PROGRAMMATORE DIGITALE

DIGITAL PROGRAMMED / PROGRAMMEUR DIGITAL / DIGITALPROGRAMMER

DPS ICLL8

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

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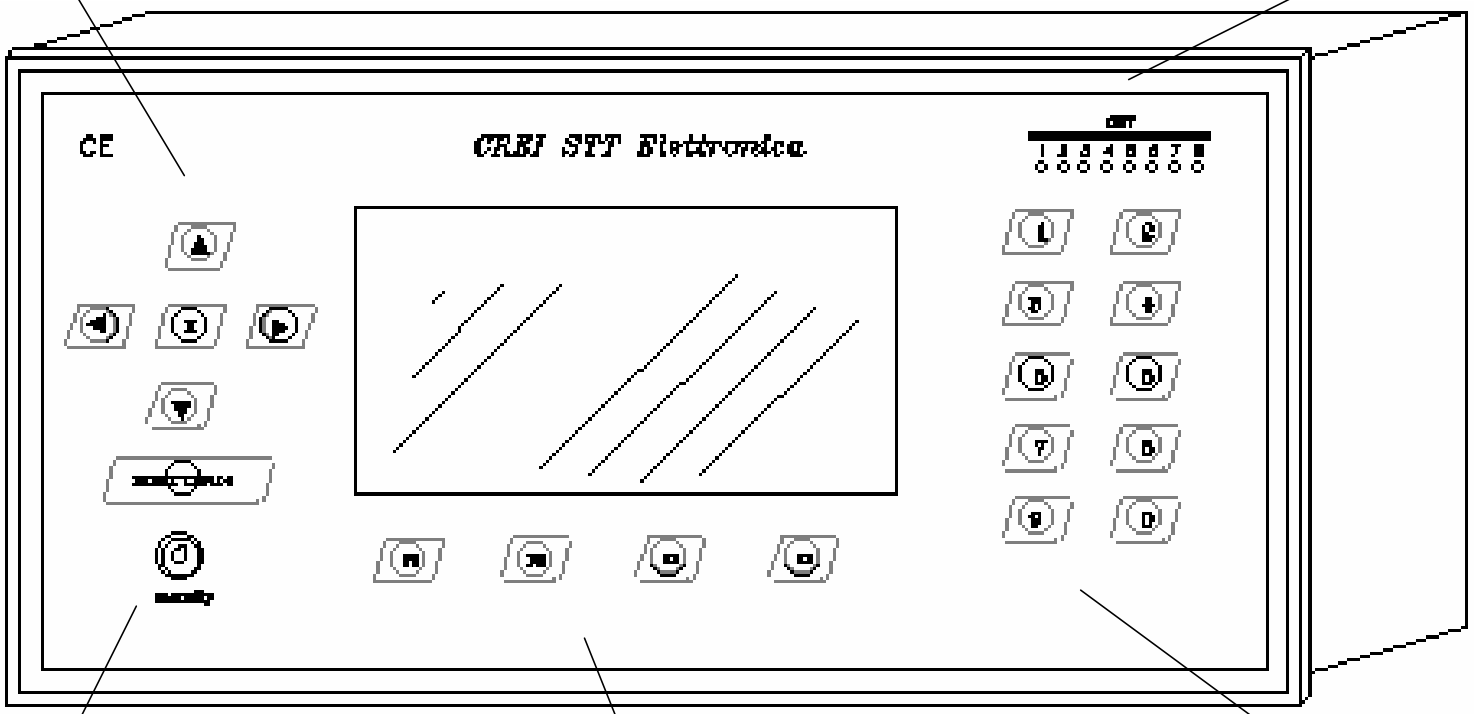
Tasti di spostamento cursore e conferma dato
Navigation, operating data keys

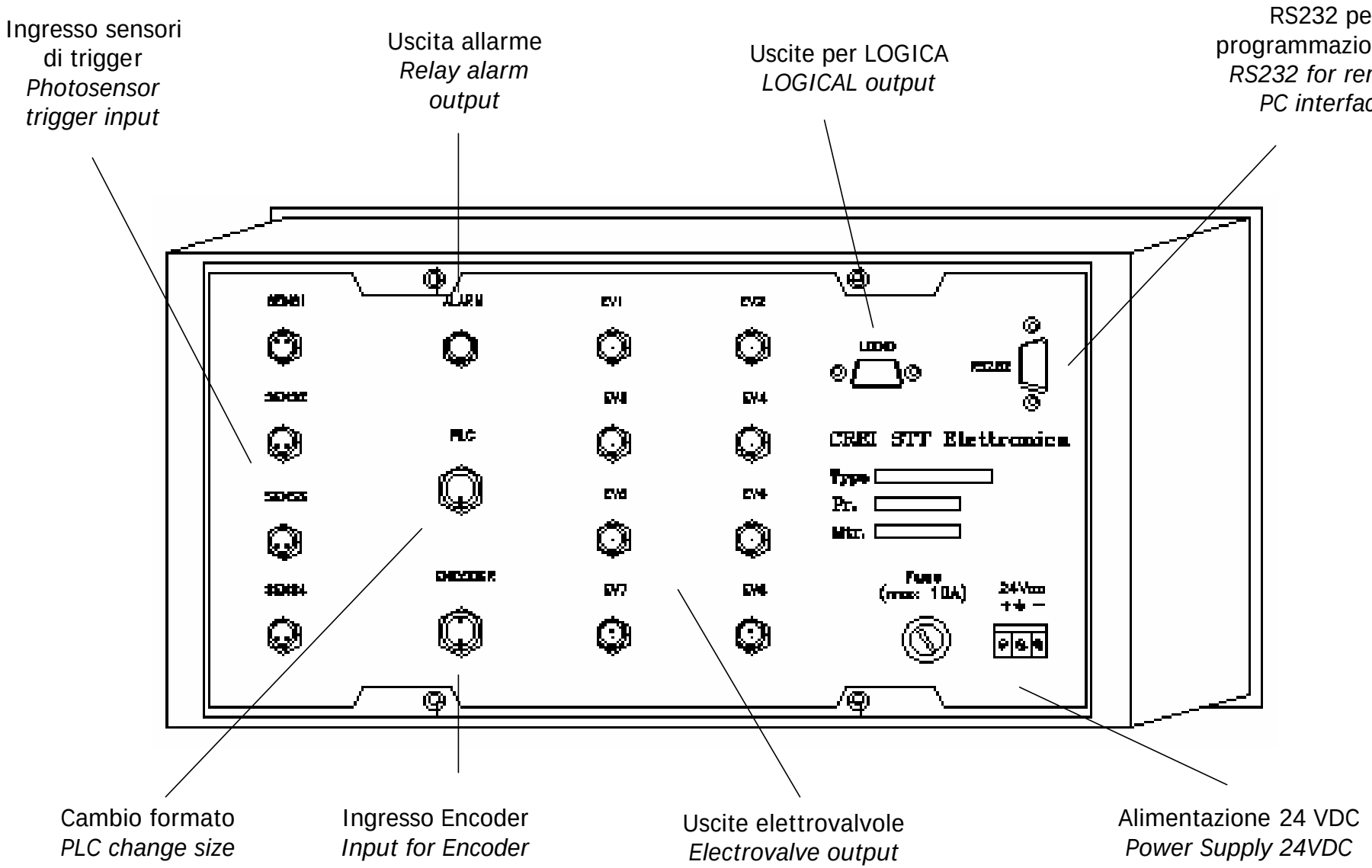
Led di indicazione stato uscita
Output indicator light



Chiave di accesso a modifica dati
Data Security Key

Tasti funzione
Function keys

Tasti di scelta rapida e di programmazione
Program keys


Ingresso sensori di trigger
Photosensor trigger input
Uscita allarme
Relay alarm output
Uscite per LOGICA
LOGICAL output
RS232 per programmazione PC
RS232 for remote PC interface
ALARM
EV1
EV2
EV3
EV4
EV5
EV6
EV7
EV8
PLC
ENCODER
LOGIC
RS232
CREI STT Elettronica
Type
Pr.
Mtr.
Fuse (max 10A)
24Vcc
Cambio formato
PLC change size
Ingresso Encoder
Input for Encoder
Uscite elettrovalvole
Electrovalve output
Alimentazione 24 VDC
Power Supply 24VDC

INDEX

1 . Introduction

Device developed for program glue points at very high speed with elevated resolution through a simple graphic interface. They can be used in any process which requires precisely counted actuation of electric output device and specifically to control valves used in adhesive application systems (case sealing - **palletizing** - labelling - cartooning - bag making). The outputs gives an impulse of survoltage (60V for 5 mSec) in start of phase for guarantee a better precision of the glue point with control of compensation in speed of opening and closing

2 . Technical specification

2 . 1 Power supply

24VDC (or+/ 15%) .The DPSICLL8 absorbs a current of300mA without connected loads. The fuse is of 10A in consideration of a loaded theorist of the electrovalve. For better safety this value could be modified subsequently to the installation according to the number of outputs used and the type of electrovalve.
ES. with 8 electrovalve of 21W:
(300mA+ 7A EV+ sensory load)= 8Ampere.

2 . 2 Encoder

The DPS ICLL8 requires an incremental encoder for tracking line position. The DPSICLL8 offers two different power supply for type of encoders: 24Vcc or 5Vcc; to see the connection see chapter 8. The zero setting is not necessary. 100 to 4100 pulse per turn bidirectional are usable but the pattern controller accept only one sense of direction; verify it on display. In case the display do not show the speed of encoder during the rotation change the signal input of encoder (A with B ed A neg. con B neg.).

2 . 3 Trigger

The DPS ICLL8 can control up to 4 trigger input signals came from the machine . The signal must be 24Vcc type PNP. The ICLL8 provide a 24Vcc power supply for photosensor. Each signals with a voltage higher than 15V and longer then 1uSec is considered as an input trigger. Therefore is suggesting to use shielded cable for the connection of the photosensor. The minimum distance from the trigger and the first bead must be set in function to provide sufficient spacing for the control to accomplish speed compensation.

2 . 4 OUTPUT for Electrovalve

DPSICLL8 provide a 24Vdc voltage for the electrovalve with a max current of 2Ampere for each output (2,5A for short period) For a fast opening of electrovalve the DPSICLL8 provide a 60Vcc pulse tension for a max period of 5 millisecond. Each of the 8 outputs is individually controlled from each of the trigger input. The outputs are protected from short circuit and overload in temperature. To restart the outputs when short circuit occur power down the unit for few second.

2 . 5 Logical output

24 Vcc type PNP. This output are dual of the EV output They can be used for control logical function with a max load of 50mA. Output used for logic control cannot be used for drive electrovalve too.

2 . 6 Format changeover (contraves or PLC)

Positive logic input (24Vdc); this input allows to change the format of the outputs (max 8) from a contrives or from a PLC via a binary coding of 3 bits available. In order to enable this function, set the format in output to “00”.

2 . 7 Alarm output

Clean contact of a 10A electromechanic relay.

3 . Main Page

***** PATTERN CONTROLLER ICLL8 *****			
SPEED RPM 0000 [OUT ON]			
SIZE OUTPUT N. 1 TOTAL PIECES 0 0 0 0 0 0 0 0 0 0 TOTAL HOURS 0 0 0 0 0 0 0 0 02/06/01 10:45			
SETTING	CLOCK	LANGUAGE	INFO

4 . Setting

Press F1 to access the menu for setting the operation parameters of the PATTERN CONTROLLER.

***** SETTING *****			
SELECTING RELATIVE TO ALL SIZE 1 SIZE OUTPUT (1-8) 1 2 TURN RESOLUTION (100-4100) 1000 3 ADVANCE OUTPUT 4 MINIMUN SPEED (0-200) 100 5 SELECTION RELATIVE TO SIZE N. 1 6 OUTPUT SENSOR CONIGURATION 7 OFFSET AND OUTPUT PITCH 8 OUTPUT PAHSES			
	DIAGNOST.		END

4 . 1 Diagnostics and zeroing counters

Press F2 to access the menu of the input and output diagnostics that allows to check for both their working efficiency and that of the connected components (sensors and solenoid valves).

COUNT: turn the encoder shaft in both directions to increase or decrease the counter by a hexadecimals value corresponding to the information/encoder.

SENSORS: activate the sensors to lighten the box referring to the activated sensor.

OUTPUTS: press keys from 1 to 8 to activate the corresponding outputs and LEDs.

In this video page, press F2 to set zero the HOUR-COUNTER and the TOTAL COUNTER.

4 . 2 Format in output

Specifies which format is active on the outputs. This format contains all the information relative to the management of outputs and inputs that will be set in subsequent pages.

4 . 4 Rev resolution

Enter the number of information/revolution of the encoder selected from 100 to 4100.

4 . 5 Advance output

This function allows to set a compensation time for the fixed energising and de-energising delay of the solenoid valve (*advance in opening* and *advance in closure*) in order to have correct control of the glue spray even when the speed varies.
The data item in mSec to be set must be calculated while taking into account the maximum speed at which the machine must go in order to make sure that it can operate correctly even at lower speeds. In addition, check that the value of pulses resulting from the advance at the above speed does not produce a phase that can begin before the trigger moment.

EXAMPLE: For a phase that begins from 100 pulses and finishes at 200 at a speed of 1000g/min with an encoder resolution of 500i/g. each impulse:

60/(1000*500) =0.00012 sec i.e. 0.12mSec (per impulse).

If the advance in opening is 15 milliseconds, the glue spray, at 1000 rpm should begin at:

15/0.12 = 125 pulses

before the trigger arrives.

In these cases, the output is not activated. To avoid the problem, the offset of the output in question can be increased in order to have the correct advance.

(see Setting OFF-SET and output step).

4 . 6 Minimum speed

This is the speed (rpm) below which the outputs are not required to be active.

4 . 7 Outputs sensor configuration

For each output, a different trigger sensor can be assigned (all the outputs can also be activated with a single sensor).

4 . 8 OFFSET and Output pitch

Output pitch refers to the length in millimetres to which an encoder revolution is required to correspond (it can be different for each output).
This value provides the ratio between encoder and the length of each cycle/product, allowing the output phases to be set in millimetres.

EXAMPLE: Step 350mm Phase - start 30 / end 300 mm
In fact, the programmer calculates the phase as follows:

Encoder 1000 pulses/rev *Step* 350

1mm = 1000/350 = approximately 3 pulses

The offset is used in the event that the sensor must be moved without having to modify the value of the phases.

4 . 9 Output phases

On this page, the values in millimetres of the phases of all 8 outputs are set (max. 4 for each output).

When calculating the phases, take the following into account:

- The phase cannot start from a value lower than 2 pulses/encoder.

- The machine's response time once the trigger has been acquired by the sensor is 50 uSec.

For subsequent triggers or for subsequent outputs associated to the same trigger, consider a minimum period of time from which to begin the phase, which is dependent on 3 factors:

1) Resolution of the encoder (pulses/rev)

2) Maximum machine speed (rpm)

3) Amplitude of phases (pulses)

The more ample the phases, the further you will have to start the subsequent phase from the trigger (situation in which the output trigger is the same or at the same time as another trigger).

In the event this minimum distance is reduced (e.g. with an advance), the unwanted effect will be a shorter phase and a final amplitude spike equal to the Offset to be added to that output.

This implies that in order to have a correct output, the trigger must be positioned at a minimum distance of N pulses.
In the event that all outputs are enabled by the same trigger, i.e. at the same time, consider a delay that will be accumulated for each output according to the length of the previous phase and corresponding to the maximum rotation speed of the encoder.

This delay can be summarised by the following theoretical formula:

Known data:
E = [puls./rev] Set encoder resolution.
V = [rpm] Max machine speed.
Af = [pulses] Phase amplitude at output n. (the sum of the possible 4 phases for each single output)

Constants:
K1 = 92 usec. Counting time for status and preparation of output loop.
K2 = 2.80 usec. Writing time for each phase pulse.
K3 = 3.50 usec. Reading time for each encoder pulse.

Data to be found:

Tr = delay time for subsequent phase expressed in microseconds.
Ir = Off-Set pulses to be considered for subsequent phase.

Tr= K1 + K2*Af + K3* { [(K1+K2)*Af] / [(60*10e6 / (V*E)) – K3] }

Ir= Tr / / [(60*10e6 / (V*E)) – K3]

5 . Clock

From the main video page, press F2 to access the clock setting menu.

To go from one line to another use the arrow at the bottom.

6 . Language

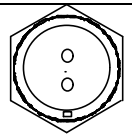
To select a different language from that set, simply enter the number of the required language:

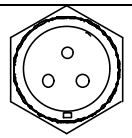
1	ITALIAN
2	ENGLISH
3	FRENCH
4	GERMAN
5	SPANISH

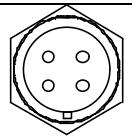
7 . Info

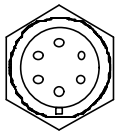
This page includes the data that identifies the machine.
M x x x x : serial number to be quoted when requesting servicing.
P x x x : version of software being used.

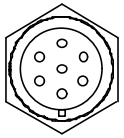
8 . Lay out connectors input - output

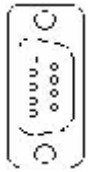
Electrovalves output	
	A : EV + B : EV

Alarm relay	
	A : N.A. B : Common C : N.C.

Input photosensor (trigger)	
	A : GND. B : Signal 10/24Vcc Logic type PNP C : N.C.

Input selection Size (format)	
	A : GND. B : N.C. C : 3° bit D : 2° bit E : 1° bit F : N.C.

Input encoder	
	A : +5Vcc B : S1 neg C : S1 D : S2 E : S2 neg F : + 24Vcc G : GND

Output logic	
	pin 1 : out 2 pin 2 : out 4 pin 3 : out 6 pin 4 : out 8 pin 6 : out 1 pin 7 : out 3 pin 8 : out 5 pin 9 : out 7

RS232 cable connection	
9 poli socket (to PC)	9 poli plug (to ICLL8)
pin 2 pin 3 pin 6 pin 7 pin 8 pin 5	pin 3 pin 4 pin 2 pin 7 pin 8 pin 1