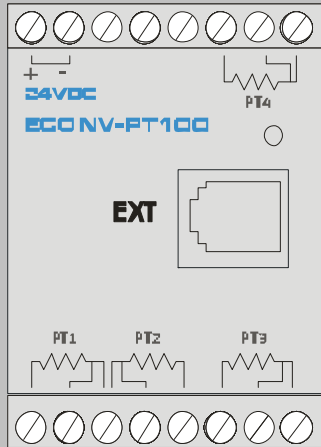


ECONV-PT100



ECONV-PT100

User Reference 1.1

Analog Input Module Expansion

For PT100 Sensors

PRELIMINARY

Description: ECONV-PT100, Analog input module expansion

Publication: 1.11 (Rev 1)

Author: WWW.FESTOSARA.COM.AR

Argentina.

The information inside this manual could be modified without previous notification. Information furnished in this manual is believed to be accurate and reliable. However, no responsibility is assumed for its use, or for any infringements of patents or other rights of third parties.

User Reference v1.11

Input Module E.CONV-PT100:

FEATURES:

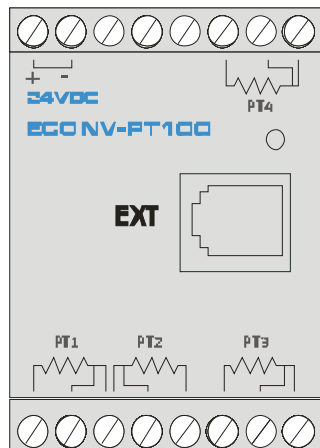
- 4 channel PT100 -200 to 200C, 1C resolution.
- 24Vdc standard power supply
- Wire resistant compensation (3 wire PT100).

APPLICATIONS

- Industrial Process Control
- Factory Automation
- Scada Remote Data Acquisition
- Remote Temperature And Current Transducers

Schematic Connection:

Each analog input has a common analog Ground AGND.



EXT interface expansion:

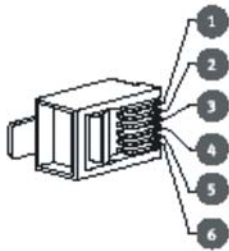
The Fec modules have an extension interface via which the FEC modules can be connected to external word, for example with a remote expansion device. The FEC-EXT interface works using TTL Levels (0-5V). In order to connect an ECONV-... as a remote expansion you require an FECKSD4 cable. Since both stations are connected via a TTL interface, this may only be implemented using a short cable, less than 30 cm. If cable is any longer, reliable operation of the connection is not guaranteed. The format of communication is 9600, 8, n, 1.

That is:

Bauds: 9600
Data: 8 bits
Parity: No
Stop Bits: 1
Flow Control: Nothing

That is de default speed of EXT port.

Pin assignment of EXT PORT interface:

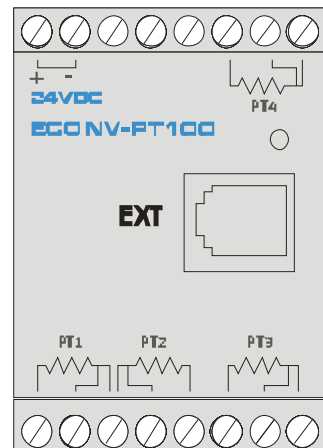
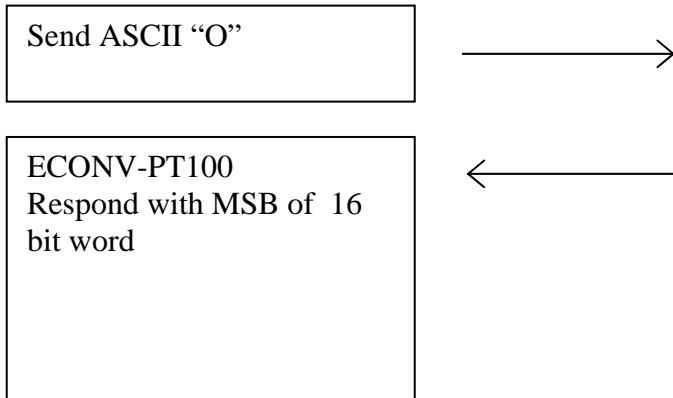
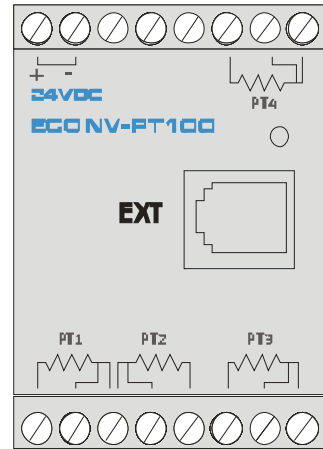
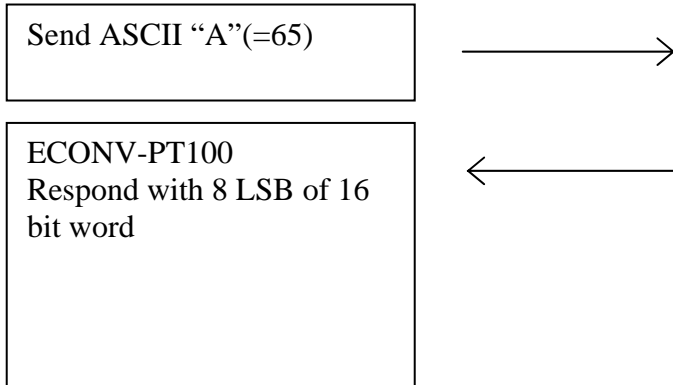


Pin no.	Signal name
1	+5 V
2	GND
3	TXD
4	RXD
5	CTS
6	RTS

Data format :

The communication format is as follow (for channel 1) :

Access to ECONV-PT100:



To form the response temperature of channel 1 the following calculation must do:

Temp Channel 1 in Celsius = 256*MSB+LSB

Negative temperature are expressed as follow:

Temp 16 bits response of PT100

0C.....0

-1C.....65535

-2C.....65334

an so on....

For channel 2 ECONV-PT100 accept letter B and P for LSB and MSB.

For channel 3 ECONV-PT100 accept letter C and Q for LSB and MSB.

For channel 4 ECONV-PT100 accept letter D and R for LSB and MSB.

This is an example of program that make all necessary task to communicate with the ECONV-PT100. Simply make a program in FST4 that run in parallel to you program...

```
*****
" Modulo: ECONV-Pt100
" Rango=-200 a 200 Grados
" Resolucion=+-1C
" Variables del sistema:
" RFullPt1 (R250): Resultado temperatura Canal 1 (-200 a 200).
" RFullPt2 (R251): Resultado temperatura Canal 2 (-200 a 200).
" RFullPt3 (R252): Resultado temperatura Canal 3 (-200 a 200).
" RFullPt4 (R253): Resultado temperatura Canal 4 (-200 a 200).
" F_Error (F9999.0): =1 indica error en la comunicacion con el modulo
(debe resetearse desde programa)
" R_Error(R239) : Cuenta la cantidad de errores de comunicacion para
activar el F_Error
"
" Revision:
" 1.1 .
"
*****
STEP
IF NOP
THEN RESET F_ERROR 'Si hay error de comunicacion

STEP Inicio
IF NOP "Inicializar el puerto EXT
THEN LOAD V0
TO FU32
CFM 2 'Opencom
LOAD V0
TO R_ERROR 'contador de errores de comunicacion

IF FU32 "verifica si se pudo abrir puerto
= V0
THEN LOAD V5 "Esperar como maximo 50 ms
TO TPTIMEOUT 'Carga del tiempo de espera

*****
" Analiza Canal número 1
*****

STEP SendComA "Enviar "A" por el puerto EXT
```

```

IF      NOP
THEN LOAD V0
      TO  FU32
      LOAD V65      "ASCII "A"=65
      TO  FU33
      CFM 0      'PUTCOM
      SET  TTimeOut      "Tiempo maximo de espera por
repuesta

STEP WaitDataA
IF      NOP
THEN LOAD V0
      TO  FU32      "Busca por un byte de respuesta
      CFM 1      'GETCOM

IF      N      TTimeOut      "Llego el dato?
THEN INC  R_ERROR      'contador de errores de comunicacion
      JMP TO SendCom0      "no,Ver el otro canal

IF      (      FU32      "Llego un caracter(sin error)
      =      V0      )
THEN LOAD FU33
      AND  V$00FF
      TO  RMSBCH1

" " *****Busca LSB canal1
STEP SendCom0
IF      NOP
THEN LOAD V0
      TO  FU32
      LOAD V79      "ASCII "O"=79
      TO  FU33
      CFM 0      'PUTCOM
      SET  TTimeOut      'Tiempo de espera para respuesta

STEP WaitData0
IF      NOP
THEN LOAD V0
      TO  FU32
      CFM 1      'GETCOM

IF      N      TTimeOut      'Tiempo de espera para respuesta
THEN INC  R_ERROR      'contador de errores de comunicacion
      JMP TO SendComB

IF      (      FU32
      =      V0      )
THEN LOAD FU33
      AND  V$00FF
      TO  RLSBCH1
      LOAD RMSBCH1
      *    V256
      +    RLSBCH1
      TO  RFullCH1      "resultado con signo 16 bits.

" "*****
" " Analiza Canal número 2

```

"*****"

```

STEP SendComB                                "Enviar "B" por el puerto EXT
IF                                             NOP
THEN  LOAD                                  V0
      TO                                  FU32
      LOAD                                  V66                                "ASCII "B"=66
      TO                                  FU33
      CFM 0                                'PUTCOM
      SET                                  TTimeOut                        "Tiempo maximo de espera por
repuesta

STEP WaitDataB
IF                                             NOP
THEN  LOAD                                  V0
      TO                                  FU32                                "Busca por un byte de respuesta
      CFM 1                                'GETCOM

IF          N          TTimeOut              "Llego el dato?
THEN  INC          R_ERROR                    'contador de errores de comunicacion
      JMP TO SendComC                        "no,Ver el otro canal

IF          (          FU32                  "Llego un caracter(sin error)
      =          V0          )
THEN  LOAD          FU33
      AND          V$00FF
      TO          RMSBCH2

STEP SendComP
IF                                             NOP
THEN  LOAD                                  V0
      TO                                  FU32
      LOAD                                  V80                                " "P"=80
      TO                                  FU33
      CFM 0                                'PUTCOM
      SET                                  TTimeOut                        'Tiempo de espera para respuesta

STEP WaitDataP
IF                                             NOP
THEN  LOAD                                  V0
      TO                                  FU32                                'GETCOM
      CFM 1

IF          N          TTimeOut              'Tiempo de espera para respuesta
THEN  INC          R_ERROR                    'contador de errores de comunicacion
      JMP TO SendComC

IF          (          FU32
      =          V0          )
THEN  LOAD          FU33
      AND          V$00FF
      TO          RLSBCH2
      LOAD          RMSBCH2
      *          V256
      +          RLSBCH2
      TO          RFullCH2                                "resultado con signo 16 bits.

```

```

*****
" Analiza Canal número C
*****

```

```

STEP SendComC                                "Enviar "C" por el puerto EXT
IF                                             NOP
THEN  LOAD                                  V0
      TO                                  FU32
      LOAD                                  V67                                "ASCII "C"=67
      TO                                  FU33
      CFM 0                                'PUTCOM
      SET                                  TTimeout                            "Tiempo maximo de espera por
repuesta

STEP WaitDataC
IF                                             NOP
THEN  LOAD                                  V0
      TO                                  FU32                                "Busca por un byte de respuesta
      CFM 1                                'GETCOM

IF                                             N                                TTimeout                            "Llego el dato?
THEN  INC                                  R_ERROR                            'contador de errores de comunicacion
      JMP TO SendComD                            "no,Ver el otro canal

IF                                             ( FU32                                "Llego un caracter(sin error)
      =                                       V0                                )
THEN  LOAD                                  FU33
      AND                                  V$00FF
      TO                                  RMSBCH3

STEP SendComQ
IF                                             NOP
THEN  LOAD                                  V0
      TO                                  FU32
      LOAD                                  V81                                " "Q"=81
      TO                                  FU33
      CFM 0                                'PUTCOM
      SET                                  TTimeout                            'Tiempo de espera para respuesta

STEP WaitDataQ
IF                                             NOP
THEN  LOAD                                  V0
      TO                                  FU32                                'GETCOM
      CFM 1

IF                                             N                                TTimeout                            'Tiempo de espera para respuesta
THEN  INC                                  R_ERROR                            'contador de errores de comunicacion
      JMP TO SendComD

IF                                             ( FU32
      =                                       V0                                )
THEN  LOAD                                  FU33
      AND                                  V$00FF
      TO                                  RLSBCH3
      LOAD                                  RMSBCH3
      *                                       V256
      +                                       RLSBCH3

```

```

                TO                RFullCH3                "resultado con signo 16 bits.

"*****
" Analiza Canal número 4
"*****

STEP SendComD                                "Enviar "D" por el puerto EXT
IF                                             NOP
THEN LOAD                                    V0
      TO                                     FU32
      LOAD                                    V68                "ASCII "D"=68
      TO                                     FU33
      CFM 0                                  'PUTCOM
      SET                                     TTimeout            "Tiempo maximo de espera por
repuesta

STEP WaitDataD
IF                                             NOP
THEN LOAD                                    V0
      TO                                     FU32                "Busca por un byte de respuesta
      CFM 1                                  'GETCOM

IF                                             N                TTimeout            "Llego el dato?
THEN INC                                     R_ERROR            'contador de errores de comunicacion
      JMP TO SendComR                        "no,Ver el otro canal

IF                                             (   FU32                "Llego un caracter(sin error)
      =                                       V0                    )
THEN LOAD                                    FU33
      AND                                    V$00FF
      TO                                     RMSBCH4

STEP SendComR
IF                                             NOP
THEN LOAD                                    V0
      TO                                     FU32
      LOAD                                    V82                " "R"=82"
      TO                                     FU33
      CFM 0                                  'PUTCOM
      SET                                     TTimeout            'Tiempo de espera para respuesta

STEP WaitDataR
IF                                             NOP
THEN LOAD                                    V0
      TO                                     FU32
      CFM 1                                  'GETCOM

IF                                             N                TTimeout            'Tiempo de espera para respuesta
THEN INC                                     R_ERROR            'contador de errores de comunicacion
      JMP TO ChkComm

IF                                             (   FU32
      =                                       V0                    )
THEN LOAD                                    FU33
      AND                                    V$00FF
      TO                                     RLSBCH4
      LOAD                                    RMSBCH4

```

```

*          V256
+          RLSBCH4
TO          RFullCH4          "resultado con signo 16 bits.

```

```

"*****
" Chequeo de error de comunicacion
"*****

```

```

STEP ChkComm
IF          R_ERROR          'contador de errores de comunicacion
          >          V20
THEN SET    F_ERROR          'Si hay error de comunicacion
LOAD       V0
          TO          R_ERROR          'contador de errores de comunicacion
          JMP TO inicio

IF          NOP
THEN JMP TO SendComA

```