ETHERNET - C-BUS CONVERTOR

ARE 338 C1 Eng.

• **Uses Ethernet TCP/IP digital telecommunication networks**
• **Converts C-Bus to IP signals and vice versa**
• **Double port Master/Slave C-Bus for sequenced connections with other convertors**
• **C-Bus speed from 1200 to 9600 baud**
• **Connector on facia for diagnostics and tests**

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1. APPLICATION

ARE 338 convertor is used at remote stations (e.g. heating plant sites) in order to use an existing Ethernet TCP/IP internet/intranet network as the means of communication with a Telemanagement PC fitted with an Ethernet port and using SWC701 software.

2. INSTALLATION

ARE 338 must be sited in a dry location which respects the relevant ambiental conditions given under 6. TECHNI-CAL DATA below. If installed in a location classified as "Hazardous" it must be installed in a cabinet for electrical equipment constructed according to the current regulations for the class of danger concerned.
The convertor can be mounted on a DIN rail or housed in a standard DIN enclosure.
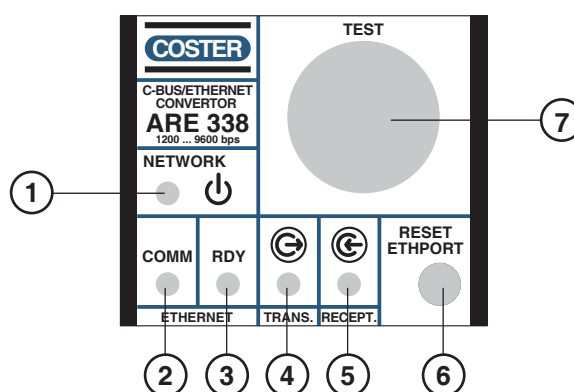
3. ACCESSORIES

No.	Description	Code	Data sheet
1	Device for testing & commissioning Telematic connections	**TCB 908**	T 329

4. OVERALL DIMENSIONS
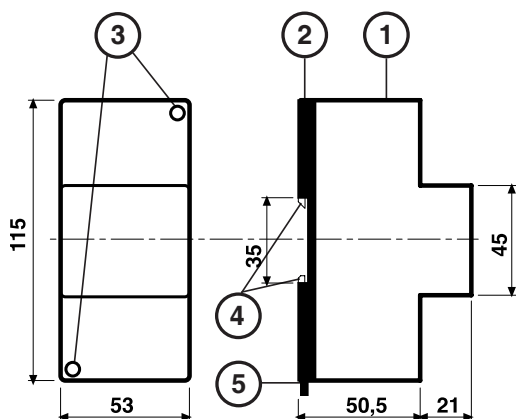
1 – Protective cover for electronic components
2 – Base with transformer, relay and terminal blocks
3 – Screws for securing base and cover
4 – DIN rail securing elements
5 – DIN rail release lever

5. FACIA

1 – Network LED
2 – LED permanently lit: device switches on in sequence (about 5 seconds). Flashing: communication network TCP/IP in progress
3 – LED permanently lit: device ready for TCP/IP communication Flashing: device in switching on or configuration stage
4 – LED indicating data being transmitted: indicates data received from TCP/IP & transmission to devices
5 – LED indicating data being received: indicates reception of reply from devices
6 – Button for resetting TCP/IP (Ethport) interface
7 – Connector for TCB 908 (closed with plug)

6. TECHNICAL DATA

• Electrical & mechanical:

Power supply :	230 V AC ± 10 %
	or 240 V AC for UK market
Frequency	50 ... 60 Hz
Consumption	3 VA
Protection	IP40
Construction standards (ETH)	EN55024
Ambient temperature:	
Operating	5 ... + 50 °C
Storage	– 40 ... + 66 °C
Weight	
with enclosure	324,5 g
without enclosure	270 g
Construction standards	Italian Electr. Committee (CEI)
Enclosure	DIN 3E module
Installation	on DIN 35 rail

• Materials:

Base	NYLON
Cover	ABS

• Data transmission:

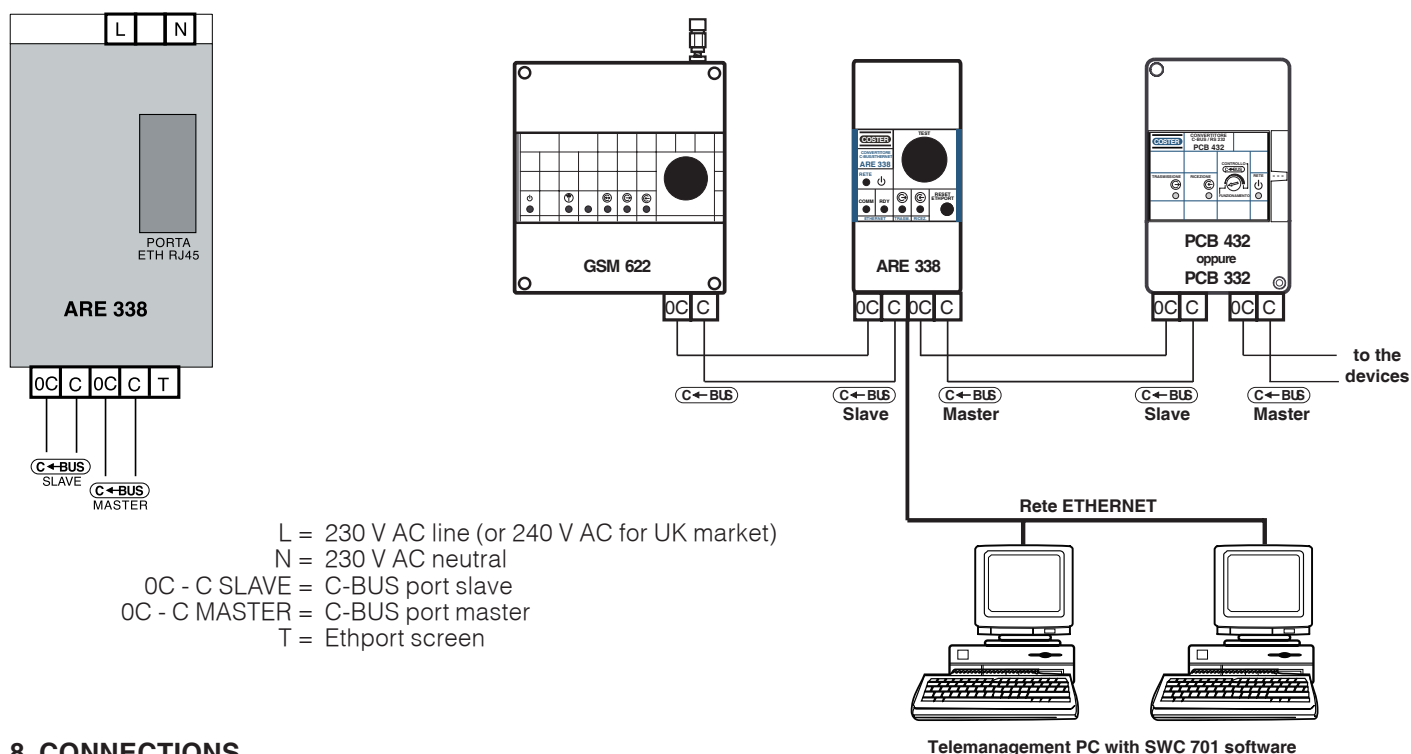|	
Interface ETH network	RJ45 Ethernet 10BASE-T or
	100BASE-TX (auto-sensing)
Factory set IP	192.168.2.236
	MASK 255.255.255.0

• C-BUS parallel ports   2

Data format	asynchronous start-stop
Characters format	8 bit data, 1 stop bit, parity none

• C-BUS speed   from 1200 to 9600 baud

7. WIRING DIAGRAM AND DEVICE CONNECTION EXAMPLE

L = 230 V AC line (or 240 V AC for UK market)
N = 230 V AC neutral
0C - C SLAVE = C-BUS port slave
0C - C MASTER = C-BUS port master
T = Ethport screen

Telemanagement PC with SWC 701 software

8. CONNECTIONS

8.1 Power supply terminal.

Connect power cables to 230V AC (or 240 V AC for UK market).

8.2 C-BUS terminals

The C-Bus master terminals serve to communicate with COSTER Telemanageable devices equipped with C-BUS slave port.
The ARE 338 C-BUS slave terminals enable other convertors, e.g. GSM modem to be used. In this way it is also possible to use the normal telephone network besides the TCP/IP in order to Telemanage the devices.
For further information on C-BUS, please refer to data sheet T021, available on COSTER internet site.

8.3 RJ 45, connector ETH (Ethport) port.

Use an Ethernet cable (UTP cat. 5) to connect ARE 338 to an Ethernet hub

8.4 Terminal T

Connection to the shielding of the Ethport port: usually keep disconnected; only in event of heavy disturbances connect it to the Ethernet network earth

8.5 TEST connector

To the TEST connector it is possible to connect the TCB 908 tester which enables a PC to be used to test the connection to devices with C-BUS and to configure the parameters of the ETH (Ethport) via PC.**Before connecting the TCB 908 tester, remove the protective plug which must be subsequently be replaced correctly in the same position after having removed the tester.**

9. C-BUS COMUNICATION

9.1 Slave C-Bus

This is a standard Slave C-Bus input, capable of a speed of up to 9600 baud.

9.2 Master C-Bus

This is a Master C-Bus output with the following limitations:
– Speed of up to 9600 baud
– Maximum C-Bus cable length = 750 metres
– Maximum number of slave units connected to the cable = 50

10. CONFIGURATION TCP/IP

10.1 Initialisation without TCB908

1) Remove the cover (1 in fig. 4.1) by loosening the two screws and identify the ETH port (LTRX port)
2) The ETH port has a label with a bar code where you find the physical address (sequence of hexadecimal numbers).
The sequence of numbers is different for each unit: it can start from 00-20-4a-xx-xx-xx or only for 4a-xx-xx-xx.Identify the sequence which must consist of 6 numbers separated by a dash (if there are only 4 numbers add 00-20 in front; e.g. if is written 4A-10-1B-EF the Mac is 00-20-4A-10-1B-EF). Make a note of this number.
3) Install the unit at the plant site connecting both the C-BUS master part (and if necessary also the slave port) and the Ethernet part. Replace the Plug.
3) When connected to the 230 V AC supply (or 240 V AC for UK market) the LEDs should light as described in section 5.
5) Contact the administrator of the Ethernet network and obtain a free IP address (e.g. 192.168.2.236 255.255.255.0), the relative netmask and, if required, the address of a gateway (if you want to view the site via internet). Go to the Telemanagement PC (which must already be configured in the same LAN Ethernet as the ARE 338 and will have an IP address type 192.168.1.51 for example) where COSTER T.E. SWC701 software must be installed. Open an MS-DOS window, find the icon on which is written MS-DOS or go to "Start" and then to "Run" type "command" and press the "Enter" key. From the DOS window (with black background and a line, the so-called "DOS prompt" of the type "C:\>" type: **arp –s 192.168.3.236 00-20-4a-xx-xx-xx.** (00-20-…is the physical address). Press **<ENTER>**. Having completed this instruction you again obtain (output) the prompt DOS (C:\>)
6) Type the instruction **telnet 192.168.2.236 1**. Press **<ENTER>** .
This instruction temporarily writes the desired IP address in ARE 338. Do not switch off the device during this phase otherwise you will have to repeat the configuration sequence from the beginning. The output of this instruction must be an error of terminated connection.
7) Type the instruction **telnet 192.168.2.236 9999**. Press **<ENTER>** .
You will be requested to press **<ENTER>** to enter in the device setup; you must do this within a few seconds.
8) **(*)** The following configuration menu appears :

0 Server
1 Channel 1
3 E-mail
5 Expert
6 Security
7 Defaults
8 Exit without save
9 Save and exit

Press the number which corresponds to "0 Server " and confirm buy pressing **<ENTER> :**

IP Address :   ← **insert the ARE 338 IP address**
Set Gateway IP Address (N)?
Netmask :
Set DNS Server IP addr (N)?
Changed telnet config password (N)?

Now insert the previously set IP address, to make if definitive. If required, also insert netmask and gateway parameters. Press <ENTER> in response to the other questions until the configuration menu reappears
9) Now press the number which corresponds to **"Channel 1"**. Set the following parameters :

Baudrate : 1200   ← **insert C-Bus transmission speed**
I/F Mode : 4C
Flow : 00
Port No : 10001   ← **insert the number of the port used by Remote Management PC to communicate with ARE 338**
ConnectMode : C1
Send"+++" in Modem Mode (Y)?
Show IP addr after "RING" (Y)?
Auto increment source port (N)?
Remote IP Address : 192.168.2.51   ← **insert the IP address of the Remote Management PC**
Remote port : 10002   ← **insert the number of the port used by ARE 338 to transmit alarms to PC**
DisConnMode : 00
FlushMode   : 44
DisConnTime : 00:06
SendChar 1 : 00
SendChar 2 : 00

10) As soon as the configuration menu re-appears press the number corresponding to the item "Save and exit"

11) Run the SWC701 program and configure the TCP/IP settings as follows:
"Communication via TCP/IP" : YES,
"... there are TCP/IP adapters" : YES,
"...local port..." : 10002, (must be the same number entered in the ARE 338 unit under "Remote port:") "confirm alarm received…": YES

12) Create in the software (SWC701) a new plant site with the following parameters. Connection mode: TCP/IP, and instead of telephone number enter 192.168.1.232:10001. Start to read the devices..

13) To receive the alarms configure the devices as if they were connected to a local PC using "direct to computer" type connection.

10.2 Initialising TCP/IP with TCB 908

1) Remove the TEST cap on ARE 338, insert TCB 908, and connect the PC to TCB 908 via a RS232 cable.

2) Position the TCB selector on "M".

3) Activate the "Hyperterminal" programme, or similar, and select the COM port connected to TCB 908.

4) Set speed to 9600 baud and set flow control to "None".

5) Simultaneously press, for at least 5 seconds, the "RESET ETHPORT" button on ARE 338, and the "X" key on the PC keyboard.

6) Release the "RESET ETHPORT" button while keeping the "X" key pressed until the configuration menu appears on the PC screen and proceed from point (*) of configuration 10.1 .

7) When the final menu option appears ("Press enter for set up mode"), press the "return" key on the PC within 5 seconds, or the configuration menu will automatically be exited, and the whole procedure will have to be repeated starting from Point 5.

10.3. Control of device with TCB 908

By means of the TCB 908 accessory it is possible, using a local PC, to control all the devices without having to connect other convertors of the PCB 332 type. Refer to the TCB 908 documentation for the local control of controllers.

10.4. Initialising TCP / IP with factory-set IP

To carry out configuration, a network-interface PC configured on network 192.168.2.0 MASK 255.255.255.0 may be used.

For instance: the PC with the address 192.168.2.1, 255.255.255.0 can be used, starting from the procedure described in Section 10.1.7 "telnet 192.168.1.232 9999".

11. TELEMANAGEMENT VIA INTRANET/INTERNET

Once ARE 338 has been configured as described in point 9, activate on SWC 701 (version bigger then 0.89.1881) the connection mode TCP/IP.

For Telemanagement on LAN networks (Intranet) it is necessary to enter in the site register the IP address of ARE 338 and the gate activated (e.g.: HOST:DOOR = 192.168.1.232: 10001).

For Telemanagement via Internet the following is required: an internet connection with at least a static IP address (ADSL) and an ADSL router, with "NAT" or "PAT" (NETWORK/GATE ADDRESS TRANSLATION) function.

By configuring correctly this function it is possible to Telemanage a site via Internet and to receive the alarms.

Amendments to data sheet

Date	Revision No.	Page	Section	Details of amendement	Firmware version	Software version
23.10.05 MM		4	10. TELEMANAGEMENT	Added paragraph TELEMANAGEMENT VIA INTRANET/INTERNET.		> 0,89.1881
23.11.06 MM		4	10. TELEMANAGEMENT	Add tne number version of SWC 701		> 0,89.1881
30.06.09 MM	01	1	6 TECHNICAL DATA 7. WIRING DIAGRAM ..... 9. CONFIGURATION TCP/IP	Factory-set IP added Connection example added Section 9.2 changed and Section 9.4 added		> 0,89.1881
09.02.10 AM	02	3	9. C-BUS COMMUNICATION All	Add Section Update to C1 version		

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We reserve the right to make changes without notice