PROGRAMMATORE DIGITALE

DIGITAL PROGRAMMED / PROGRAMMEUR DIGITAL / DIGITALPROGRAMMER

DPS 32 C22 VE1, 2, 3 - V

Manuale di istruzione / Instruction handook / Manuel de conduite / Betribsanweisung

INDEX

1 . MAIN FEATURES

This unit has been designed and realised to generate and process electrical timing signals necessary to run any automatic machine type.
The equipment is based on the principle of a cam programmer; instead of using special shaped cams or adjustable cams to actuate the microswitches, the wanted "ON/OFF" switching points are keyboard programmed.

Comprehension :

Cam : Function allowing ON/OFF signals within 360 degrees of a complete revolution (turn).

Phase: Cam section included between the "ON" condition and the subsequent "OFF" one. The "ON/OFF" points (at this points on the electrical output there are the condition "1") are determined during the programming phase and chosen by the programmer with one degree resolution .
Size : Configuration defined by a complete program of all used Cams, with relevant phases

Encoder : Pulse generator to be fitted on continuous motion mechanical members with direct drive.

Programmer : The unit receives the pulses from the encoder and processes them according to the pre-set program (size).

▼   To confirm the digited or keep on selecting

▲   To select or come back to the previously inserted data.

1.1   DPS 32 C22-VE1, 2, 3 - V technical specifications

- Power 110-220VAC.
- NPN or PNP output. Each output can supply 50mA max. Outputs are short circuit protected but not overload protected.
- 40 Character Fluorescent display
- 32 programmable Cams
- 180 phases for each CAM may be selected
- Memory for up to 44 formats
- 180 / 255 programmable Alarm messages
- Response speed up to 7000 RPM. This speed decreases if Anticipation is selected.

1.2 Technical specifications of the encoder

The programming unit are supplied complete with STT ELETTRONICA absolute encoders in any case.
Whatever damage or fault origined by other encoder makes will make void all warranties .The same is for any possible connection that could damage the equipment irreparably.

- Shaft (diameter) : 10mm
- Load on the shaft : 200N(20.5Kg.) axial and radial
- Number of revolution (max.): 3000 (for short periods 6000 rpm.)
- Moment of inertia : 80gcm2
- 15 pole connector : IP54 insulation
- 19 pole connector : IP65 insulation
- Working temperature : 0 + 60° C.
- Binary code
- Power supply : 8V to 24Vdc.
- Absorption : 80 / 120 mA
- Output power : 30mA

1.3 Programmer guide

```
┌─────────────────────┐
│ SIZE 01 UNCONNECT   │
│ T 00000000   14:29  │
└─────────────────────┘
```

SIZE 1 = Indicates the programmed output format.

UNCONNECTED = displays the DPS status, the encoder is disconnected.

DEGREES or REVOLUTIONS = When the encoder is connected, displays the angular position or rotational speed of the encoder in RPM if the speed exceeds 10 turns per minute.

T 00000000 = Indicates the number of turns completed by the encoder. This can used to indicate the piece count with an external input (see Chap. 7.3, Special Functions).

Before starting to program the Cams, make sure that the Function Parameters are set correctly. To do this, use the keyboard to go through the 5 main menus.

<div align="center">

Language selection Menu

Clock Menu

Function Menu

Message Menu

Cam Menu

</div>

2 . Language selection menu

From the main display, use the ▲ key to access the language selection menu. At this point, type the number which corresponds to the desired language :

1.	Italian	2.	English	3.	French
4.	German	5.	Spanish		

3 . Clock Menu

From the main display, use the *Clock* key to be able to set the date and time. Then use the following keys:

   Clear to leave the settings as they currently are.

   X   to change the date settings.

Once changed, use the ▼ key to confirm. This operation will be used whenever a data entry needs to be confirmed.

Type the number which corresponds to the desired day of the week.

1.	Monday	2.	Tuesday	3.	Wednesday
4.	Thursday	5.	Friday	6.	Saturday
7.	Sunday				

Continue through the rest of the menus till the last display always confirming with the ▼ key. At the end, use the *Clear* key to return to the main display.

4 . Function menu

Use the ▼ key to access the Function menu from the main display. Continue using the On-line instructions until the code (4-5-6) is requested.

Once in the function menu, the list of functions may be scrolled forward with the ▼ key or backwards with the ▲ key. Use the ▼ key to confirm any data change. Use the *Clear* at any time to exit the function menu.

Warning: Once in this menu, any change made will take affect immediately without it being confirmed. It is good practice therefore not to give the access code to unauthorised personnel.

```
CREI STT  BOLOGNA
ITALY - 2578 P60B
```

Before entering the menu, general summary information is displayed (Serial number and software in use).

4.1   Output Size

```
OUTPUT SIZE
[01-06] 01
```

This is the size which will be active on the outputs once the functions set-up has been completed. It can only be set from this menu. Select how you wish to use the function by setting it to "0" or "1" and confirm with ▼.

4.2   Advances Function

```
NUM. OF ADVANCES
(1 - 32) 10
```

Confirm with ▼.

The advances units is in ms. This value can be found in practice or with a simple mathematical formula (illustrated later on) but may not correspond to the true requirements. This for the reason that no variables are taken into consideration which distinguishes delays or mechanical differences between machines. A more practical way is by starting with a very low value and gradually increasing it until the correct value is found. It is preferable that the advanced value is found at the maximum speed for the machine. This assures that the value will work correctly even at the low speeds.

The mathematical formula is as follows:

Known data: - Encoder Rotation speed (Cycles/Min)
                  - Advances/Delay necessary (Degrees)

Value to Find: - Value in ms (milliseconds to set on the programmer)

Cycles/Min/60 = n (Cycles/Sec)
1000 / n = N (milliseconds/Revolution)
N / 360 = Q (milliseconds/degree)
Q x Degrees of Advances = T (time in milliseconds to set on the programmer)

Example:
Encoder shaft = 300 Turns/Min
Advances Required = 30 Degrees

300 / 60 = 5 Cycles/Sec.
1000 / 5 = 200 milliseconds/turn
200 / 360 = 0.55 milliseconds per degree
0.55 x 30 = 16.6ms (anticipation time to set on the programmer)

A simplified table calculated using the above formulas can be found in appendix 'C' at the end of the manual.

4.3　　Delay Function

```
RETARDS CAM(17-20)
    ms 000
```

There are two sets of four Cams (17-24) dedicated to this function which can be programmed in the same manner as the Advances function.

4.4　　Ratio Function

```
RATIO CAM (25-32)
[1/1-1/9]   1/1
```

This feature permits one unit to control more than one machine at the same time reserving a part of the programmer for the In-Line machines having different ratios. If the

Retards Function is not used, two sets of eight Cams may be dedicated each with its own ratio.

The standard ratios are:

　　　1/1; 2/1; 3/1; 4/1; 5/1; 6/1; 7/1; 8/1; 9/1

In this case, the encoder will be fitted to the machine with the highest speed.

For a quicker and more precise programming of the unit, it is advisable to dispose of two phase disks (360 degrees). One fitted to the fast shaft and the other on the slower shaft. The disks must then be phased (0/0) to establish the cycle start position. Only when the zeros correspond, the **First Revolution Set** may be carried out. Where a constant ratio is necessary, it is appropriate to use a sensor on the slower ratio side which gives a "0" (RESET) signal to the programmer in order to re-phase as soon as the common "0" is passed.

4.5　　Degree Offset Function

```
SET ZERO PHASEDISP
COUNT=0   X=SET
```

Gives the possibility to input the offset degrees between the encoder and the machine. This gives the user a quick method of phasing the encoder with the machine.

Type in *COUNT* if you wish to use the encoder Zero-Mark (a logical use). Then exit and rotate the encoder shaft until it coincides with machine's "0" point. At this point, tighten the encoder coupling between the encoder shaft and the mechanical joint to fix the encoder position.

Type in *X* if it is not possible to obtain a correspondence as described above. The programmer will automatically calculate the offset degrees between the encoder with the machine.

4.6　　Rotation Direction Function

```
REVOLUTION DIRECT.
OR = 0   AOR = 1
```

The programmer accepts the encoder signals in both clockwise and anti-clockwise directions. The keyboard can be used to set the rotation direction so the display will always show an incremental value.

4.7　　Speed Limit Function

```
SPEED LIMIT
RPM = 000
```

a maximum shaft rotation speed (RPM). This 'S Cam to be used as an output indicator that ːn exceeded.

Obviously, if this Cam is used for this purpose, it cannot be used normally.

4.8   Speed Ratio Function

```
┌─────────────────────┐
│   SPEED RATIO       │
│  (1-9, 0=1/3)   1   │
└─────────────────────┘
```
Input a value (1-9) which acts as multiplier of the rotation speed of the shaft where the encoder is connected.

E.g.: Between machine "A" and machine "B" there is a transmission ratio of 4/1 and the encoder is connected to the "B" machine. To display the speed of machine "A", a value of "4" would be used.

4.9   CAM or Encoder Test Function

```
┌─────────────────────┐
│ TEST CAMS = X       │
│ ENC=COUNT           │
└─────────────────────┘
```

CAM Test: This gives the possibility to test the Cam outputs. This is useful after machine installation or for diagnosing an eventual problem situation.

ENCODER Test: Used to verify the Encoder functioning or its connecting cable.

4.10   Reset Timer and Counter

This operation is activated from the function menu.
After inputting the access code, the general display is shown.

```
┌─────────────────────┐
│ CREI STT  BOLOGNA   │
│ ITALY - 2578 P60B   │
└─────────────────────┘
```

At this point use the *Clear* key to reset the counters.

4.11   Select external size (PLC or Thumb-wheel Switches)

In order to change formats from a PLC or Thumb-wheel switches, the DPS must be enabled to recognise external signals. To do this, the output format must be set from the function menu with "0 0".

Electrical Connection Diagram

Male connector on PDS.

1	2	3	4	Formato
0	0	0	0	1
1	0	0	0	2
0	1	0	0	3
1	1	0	0	4
0	0	1	0	5
1	0	1	0	6
0	1	1	0	7
1	1	1	0	8
0	0	0	1	9
1	0	0	1	10
0	1	0	1	11
1	1	0	1	12
0	0	1	1	13
1	0	1	1	14
0	1	1	1	15
1	1	1	1	16

Common = PIN 1 = 0 Vcc
2 - 3 - 4 - 5 = 24 Vcc   per   bit = 1
2 - 3 - 4 - 5 =   0 Vcc   per   bit = 0

4.12   2nd and 3rd Encoder

When the programmer supports 2 or 3 encoders, the available cams are from 17 to 32. In this case, the Delay and Ratio functions are no longer available and there are 16 Cams for the 1st encoder, and 16 cams for the 2nd and 3rd. The set-up instructions for the 2 additional encoders can be found in the function menu. See sections 4.2, 4.5, 4.6. The indicators on the keyboard show which encoders are connected.

5.   Message Menu

```
MESSAGES FROM KEYB.
 EXT.NORM ▼CIRYL. 9
```

Use the *Alarm* key to access the menu options in order to display or input Alarm messages. Up to 180 messages may be programmed in the standard version. 256 or 512 message versions are available.

There are two methods of programming the messages;
1)   Input using the CREI-STT alphanumeric keypad (KEYB 1/4) which is connected to a small interface (BMS) and then to the programmer.
2)   Input with a PC a CREI-STT message software. Once the messages have been typed in, they can be transmitted to the DPS using the serial port.

The messages may be selected in using a PLC and a (BMS) interface with 8 terminals for the inputs and 2 for the power supply (+24V and Ground). The 8 inputs can be binary codes to enable any of the 180 available messages.
There is also an interface board with 31 inputs for the signals which arrive directly from the machine.

NB: All the functions described till now are the ones present in the standard version. For special requests, contact CREI-STT Electronic directly.

6.   Cam Menu

Using the ▼ key from the main display, the Function menu or the Cam programming functions are accessed. Use the ▼ key again to start programming.

ATTENTION
The operations performed in this menu do NOT take effect immediately like they in the Function menu. They take effect only after the work is completed with a save operation (as we will see later on). Therefore, to exit without saving the programmed formats, use the ▲ key till the main display is reached.

6.1   Cam Programming

```
CHOOSE SIZE
[01-10] 01
```
•   1

Type in the format number to program and then confirm the operation with the ▼ key.

```
DELETE SIZE
01 (YES ▼   NO ▲)
```
•   2

If the format is being programmed for the first time, it is good practice to confirm the deletion.

```
SIZE 01 CHOOSE
CAM [01-16] 01
```
• **3**

Type in the Cam number to program and confirm with the ▼ key.

```
SIZE 01 CAM 01
START/130 END\000
```
• **4**

Type in the Phase start degrees (E.g. 130) and confirm with the ▼ key.

```
SIZE 01 CAM 01
START/130 END\160
```
• **5**

Type in the Phase end degrees (E.g. 160) and confirm with the ▼ key.

```
END PROGRAM     ▲
OTHER CAM       ▼
```
• **6**

Select whether to program another Cam or to exit the programming mode.
If another Cam program is selected, all the above steps will be repeated.
If programming is ended, the Access code (4 5 6) is requested to confirm that the programmed data are to be saved.

```
DIGIT CODE
    - - -
```
• **7**

Continue following the instructions till completion.

```
     MEMORY
   YES ▼  NO ▲
```
• **8**

```
WRITING STORED
SIZE [01-10]01
```
• **9**

6.2   Multiple Phase programming of the same CAM

Each cam can be programmed with as many as 180 different phases. Its not necessary to program the phases in any particular order. The programmer will reorder the phases sequentially. There must NOT be any overlapping phases in the list.

Eg.   Phase #1   Start: 135   End: **225**
       Phase #2   Start: **212**   End: 260

The second phase selected will automatically be programmed as the only phase with the start of the 2nd and the end of the 2nd phase.

Operations to perform:
Follow the previous instructions till step #5 without using the ▼ key to confirm. Instead use the ▲ key to place the cursor in the Phase start field again and type in a new start phase.

If the new phase values are not within the other phase values (as indicated in the example), then 2 different phases are pre programmed. The number

of different phases programmed is displayed before entering the selected cam after saving it.

```
SIZE 01 CAM 01
PHASE SEARCH 003
```
•   **10**

This screen does not appear when a cam is programmed for the first time.

6.3   Deleting one or more phases of the same CAM

To delete a phase from a cam, it is sufficient to select the phase to eliminate and set the phase end value equal to the phase start value.

Example: If phase # 2 has to be eliminated from cam # 9;

            CAM # 09
    Phase #1   087 - 113
    Phase #2   120 - 142
    Phase #3   227 - 239
    Phase #4   270 - 315

Screen   . **10** would display the following:

```
SIZE 01 CAM 09
PHASE SEARCH 004
```

Use the keyboard to select the cam to delete by typing "002" in place of "004".

```
SIZE 01 CAM 09
START/120 END\142
```

Type in "120" in place of "142" for the Phase end degrees and confirm with the ▼ key. At this point, only 3 phase will remain once saved.

6.4   Copying existing Size

This function is useful in case a size is needed where the cam program differs very little from the base size.
Instead of rewriting all the cam information, simply copy an existing size to a new size as follows:

Example: Copy size 3 to new size 4.

As the first operation, select the size to be copied from the function menu (in this case, 3).
Then enter in the cam menu and at the request of which size is to be programmed (screen . **1**), the value "03" will already be set. Answering with the ▼ key, the programmer will pass directly to the Save screen (screen .**9**) . Answering "04" at this point, will save all the contents of size "03" to the new format "04".

6.5   Auto acquisition of cam

This function allows to write cam directly during setting machine without known exactly the value degree. Assure the encoder is connected to the digital programmer switch then follow the instruction till point 4 and type "*prod/ON*" key ; the start value will be loaded from the position of the encoder. Confirm with ▼ and rotate the encoder at the end position . Now type "*Reset/Off*" key to load the end value of the cam.

7.   Special Functions

ATTENTION: These functions may only be accessed when the programmer is in normal working mode and at the main screen. In other words, the programmer must not be in any of the following menus; cam, functions, languages, etc.

7.1   Maintenance Cycle

Typing the *Clear* key will display the working hours of the machine.

7.2   Partial Production Count

- Typing the *Prod/ON* key will start the partial production counter which is identified by the dot after the *T. 00000000* counter.
- Typing the *Reset/OFF* key will stop the counter, display it, and reset its contents.

7.3   Waste piece counter *(Optional)*

Typing the *Count* key will display the waste piece count. This function is enabled by using an external input terminal #5 from the *PLC Format Change*. Having used one input for this function, the externally selectable formats available are now 8.

7.4   External Key *(Optional)*

This security feature assures that only authorised personal with the key may access the DPS. This function uses the last input terminal from the *PLC Format Change*.

8.   Trouble Shooting

WARNING: As a precaution, it is absolutely necessary that the power to the programmer is off before connecting or disconnecting the flat cables.

It is good practice to copy the phase programs in memory and their relative functions in the manual (see "Program Table" appendix D2) in case of mishandling by inexperienced personal, or memory loss caused by electrical noise from solenoids, etc. Therefore special attention must be taken to filter those units.
In these cases, first proceed to find the probable cause such as a bad RC filter. Then re-input the function data and set the clock. This operation will reset any bad data in the RAM memory.

Fault The programmer display does not work.

Check Control the main fuse and if burned-out, verify the cause before replacing it. Substitute the fuse with a similar type but not greater than 700mA.
If the fuse keeps burning-out, please contact our service department.

Fault The programmer displays the wrong encoder position.

Check This problem may be caused either by a faulty encoder or encoder connection cable. Verify the problem by using the ENCODER TEST function described insertion 4.8 page 4.

Fault The programmer displays the wrong rotation speed.

Check See previous problem.

Fault The programmer does not activate the outputs.

Check Control that the programmer is compatible with the output stages (PNP, NPN, Relays) and the flat cables are connected correctly. Use the CAM TEST function to control all the outputs. If it still does not work properly, then check for the possibility of any short circuits.

Fault   Incorrect outputs in relation to the programmed phases.

Check Use the ENCODER TEST function described in section 4.8 to verify that the encoder works properly. Then eventually control the 24VDC supply voltage on the two 25 pin output connectors for correct level and that its free of noise.

NB: The outputs are short circuit protected. The LEDS on the front of the programmer evidence any eventual fault (FAIL). If a short circuit occurs, the protection circuit automatically disables the outputs.
To reactivate them, cycle power off and then on again after the short has been removed. If the FAIL LEDS still come on, turn power off, remove the output connector and wait a few seconds before reconnecting and turning power back on again. This gives the protection circuit time to reset itself. If the FAIL LEDS still come on, means that one of the outputs from the driver circuit has burned out.

APPENDICE / ENCLOSURE / PIECE JOINTE / ANLIEGEND A

Schema dimensionale - Layout drawing - Schema des dimension - Massbild
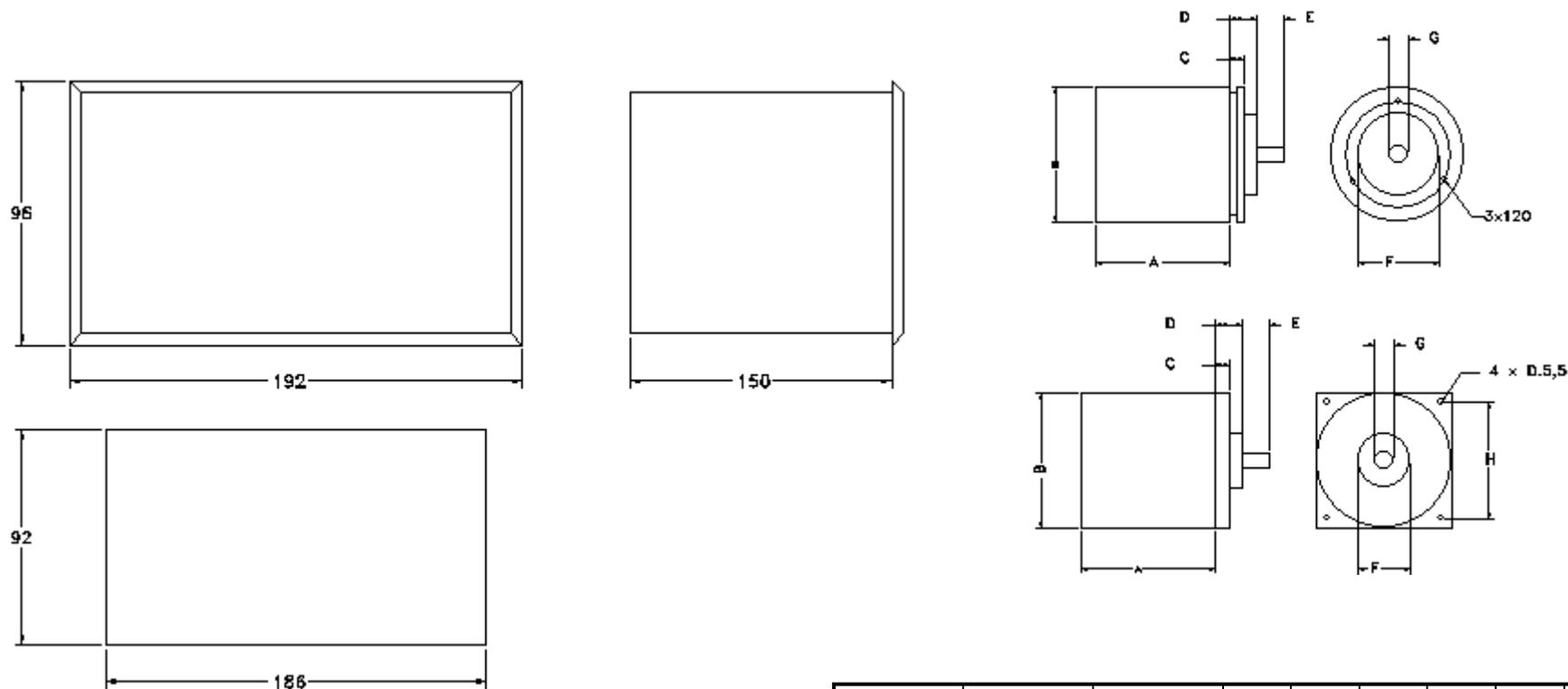
DIMA DI FORATURA

Modello	Fissaggio	Attacco	A	B	C	D	E	F	G	H
IP54L	flangia	assial1e	65,5	65	6,3	14	20	31,75	10	52,42
IP65LRC	flangia	radiale	65,5	65	6,3	14	20	31,75	10	52,42
IP65RA	flangia	assiale/radiale	54,5	62	6,8	14	20	31,75	10	52,42
IP54LE	servo	assiale	62	65	8	14	23,5	38	10	/
IP65LE	servo	assiale	62	65	8	14	23,5	38	10	/

I

APPENDICE / ENCLOSURE / PIECE JOINTE / ANLIEGEND B

Collegamento Encoder Programmatore / connection Encoder and Programmer / connexions encoder programmeur / anscluesse Enc.+Programmer

connettore encoder mod.IP54L 15 poli / connecteur encoder mod.IP54L 15 poles / encoderverbinder mod.IP54L 15 polen / 15 pole encoder connector mod.IP54L	Connettore programmatore 15 poli / connecteur programmeur 15 poles / verbinder programmer 15 polen / 15 pole programmer connector	connettore encoder mod.IP65L 19 poli / connecteur encoder mod.IP65L 19 poles / encoderverbinder mod.IP65L 19 polen / 19 pole encoder connector mod.IP65L	
1	1	A	1° bit encoder
2	2	B	2° bit encoder
3	3	C	3° bit encoder
4	4	D	4° bit encoder
5	5	E	5° bit encoder
6	6	F	6° bit encoder
7	7	G	7° bit encoder
8	8	H	8° bit encoder
9	9	J	9° bit encoder
12	12	M	10° bit encoder (per 1024 i./g)
		N	nc.
		S	nc.
15	15	T	GND
13	13	U	+ 24 Vcc
14	14	V	+ 24 Vcc

Collegamento uscite /outputs / Ausgang / sortie

CONN. 25 P.	CAM NUM.	CONN. 25 P.	CAM NUM.
1	GND	14	GND
2	n.c.	15	out 16 / 32
3	out 15 / 31	16	out 14 / 30
4	out 13 / 29	17	out 12 / 28
5	out 11 / 27	18	out 10 / 26
6	out 9 / 25	19	24Vcc ext.
7	24Vcc ext.	20	24Vcc ext.
8	out 8 / 24	21	out 7 / 23
9	out 6 / 22	22	out 5 / 21
10	out 4 / 20	23	out 3 / 19
11	out 2 / 18	24	out 1 / 17
12	n.c.	25	GND
13	GND		

APPENDICE / ENCLOSURE / PIECE JOIUNTE / ANLIEGEND C

Tabella degli anticipi - Advance Chart - Tableau Vavance - Tafel Voreilung

VELOCITA'(giri/min) - SPEED(RPM) - VITESSE(tours/min.) - GESCHWINDIGKEIT(drehzahl/min.)

GRADI da anticip	50 g./min.	100 g./min.	150 g./min.	200 g./min.	250 g./min.	300 g./min.	350 g./min.	400 g./min.	450 g./min.	500 g./min.
10°	33 msec	16 msec	11 msec	8 msec	6 msec	5 msec	4 msec	4 msec	3 msec	3 msec
20°	66	33	22	16	13	11	9	8	7	6
30°	100	50	33	25	20	16	14	12	11	10
40°	133	66	44	33	26	22	19	16	14	13
50°	166	83	55	41	33	27	23	20	18	13
60°	200	100	66	50	40	33	28	25	22	20
70°	233	116	77	58	46	38	33	29	25	33
80°	266	133	89	66	53	44	38	33	29	26
90°	300 msec	150 msec	100 msec	75 msec	60 msec	50 msec	42 msec	37 msec	33 msec	30 msec

APPENDICE / ENCLOSURE / PIECE JOINTE / ANLIEGEND D

Schema di collegamento porta seriale PC -> DPS - Cable connection serial Port PC -> DPS
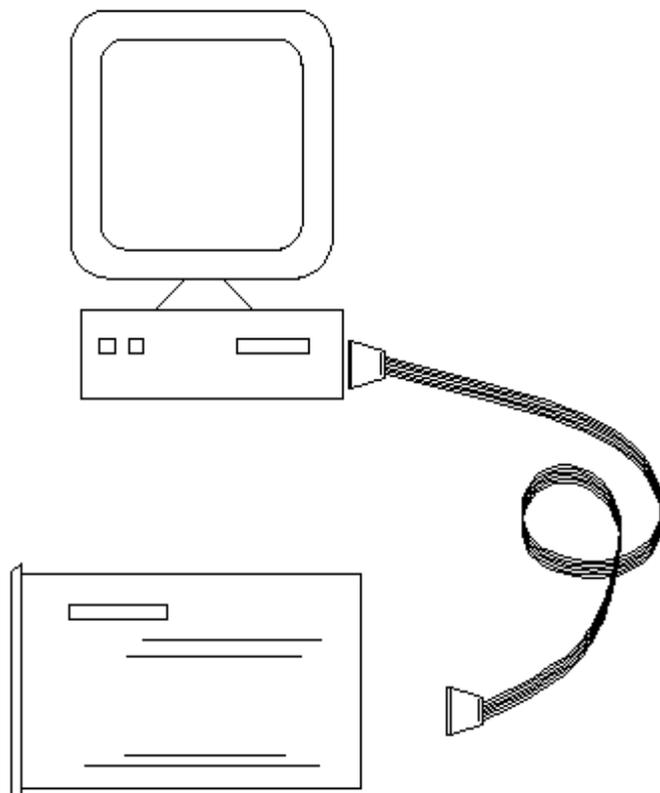
CAVETTO RS232

CONN. FEMMINA	CONN. MASCHIO
Pin 2	Pin 3
Pin 3	Pin 4
Pin 6	Pin 2
Pin 7	Pin 7
Pin 8	Pin 8
Pin 5	Pin 1

Impostare la stessa velocità di Trasmissione/Ricezione sia sul DPS che sul PC (vedere file.txt allegato al software).
Setting the same baudrate of transmission on DPS and PC through the programming software.

Per il software di comunicazione richiedere a CREI STT Elettronica.
Contact CREI STT Elettronica (see *enclosure g)* for software communication.

APPENDICE / ENCLOSURE / PIECE JOINTE / ANLIEGEND E

Schema di collegamento DPS -> BMS - Cable connection serial Port DPS -> BMS
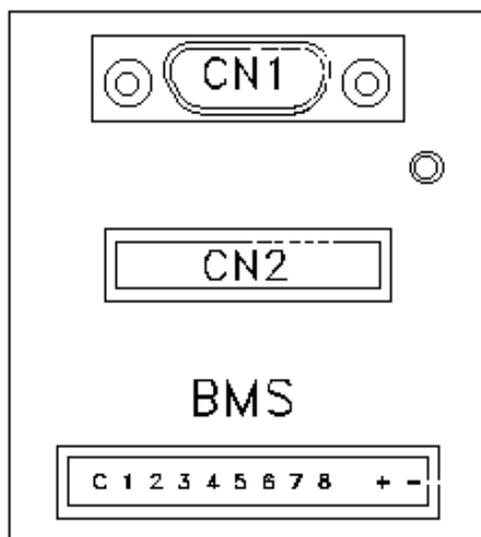
Pin 1	allarmi	1° bit
Pin 2	allarmi	2° bit
Pin 3	allarmi	3° bit
Pin 4	allarmi	4° bit
Pin 5	allarmi	5° bit
Pin 6	allarmi	6° bit
Pin 7	allarmi	7° bit
Pin 8	allarmi	8° bit
C	Uscita 24 VDC per aliment. Contraves	
+ / -	Alimentazione interfaccia 24Vdc	
CN1	Verso il DPS cavo flat 1mt.	
CN2	Per KEYB/4 (tastiera alfanumerica)	

APPENDICE / ENCLOSURE / PIECE JOINTE / ANLIEGEND F

Scheda programmi - Program table - Carte des programations - Programmkarte

CAM	PHASE ON	PHASE OFF	PHASE ON	PHASE OFF	PHASE ON	PHASE OFF	PHASE ON	PHASE OFF	PHASE ON	PHASE OFF	PHASE ON	PHASE OFF	PHASE ON	PHASE OFF	PHASE ON	PHASE OFF
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

CAM	PHASE		PHASE		PHASE		PHASE		PHASE		PHASE		PHASE		PHASE	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
17																
18																
19																
20																
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
32																

GRADI DI SFASAMENTO _____	VELOCITA' _____	SENSO DI ROTAZIONE _____
DISPLACEMENT DEGREES	SPEED	REVOLUTION DIRECTION
DEGRES DE PHASAGE	VITESSE	SENS DE ROTATION
VERSCHIEBUNGSGRADE	GESCHWINDIGKEIT	DREHRICHTUNG

ANTICIPO LINEARE AUTOMATICO:

AUTOMATIC LINEAR ADVANCE :

AVANCE LINEAIRE AUTOMATIQUE :

LINEAR AUTOMATISCHE VOREILUNG :

camme	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
anticipo ms.																

camme	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
anticipo ms.																

APPENDICE / ENCLOSURE / PIECE JOINTE / ANLIEGEND G

Richiesta assistenza - After sale service - Demande d'assistence apres vende - Bedienungsanforderung

CREI STT ELETTRONICA S.n.c.

Via Grandi 13
40050 - Castenaso
BOLOGNA (ITALIA)

Inviare la richiesta d'assistenza al seguente indirizzo :

Tel. +39 - 51 / 781185 -781158

Send after sale service request to the following address :

Telefax. +39 - 51 - 781 273

Envoyer le demande d'assistence après vente à l'adresse suivante :

Ihre bedienungsanforderung an die folgende Adresse richten :

http: // www.creistt.com
e-mail : dps@creistt.com.it