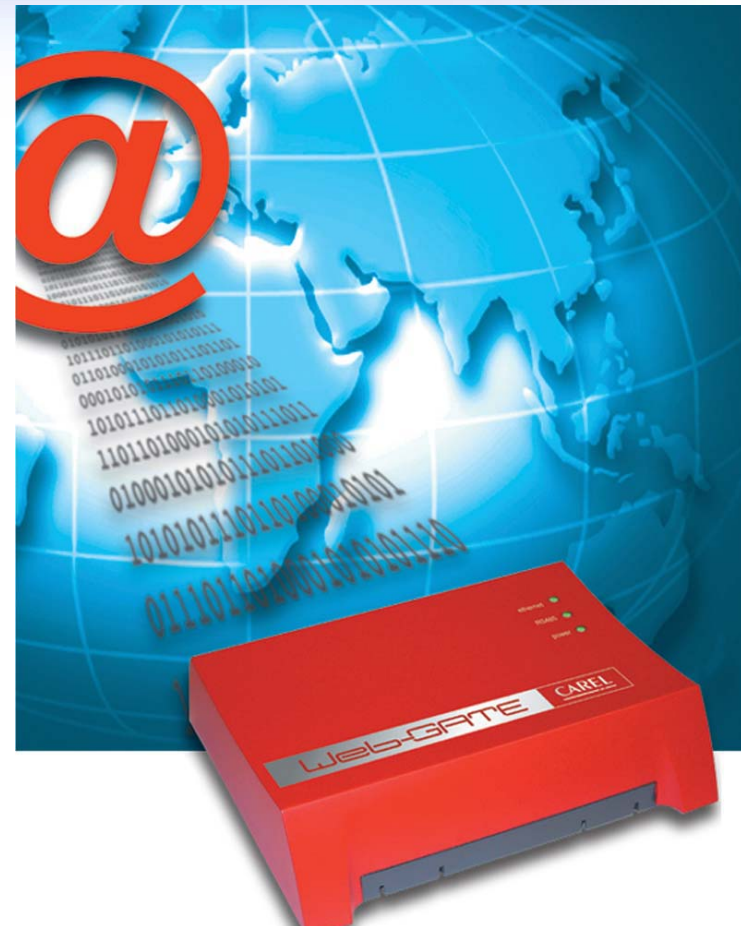
Ethernet: HTTP-SNMP



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WebGate Main Features

- Gateway Ethernet – TCP/IP
- Full compatibility with corporate LAN
- Embedded Web server:
 - complete visibility of the controllers' parameters
 - easy configuration through HTML pages
 - Easy customisation of the HTML pages
- SNMP v.1 protocol to transfer data
- No dedicated software required for configuration



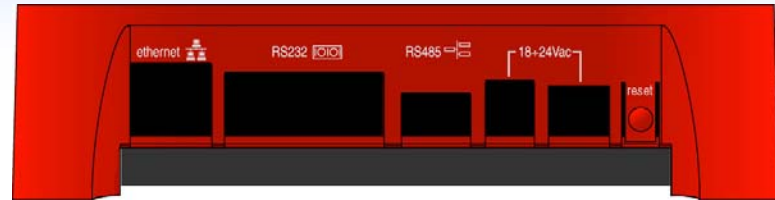
Serial Connections

RS485 network

- Up to 16 controls
- 1 Km max. length
- Twisted pair cable
- 19200 baud
(configurable)
- Opto-isolation
- Easy installation, no tools required

• RS232

- Gateway configuration, no tools required
- 19200 baud
(configurable)
- *Planned for future*



• Ethernet

- 10Mb/s - 10baseT connection
- RJ-45 connector for a class 5 shielded cable
- 100m max. length
- HTTP, FTP, SNMP protocols supported

Main Features

HTML Pages

- All parameters of all Carel controllers (on a RS485 network) can be monitored and modified
- All Carel controllers can be handled with standard Default Pages
- Default pages available for WebGate configuration
- Pages can be customised with an HTML editor (no EasyTools)

Special “tags” to access instrument data
Network download via FTP

- Characteristics:

- 500KByte: flash memory available
- 100: max number of files
- JAVA language: supported
- Type of files managed: txt tif swf pdf ing gif css

Web page example



GATEWAY CAREL



nu

CareNet
Network
RS232
RS485
System
Users

Continuous Cycle Running

Fans Status

Compressor Status

Auxiliary Relay Status

Defrost Relay Status

EEPROM Alarm

End Defrost for Timeout

Low Temperature Alarm

High Temperature Alarm

Room Probe Error

Evaporator Probe

Instant Alarm

Delayed Alarm

Defrost Running

Door Open

on/off require

Forced Defrost

Example
of WEB page
customization

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Technical Specification



Power Supply

·For desk mount: 18V -15%..+10%, 50/60Hz from mini AC power jack, Ø 5mm. Use only the power adapter TRxxxxxxx supplied by Carel.

·For panel mount: 24V -15%..+10%, 50/60Hz from 2-pole removable horizontal terminal blocks. Characteristics of the fuse (obligatory) to be inserted in series with the unit power supply: 500mAT.

Rated Power: 6VA

Processor: 8-bit processor, 18MHz internal speed

Memory: 128KB RAM, 1MB Flash

(500KB available for web pages and user data).

Technical Specification



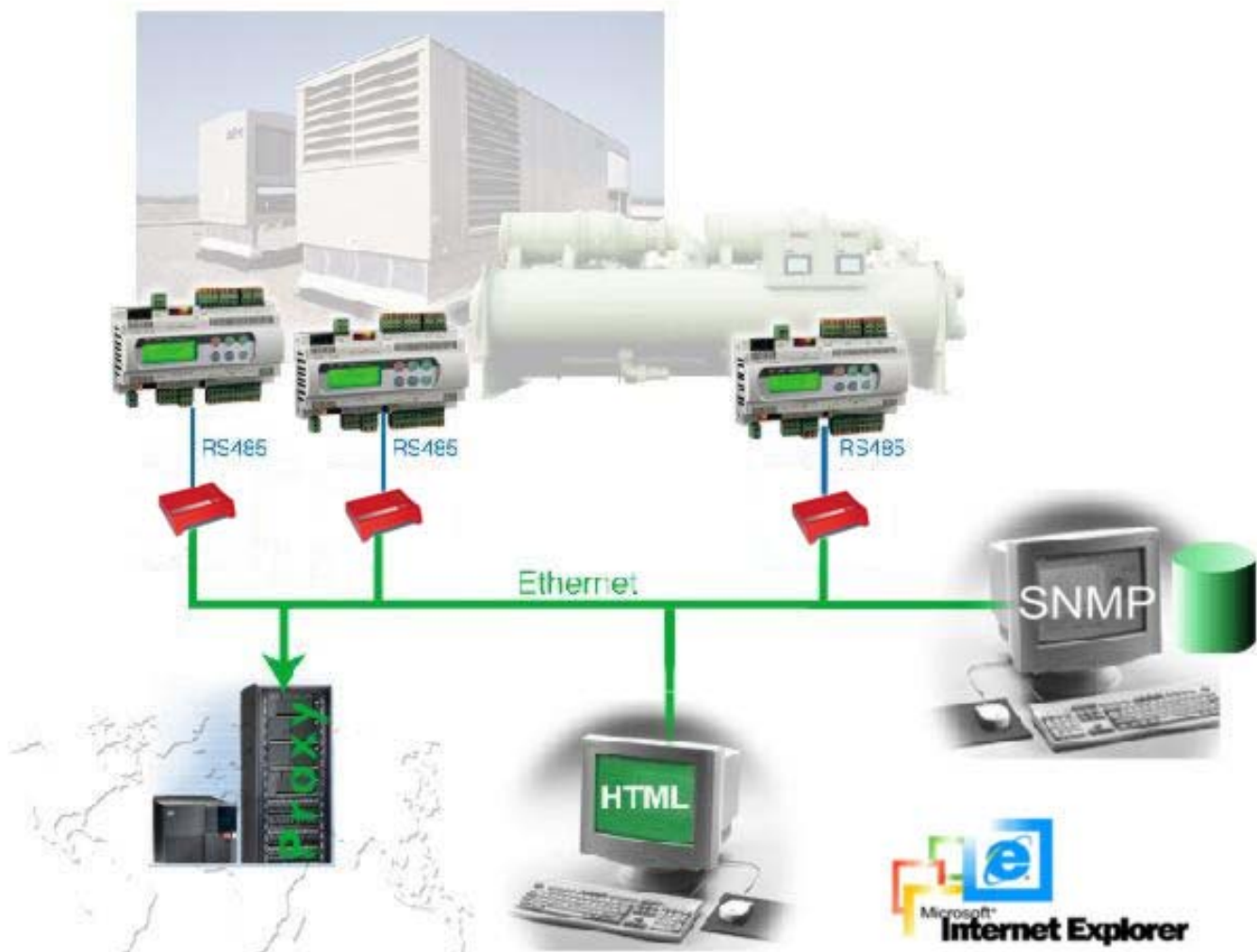
Interfaces

- Serial RS485 opto-insulated, 3-pole removable horizontal terminal blocks. Use a twisted pair shielded cable AWG20-22, max 1000m.
- Serial RS232 DTE interface, 9-pin male DB-9 connector; 19200 baud (configurable), 8 data bits, 1 stop bit, no parity and no flow control. Use a null-modem cable, max. 10m.
- Ethernet interface, RJ-45 connector for 10BaseT Ethernet. Use a class 5 shielded cable, max. 100m.

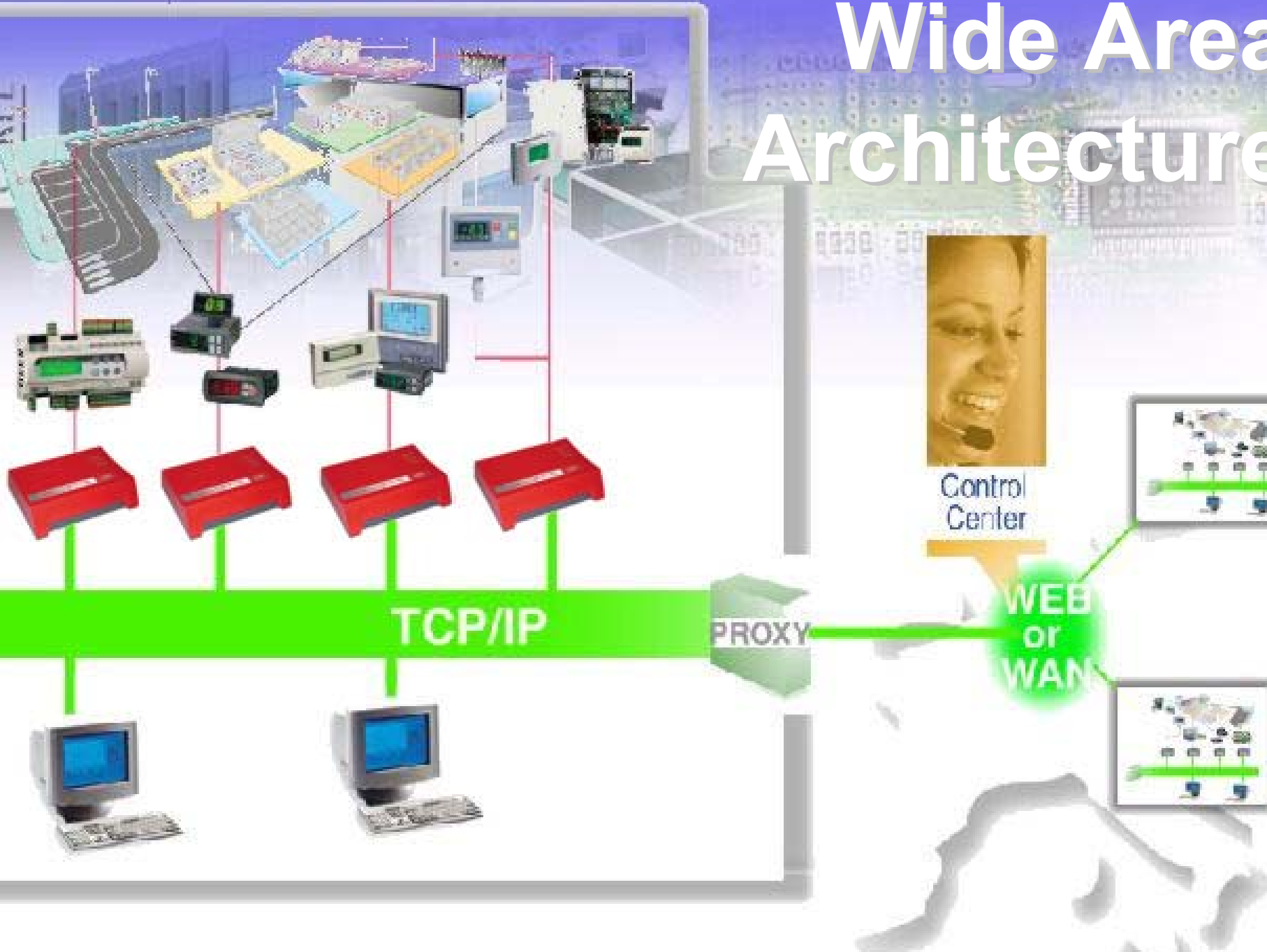
Standard Internetworking Protocols: SNMP, HTTP, FTP

Mounting: desk mount (rubber feet included) and panel mount (din rail brackets included)

Local Area Architecture



Wide Area Architecture



Code and Price List

WEBG0000B0: WebGate 1MB Flash 440€

Roadmap

Today:

- 1 sample being tested by Tesco (UK) with HTTP and FTP feature
- Documentation available:
 - ✓ Technical leaflet (preliminary)
 - ✓ Creating Custom HTML Pages (available soon)
 - ✓ Configuring the WebGate (available soon)

Roadmap

End of March 2002: Pre-series (20 pz)

April 2002: Samples available – NO SNMP

May 2002: Production – YES SNMP

WebGate training session at our subsidiaries and main agents will start in April 2002





www.carel.com