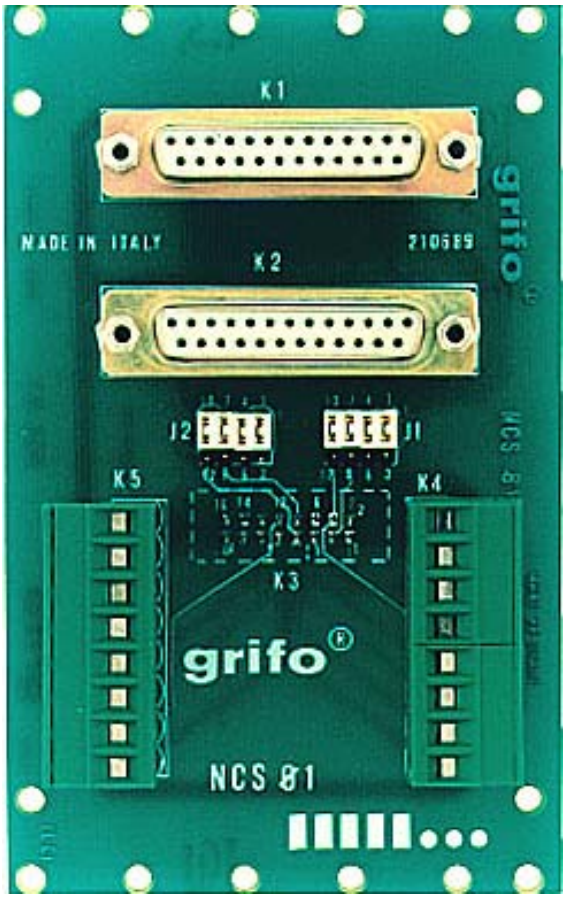
NCS 01

New Connector Support 01

TECHNICAL MANUAL



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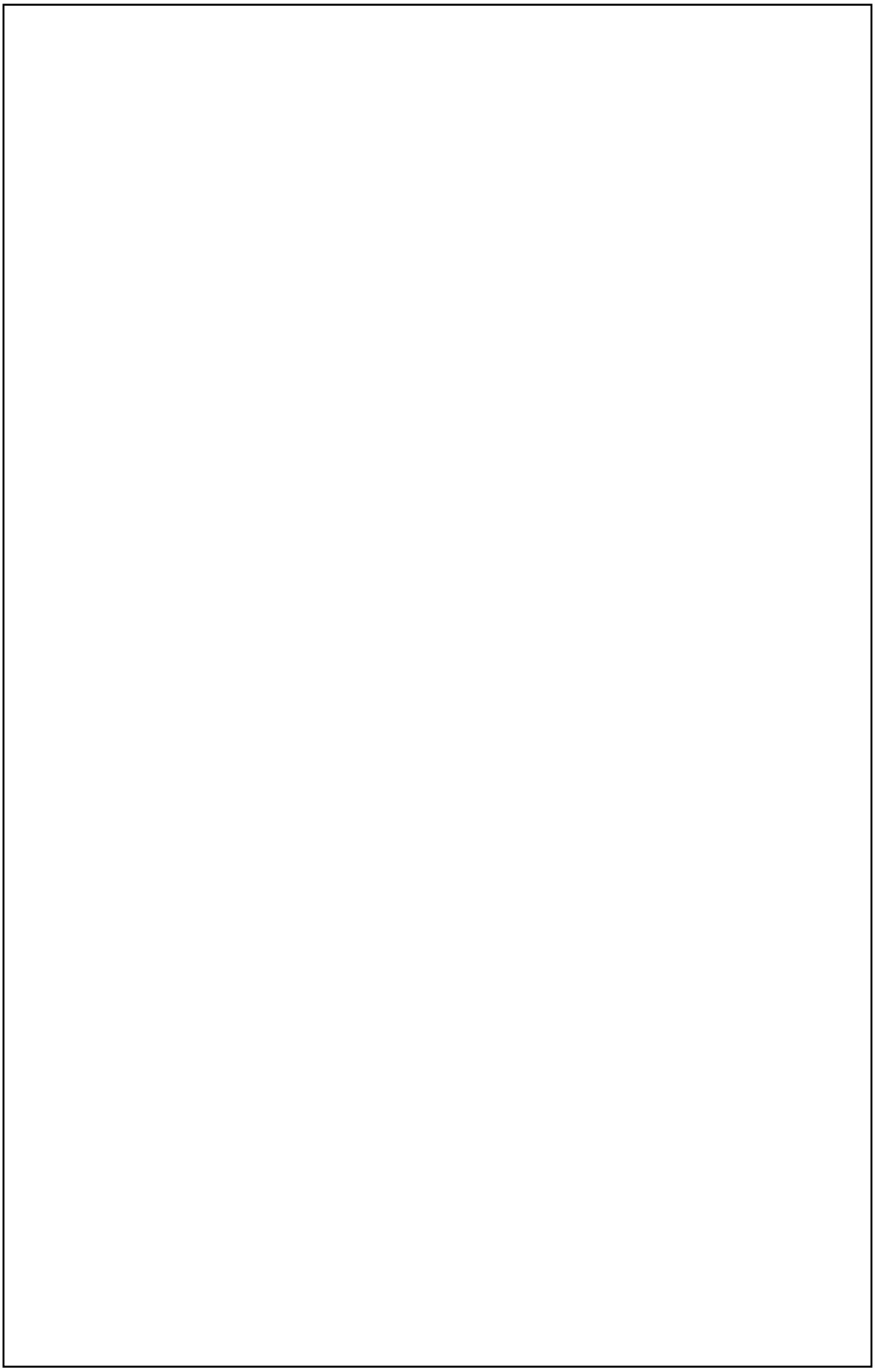
NCS 01 Rel. 5.00 *Ed. 08 May 2003*



NCS 01

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TECHNICAL MANUAL

Serial interfacement card; suitable for mounting on **3 HE** standard rack and **3 TE** standard holing; connects 2 **serial lines**; signals duplicated on **quick release** and **low profile connectors**; connects **TxD**, **RxD**, **CTS** and **RTS**; comfortable jumpers to set the working mode between **DTE** or **DCE**; each signal can be connected or disconnected separately.

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IMPORTANT

Although all the information contained herein have been carefully verified, **grifo®** assumes no responsability for errors that might appear in this document, or for damage to things or persons resulting from technical errors, omission and improper use of this manual and of the related software and hardware.

grifo® reserves the right to change the contents and form of this document, as well as the features and specification of its products at any time, without prior notice, to obtain always the best product.

For specific informations on the components mounted on the card, please refer to the Data Book of the builder or second sources.

SYMBOLS DESCRIPTION

In the manual could appear the following symbols:

Attention: Generic danger

Attention: High voltage

Trade Marks

abaco, **GPC®**, **grifo®** : are trade marks of **grifo®**.

Other Product and Company names listed, are trade marks of their respective companies.

GENERAL INDEX

FIGURE INDEX

INTRODUCTION

The use of these devices has turned - IN EXCLUSIVE WAY - to specialized personnel.

The purpose of this handbook is to give the necessary information to the cognizant and sure use of the products. They are the result of a continual and systematic elaboration of data and technical tests saved and validated from the manufacturer, related to the inside modes of certainty and quality of the information.

The reported data are destined- IN EXCLUSIVE WAY- to specialized users, that can interact with the devices in safety conditions for the persons, for the machine and for the enviroment, impersonating an elementary diagnostic of breakdowns and of malfunction conditions by performing simple functional verify operations , in the height respect of the actual safety and health norms.

The informations for the installation, the assemblage, the dismantlement, the handling, the adjustment, the reparation and the contingent accessories, devices etc. installation are destined - and then executable - always and in exclusive way from specialized warned and educated personnel, or directly from the TECHNICAL AUTHORIZED ASSISTANCE, in the height respect of the manufacturer recommendations and the actual safety and health norms.

The devices can't be used outside a box. The user must always insert the cards in a container that rispect the actual safety normative. The protection of this container is not threshold to the only atmospheric agents, but specially to mechanic, electric, magnetic, etc. ones.

To be on good terms with the products, is necessary guarantee legibility and conservation of the manual, also for future references. In case of deterioration or more easily for technical updates, consult the AUTHORIZED TECHNICAL ASSISTANCE directly.

To prevent problems during card utilization, it is a good practice to read carefully all the informations of this manual. After this reading, the user can use the general index and the alphabetical index, respectly at the begining and at the end of the manual, to find information in a faster and more easy way.

CARD VERSION

The present handbook is reported to the **NCS 01** card release **210689** and later. The validity of the bring informations is subordinate to the number of the card release. The user must always verify the correct correspondence among the two denotations. On the card the release number is present in more points both board printed diagram (serigraph) and printed circuit (for example between connectors K1 and K2 both on component and solder side).

GENERAL INFORMATION

NCS 01 is an interfacement board suitable for mounting on a standard **3HE** rack with standard **3TE** holing.
The card features a 16 pins low profile connector that allows to connect CPU boards like **GPC® 150**, **GPC® 15A**, **GPC® 188F**, etc.
The two RS 232 lines available on the above connector can be connected to standard D-type 25 pins female connectors and to 8 pins quick release screw terminal connectors.
Two sets of jumpers allow to exchange signals of these connectors, in detail, focusing on K1 and K2, signals to pins 2 and 3 and signals to pins 4 and 5 can be swapped.
This allow to transform very quickly a **DTE** device into a **DCE** device and vicevrsa.
In addition, each signals of any port can be connected or disconnected indipendently from all other singals, making the configration that can be obtained on the D-type connectors extremly flexible.
Overall features are:

- Serial interfacement card
- Suitable for mounting on **3 HE** standard rack and **3 TE** standard holing
- Connects 2 **serial lines**
- Signals duplicated on **quick release** and **low profile connectors**
- Connects **TxD**, **RxD**, **CTS** and **RTS**
- Comfortable jumpers to set the working mode between **DTE** or **DCE**
- Each signal can be connected or disconnected separately

Here follows a description of the board's sections and the operations they perform.
To easily locate such section on verify their connections please refer to figure 1.

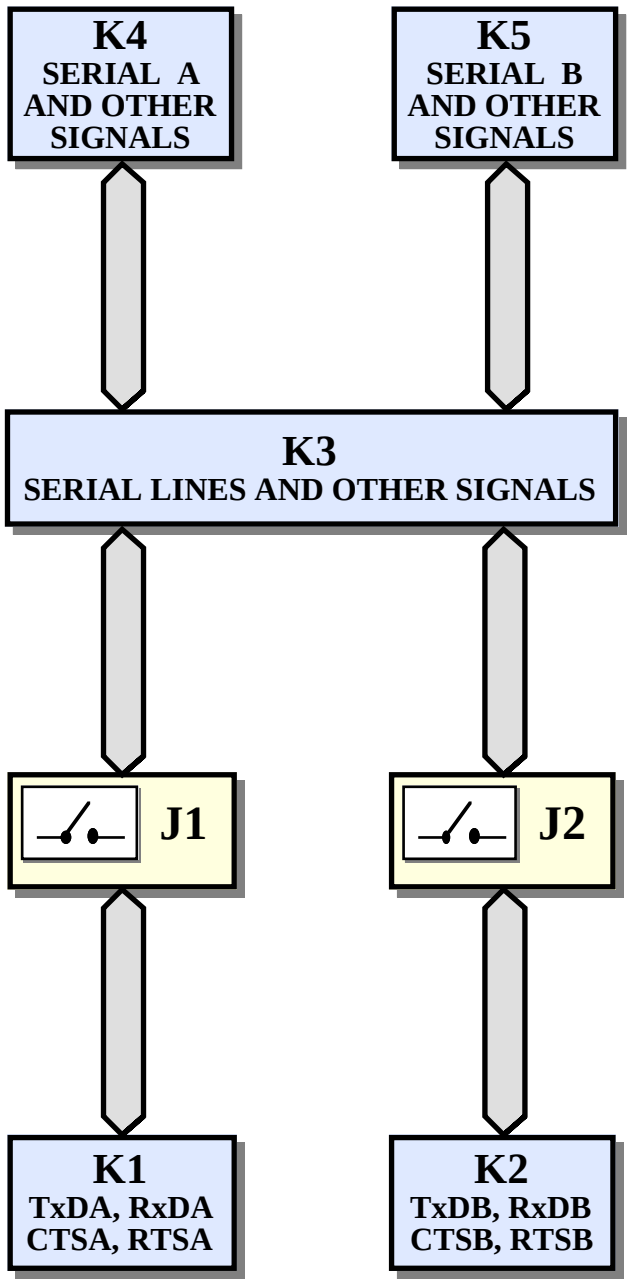

FIGURE 1: BLOCK DIAGRAM

TECHNICAL FEATURES

GENERAL FEATURES

Jumpers: allow to set DTE or DCE configuration for each serial line
allow to perform special connections

PHYSICAL FEATURES

Size: 129 x 80 x 50 mm

Mounting: rack **3 HE**

Holing: standard **3 TE**

Weight: 119 g

Connectors:
K1: D-type female 29 pins connector
K2: D-type female 29 pins connector
K3: Low profile male 16 pins connector
K4: Quick release screw terminal 8 pin connector
K5: Quick release screw terminal 8 pin connector

INSTALLATION

In this chapter there are the information for a right installation and correct use of the card. The user can find the location and functions of connectors and jumpers.

CONNECTIONS

NCS 01 board has 5 connectors that can be linkeded to other devices or directly to the field, according to system requirements. In this paragraph there are connectors pin out, a short signals description (including the signals direction) and connectors location (see figure 6).

K3 - EXTERNAL CARD SIGNALS CONNECTOR

K3 is a 16 pina quick release low profile connector that allows to connect to external CPU card used through a common 16 pins flat cable.

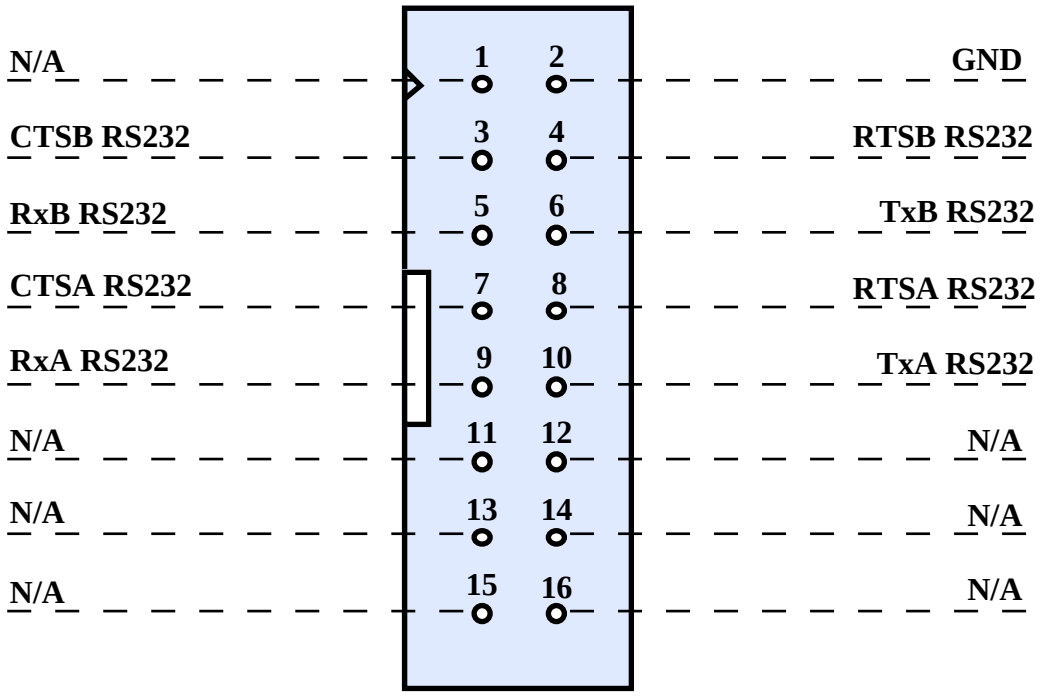

FIGURE 2: K3 - EXTERNAL CARD SIGNALS CONNECTOR

Signals description:

N/A = Signal connected to these pins changes according to the CPU card connected, so please refer to technical manual of card used.
CTSA/B = I - Clear To Send for serial line A or B.
RTSA/B = O - Request To Send for serial line A or B.
RxDA/B = I - Receive Data for serial line A or B.
TxDA/B = O - Trasmit Data for serial line A or B.
GND = Ground.

K2 - SERIAL LINE A CONNECTOR

K2 is a D-type 25 pins female connector that allows to connect serial line A of CPU card. Pin-out changes according to the setting of jumpers group **J2**; it can be **DTE** or **DCE**. These two configurations are shown in figure below:

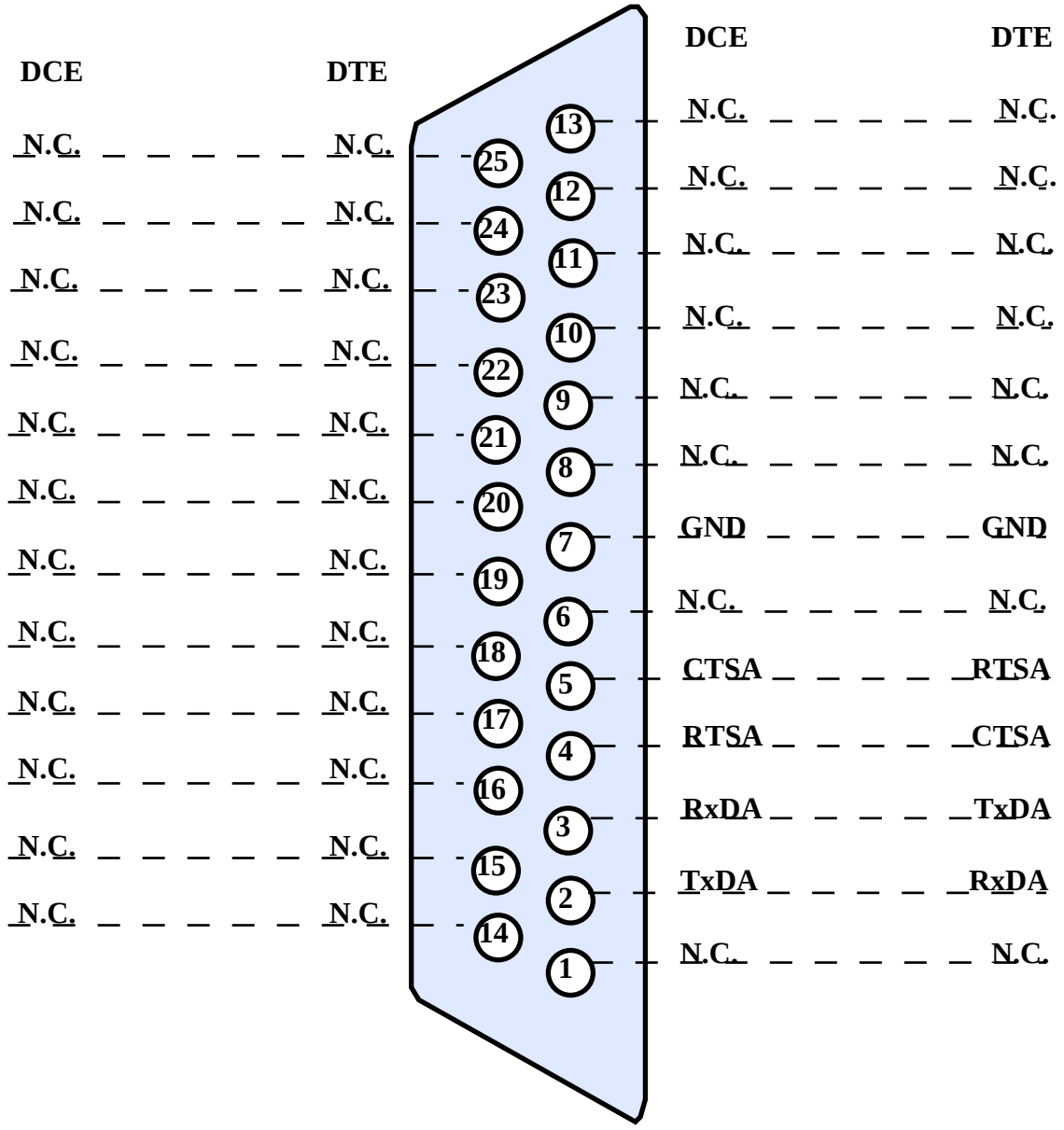

FIGURE 3: K2 - SERIAL LINE A CONNECTOR

Signals description:

CTSA = I - Clear To Send for serial line A.
RTSA = O - Request To Send for serial line A.
RxDA = I - Receive Data for serial line A.
TxDA = O - Trasmit Data for serial line A.
GND = Ground.
N.C. = No Connection.

K1 - SERIAL LINE B CONNECTOR

K1 is a D-type 25 pins female connector that allows to connect serial line B of CPU card. Pin-out changes according to the setting of jumpers group **J1**; it can be **DTE** or **DCE**. These two configurations are shown in figure below:

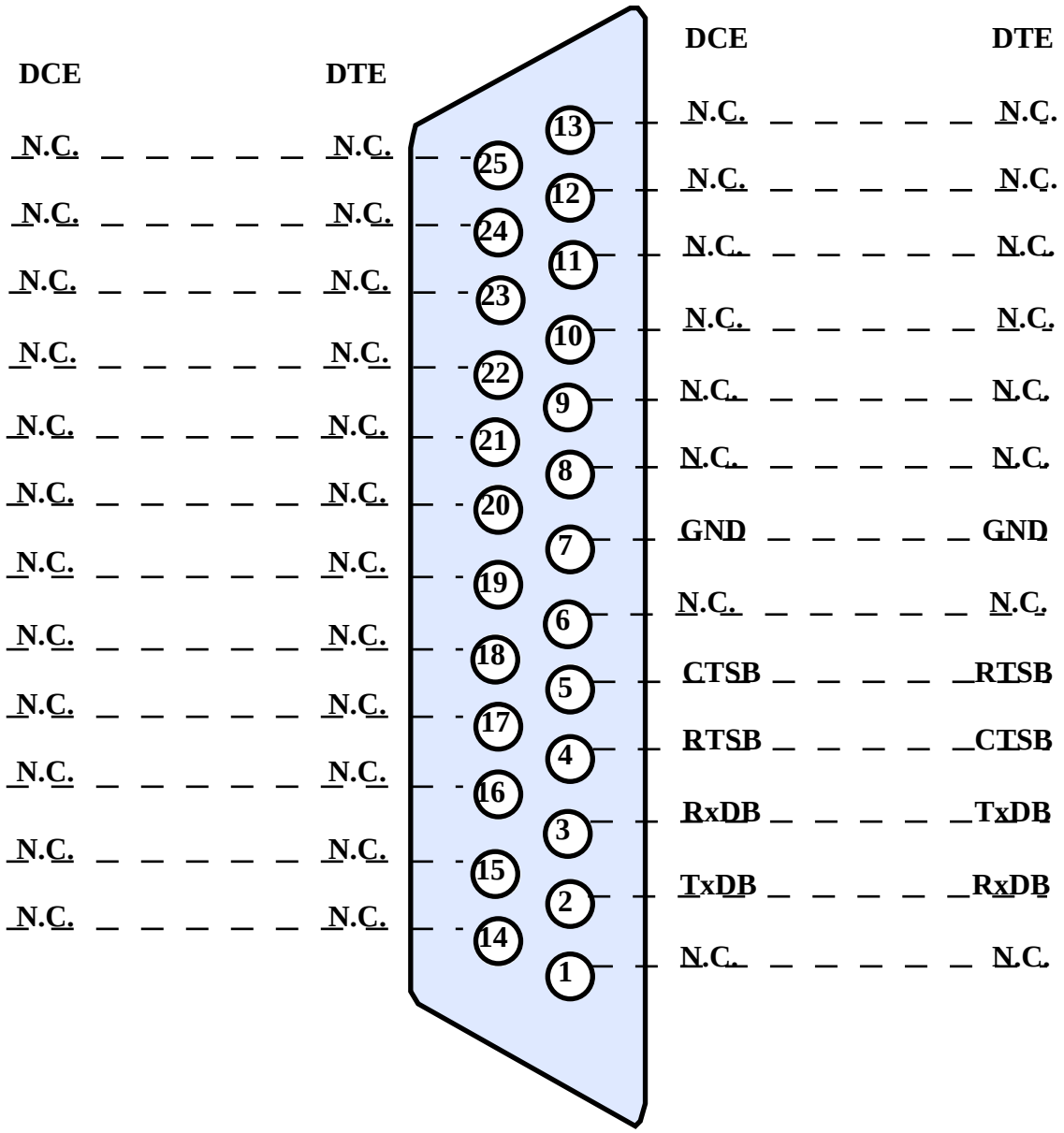

FIGURE 4: K1 - SERIAL LINE B CONNECTOR

Signals description:

CTSB = I - Clear To Send for serial line B.
RTSB = O - Request To Send for serial line B.
RxDB = I - Receive Data for serial line B.
TxDB = O - Trasmit Data for serial line B.
GND = Ground.
N.C. = No Connection.

K4 - K3 SIGNALS FROM 1 TO 8 CONNECTOR

K4 is a 8 pins quick release screw terminal; it features the signals present on pins from 1 to 8 of connector K3.
Signal connected to these pins changes according to the CPU card connected, so please refer to technical manual of card used.
Pin out follows:

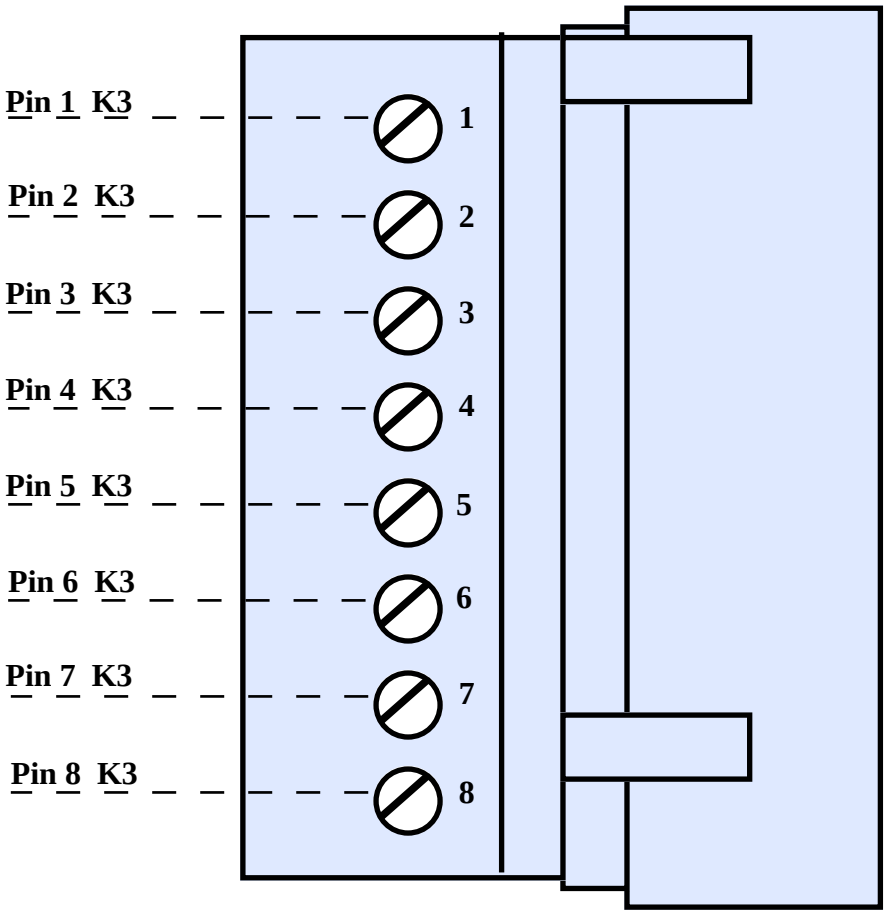

FIGURE 5: K4 - K3 SIGNALS FROM 1 TO 8 CONNECTOR

Signals description:

Pin 1÷8 K3 = - n-th pin of connector K3.

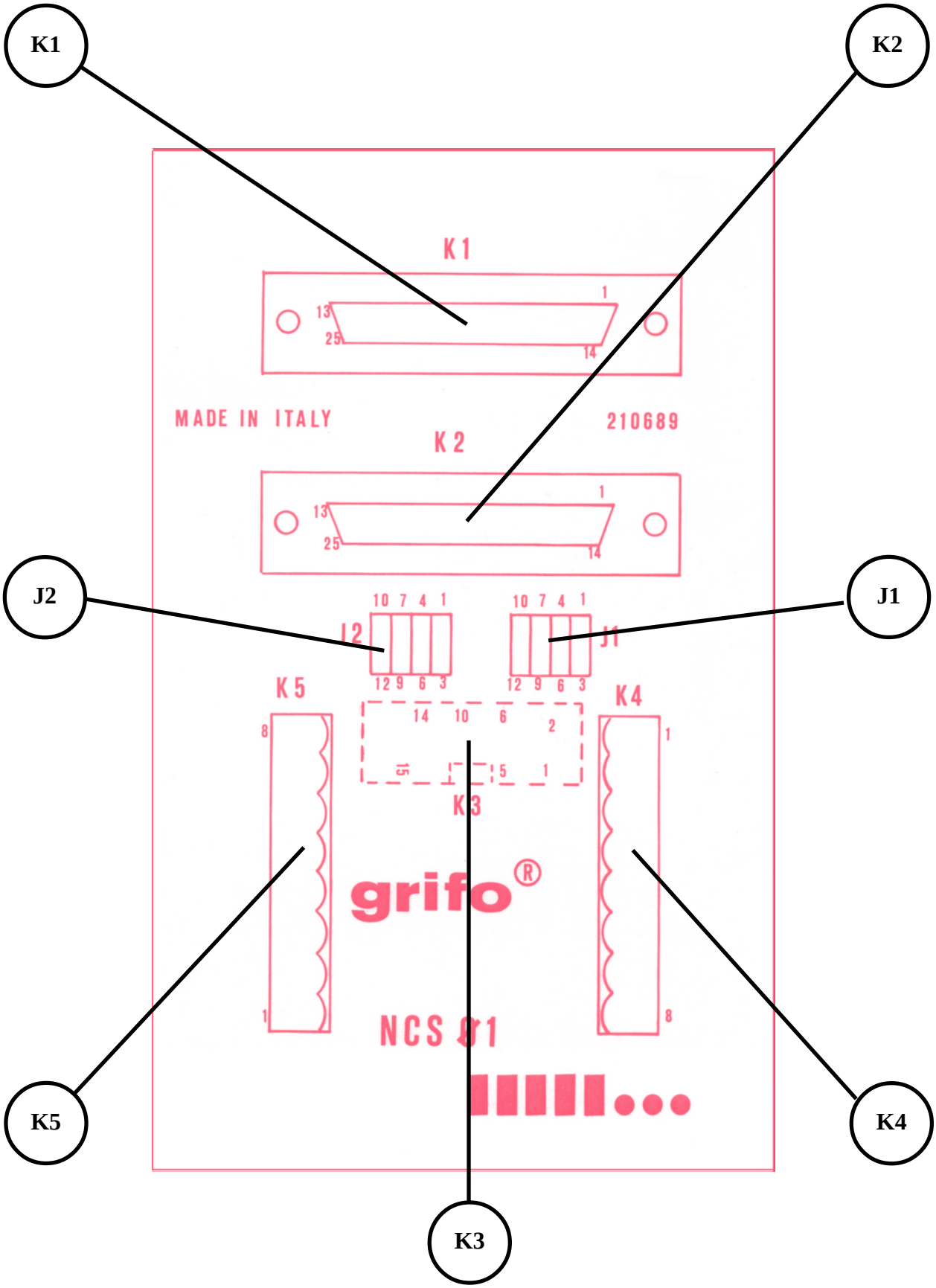

FIGURE 6: CONNECTORS AND JUMPERS LOCATION

K5 - K3 SIGNALS FROM 9 TO 16 CONNECTOR

K5 is a 8 pins quick release screw terminal; it features the signals present on pins from 1 to 8 of connector K3.
Signal connected to these pins changes according to the CPU card connected, so please refer to technical manual of card used.
Pin out follows:

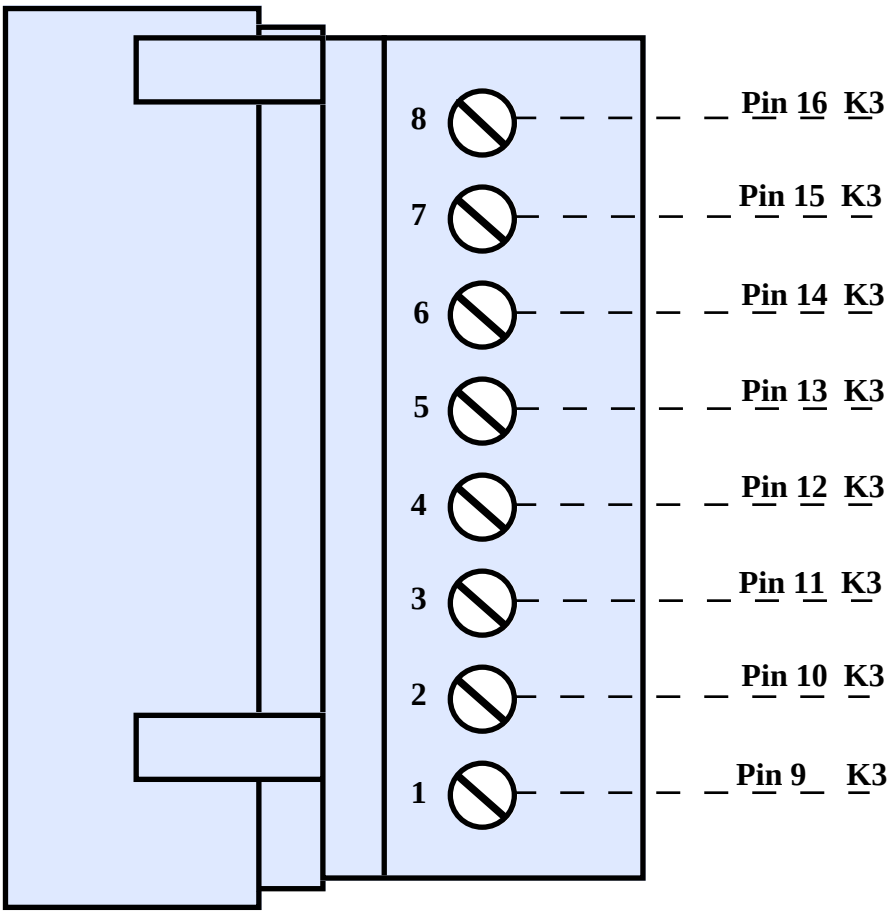

FIGURE 7: K5 - K3 SIGNALS FROM 9 TO 16 CONNECTOR

Signals description:

Pin 9÷16 K3 = - n-th pin of connector K3.

JUMPERS

On **NCS 01** there are 2 groups of jumpers that allow to perform the selection between **DTE** or **DCE** working mode for serial lines separately.
Here follows their function in detal according to the connection; to see their location please refer to figure 6.
The "*" denotes the default connection, or on the other hand the connection set up at the end of testing phase, that is the configuration the user receives.

CONNECTIONS	PURPOSE	DEF.
Positions 2-3, 5-6, 8-9, 11-12	Set pin-out of **K1** to be **DCE**.	
Positions 1-2, 4-5, 7-8, 10-11	Set pin-out of **K1** to be **DTE**.	*
Special configurations required by some software packages		
Positions 7-10 or 9-12	Connects signals CTSB and RTSB of K3, this means of the remote card.	
Position 8-11	Connects signals CTSB and RTSB of K1.	
Positions 1-4 or 3-6	Connects signals TxDB and RxDB of K3, this means of the remote card.	
Position 2-5	Connects signals TxDB and RxDB of K1.	

CONNECTIONS	PURPOSE	DEF.
Positions 2-3, 5-6, 8-9, 11-12	Sets pin-out of **K2** to be **DTE**.	*
Positions 1-2, 4-5, 7-8, 10-11	Sets pin-out of **K2** to be **DCE**.	
Special configurations required by some software packages		
Positions 7-10 or 9-12	Connects signals CTSA and RTSA of K3, this means of the remote card.	
Position 8-11	Connects signals CTSA and RTSA of K2.	
Positions 1-4 or 3-6	Connects signals TxDA and RxDA of K3, this means of the remote card.	
Position 2-5	Connects signals TxDA and RxDA of K2.	

FIGURE 8: JUMPERS TABLE

EXTERNAL CARDS

NCS 01 can be connected to most of **grifo®** cards provided with low profile connector dedicated to interface serial lines and timer/counter signals.
It is possible to connect it also to user interface cards.
Here follows, as an example, a short list of some of the cards that can be connected, complete with overall features. For further information, please request specific documentation.

GPC® 188F

General Purpose Controller 80C188

80C188 µP 20MHz; 1 RS 232 line; 1 RS 232, RS 422-485 or Current Loop line; 24 TTL I/O lines; 1M EPROM or 512K FLASH; 1M RAM Lithium battery backed; 8K serial EEPROM; RTC; Watch Dog; 8 Dip switch; 3 Timer Counter; 8 13 bit A/D lines; Power failure; activity LEDs; single power supply +5Vdc.

GPC® 150

General Purpose Controller 84C15

Microprocessor Z80 at 16 MHz; implementation completely CMOS; 512K EPROM or FLASH; 512K SRAM; RTC; Back-Up through external Lithium battery; 4M serail FLASH ; 1 serial line RS 232 plus 1 RS 232 or RS 422-485 or current loop; 40 I/O TTL; 2 timer/counter; 2 watch dog; dip switch; EEPROM; A/D converter with resolution 12 bit; activity LED.

GPC® 15A

General Purpose Controller 84C15

Full CMOS card, 10÷20 MHz 84C15 CPU; 512K EPROM or FLASH; 128K RAM; 8K RAM and RTC backed; 8K serial EEPROM; 1 RS 232 line; 1 RS 232 line or RS 422-485 or Current Loop line; 32 or 40 TTL I/O lines; CTC; Watch dog; 2 Dip switches; Buzzer.

GPC® 550

General Purpose Controller 80C552

Microprocessor 80C552 at 22 MHz. 32K EPROM; 32 K RAM; 32 K EEPROM or SRAM; RTC; serial EEPROM; serial lines 1 RS 232 + 1 RS 232 or RS 422-485 or current loop; 40 I/O TTL; 2 lines of PWM; 16 bits timer/counter; watch dog; dip switch; 8 lines 10 bit A/D converter; interface for BUS **ABACO®**; CAN line galvanically isolated. Unique power supply +5 Vdc; EUROCARD format.

QTP G28

Quick Terminal Panel - LCD Graphic, 28 keys

LCD display 240x128 pixels, CFC backlit; Optocoupled RS 232 line and additional RS 232/422/485/ C. L. line; CAN line controller; E^2 for set up; RTC and RAM lithium backed; primary graphic object; possibility of re-naming keys, LEDs and panel name; 28 keys and 16 LEDs with blinking attribute and buzzer manageable by software; Buzzer; built-in power supply; reader of magnetic badge and relay option.

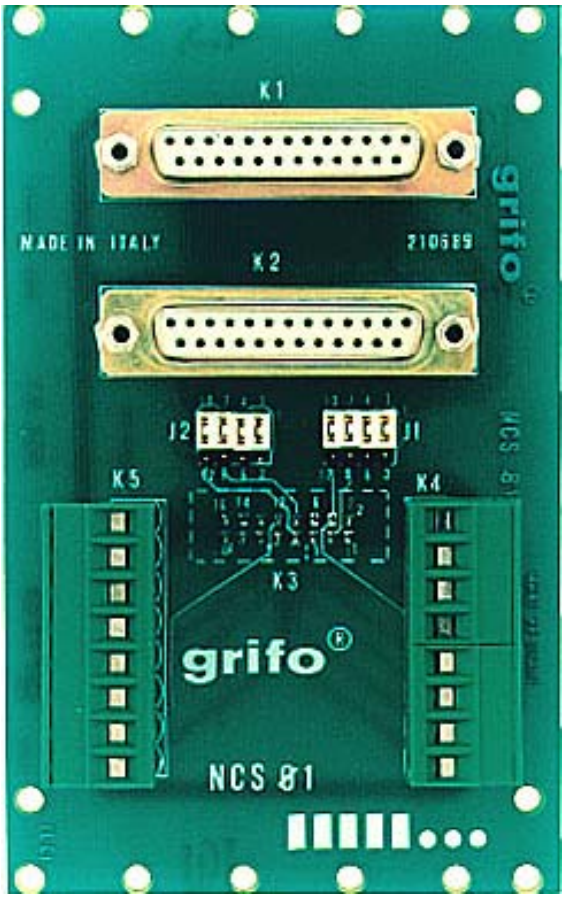

FIGURE 9: CARD PHOTO

IPC 52

Intelligent Peripheral Controller, 24 analogic input

This intelligent peripheral card acquires 24 indipendent analogic input lines: 8 PT 100 or PT 1000 sensors, 8 J,K,S,T termocouples, 8 analog input ±2Vdc or 4÷20mA; 16 bits + sign A/D section; 0.1 °C resolution; 32K RAM for local data logging; buzzer; 16 TTL I/O lines; 5 or 8 conversion per second; facility of networking up to 127 IPC 52 cards using serial line. BUS interfacing or through RS 232, RS 422, RS 485 or current loop line. Only 5Vdc power supply.

RKD LT

Remote Keyboard Display LCD Toshiba e Fluorescent FUTABA

Intelligent Terminal with serial interface (RS 232, RS 422-485, current loop) or parallel (BUS **ABACO**®). Manages 56 keys matrix keyboard; fluorescent display FUTABA and/or LCD TOSHIBA; buzzer; 8 LEDs for signalations; EEPROM of configuration.

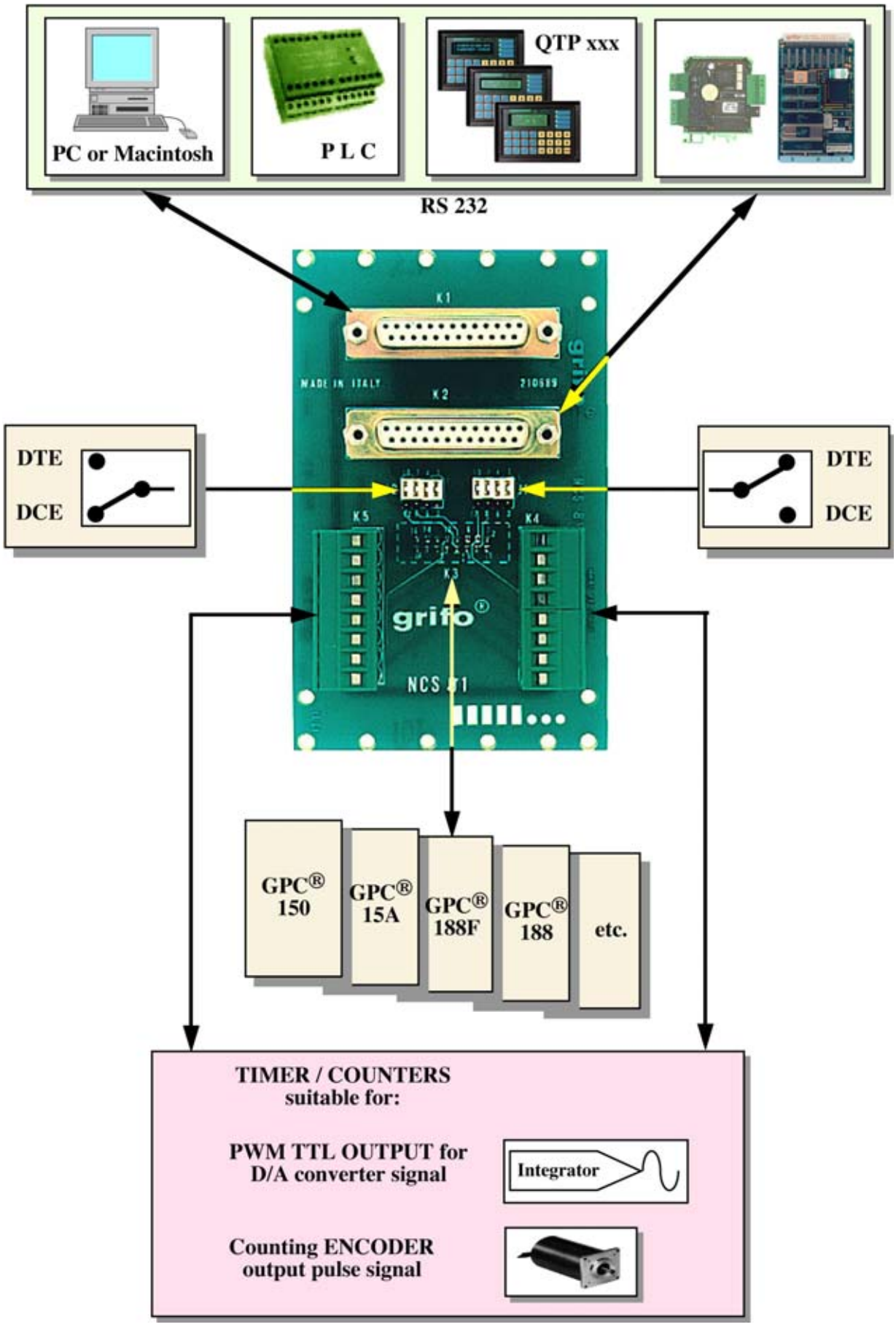

FIGURE 10: CONNECTRIONS EXAMPLE

APPENDIX A: ALPHABETICAL INDEX

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