

## ASR58 ASR58S ASRC



with integrated cam programmer



- Singleturn encoder with integrated cam programmer
- Singleturn resolution 3600 cpr, 0.1°
- 16 outputs, up to 120 programmable cams per each output
- Max. 16 storable programs
- Additional analogue output on request

#### Suitable for the following models:

- ASR58
- ASR58S
- ASRC
- ASR58 .../S568
- ASR58S .../S568
- ASRC .../S568

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The logo for Lika Electronic s.r.l. consists of the word "lika" in a bold, lowercase, sans-serif font. The letter "i" has a dot, and the "a" has a tail that extends to the right.

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# Typographic and iconographic conventions

In this guide, to make it easier to understand and read the text the following typographic and iconographic conventions are used:

- parameters and objects both of the device and the interface are coloured in **GREEN**;
- alarms are coloured in **RED**;
- states are coloured in **FUCSIA**.

When scrolling through the text some icons can be found on the side of the page: they are expressly designed to highlight the parts of the text which are of great interest and significance for the user. Sometimes they are used to warn against dangers or potential sources of danger arising from the use of the device. You are advised to follow strictly the instructions given in this guide in order to guarantee the safety of the user and ensure the performance of the device. In this guide the following symbols are used:

	This icon, followed by the word <b>WARNING</b> , is meant to highlight the parts of the text where information of great significance for the user can be found: user must pay the greatest attention to them! Instructions must be followed strictly in order to guarantee the safety of the user and a correct use of the device. Failure to heed a warning or comply with instructions could lead to personal injury and/or damage to the unit or other equipment.
	This icon, followed by the word <b>NOTE</b> , is meant to highlight the parts of the text where important notes needful for a correct and reliable use of the device can be found. User must pay attention to them! Failure to comply with instructions could cause the equipment to be set wrongly: hence a faulty and improper working of the device could be the consequence.
	This icon is meant to highlight the parts of the text where suggestions useful for making it easier to set the device and optimize performance and reliability can be found. Sometimes this symbol is followed by the word <b>EXAMPLE</b> when instructions for setting parameters are accompanied by examples to clarify the explanation.

# Preliminary information

This guide is designed to provide the most complete information the operator needs to correctly and safely install and operate the following encoders **with integrated cam programmer**:

- **ASR58;**
- **ASR58S;**
- **ASRC;**
- **ASR58 .../S568;**
- **ASR58S .../S568;**
- **ASRC .../S568.**

ASR58 is the singleturn optical encoder equipped with sixteen programmable cam outputs. Each output allows to switch a peripheral device by using the position signal of the integral encoder. In this way the output signals are more precise and even actually "real time". For each output you can programme at desired points up to 120 so-called electronic cams, i.e. changes of state in each peripheral device. Then you can save the set configuration to the internal memory which allows you to store max. 16 programs. Four inputs enable to select the desired program on board, thus making also frequent changeovers more simple and quick. ASR58 model is equipped with solid shaft, while ASRC model is fitted with hollow shaft.

For technical specifications please refer to the product datasheet.

## 1 - Safety summary

### 1.1 Safety

- Always adhere to the professional safety and accident prevention regulations applicable to your country during device installation and operation;
- installation and maintenance operations have to be carried out by qualified personnel only, with power supply disconnected and stationary mechanical parts;
- device must be used only for the purpose appropriate to its design: use for purposes other than those for which it has been designed could result in serious personal and/or the environment damage;
- high current, voltage and moving mechanical parts can cause serious or fatal injury;
- warning ! Do not use in explosive or flammable areas;
- failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the equipment;
- Lika Electronic assumes no liability for the customer's failure to comply with these requirements.

### 1.2 Electrical safety

- Turn off the power supply before connecting the device;
- connect according to the explanation in the "4 - Electrical connection" section on page 16;
- wires which are not used must be cut at different lengths and insulated singularly;
- connect Zero setting and Counting direction inputs to 0Vdc, if not used;
  - to zero set the encoder, connect Zero setting input to +Vdc for 100  $\mu$ s at least, then disconnect +Vdc; normally voltage must be at 0Vdc; zero set must be performed after Counting direction; we suggest performing the zero set when the encoder is in stop;
  - Counting direction: CW increasing count (viewed from shaft side) = connect to 0Vdc; CCW increasing count = connect to +Vdc;
- Load Prg. input: to load the selected program (see Sel. Prg. 2<sup>x</sup>) connect to 0Vdc for 10 ms at least. The program will be loaded automatically at start-up. Never connect to +Vdc;
- Sel. Prg. 2<sup>x</sup> inputs: set the binary value of the program to load minus 1, i.e. program 5 = 0100<sub>2</sub> / pins 21 | 20 | 19 | 18 = 4<sub>10</sub> (4 + 1 = 5);
- in compliance with the 2014/30/EU norm on electromagnetic compatibility, following precautions must be taken:
  - before handling and installing, discharge electrical charge from your body and tools which may come in touch with the device;



- power supply must be stabilized without noise, install EMC filters on device power supply if needed;
- always use shielded cables (twisted pair cables whenever possible);
- avoid cables runs longer than necessary;
- avoid running the signal cable near high voltage power cables;
- mount the device as far as possible from any capacitive or inductive noise source, shield the device from noise source if needed;
- to guarantee a correct working of the device, avoid using strong magnets on or near by the unit;
- minimize noise by connecting the shield and/or the connector housing and/or the frame to ground. Make sure that ground is not affected by noise. The connection point to ground can be situated both on the device side and on user's side. The best solution to minimize the interference must be carried out by the user.

### 1.3 Mechanical safety

- Install the device following strictly the information in the "3 – Mechanical installation" section on page 11;
- mechanical installation must be carried out with stationary mechanical parts;
- do not disassemble the encoder;
- do not tool the encoder or its shaft;
- delicate electronic equipment: handle with care; do not subject the device and the shaft to knocks or shocks;
- respect the environmental characteristics declared by manufacturer;
- unit with solid shaft: in order to guarantee the maximum reliability over time of the mechanical parts, we recommend a flexible coupling to be installed to connect the encoder and the installation shaft; make sure the misalignment tolerances of the flexible coupling are respected;
- unit with hollow shaft: the encoder can be mounted directly on a shaft whose diameter has to respect the technical characteristics specified in the purchase order and clamped by means of the collar and the fixing plate into which an anti-rotation pin has to be inserted.

## 2 - Identification

Device can be identified through the **order code** and the **serial number** printed on the label applied to its body. Information is listed in the delivery document too. Please always quote the order code and the serial number when reaching Lika Electronic for purchasing spare parts or needing assistance. For any information on the technical characteristics of the product refer to the technical catalogue.



**Warning:** encoders having order code ending with "/Sxxx" may have mechanical and electrical characteristics different from standard and be supplied with additional documentation for special connections (Technical Info).

### 3 – Mechanical installation



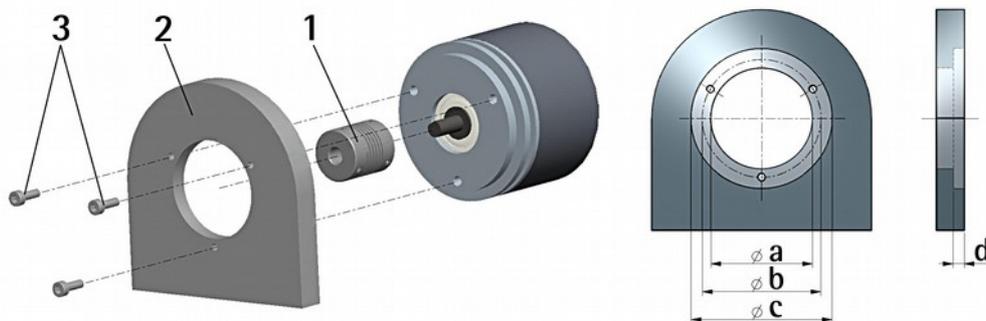
**WARNING**

Installation must be carried out by qualified personnel only, with power supply disconnected and mechanical parts compulsorily in stop.

#### 3.1 Encoder with solid shaft (model ASR58, ASR58S)

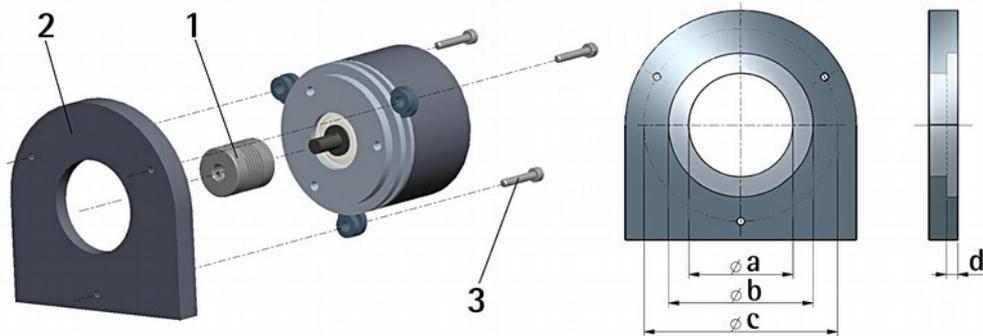
##### 3.1.1 Customary installation

- Mount the flexible coupling **1** on the encoder shaft;
- fix the encoder to the flange **2** (or to the mounting bell) by means of screws **3**;
- secure the flange **2** to the support (or the mounting bell to the motor);
- mount the flexible coupling **1** on the motor shaft;
- make sure the misalignment tolerances of the flexible coupling **1** are respected.



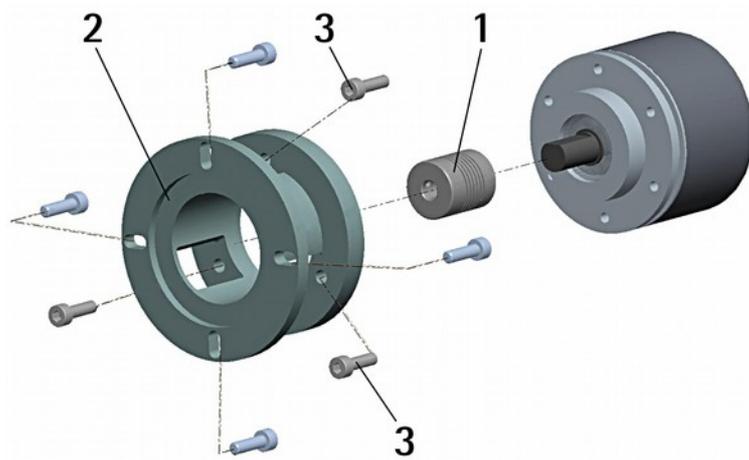
	a [mm]	b [mm]	c [mm]	d [mm]
ASR58 – standard flange	-	42	50 F7	4
ASR58S – flange with pilot	36 H7	48	-	-

3.1.2 Installation using fixing clamps (optional kit code LKM 386)



	a [mm]	b [mm]	c [mm]	d [mm]
ASR58 – standard flange	-	50 F7	67	4
ASR58S – flange with pilot	36 H7	-	67	-

3.1.3 Installation using a mounting bell (code PF4256)



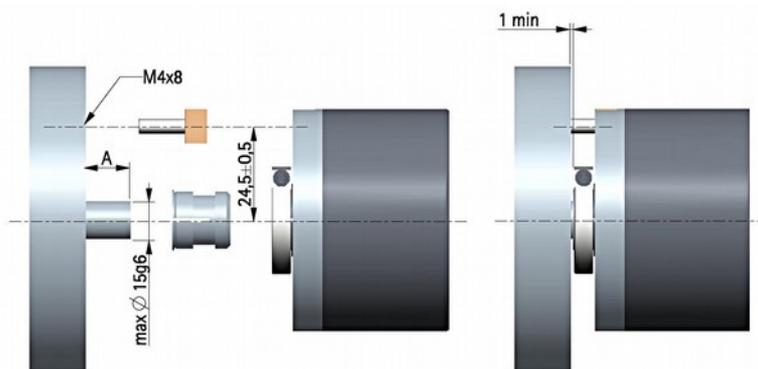
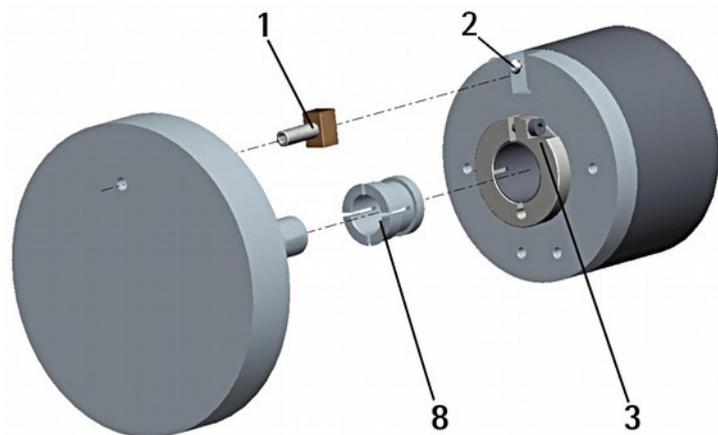
**NOTE**

In order to guarantee reliability over time of the encoder mechanical parts, we recommend a flexible coupling to be installed between the encoder and the motor shaft.

### 3.2 Encoder with hollow shaft (model ASRC)

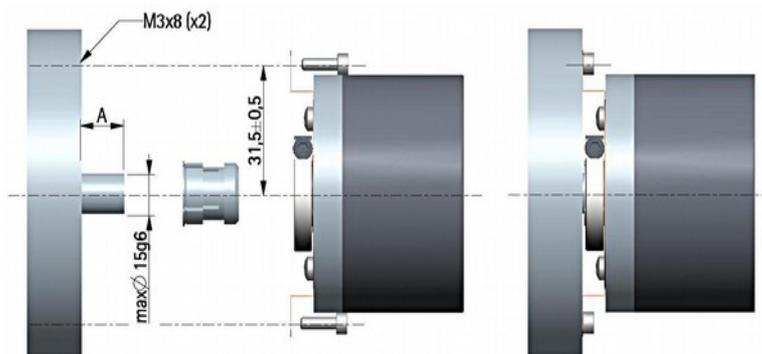
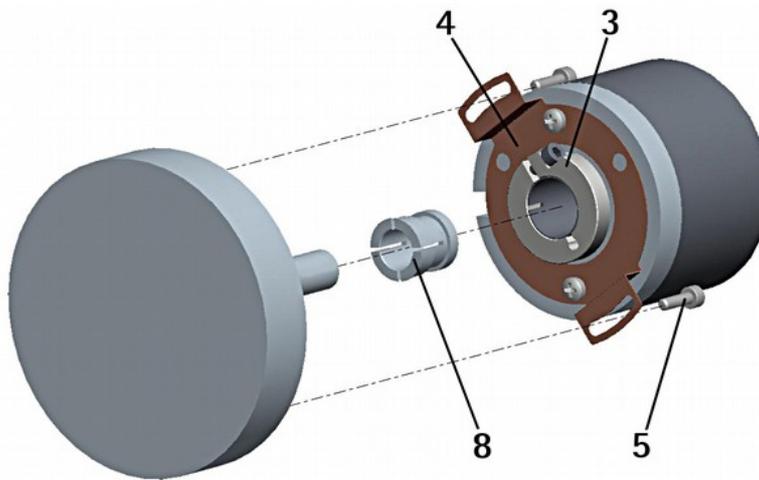
#### 3.2.1 Installation using the antirotation pin (customary installation)

- Fasten the anti-rotation pin **1** to the rear of the motor (secure it using a locknut);
- mount the encoder on the motor shaft using the reducing sleeve **8** (if supplied). Avoid forcing the encoder shaft;
- insert the anti-rotation pin **1** into the slot on the flange of the encoder; this secures it in place by grub screw **2**, preset at Lika;
- fix the collar **3** to the encoder shaft.



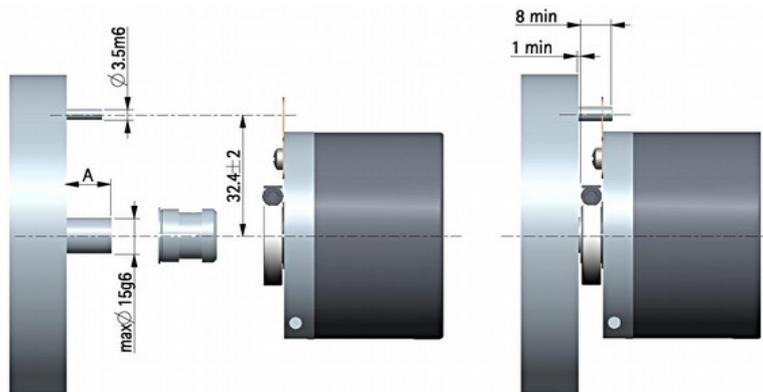
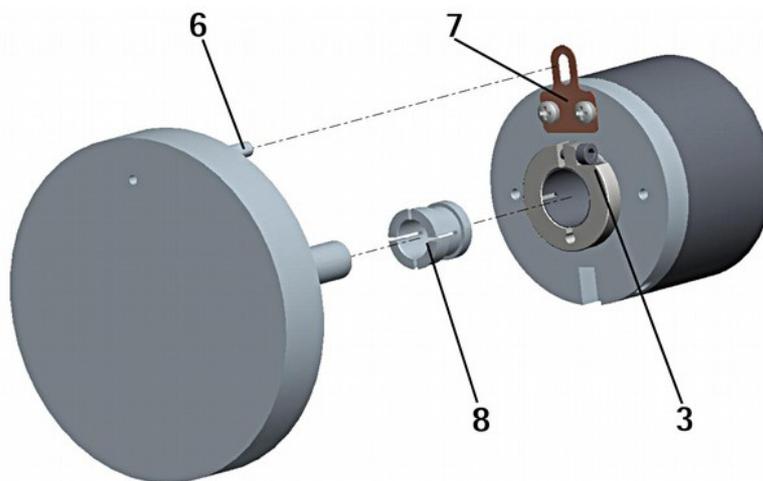
### 3.2.2 Installation using the fixing plate (optional kit code xx59)

- Remove the antirotation pin 1 (see Figure in the previous page);
- mount the encoder on the motor shaft using the reducing sleeve 8 (if supplied). Avoid forcing the encoder shaft;
- fasten the fixing plate 4 to the rear of the motor using two M3 x 8 cylindrical head screws 5;
- fix the collar 3 to the encoder shaft.



### 3.2.3 Installation using the antirotation pin and fixing plate (optional kit code xx60)

- Remove the antirotation pin **1** (see Figure on page 13);
- fix the tempered pin **6** to the rear of the motor;
- mount the encoder on the motor shaft using the reducing sleeve **8** (if supplied). Avoid forcing the encoder shaft;
- make sure the anti-rotation pin **6** is inserted properly into the fixing plate **7**;
- fix the collar **3** to the encoder shaft.



#### NOTE

You are strongly advised not to carry out any mechanical operations (drilling, milling, etc.) on the encoder shaft. This could cause serious damages to the internal parts and an immediate warranty loss. Please contact our technical personnel for the complete availability of "custom made" shafts.

## 4 - Electrical connection



### WARNING

Electrical connection must be carried out by qualified personnel only, with power supply disconnected and mechanical parts compulsorily in stop.



### WARNING

If wires of unused signals come in contact, irreparable damage could be caused to the device. Please insulate them singularly.

### 4.1 Connection options

Two connection options are available: through either A32 cable or 25-pin + 15-pin DSub connectors. For a complete description of the available functions please refer to the "5 - Setup" section on page 21.

#### 4.1.1 A32 cable

Function	Cable	Function	Cable
Out 1 / Analogue output (1)	Brown	Sel. Prg. 2 <sup>0</sup> (3)	Yellow/Brown
Out 2	Red	Sel. Prg. 2 <sup>1</sup> (3)	White/Blue
Out 3	Pink	Sel. Prg. 2 <sup>2</sup> (3)	Brown/Blue
Out 4	Yellow	Sel. Prg. 2 <sup>3</sup> (3)	White/Pink
Out 5	Green	Zero setting	Grey/Green
Out 6	Blue	Counting direction	Yellow/Pink
Out 7	Violet	+10Vdc +30Vdc Power supply	Green/Blue + Pink/Green
Out 8	Grey		
Out 9	White	0Vdc Power supply (4)	Yellow/Blue + Yellow/Grey
Out 10	Black		
Out 11	Brown/Red	0Vdc (4)	Brown/Black
Out 12	White/Red	Fault	White/Grey
Out 13	Red/Blue	0Vdc RS-232 (5)	White/Black
Out 14	Pink/Grey	RxD RS-232 (6)	Pink/Brown
Out 15	White/Yellow	TxD RS-232 (6)	Grey/Brown
Out 16	Brown/Green	Shield	Shield
Load Prg (2)	White/Green		



### NOTE

1. Analogue output is optional; refer to the order code for the available output voltage ranges. When provided, it is in place of OUT 1. Refer to

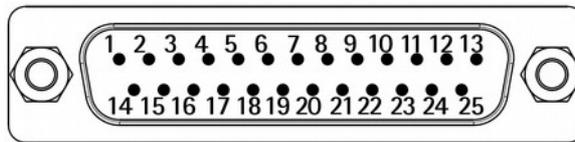
the "Analogue output" section on page 22.

2. Connect the input to 0Vdc for 10 ms at least to load the program. The program will be loaded automatically at start-up. Warning: do not connect to +Vdc.
3. Sel. Prg. 2<sup>x</sup> program selection inputs are internally connected to 0Vdc through pull-down resistors. They are active at +Vdc.
4. 0Vdc and 0Vdc Power supply are internally connected.
5. 0Vdc RS-232 is internally insulated from 0Vdc Power supply.
6. Please always make sure that the RxD of the ENCODER is cross-wired to the TxD of the PC while the TxD is cross-wired to the RxD.

#### 4.1.2 A32 cable specifications

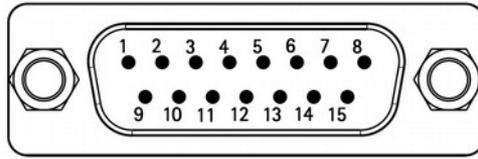
Model	: LIKA A32 Li-YCY cable
Wires	: 32 x 0.14 mm <sup>2</sup>
Shield	: tinned copper braid
External diameter	: Ø 9.1 mm ± 5%
Impedance	: ≤ 148 Ω/Km at 20°C
Minimum bending radius	: fixed = 5 x Ø; flexible = 10 x Ø

#### 4.1.3 DSub 25-pin male connector pin-out



Function	Pin	Function	Pin
Out 1	1	Out 14	14
Out 2	2	Out 15	15
Out 3	3	Out 16	16
Out 4	4	Load Prg (1)	17
Out 5	5	Sel. Prg. 2 <sup>0</sup> (2)	18
Out 6	6	Sel. Prg. 2 <sup>1</sup> (2)	19
Out 7	7	Sel. Prg. 2 <sup>2</sup> (2)	20
Out 8	8	Sel. Prg. 2 <sup>3</sup> (2)	21
Out 9	9	Zero Setting	22
Out 10	10	Counting direction	23
Out 11	11	+10Vdc +30Vdc Power supply (3)	24
Out 12	12	0Vdc Power supply (3) (4)	25
Out 13	13	Shield	Case

4.1.4 DSub 15-pin male connector pin-out



Function	Pin	Function	Pin
n. c.	1	n. c.	9
n. c.	2	n. c.	10
n. c.	3	0Vdc (4)	11
Analogue output (5)	4	RxD RS-232 (7)	12
Speed	5	TxD RS-232 (7)	13
0Vdc (4)	6	+10Vdc +30Vdc Power supply (3)	14
Fault	7	0Vdc Power supply (3) (4)	15
0Vdc RS-232 (6)	8	Shield	Case

n. c. = Not connected



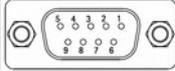
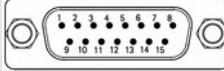
**NOTE**

1. Connect the input to 0Vdc for 10 ms at least to load the program. The program will be loaded automatically at start-up. Warning: do not connect to +Vdc.
2. Sel. Prg. 2<sup>x</sup> program selection inputs (pins 18, 19, 20 and 21 in the DSub 25-pin connector) are internally connected to 0Vdc through pull-down resistors. They are active at +Vdc.
3. Please mind that pins 14 and 15 of the DSub 15-pin connector are internally connected to pins 24 and 25 of the DSub 25-pin connector respectively (therefore single power supply is used for both!).
4. 0Vdc and 0Vdc Power supply are internally connected.
5. Analogue output is optional; refer to the order code for the available output voltage ranges. Refer to the "Analogue output" section on page 22.
6. 0Vdc RS-232 is internally insulated from 0Vdc Power supply.
7. Please always make sure that the RxD of the ENCODER is cross-wired to the TxD of the PC while the TxD is cross-wired to the RxD.

#### 4.2 RS-232 serial interface

This encoder is equipped with a serial interface; it allows you to program the device. A software tool designed to program the encoder via RS-232 interface is available at the address [www.lika.it](http://www.lika.it) > **ROTARY ENCODERS** > **ABSOLUTE ENCODERS** > **ANALOGUE OUTPUT** > **ASR58 • ASR58S**. Before starting the program, connect the device to the personal computer through a serial port. Should the personal computer not be equipped with a serial port, you must install a USB / RS-232 converter, easily available in the market.

The serial cable must be connected as shown in the following table.

Personal computer		ASR58		
				
<b>DSub 9-pin female connector</b>		<b>A32 cable</b>	<b>15-pin male connector</b>	
RxD	Pin 2	Grey/Brown	Pin 13	TxD
TxD	Pin 3	Pink/Brown	Pin 12	RxD
0Vdc	Pin 5	White/Black	Pin 8	0Vdc RS-232
		Yellow/Blue + Yellow/Grey	Pin 15	0Vdc
		Green/Blue + Pink/Green	Pin 14	+Vdc



#### NOTE

Please always make sure that the RxD of the ENCODER is cross-wired to the TxD of the PC while the TxD is cross-wired to the RxD.

**IF92** kit with USB / RS-232 converter + optional **EC-ASR-D15F** cable are available for connection between the encoder and the PC.

Please note that the configuration parameters of the serial port have fixed values so the user cannot change them. They are:

Function	Data
Bits per second	9600
Data bits	8
Parity bits	None
Stop bits	1
Flow control	None

## 5 - Setup

### 5.1 Description of functions

#### Load Prg

Load program. It allows the operator to upload the selected program, see **Sel. Prg. 2x**. Connect the **Load Prg** signal to 0Vdc for 10 ms at least. The program is selected through the **Sel. Prg. 2x** inputs and then loaded automatically at start up.



#### WARNING

Do not connect to +Vdc!

#### Sel. Prg. 2<sup>x</sup>

Select program. You can select up to 16 programs using a binary code through four dedicated inputs. Set the binary value of the X program to upload minus 1 (binary value = X - 1). Programs 1 ... 16 = code 0 ... 15 (0000<sub>2</sub> ... 1111<sub>2</sub>).



#### EXAMPLE

See the example below: code for selection of program n° 5:

<b>Value</b>	Sel. Prg. 2 <sup>3</sup>	Sel. Prg. 2 <sup>2</sup>	Sel. Prg. 2 <sup>1</sup>	Sel. Prg. 2 <sup>0</sup>	
<b>Binary</b>	0	1	0	0	= 4 <sub>10</sub>

$$0100_2 = 4_{10}$$

Program n° 5 = Binary code + 1.

Program n° 1

<b>Value</b>	Sel. Prg. 2 <sup>3</sup>	Sel. Prg. 2 <sup>2</sup>	Sel. Prg. 2 <sup>1</sup>	Sel. Prg. 2 <sup>0</sup>	
<b>Binary</b>	0	0	0	0	= Program 1

Program n° 14

<b>Value</b>	Sel. Prg. 2 <sup>3</sup>	Sel. Prg. 2 <sup>2</sup>	Sel. Prg. 2 <sup>1</sup>	Sel. Prg. 2 <sup>0</sup>	
<b>Binary</b>	1	1	0	1	= Program 14

#### Zero Setting

The output information can be forced to 0 through a command sent to the Zero Setting input by a PLC or via a button.

To zero set the encoder position output, connect Zero Setting to +Vdc for 100 μs at least, then disconnect +Vdc. Connect Zero Setting input to 0Vdc if not

used. Normally voltage must be at 0Vdc. Zero set must be performed after Counting direction. We suggest performing the zero set when the encoder is in stop.

**WARNING**

The Zero Setting command only reset the position value (quote) of the program in use (it does not change the quote of the other fifteen programs).

**Counting direction**

The counting direction circuit is designed to reverse the counting direction. In other words it allows the count up information also when the shaft is rotating counter-clockwise. Connect the Counting direction input to 0Vdc if not used. Connect the Counting direction input to 0Vdc to have an increasing count (count up information) when the encoder is turning clockwise (CW, viewed from the shaft side); connect the Counting direction input to +Vdc to have an increasing count (count up information) when the encoder is turning counter-clockwise (CCW).

**Analogue output**

The voltage Analogue output is optional. The analogue output is not available if a dash ("-") appears in the order code. On request the following ranges can be supplied (see the order code):

A1 order code	0V ÷ +10V
A2 order code	0V ÷ +5V
A3 order code	-5V ÷ +5V

To activate the analogue output it is necessary to program just one cam in the output 1.

**Speed**

Speed detection signal. It provides a square wave 1800 PPR signal for speed detection.

**Fault**

Status of the outputs. The Fault signal indicates the status of the sixteen outputs. HIGH logic level indicates that:

- the encoder is receiving the program;
- the selected program is loading into EPROM;
- the selected program does not exist.

**RxD RS-232**
**TxD RS-232**
**OVdc RS-232**

Opto-insulated RS-232 serial port for the programming and displaying via personal computer. For any information refer to the "4.2 RS-232 serial interface" section on page 19.

**5.2 Accessories**

- Programming software.
- External AC/DC power supply designed to supply the encoder during the programming via personal computer.
- Hand held simulation terminal designed to check the operation of the programs stored in the encoder without removing the encoder from the machine; no personal computer needed.

**5.3 Reading the encoder position via RS-232**

If you want to know the current position of the encoder you must send the following message:

Byte	Value
0	128
1 ... 17	0
18	CHK

The encoder will send back a 19-byte message as follows:

Byte	Value
0	128
1	0
2	LSB of current position
3	MSB of current position
4	n° of active program
5	n° of programmed cam
6 ... 7	0
8	LSB output pattern
9	MSB output pattern
10 ... 17	0
18	CHK

**CHK**

Checksum. Byte used for the control of the correct message transmission. The CHK value is the unsigned sum of the bytes from 0 to 17.

## 6 - Programming software

### 6.1 Connection between personal computer and encoder

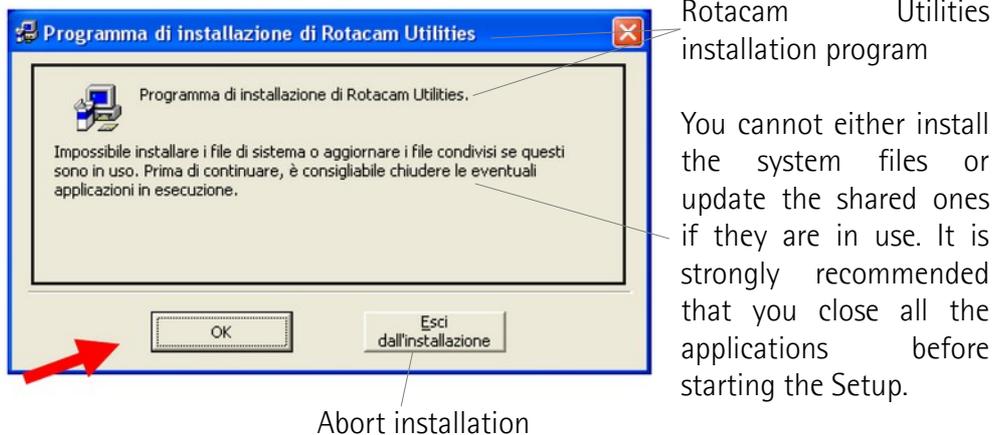
Connect the personal computer and the encoder according to the explanation in the "4 - Electrical connection" section on page 16.

### 6.2 Software installation

Before installing the utility software, close all the applications and uninstall any previous software versions.

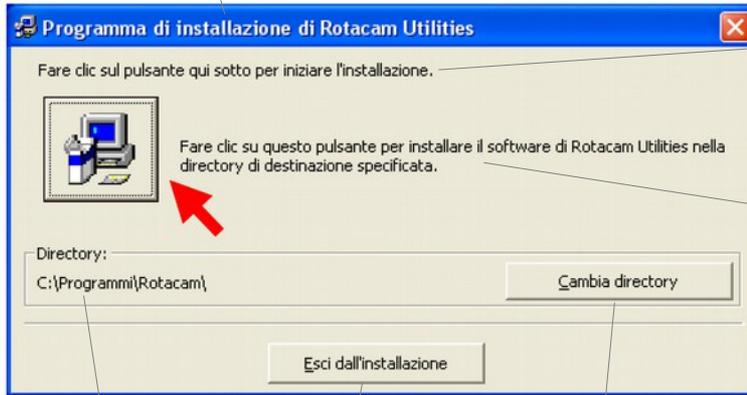
To install the software proceed as follows. Please note that installer instructions are in Italian only. Please refer to the following notes for the comprehensive translation of the messages.

1. Double click the **SETUP.EXE** installer file: the following window will appear:



2. Press the **OK** button to continue. The next window will appear.

Rotacam Utilities installation program



Press the button to start the installation

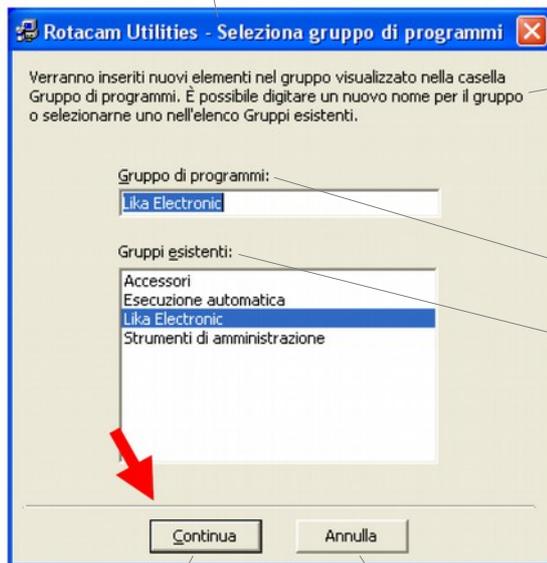
Click the button to install the Rotacam Utilities software in the default path

Default path

Change the directory path  
Abort installation

3. Press the button indicated by the red arrow to continue installation. The next window will appear.

Rotacam Utilities – Choose the program group



Setup will add new items to the group shown in the Program Group box. You can enter a new group name or select one from the Existing Groups list

Program Group box

Existing Groups box

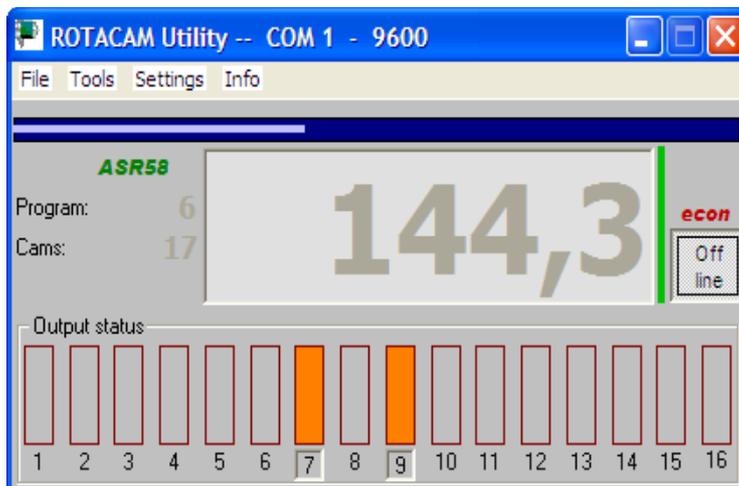
Continue installation

Abort installation

4. Press the **Continua** button to finalize installation.

If you want, copy and paste the example files (\*.txt) from the CAMME directory in the installation zip file to the work directory (C:\Lika\Rotacam).

### 6.3 Main window



The **Off line** button is meant to close the serial communication and make the serial port available for other applications.

The current position of the encoder ("144,3" value in the Figure above) and the graphical display of the active outputs (output status; "7" and "9", highlighted in orange in the Figure) as well as the number of the program in use (6) and the set cams (17) are shown in the main window.

Between the **Off line** button and the position edit, a vertical bar is available: it is meant to show the quality of the communication signal. When it is green it means that the communication between the personal computer and the encoder is proper; when the bar shortens or changes its colour (into yellow or red) it means that there is a problem in the serial communication (cable too long, noise, etc.).

If the position of the encoder is displayed intermittently, change the **Filter** value (see the "**Filter**" section on page 28).

If there is no communication, the vertical bar is red and the position edit displays some dashes.

The serial port that is in use and its baud rate (COM 1 – 9600) are highlighted on the title bar.

If you minimize the main window to icon, the position of the encoder keeps being shown in the task bar.

### 6.3.1 Tools menu

#### Programming

It opens the window meant to manage, modify and download the encoder programs. For more information see the "6.4 Programming window" section on page 29.

### 6.3.2 Settings menu

#### Model

It allows the operator to choose the Rotacam encoder model connected to the personal computer.

Along with the ASR58/ASRC model described in this manual, also the AMR58/AMRC multiturn model, the previous ASR6 model and other special devices can be found in the list.

The utility software changes some of its characteristics according to the selected model.

#### Language

It allows the operator to choose the language used to display the menu bar, buttons and diagnostic messages.

#### COM port settings

It allows the operator to select the serial COM port of the personal computer connected to the encoder. Press the **Advanced** button to change the advanced settings of the COM port.

#### Filter

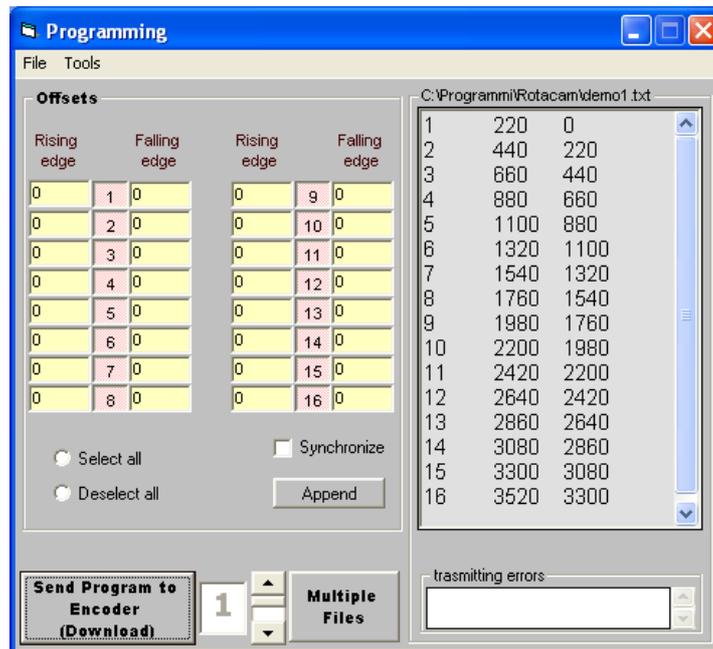
It allows the operator to increase the time-out interval when long cables or special encoders are used. It has to be set in case of communication problems (the position value blinks, the vertical bar is red, etc.). When the filter is set to "x10" or "x100" all the functions slow down. In this case, also the updating of the position value becomes slow.

For ASR58/ASRC, AMR58/AMRC and ASR6 encoders the default value is "x1", for S568 it is "x100".

### Enable ECON

It enables the power and personal computer resources save mode. When the option is enabled, if the position value does not change in 2 minutes, the system goes into ECON mode and the serial port is tested every 2 seconds. As soon as the position value changes, the system exits immediately the power save mode.

### 6.4 Programming window



The buttons from 1 to 16 (one for each output) that appear in the **Offsets** page are used to enable or disable the offset values. The offset values for the rising edge and the falling edge are to be set on the left side and the right side of each button respectively. The enabled values will be calculated and applied to the program sent to the encoder.

If you want to see the complete list of data sent to the encoder, enlarge the programming window below; the **ok** message that appears at the end of each string means that the encoder has received data properly.

### Verify

The **Verify** button allows to check the programming language syntax whenever you like.

**Select all****Deselect all**

It allows the operator to select or deselect all the sixteen buttons at the same time.

**Synchronize**

This function allows the operator to update the **Offsets** page using the new program data.

**Append**

It adds at the end of the program the offset values that appear in the **Offsets** page.

**NOTE**

It is important to know that the offset values used by the encoder are only those which have been set and activated in the **Offsets** page.

The offset values set in the program are considered only if the **Synchronize** check-box is selected and the values have not been changed any more in the field.

**Send Program to Encoder (Download)**

It allows the operator to download to the encoder the displayed program complete with the enabled offsets. The file will be downloaded in the program whose number is displayed on the right side of the button.

**Multiple Files**

This button is designed to download to the encoder the 16 files altogether simultaneously. In the box on the right of each line you can write the path where the file is located; otherwise you can click the number in each line and open the personal computer main window to find the desired file.

By clicking the **Send Program to Encoder (Download)** button, every listed file is sent to the encoder and saved in the program having the number of the line.

Note that a complete file list can be saved in and then loaded from the personal computer hard disk, see the next section.

### 6.4.1 File menu

#### Load Progr.

#### Save Progr.

It allows to upload a single program from the personal computer hard disk; it allows to save a single program to the personal computer hard disk (\*.txt format).

#### Load List

#### Save List

It allows to load a list of programs from the personal computer hard disk; it allows to save a list of programs to the personal computer hard disk (\*.lis format).

#### Import (from MAINGR)

It allows the operator to recover and make available the files used in previous software versions. In old versions, several programs and offsets were saved in a single file; now, when importing the file, programs are extracted singularly and a new list is created.

In the previous software versions the offsets values were called **advances**, therefore the algebraic signs were reversed; furthermore values could be greater than  $\pm 1800$ .

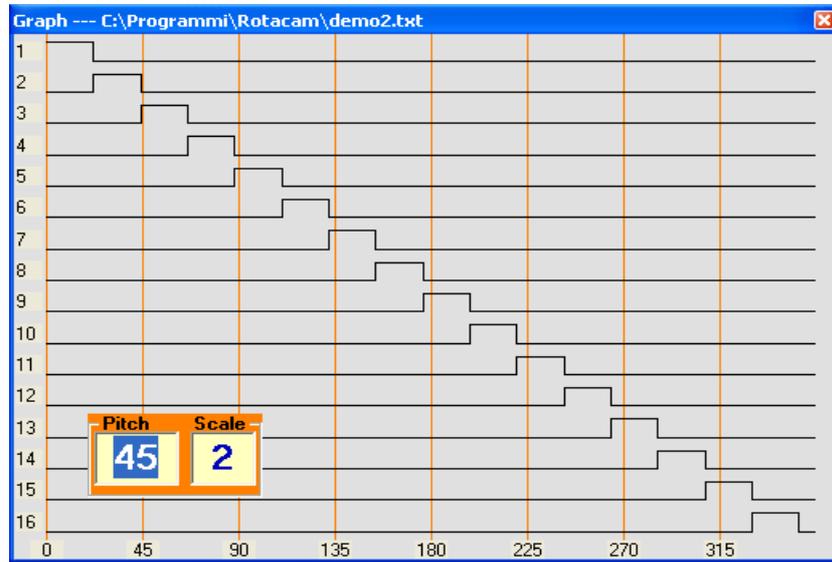
The new program recognizes the old software versions and recovers the files properly.

### 6.4.2 Tools menu

#### Graphic display

It allows the operator to open a window where the activation / deactivation points of the 16 outputs are shown through a graphical display. They refer to the active program and are calculated considering the enabled offsets.

If you click in the **Graph** window, you can change the **Pitch** of the vertical reference bar (from 10 to 359 degrees) and the **Scale** of the window (from 1 to 4). When you close the program the new settings are saved automatically.



### 6.5 Work files (Working programs)

The programs that are to be sent to the Rotacam can be edited using any text editor. Pay attention not to include formatting commands and characters.

The structure of a program is very simple. Every string must contain the complete command of the output: i.e. **number of the output** (from 1 to 16), **rising edge** and **falling edge**. The edge values are expressed in tenths of a degree.

Each output can be set with multiple command lines.



#### EXAMPLE

Setting the output number 7:

rising edge 198.5°; falling edge 300,0°,

rising edge 350,0°; falling edge 355,0°:

```
7 1985 3000
```

```
7 3500 3550
```

Values have to be separated using whatever non-numeric character but apex ( ' ) and ampersand (&). Space and Tab characters are always accepted by the editor. It is possible to add comments, they must start with an apex ( ' ) delimiter; they are highlighted in blue.

' This is an example of comment

After programming the outputs, it is possible to program the offsets. The edge values must be separated from the offset values using an ampersand (&).



#### EXAMPLE

```
16 0 2200 ' last programmed output
&          ' following strings are offset
           ' commands

3 120 -550 ' output n. 3 will be
           ' activated 12 degrees after rising
           ' edge and deactivated
           ' 55 degrees before falling edge
```

The offset value can be negative therefore meaning an advance. It must be comprised between -1800 and +1800 (higher values do not make any sense).



#### WARNING

Always insert a return carriage character after the last character in the last line (string).

#### 6.5.1 Work files (Working programs) diagnostic

When you enter wrong commands or values, the internal diagnostic feature notifies the error and highlights it in different colour and bold in the **Programming** page. An important check is carried out on possible "overlapping" in quotes or after setting an offset.

Diagnostic feature does not warn of two particular "overlapping" cases having a specific aim:

```
xx 0 0 'it is used to set the xx output always OFF
xx 1 1 'it is used to set the xx output always ON
```

To delete an encoder program, download [an empty program](#) having the same number of the program you want to delete.

### 6.5.2 File extension

The file extension is not binding, the default extension for a single program is ".txt"; while the default extension for a list of programs is ".lis".

Program list files can be edited using a text editor too. The syntax is: number of the program followed by SPACE or TAB characters and complete path of the program file in round brackets.

```
1      (C:\program\Rotacam\demo3.txt)
7      (C:\Lika\Rotacam\demo6.txt)
```

In the example, demo3.txt will be downloaded to program 1 while demo6.txt will be downloaded to program 7.

### 6.5.3 Errors

If a VB error message appears while installing the software, press **Continue** to go on.

Some applications, as a fax or a printer, keep the COM port open. If an error message informs you that the COM port is in use or not available, choose another COM port or temporarily close the application that causes the problem.

## 6.6 Rotacam S568

This is a special version of Lika's ROTACAM ASR58 model. A special software version allows the operator to program cyclic cams through the RS-232 interface.

Press **Settings > Model > S568** in the menu bar of the main window to enable the S568 model, the programming window will suit to the encoder characteristics.

The file extension for S568 model is ".568".

In the programming window 16 lines are shown one per each output. In every line you can set the offset, the duration of the ON status and the duration of the OFF status. **0** button is meant to force the status "always OFF" in the output while **1** button is meant to force the status "always ON" in the output.

The **Send out xx** button sends to the encoder the program for setting the selected output (the other outputs are not programmed).

The **Append** button adds to the programming window all the data edited in the S568 box on the left and referring to the number of program entered in the bottom field.

The **Synchronize** button compiles and runs the programs in the programming window, it refers to all the sixteen encoder programs.

The **RST** button deletes all the outputs and the encoder programs.

The **DFT** button loads into the encoder a default program.  
Contrary to customary models, when a program is sent to the S568 encoder model, only the selected outputs are activated, while the outputs not recalled in the program are not set. If necessary use the **RST** command.

Document release	Release date	Description	HW	SW	Interface file version
1.0	19.02.2003	1st issue	-	-	2.1, 2.2, 2.3
1.1	07.03.2005	Application SW and manual update	-	-	2.2
1.2	10.03.2005	Application SW and manual update	-	-	2.2
1.3	20.10.2006	Application SW and manual update	-	-	3.0, 3.1, 3.2
1.4	04.12.2008	Section 4.1 update	-	-	3.2
1.5	14.10.2010	Section 6.5 update	-	-	4.0, 4.1
1.6	18.05.2011	General review	-	-	4.1
1.7	22.05.2012	Introduction of model ASRC, "Mounting instructions" section updated	-	-	4.1
1.8	11.10.2013	Cable output	-	-	5.0
1.9	18.10.2017	General review	-	-	5.0



This device is to be supplied by a Class 2 Circuit or Low-Voltage Limited Energy or Energy Source not exceeding 30 Vdc. Refer to the order code for supply voltage rate.

Ce dispositif doit être alimenté par un circuit de Classe 2 ou à très basse tension ou bien en appliquant une tension maxi de 30Vcc. Voir le code de commande pour la tension d'alimentation.



Dispose separately

# lika

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