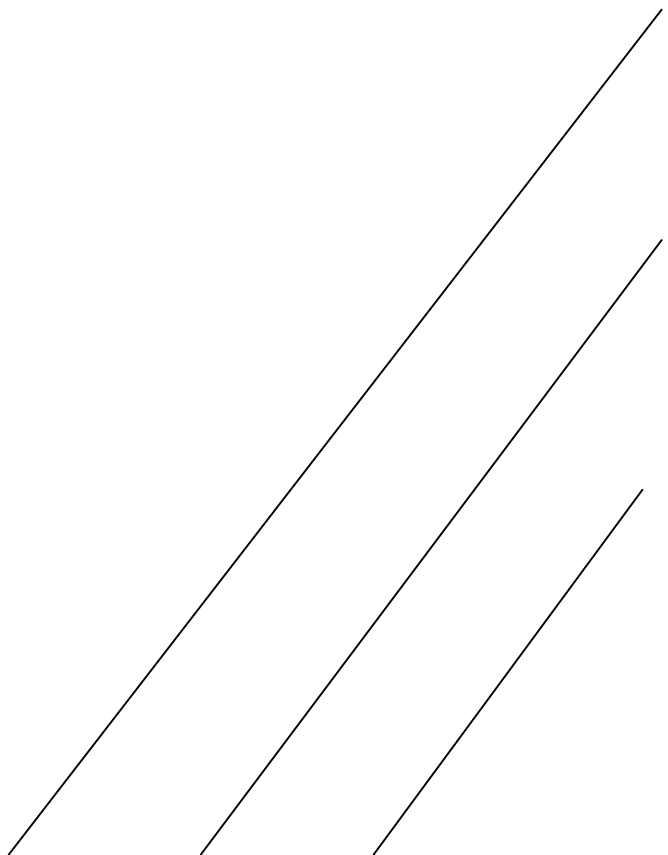


**PROGRAMMING SOFTWARE FOR  
ASYNCHRONOUS SERIAL  
ENCODERS  
AMS / ATS / AMM / ATM**

REV 1.5



## Foreword

The software produced by Hohner Automazione s.r.l. allows to program the parameters of a single turn and multi turn serial encoder:

**AMS, ATS, AMM, ATM**

by means of a personal computer provided with RS232 standard serial interface.

The software can be used as diagnostics to display the encoder values.

Note: to change the encoder parameters, connect the encoder serial interface with the computer interface: the communication between encoder and PC occurs automatically trough software acknowledgement.

## Installation

Copy the files from the floppy disk enclosed into the work directory.

Connect the encoder programming pins with the computer COM1

( Enter: Type AXX\_CONF.TXT to display the wiring diagram)

Launch the program AXX\_PC15.EXE and press ENTER.

If another COM is to be used, launch the program by entering  
AXX\_PC14 / x (2<x<4).

Press any key to access the work menu:

N.B. if the encoder is not connected or powered, the following message will be displayed:

Encoder not Connected

## Work menu

The work menu page shows the followings terms:

**Relative Position:**

frame indicating the encoder relative position according to the offset value set. The values are given in decimals:

- Single turn: Relative position of the single turn part
- Multi turn: Relative position of the multi turn part
- Position: Relative position

**Absolute Position:**

frame showing the encoder absolute position. The values are given in decimals:

- Single turn: Absolute position of the single turn part
- Multi turn: Absolute position of the multi turn part
- Position: Absolute position

**Configuration:**

frame showing the encoder parameter configuration:

- Direction: Encoder rotation direction
  - a) Up: increase
  - b) Down: decrease
- Enc. Code: Encoder code
  - a) Binary/Gray/BCD/ASCII: Binary, Gray, BCD or ASCII
- Shift ring: Packaging of resolution bits:
  - a) Disable: when reducing the resolution as many “0” are added to the right and to the left as there are the masked bits.

See the figure below as example:

		1o Byte								2o Byte								3o Byte								pulses/turn
		D0	D1	D2	D3	D4	D5	D6	D7	D0	D1	D2	D3	D4	D5	D6	D7	D0	D1	D2	D3	D4	D5	D6	D7	
turn number	4096	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	4096
Pr1	4096	2 <sup>11</sup>	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2 <sup>11</sup>	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	4096
Pr2	2048	0	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	0	2048
Pr3	1024	0	0	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	0	0	1024
Pr4	512	0	0	0	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	0	0	0	512

- b) Enable: when reducing the resolution the bits are packaged to the right

See the figure below as example:

turn number	1o Byte								2o Byte								3o Byte								pulses/turn	
	D0	D1	D2	D3	D4	D5	D6	D7	D0	D1	D2	D3	D4	D5	D6	D7	D0	D1	D2	D3	D4	D5	D6	D7		
Pr1	4096	2 <sup>11</sup>	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2 <sup>11</sup>	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	4096
Pr2	2048	0	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2 <sup>11</sup>	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2048
Pr3	1024	0	0	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2 <sup>11</sup>	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	1024
Pr4	512	0	0	0	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	2 <sup>11</sup>	2 <sup>10</sup>	2 <sup>9</sup>	2 <sup>8</sup>	2 <sup>7</sup>	2 <sup>6</sup>	2 <sup>5</sup>	2 <sup>4</sup>	2 <sup>3</sup>	2 <sup>2</sup>	2 <sup>1</sup>	2 <sup>0</sup>	512

- N. Bit ST: Number of datum bits of the single turn part (max 12)
- N. Bit MT: Number of datum bits of the multi turn part (max 12)
- Parity Bit:
  - a) Even: even for each byte
  - b) Odd: odd for each byte
  - c) High: always high
  - d) Last: on the last byte only (check byte CKSUM)
- Baud Rate: Transmission of the selectable frame:
  - a) 300/1200/2400/4800/9600/19200/38400/57600/115200
- Ver. SW Enc: 1.x Represent the software release being used

### Frame creation (message):

#### - B0..Bn:

Indicate the number of bytes being used in the frame: Bn changes according to the code of the selected encoder:

- B0..B2: Bytes for the Binary and Gray encoder codes
- B0..B3: Bytes for the BCD encoder code
- B0..B5: Bytes for the ASCII encoder code

#### - CKS:

Check byte called CHECKSUM, resulting from the sum of B0..Bn bytes.

#### - CR:

Byte showing the line return, enabled only when using ASCII.

#### Notes:

- a) B0..Bn + CKS + parity Bit from the **FRAME** (message)
- b) From the electric point of view, the frame also consists of a START and a STOP bit for each byte.

**Pause:**

The interval elapsing between the sending of a new package and the previous one; the interval is calculated as:  $16.5 * 1/BAUD\ RATE$  (ex. At 300 Baud Rate, the pause is:  $PAUSE = 16.5 * 1/300 = 55\ msec.$ ).

**Offset:**

Indicates the deviation as to the absolute value. The values are expressed in decimals.

- Single turn: Deviation of the single turn as to the absolute position
- Multi turn: Deviation of the multi turn as to the absolute position
- Position: Total deviation as to the absolute position

## Parameter programming

Parameters are programmed by using the controls in the “Help” frame.

By pressing **Alt+C**, it is possible to enter the “configuration” frame:

By pressing  $\uparrow\downarrow$ , it is possible to move trough the fields of the configuration menu

By pressing  $\rightarrow\leftarrow$ , it is possible to select the desired setting in each field

Press “enter” to confirm the data entered

Press “esc” to exit the configuration menu without confirming the values entered

By pressing **Alt+0**, you set/reset the Offset value

- a) If these keys are pressed once, the offset value is set
- b) If these keys are pressed twice, the offset value is reset

## Exit from the program

Press “esc” to exit from the program.

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