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# **D1-35N module**

**Multichannel  
preset counter and  
frequency meter**

**User's guide**

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Multichannel  
preset counter and  
frequency meter***

***User's guide***

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# 1 Installation

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## 1.1 Packaging check

Before starting installation, it is necessary to check that the packaging contents is in compliance with your order. In the packaging there must be:

- # 1 D1-35N series module
- # 1 instruction manual
- # 1 F1-10 operator panel (optional)
- # 1 F1-10 9 pin cable (optional)

Check that the model code is in compliance with the ordered code and verify that the manual edition correspond to the purchase year.

D1 series modules are covered by 1 year of warranty except for damages caused by tampering or wrong wiring.

The label on the modules backside certificates the purchase date.

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## 1.2 Dimensions

The D1-35N modules dimensions are shown in figure 1.1.

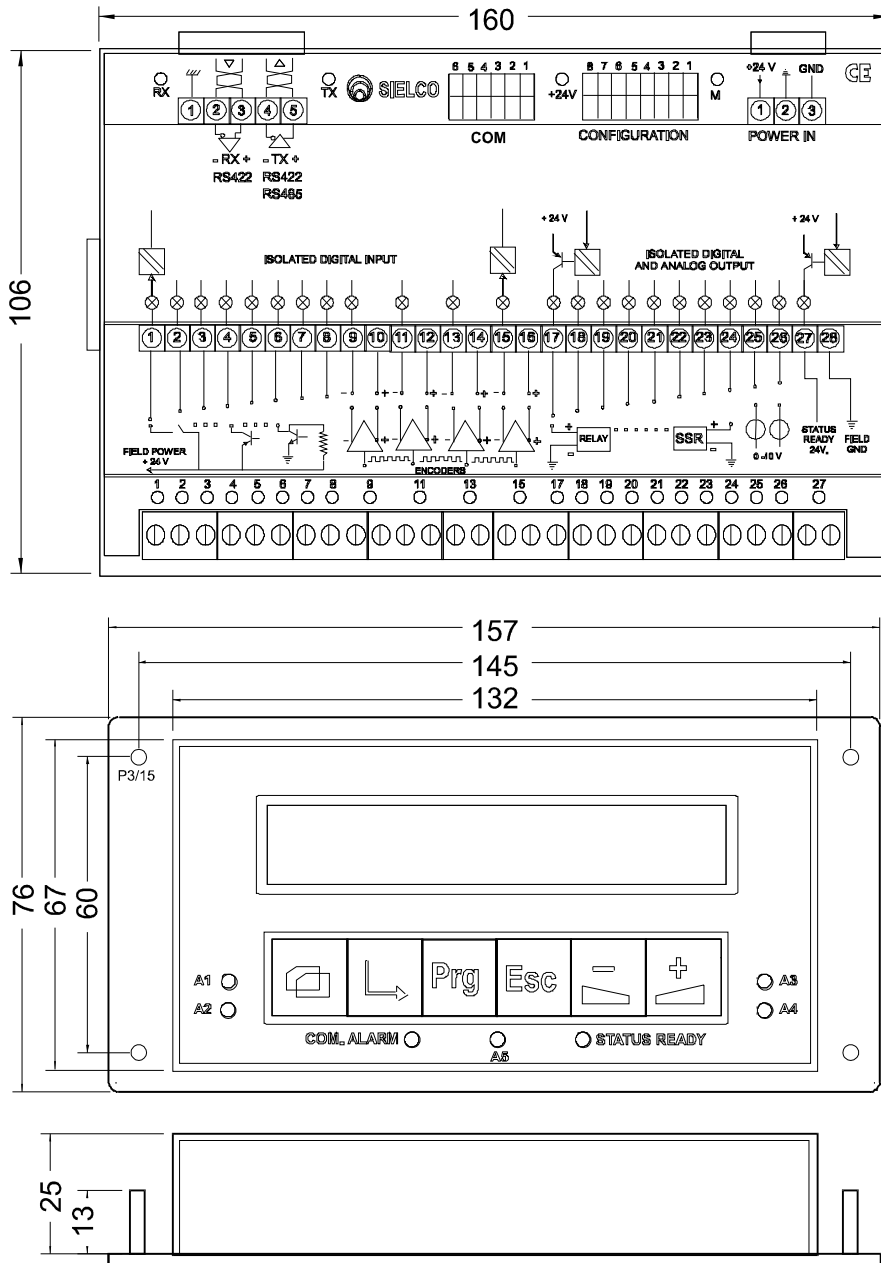


Figure 1.1 - D1-35N module and F1-10 panel dimensions

### 1.3 Fixing method

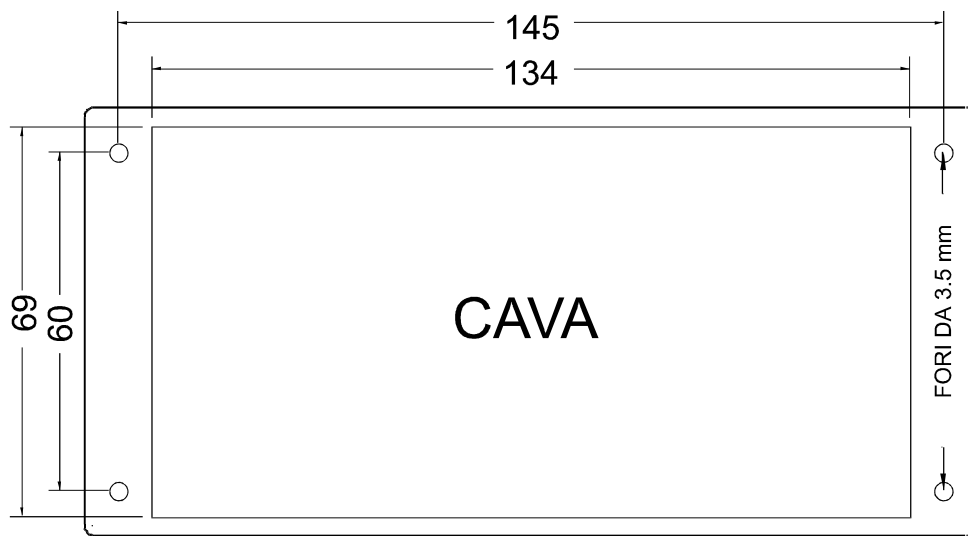
All D1 series products are provided by a plastic support for fixing on normalized DIN EN rail and by a shielding serigraphed cover.

On the cover there are schematic mounting indications; in grey areas are shown the interface circuits that are inside the module, in yellow areas common use sensors and actuators to be connected externally.

The cover serigraph provides only a general wiring diagram and cannot show every possible connection cases; for this reason it is necessary to read carefully this manual before starting module installation.

Do not use excessive pressure on the cover, mounting or dismounting the module on the rail. Remember to do these operations with supply voltage switched off or not connected.

F1-10 console is provided in option for panel mounting. Panel hole dimensions are shown in figure 1.2.



*Figura 1.2 - F1-10 panel hole dimension*

# 1.4 Physical module description

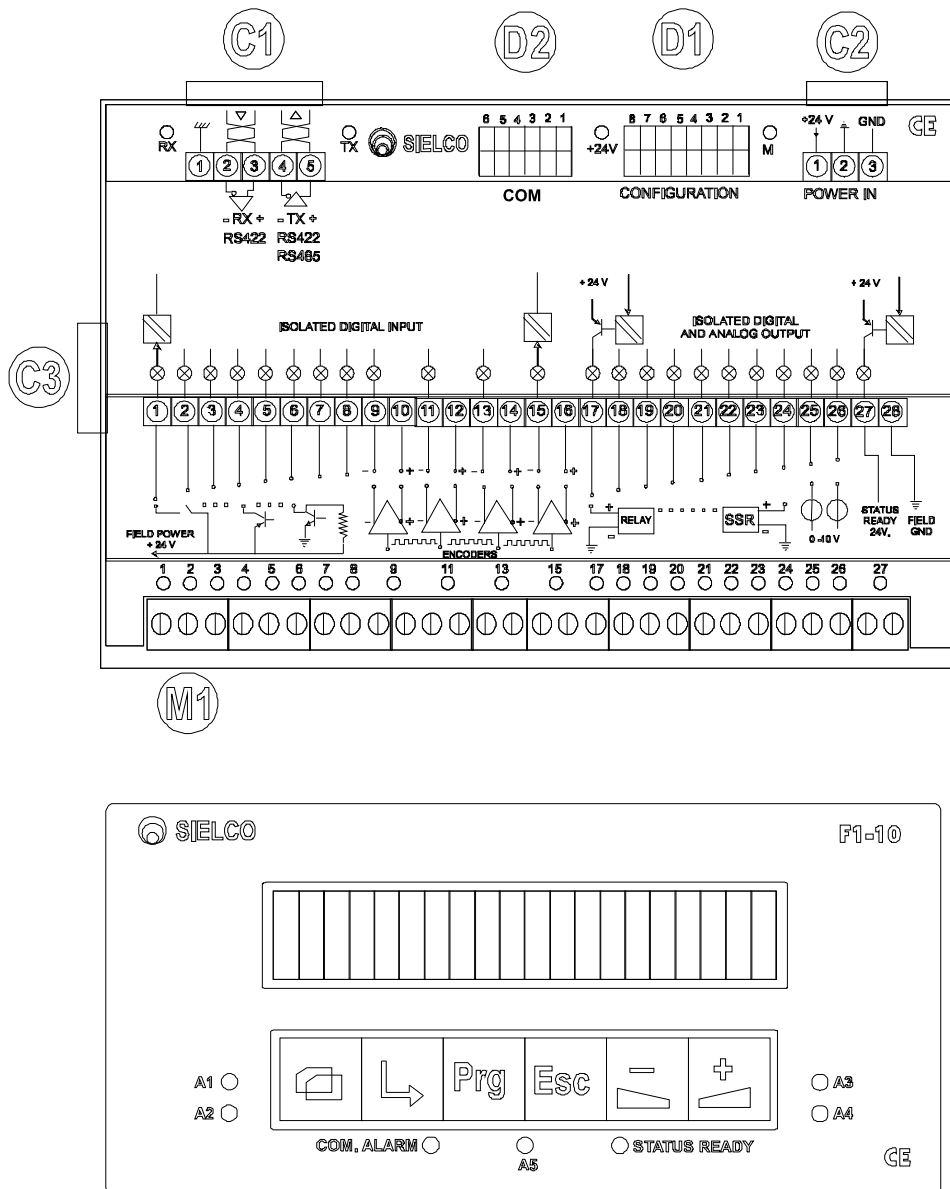


Figure 1.3 - D1-35N and F1-10 scheme

	<b>Description</b>
<b>[C1]</b>	RS422/485 serial channel connector
<b>[C2]</b>	+24 Vdc supply connector
<b>[C3]</b>	F1-10 panel connector
<b>[M1]</b>	Input and output screws
<b>[D1]</b>	Protocol and device address selection dipswitch
<b>[D2]</b>	RS422 or RS485 line selection dipswitch
<b>Led +24</b>	Supply led
<b>Led M</b>	Selftest led (normally blinking)
<b>Led TX</b>	Transmitted data led
<b>Led RX</b>	Received data led
<b>Led 1..26</b>	Digital inputs and output status
<b>Led 27</b>	Safe-state led

### **[M1] - Input and output screws**

	<b>DIGITAL INPUT</b>
1	Digital input 1
2	Digital input 2
3	Digital input 3
4	Digital input 4
5	Digital input 5
6	Digital input 6
7	Digital input 7
8	Digital input 8

	<b>DIGITAL OUTPUT</b>
17	Digital output 1
18	Digital output 2
19	Digital output 3
20	Digital output 4
21	Digital output 5
22	Digital output 6
23	Digital output 7
24	Digital output 8

	<b>ENCODER INPUT</b>
9	Encoder A1-
10	Encoder A1+
11	Encoder A2-
12	Encoder A2+
13	Encoder B-
14	Encoder B+
15	Encoder A3- (zero)
16	Encoder A3+ (zero)

	<b>ANALOG OUTPUT</b>
25	Analog output 1
26	Analog output 2

	<b>STATUS READY</b>
27	Safe state

	<b>COMMON FIELD GND</b>
28	Field ground

**[C1] - RS422/485 serial channel connector**

	<b>RS422</b>		<b>RS485</b>
1	SERIAL GND	1	SERIAL GND
2	RX-	2	N.C.
3	RX+	3	N.C.
4	TX-	4	TX-/RX-
5	TX+	5	TX+/RX+

**[C2] - +24 Vdc supply connector**

	<b>POWER</b>
1	+24 Vdc
2	FIELD GND
3	MECH. GND

---

**1.5 Supply**

The D1-35N module needs a 24 Vdc ( $18V < V_{dc} < 36V$ ) supply by [C2] connector and absorb a maximum current  $I_{cc}=75$  mA at 24 Vdc.

The negative power supply must be connected to pin #2 [C2] connector.

After power is turned on, check that +24 led is on.

---

**1.6 Inputs****1.6.1 Digital inputs**

D1-35N modules are provided with 8 optoisolated digital inputs (24 Vdc); these can be used to read frequencies up to 500 Hz (50% duty cycle).

Connect “positive” wires coming from the sensors to screw from #1 to #8 of [M1] screws. Connect “negative” wires coming from the sensors to screw #28 (FIELD GND) of [M1] screws.

Input status is OFF for voltage between 0 and 5 Vdc, ON for voltage between 15 and 36 Vdc.

**1.6.2 Encoder inputs**

Encoder inputs are optically isolated for balanced (line driver) or unbalanced (open collector) signals with frequency up to 30 kHz (50%

duty cycle). Signals of amplitude 5, 12 or 24 Vdc can be connected; the selection is realized through internal jumpers directly set by SIELCO, it is therefore necessary to indicate the wished configuration at the moment of the order.

Inputs are usable to connect two encoders: one bi-directional (encoder A) and one mono-directional (encoder B). Encoders must be powered from an external source with ground connected to module ground (Field Ground); signals from encoder must be connected to the module as indicated in the table "Encoder Inputs". In case of PNP open collector encoder, the signal must be connected to pin + and pin – must be connected to Field Ground.

In order to use a monodirectional encoder with bidirectional input, connect encoder to A1- and A1+ and short circuit A1- with A2- and A1+ with A2+ connector.

---

## 1.7 Outputs

### 1.7.1 Digital outputs

D1-35N module is provided with 8 optically isolated, “open collector”, logic outputs with *24 Vdc PNP transistor* and suppression diode (output  $I_{max}$  for channel is 100mA).



*Figure1.4 - Digital output*

These outputs can be used to command relays or solid state relays (SSR). Verify that the internal solid state relay resistance limits the current to the above value. Verify that the SSR model is in compliance with what specified above.

In case of relays that drive inductive loads, we suggest to put in parallel a protection filter according to table 1.1; filters must use polyester capacitors.

<b>LOAD (mA)</b>	<b>C (<math>\mu</math>F)</b>	<b>Vmax (V)</b>	<b>R (<math>\Omega</math>)</b>	<b>P (W)</b>
< 40	0,047	400	100	0,5
< 150	0,1	400	22	2
< 500	0,33	400	47	2
> 500	1	400	---	---

*Table 1.1 - Filters for capacitor loads*

Connect “positive” wires coming from the actuator to screw from #17 to #24 of [M1] screws and “negative” wires to screw #28 (FIELD GND) of [M1] screws.

### 1.7.2 Analog output

D1-35N module can be equipped optionally with 2 optically isolated 0-10V analog outputs with maximum current supplied 10 mA each one and 12 bits resolution. Connect “positive” and “negative” wires coming from the actuator respectively to screw #25 and #28 (first output), and #26 and #28 (second output).

### 1.7.3 Safe-state output

D1-35N modules are provided with a circuit that verifies continuously the device correct operation and its ready status. In case of correct operation, digital output corresponding to screw #27 of [M1] is active and the green physical led is on. There is also a green led for the device status on F1-10 operator panel (optional).

## 1.8 Serial communication

### 1.8.1 Serial link

To connect to D1 modules, it is necessary to use a RS422/485 serial interface that usually are not standard equipment in personal computers.

SIELCO produces C1-25 model, a RS232-RS422/485 serial interface converter with triple optical isolation that can be connected to PC serial port (COM) and to D1-35N [C2] connector as shown in table 1.2.

<b>C1-25</b>			<b>D1-35N</b>	
#	<b>RS-422</b>		<b>RS-422</b>	#
1	GND	↔	SERIAL GND	1 C1
2	RX-	↔	TX-	4 C1
3	RX+	↔	TX+	5 C1
4	TX-	↔	RX-	2 C1
5	TX+	↔	RX+	3 C1
6	0 V			
7	+24 V			

<b>C1-25</b>			<b>D1-35N</b>	
#	<b>RS-485</b>		<b>RS-485</b>	#
1	GND	↔	SERIAL GND	1 C1
2	n.c.		n.c.	2 C1
3	n.c.		n.c.	3 C1
4	TX-/RX-	↔	TX-/RX-	4 C1
5	TX+/RX+	↔	TX+/RX+	5 C1
6	0 V			
7	+24 V			

Table 1.2 - C1-25 - D1-35N (RS 422/485) wiring

D1-35N serial communication must be set in RS422 or RS485 mode using [D2] dipswitch (table 1.3).

<b>RS422</b>							<b>RS485</b>						
	6	5	4	3	2	1		6	5	4	3	2	1
<b>ON</b>		■					<b>ON</b>	■					
<b>OFF</b>	■		■	■	■	■	<b>OFF</b>		■	■	■	■	■

Table 1.3 - Line type (RS422/RS485) configuration using dipswitch [D2]

**WARNING!** Configurations in which both selectors #5 and #6 are simultaneously ON or OFF, are not permitted.

Selector from #1 to #4 are reserved and they must be kept in OFF position.

### 1.8.2 Communication protocol

Software communication protocol is realised according to Modbus ASCII or RTU standard: protocol selection is made by #7 selector of dipswitch [D1] (ON=RTU, OFF=ASCII).

The baudrate selection is made by #8 selector of dipswitch [D1] (ON=19200, OFF=9600).

#### ASCII protocol features

Baud rate 9600 / 19200  
 Data bits 7  
 Parity bit even  
 Stop bit 1

#### RTU protocol features

Baud rate 9600 / 19200  
 Data bits 8  
 Parity bit none  
 Stop bit 1

### 1.8.3 Device identification

To D1-35N module can be assigned an identification address between 1 and 63 through binary notation, using selector from 1 to 6 of dipswitch [D1] (see table 1.4).

		ADDRESS							
		8	7	6	5	4	3	2	1
		<i>BAUD</i>	<i>PROT.</i>	$2^5$	$2^4$	$2^3$	$2^2$	$2^1$	$2^0$
<b>ON</b>		19200	RTU						
<b>OFF</b>		9600	ASCII						

*Table1.4 - Address configuration using [D1] dipswitch*

#### **NOTE**

Address 0 is reserved.

### 1.8.4 Serial cable

Use shielded cable with one (RS-485) or two (RS-422) twisted pair in compliance with EIA RS-485 or EIA RS-422; using the shield for ground.

Recommended cable: *Belden 9841 (RS-485); 9842 (RS-422)*

Maximum signal loss: *6 dB*

Maximum line capacitance: *100 nf*  
 Maximum line length: *1200 m*  
 Line impedance: *tra 100 e 120 ohm*

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## 1.9 F1-10 operator panel

D1-35N modules can be interfaced with the F1-10 operator panel that is equipped with: (see fig. 1.3):

- Seven signalling leds:

**A1** - Led 1 (can display the status of a digital output)

**A2** - Led 2 “

**A3** - Led 3 “

**A4** - Led 4 “

**A5** - Led 5 “

**A6** - Led 6 “

**STATUS READY** - On if the device is working

- a LCD alphanumeric display 2 x 24 characters

- Six control keys:



**Page**



**Prog**



**Inc**



**Enter**



**Esc**



**Dec**

The connection between D1-35N and F1-10 panel must be done using the cable included in the package by [C3] connector. Don't use different cables.

---

## 1.10 Earth wiring and shielding

### 1.10.1 Earth wiring

It is suggested to make the following earth:

- device mechanical ground (connector [C2] pin #3) goes directly to earth;
- the power supply negative signal (connector [C2] pin #2) must be connected to a local earth;
- in case of long or disturbed serial lines, connect serial ground (connector [C1] pin #1) to earth by a 100  $\Omega$  resistance.

It is important that device grounds are connected to earth independently; it is also important to avoid to share the same wire path with power devices as inverter, drives etc.

### **1.10.2 Inputs shielding**

To improve the sensors reading particularly in environment noise affected by power devices (motor driver, power contact etc.), follow these shielding rules:

- use shielded and twisted cables for sensors connection;
- keep connection cables as short as possible;
- it is a good thing to avoid to share the same wire path with power devices as inverter, drives etc.;
- connect all sensor cable metal shields to the controller negative screw leaving them non connected by the sensor side (parasite currents on the shields can induce disturbances that can affect sensor reading);
- connect all sensor cable metal shields to connector [C2] pin #3.

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# 2 Operation

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## 2.1 Introduction

The multichannel counter and frequency meter D1-35N can manage 8 independent preset functions applied to the total count or the frequency of pulses read through 8 digital inputs and 4 encoder inputs; encoder inputs allow reading pulses coming from two encoders: a bidirectional encoder with marker pulse (Encoder A) and a monodirectional encoder (Encoder B).

The 8 digital inputs are optically isolated with common positive (24 Volt); all inputs have a status indicator led; a special filter allows input status reading also in case of strong electrical disturbance. Digital inputs can be used for reading pulses with frequency less than 500 Hz and pulse duration greater than 1 ms; for each digital input a 32 bit counter and a frequency meter are provided.

The encoder inputs are optically isolated and have a status indicator led; they accept both balanced (line driver) and unbalanced (open collector) signals. Encoder inputs can be used to read pulses coming from two encoders: a bidirectional encoder with marker pulse (Encoder A) and a monodirectional encoder (Encoder B). For each encoder a 32 bit counter and a frequency meter are provided; the counter associated to the bidirectional encoder is a up/down type counter with a special reset procedure when a marker pulse is received.

The 8 digital outputs are 24 Volt PNP; they are optically isolated and have a status indicator led. Each digital output can be associated to any input;

the output status can be automatically controlled according to programmed preset values (counter or frequency) of the associated input.

Two 12 bit resolution, 0-10 Volt type, optically isolated analog channels are also available as an option; analog output level can be manually setted by the operator through the operator panel F1-10 or controlled by a supervisor PC through the serial interface.

There is also an additional safe-state output that is normally active; in case of device breakdown the safe-state output turns off and also all outputs are disabled.

Special configuration procedures allow scale conversion from pulses into the desired engineered units; in case of power loss with a duration less the 48 ours, all counter values are retained.

---

## 2.2 Input configuration

Input configuration allows setting of the following parameters for each one of input channels:

- Decimal point location
- Number of pulses
- Number of units
- Period for frequency calculation
- Reset input (0, 1, ... 8)

Decimal point location applies to all values displayed in units; it is important to underline that the decimal point location is only a display option; values available through the serial interface (Modbus protocol) are integer values without the decimal point.

Number of pulses and number of units define the conversion factor that allows scale conversion from pulses to units.

The period for frequency calculation defines the time that is used to calculate the frequency that is expressed as number of units in a period.

The reset input allows the possibility to use one of the digital inputs as a reset for the counter; the zero value indicates that no digital input is used to reset the counter.

## 2.3 Output configuration

Output configuration allows setting of the following parameters for each one of the 8 digital outputs:

- Related input (0, 1...8, A, B)
- Function (Fa...Fd, Ca...Cd)
- High value ( $T_{max}$  o  $F_{max}$ )
- Low value ( $T_{min}$  o  $F_{min}$ )
- Front panel led

1, ... 8 specifies that the digital output is related to digital input 1, ... 8; A or B specifies that the digital output is related to encoder input A or B; 0 specifies that the digital output is not related to any input and can be controlled only manually by the operator (through F1-10 panel) or through the serial interface.

The function specifies the relationship between the digital output and the input frequency (Fa, ...Fd) or the input counter (Ca, ... Cd); according to the function selected, the digital output:

- Fa) goes on when  $F \geq F_{max}$  and goes off in other cases
- Fb) goes on when  $F \leq F_{min}$  and goes off in other cases
- Fc) goes on when  $F \geq F_{max}$  or  $\leq F_{min}$  and goes off in other cases
- Fd) goes on when  $F \leq F_{min}$  and goes off when  $F \geq F_{max}$
- Ca) goes on when  $T \geq T_{max}$  and goes off "t" seconds after that  $T < T_{max}$
- Cb) goes on when  $T \geq T_{max}$  and goes off "t" seconds after that  $T < T_{max}$
- Cc) toggles when  $T \geq T_{max}$
- Cd) goes on when  $T \geq T_{max}$  and goes off when  $T \leq T_{min}$

In cases Cb) and Cc) when the output goes on the input counter automatically resets.

Case Cd) applies only to the case of bidirectional encoder A input; high and low values are referred to the frequency ( $F_{max}$ ,  $F_{min}$ ) or to the counter ( $C_{max}$ ,  $C_{min}$ ) according to the selected function (Fa, ... Fd or Ca, ... Cd).

The front panel led allows relation between the status of the selected output and the led on the front panel F1-10; the led will light when the output will be on.

In case of analog option available, a configuration procedure allows manual setting of the 2 analog output values through the operator panel (F1-10) or the serial interface (Modbus protocol).

---

## 2.4 Supervision

The operator F1-10 and the serial interface (Modbus protocol) allow reading of the following parameters for each one of the inputs:

- Totalizing counter value
- Frequency value
- Input status (on/off)

The operator F1-10 and the serial interface (modbus protocol) allow reading of the following parameters for each one of the digital outputs:

- Status (on/off)
- Related input
- Related input counter or frequency value

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## 2.5 Self-test led

Self test led displays the operation status of the device; two cases are possible:

- the led is always on or off; this case indicates a fatal error that can be a consequence of a power failure or device breakdown;
- the led is flashing quickly; this case indicates that the device is working properly.

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# 3 Operator Interface

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## 3.1 Introduction

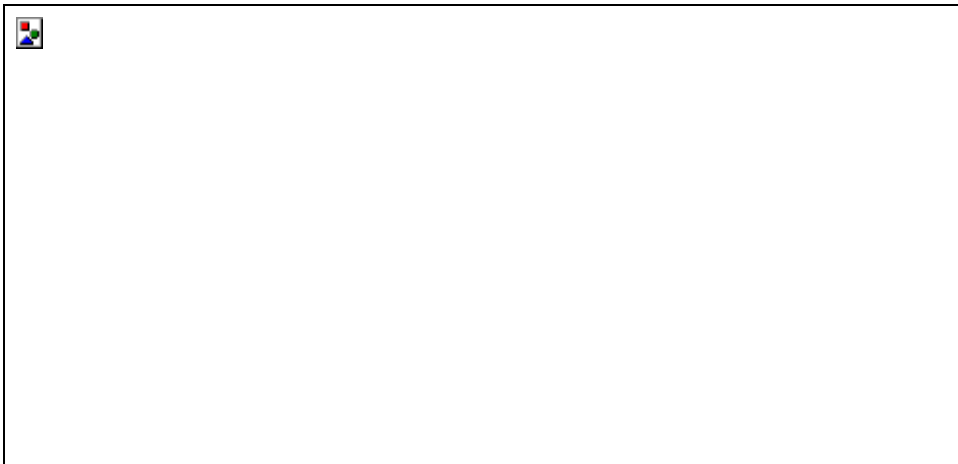
Programming and supervision of the device can be handled:

- by mean of the local operator panel F1-10, linked to the device through a dedicated bus; dialogue procedure are explained in paragraph §2 of this chapter.
- by mean of a supervisor PC, linked to various devices through a RS485 bus with Modbus protocol; available gates with their addresses are indicated in in paragraph §3 of this chapter.

---

## 3.2 Operator panel F1-10

Operator panel F1-10 is made of a LCD display (2 rows of 24 characters each), 6 programming keys and 7 signalling leds.



*Figure 3.5 - Operator panel F1-10*

The operator panel offers different menu driven procedures that allow programming and supervision of the D1-35N.





A series of default pages display totalizing counter and frequency related to all encoder and digital inputs.

All other pages are made of a title (first row) and a series of items that scroll (second row).

The following paragraphs describe the different pages and the procedures to enter data.

### 3.2.1 Keyboard

The following table specifies the standard operation of each key:

<b>Key</b>	<b>Description</b>	<b>Operation</b>
	<i>SELECT</i>	Scroll among various menu items.
	<i>ENTER</i>	Goes to a lower level menu (if present).
	<i>PROGRAM</i>	Confirms the data modification.
	<i>ESCAPE</i>	Aborts the data modification or goes to a higher level menu (if present).

*DEC*

Decrements the selected data value.

*INC*

Increments the selected data value.

### 3.2.2 Frontal leds

The “status ready” led on indicates that the device is working properly; all other leds display the status of the related outputs (see paragraph §3.2.7).

### 3.2.3 Default page

The default page is the higher level page; it displays totalizing counter and frequency related to encoder A; key select  allows display of totalizing counter and frequency related to all other inputs.

ENCODER A	
T=nnnnnnn.n	F=nnnnnnn.n

Pressing key enter  you can select the main menu.

### 3.2.4 Main menu

The main menu allows selection of lower level menus (supervision, configuration, ..); pressing the key select  you can scroll among the various menu items and pressing the key enter  you can confirm the selected menu.

* MAIN MENU *	
- Counter reset	
- Supervision	
- Configuration	
- Diagnostics	
- Language : ssssssss	[Italiano,English]

The last item allows selection of the language; to change the language press keys  or ; to confirm the choice, press .

### 3.2.5 Counter reset

This page allows manual reset of each one of the counters related to various inputs

01*	02	03	04*	05	06
07	08		A	B	

To select the counter, press key ; to reset the counter press keys  or ; to quit the procedure, press key .

### 3.2.6 Supervision

Device supervision is made of 2 sub-menus: input supervision and output supervision.

* SUPERVISION *
- Inputs
- Outputs

In case of input supervision, select one of the 2 encoder inputs or one of the 8 digital inputs.

* INPUT SUPERVISION *
- Input 1
- Input 2
- Input 3
- Input 4
- Input 5
- Input 6
- Input 7
- Input 8
- Input A
- Input B

SUPERVISION INPUT	N	[1..8, A, B]
Counter :	nnnn.nn UI	
Frequency:	nnnn.nn UI	
Status :	xxx	[on/off]

Status information is displayed only in case of digital inputs (1..8).

### 3.2.7 Configuration

Device configuration is made of three sub-menus: input configuration, digital output configuration and analog output configuration.

* CONFIGURATION *
- Input
- Digital output
- Analog output

In case of input configuration, select one of the 2 encoder inputs or one of the eight digital inputs.

* INPUT CONFIGURATION *
- Input 1
- Input 2
- Input 3
- Input 4
- Input 5
- Input 6
- Input 7
- Input 8
- Input A
- Input B

CONFIGURATION INPUT	N	[1..8, A, B]
Decimal point:	x.xx	[x, x.x, ... x.xxxxx]
Pulses:	nnnnn	[1..9999]
Units :	nnn.nn	[0.01..655.35]
Freq. period :	nnnn.n s	[0.1..6553.5]
Reset input:	n	[0, 1..8]

Decimal point location applies to all values in displayed in units; it is important to underline that the decimal point location is only a display option; values available through the serial interface (Modbus protocol) are integer values without the decimal point.

Number of pulses and number of units define the conversion factor that allows scale conversion from pulses to units.

The period for frequency calculation defines the time that is used to calculate the frequency that is expressed as units/period.

The reset input allows the possibility to use one of the digital inputs as a reset for the counter; the zero value indicates that no digital input is used to reset the counter.

In case of digital output configuration, select one of the 8 digital outputs.

* DIGITAL OUTPUT CONF.*
- Output 1
- Output 2
- Output 3
- Output 4
- Output 5
- Output 6
- Output 7
- Output 8

CONFIGURATION OUTPUT	N	[1..8]
Related input:	N	[0, 1, ... 8]
Function:	Nn	[Fa, Fb, Fc, Fd, Ca, Cb, Cc, Cd]
Fmax:	nnnnnn.n UI	[Fmax o Cmax in base alla Funzione]
Fmin:	nnnnnn.n UI	[Fin o Cmin in base alla Funzione]
Front panel led:	n	[1..6]

Related input 1, ..8 specifies that the digital output is related to digital input 1, ... 8; A or B specifies that the digital output is related to encoder input A or B; 0 specifies that the digital output is not related to any input and can be controlled only manually by the operator (through F1-10 panel) or through the serial interface.

The function specifies the relationship between the digital output and the input frequency (Fa, ...Fd) or the input counter (Ca, ... Cd); according to the function selection, the digital output:

- Fa) goes on when  $F \geq F_{max}$  and goes off in other cases
- Fb) goes on when  $F \leq F_{min}$  and goes off in other cases
- Fc) goes on when  $F \geq F_{max}$  or  $\leq F_{min}$  and goes off in other cases
- Fd) goes on when  $F \leq F_{min}$  and goes off when  $F \geq F_{max}$

Ca) goes on when  $T \geq T_{max}$  and goes off "t" seconds after that  $T < T_{max}$

Cb) goes on when  $T \geq T_{max}$  and goes off "t" seconds after that  $T < T_{max}$

Cc) toggles when  $T \geq T_{max}$

Cd) goes on when  $T \geq T_{max}$  and goes off when  $T \leq T_{min}$

In cases Cb) and Cc) when the output goes on the input counter automatically resets.

Case Cd) applies only to the case of bidirectional encoder A input; high and low values applies to the frequency ( $F_{max}$ ,  $F_{min}$ ) or to the counter ( $C_{max}$ ,  $C_{min}$ ) according to the selected function ( $F_a, \dots, F_d$  or  $C_a, \dots, C_d$ ).

The front panel led allows relation between the status of the selected output and the led on the front panel F1-10; the led will light when the output will be on. The zero value means that no led on the front panel is related to the selected output. Pay attention not to assign the same front led to 2 different outputs.

In case of analog output configuration, select one of the 2 analog outputs; this menu is meaningless without the analog option.

```
*ANALOG OUTPUT CONF.*
- Output 1
- Output 2
```

```
CONFIGURATION OUTPUT N [1, 2]
Value:                nnn.n % [0.0, ..., 100.0]
```

Output value of the analog output as a percentage can be set manually by the operator through the operator panel F1-10 or through the serial interface (Modbus protocol).

### 3.2.8 Diagnostics

Diagnostics is made of two sub-menus: communication and input/output.

```
* DIAGNOSTICS *
- Communication
- Input/output
```

The communication page displays values selected by means of microswitches on the device: device address, baud-rate and protocol.

* DIAGN. COMMUNICATION *	
Device address	: nn [1..63] via switch
Baud Rate	:sssss [9600/19200] via switch
Protocol	:sssss [ASCII/RTU] via switch

Input/output diagnostics pages can be useful to test the operation of the device; the following pages are available:

Digital inputs 00000000
----------------------------

This page displays the status of the eight digital inputs (1=on)

Digital outputs 00000000
-----------------------------

This page displays the status of the eight digital outputs; with keys  and  the output status can be set manually; to select the proper output, press key .

Encoder inputs EA: nnnh      EB: nnnh
------------------------------------------

This page displays the values of the two hardware counters related to the encoders.

Analog outputs 01: nn.nn%    02: nn.nn%
--------------------------------------------

This page displays the value of the two analog outputs; to manually modify this value, press keys  or ; to select the proper output, press key .

Memory dump Address: I:nnn Bytes: nn
-----------------------------------------

This page allows memory status display; this page must be selected only under control of Sielco technical assistance.

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## 3.3 Supervision PC

The WINLOG-A software provides an operator interface in a Windows environment for real-time supervision, historical trend analysis and alarm management: all of the data are recorded in history databases in a format which is accessible from the main software packages (Excel, Access, ..). An integrated development environment provides a toolkit for building templates (Template Builder), defining tags (Gate builder), writing programs (Code Builder) and setting up a complete multilanguage application in a very short time (Application Builder).

To use WINLOG-A software, refer to the Winlog Operation Manual; the communication protocol is the Modbus Rtu; all available gates with relative addresses are listed in Appendix A.

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# A Gates list

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## A.1 Numeric gates (Holding Registers)

Address	Description	ID	Byte	Limits	R/W
00	Identification 0	Id0	2	0:65535	R
01	Identification 1	Id1	2	0:65535	R
02	Firmware version	Vers	2	0:65535	R
03	Zero value	Zero	2	0	R
04	AAAA value	AAAA	2	43690	R
05	Restart number	Rs	1	0:255	RW