

Wireless information transmission :

Radio status transfers and radio modems

Ti Series



Typical applications :

● Industrial equipment :

- Status indication of isolated detectors to control room
- Status indication of position detectors or alarm to programmable controller
- Status indication of wire-guided trolleys or any other mobile equipment
- Remote control from control station to machines
- Remote control from machines to machines
- Transmission of statuses and controls from control panels to machines
- Machine network

● Infrastructure :

- Remote control of lighting, ventilation
- Gate opening/closure control using mobile devices
- Parking sensor status indication
- Traffic intersection coordination
- Display panel

● Industrial lifting :

- Anticollision on travelling cranes
- Coupling status indication for travelling cranes
- Remote control from fixed control panel / control room
- Control of mobile equipment to open doors
- Site automation

● Farm systems :

- Status indication concerning fill-height lever of silos, tanks
- Remote pump control
- Feeder control
- Farm machinery
- Alarms



● Compliance with European directives :

- Hertzian equipment and telecommunication terminals (low voltage, EM compatibility, radiofrequency spectrum)
- ART conformity certificate

1- Description

With our status transfer and radio modem system, you no longer need cables to transmit information. Information present at the inputs of transmitters is transferred by radio to the outputs of receivers, enabling you to :

- ➡ Lower your installation costs (wiring, civil engineering,).
- ➡ Increase the reliability of mobile equipment by eliminating the need for wear parts.
- ➡ Increase the flexibility of your installations.
- ➡ Decrease your operating costs related to maintenance.

Our wireless radio product line, with its sophisticated encoding technology and HIP feature «High immunity to radio interference», provides a high functional reliability and security of the transferred data.

The system is mounted in a metal housing with protection index IP 65 to operate in the most severe environments.

C O N T E N T S

Para.	Page
1 Description	1
2 Versions and dimensions	2
3 Safety aspects	2
4 Use advices	2
5 Ti unit associations	3
6 Technical characteristics	5
7 Selection guide	8



E720 C - 1103

2- Versions and dimensions

T/ series is available into 3 versions :

Logical I/O transfers :

The logical status transfer system enables transmission of 8 statuses from one point in an installation to another. In this unidirectional system, the transmitter transmits its statuses by radio and the receiver decodes and restores this information on its «on/off» outputs.

For HIP «high immunity to radio interference» Ti version, the radio link is successively set up on three frequencies, though only one of the three frequencies is required to establish the outputs.

The **unidirectional radio link version** comprises transmitters with 8 logic inputs (TIET***) and receivers with 8 solid state outputs (TIRS***) or 4 relays (TIRR***).

The **bidirectional radio link version** comprises 1 transmitter/receiver pair with 8 logic inputs and 8 solid state outputs.

The bidirectional transmitter (TiTT***) can also operate with transmitters having 8 logic inputs and receivers with 8 solid state outputs or 4 relay outputs.

Analogue I/O transfers:

The analogue status transfer feature enables transmitting four analogue measurements (current or voltage) from one point to another in an installation.

A microswitch enables you to choose between a conversion of the channels on 8 bits (256 points) or on 10 bits (1024 points).

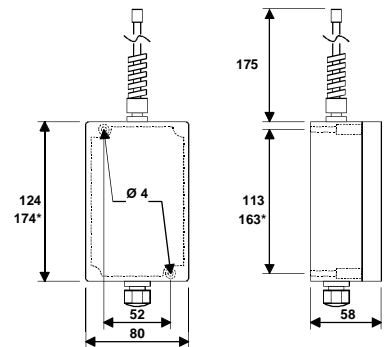
Modems :

The Ti series modems are used in place of the standard RS232 or RS485 / RS422 cables between two terminals to form a radio link.

These modems also enable data conversion by changing the speed, format and/or media (RS232 or RS485 / RS422) and also allow to have a RS232 connection longer than 15 metres.

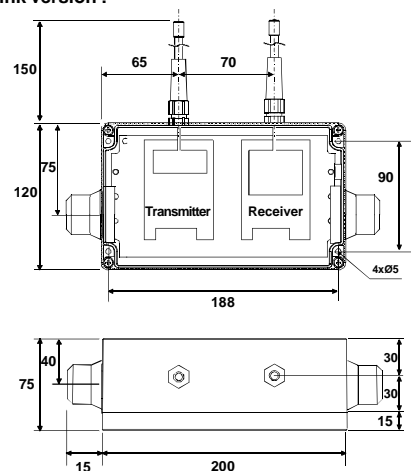
Dimensions :

Logical, analogue I/O transfers, and modems :



* = TIRR*** receiver with 4 relay outputs

TiTT Logical I/O transfer with bidirectional radio link version :



3- Safety aspects

3.1 Operating reliability

To ensure reliable information transmission the *T/* equipment is defined with the following features :

- A radio link with non-directional and non metallic obstacle insensitivity characteristics ensuring optimum installation availability.
- A radio link with HIP "High immunity to radio interference" system, implementing 3 frequencies simultaneously (available on versions TI***41).
- A diagnostic output for real time evaluation of radio link quality (in permanent radio link mode).
- A permanent radio link mode ensuring "positive" security (all interference is handled as an interruption of the signal transmitted on the inputs, generating a transition to the OFF state on the outputs).
- A momentary radio link mode, made possible by use of a microswitch to decrease the risks of jamming on the radio link by another system operating in the same frequency band.
- A specific identity code to each transmitter / receiver pair (user programmable).
- A response time compatible with most industrial equipment ordered.

4- Use advices

4.1 Radio working frequency

The *T/* Series uses the 433.100 MHz to 434.700 MHz frequency band, divided into 64 channels.

For multi-equipment sites, the radio channels used must be different for each equipment.

For sites where more than 64 equipment units are operating, special care must be taken to ensure that no 2 equipment are operating on the same frequency at a distance of less than 1.5 times the range of the system in open space.

4.2 Product installation

Experience has shown that the functional result basically depends on the quality of the installation, in particular the position of the *T/* unit antennas.

- The antennas must be placed to have the best field of view with respect to each other.
- The antennas must not be placed inside a metal enclosure.
- All metal obstacles between the antennas will result in a decrease in range.
- The antennas must be placed at a distance from sources of interference (power supply cables, variable speed drives, etc.).

5- Ti unit associations

5.1 Logical I/O transfers

TIET... transmitters, TIRR... and TIRS... receivers
TITT... bidirectional transmitters

Possible associations	Association views	Comments
unidirectional radio link		
<p>Case n°1</p> <p>1 TIET... transmitter (8 logical inputs) with 1 TIRS... receiver (8 solid state outputs)</p>		<ul style="list-style-type: none"> Inputs 1 to 8 of transmitter are transferred to outputs 1 to 8 of the receiver. The radio link can be in permanent or intermittent mode on active input. The working frequency is the same for <i>Ti</i> transmitter and receiver.
<p>Case n°2</p> <p>1 TIET... transmitter with 2 TIRR... receivers (4 relay outputs)</p>		<ul style="list-style-type: none"> Inputs 1 to 4 of transmitter are transferred to outputs 1 to 4 of receiver n°1. Inputs 5 to 8 of transmitter are transferred to outputs 5 to 8 of receiver n°2 (microswitch must be moved on the receiver n°2). The radio link can be in permanent or intermittent mode on active input. The working frequency is the same for all <i>Ti</i> units.
<p>Case n°3</p> <p>1 TIET... transmitter with N TIRR... receivers 1 TIET... transmitter with N TIRS... receivers</p>		<ul style="list-style-type: none"> TIET / N TIRR pair : Inputs 1 to 4 of transmitter are transferred to outputs 1 to 4 of receiver n°1 to N. TIET / N TIRS pair : Inputs 1 to 8 of transmitter are transferred to outputs 1 to 8 of receiver n°1 to N. NB : It is always possible to attribute inputs 5 - 8 of transmitter on receiver n°2 outputs (by moving a microswitch). The radio link can be in permanent or intermittent mode on active input. The working frequency is the same for all units. An infinite number of receivers can be attributed to the transmitter
<p>Case n°4</p> <p>N TIET... transmitters with 1 TIRS... or TIRR... receiver</p>		<ul style="list-style-type: none"> Inputs 1 to 8 of the transmitters are copied on outputs 1 to 8 of the receiver. For this configuration, you must check that: <ul style="list-style-type: none"> The transmitters cannot transmit simultaneously. The information to be sent is of short duration. The best way to get around these constraints is to ensure that the transmitters can only transmit in turn, one after the other. Similarly, as above, two receivers TIRR... with four relays can be used, assigning inputs 5 to 8 to one of the 2 receivers. The radio link is necessarily in intermittent mode. The working frequency is the same for all <i>Ti</i> units. Up to 35 transmitters can be assigned to 1 receiver.
<p>Case n°5</p> <p>N TIET... transmitters with N receivers at the same site</p>		<ul style="list-style-type: none"> Inputs 1 to 8 of transmitter No. 1 are copied on outputs 1 to 8 of receiver No. 1 and so on. All the transmitters can transmit at the same time with no mutual interference provided a different radio channel or group of channels is used for each pair. Up to 64 pairs can be associated within a radius of 600 m, i.e. 512 inputs/outputs.
bidirectional radio link		
<p>Case n°1</p> <p>2 bidirectional TITT842 transmitters</p>		<ul style="list-style-type: none"> The bidirectional transmitter allows for operation of two independent pairs on the same radio channel with no interference in "synchro" mode. The inputs of transmitter No. 1 are copied on the outputs of the receiver of transmitter No. 2. The inputs of transmitter No. 2 are copied on the outputs of the receiver of transmitter No. 1. The radio link is necessarily permanent. The two pairs operate on the same radio channel.
<p>Case n°2</p> <p>1 bidirectional TITT842 transmitter with 1 TIET842 transmitter and 1 TIRS842 receiver or 1 to 2 TIRR842 receivers.</p>		<ul style="list-style-type: none"> The bidirectional transmitter allows for operation of two independent pairs on the same radio channel with no interference in "synchro" mode. The inputs of TITT transmitter are copied on the outputs of the TIRS or TIRR receiver. The inputs of TIET transmitter are copied on the outputs of the TITT receiver. The radio link is necessarily permanent. The two pairs operate on the same radio channel.

5.2 Analogue I/O transfer

TIEA... transmitters, TIRA... receivers

Possible associations	Association views	Comments
<p>Case n°1</p> <p>1 TIEA... transmitter with 1 TIRA... receiver</p>		<ul style="list-style-type: none"> Inputs 1 to 4* of transmitter are transferred to outputs 1 to 4* of the receiver. The radio link is permanent. The radio channel group is the same for transmitter and receiver
<p>Case n°2</p> <p>1 TIEA... transmitter with N TIRA... receivers</p>		<ul style="list-style-type: none"> Inputs 1 to 4* of transmitter are transferred to outputs 1 to 4* of receivers. The radio link is permanent. The radio channel group is the same for transmitter and receiver An infinite number of receivers can be attributed to the transmitter
<p>Case n°3</p> <p>N TIEA... transmitters with N TIRA... receivers</p>		<ul style="list-style-type: none"> Inputs 1 to 4* of transmitter No. 1 are copied on outputs 1 to 4* of receiver No. 1 and so on. All the transmitters can transmit at the same time with no mutual interference provided a different radio channel group is used for each pair. The radio link is permanent. Up to 7 pairs can be associated within a radius of 600 m, i.e. 28 inputs/outputs.

* = (with 10 bit conversion resolution, the number of inputs/outputs is 3).

5.3 Modems

TIM•M... master modems, TIM•E... slave modems

Possible associations	Associations views	Comments
<p>Case n°1</p> <ul style="list-style-type: none"> •RS232 modem to RS232 modem •RS485 modem to RS485 modem •RS232 modem to RS485 modem •RS485 modem to RS232 modem 		<ul style="list-style-type: none"> The modems are transparent; they replace a wire link. The two modems are on the same radio channel The equipment connected on the modems can include: <ul style="list-style-type: none"> -programmable controllers -programming consoles -PC -Industrial machines or equipment equipped with an RS232 or 485 output. It is useful to choose a modem with acknowledgement mode (for management of message repetitions, optimising the rate). Mixing of modem RS232 to RS485 and vice versa is possible. It is always necessary to use a master modem and a slave modem (to be specified on order).
<p>Case n°2</p> <p>N units operate independently with respect to each other on the same site.</p>		<ul style="list-style-type: none"> The modems are transparent; they replace a wire link. The modem pairs (1 master modem to 1 slave modem) operate on a specific radio channel It is useful to choose a modem with acknowledgement mode (for management of message repetitions, optimising the rate). Up to 8 pairs can be operated with no interference within a radius of 200m. It is always necessary to use a master modem and a slave modem (to be specified on order).
<p>Case n°3</p> <p>N units operate in network</p>		<ul style="list-style-type: none"> This is the most frequent case, with the network formed by a master modem and N slave modems. The controller supervision protocol (modbus, unitelway, dF1, ...) manages the system communication as for an RS485 wire network. Example of a query: <ul style="list-style-type: none"> The master controller, via the master modem, sends the following message: <ul style="list-style-type: none"> - what is the status of output No. 5 of controller No. 2 (connected on slave modem No. 2) ? - The master modem sends the message to all the slave modems and therefore to all the slave controllers. - Only controller No. 2, having recognized itself, replies to the master controller. All <i>Ti</i> modems are on the same radio channel The acknowledgement mode cannot be used. It is possible to have up to 8 networks in parallel within a radius of 200m.

6- Technical characteristics

6.1 Logical I/O transfer units

6.1.1 Common characteristics of transmitters and receivers

	TIET 841 and TIR• •41	TIET 842 and TIR• •42	TIET 843 to TIET 84A and TIR• •43 to TIR• •4A	TITT 842
Housing	Metal	Metal	Metal	ABS
Weight	700 g	700 g	700 g	1,1 Kg
Dimensions	124 or 174 x 80 x 58 (without antenna and cable gland)	124 or 174 x 80 x 58 (without antenna and cable gland)	124 or 174 x 80 x 58 (without antenna and cable gland)	200 x 120 x 75 (without antenna and cable glands)
Operating temperature range	-20°C to +60°C			idem TIET and TIR•
Connection	Screw terminal, 1,5mm ² capacity			idem TIET and TIR•
Cable lead-outs	PG13.5 (for cable Ø6mm to Ø12 mm)			FET 14-20 (Ø14mm-20mm)
Tightness	IP65	IP65	IP65	IP65
Mounting	2 x Ø 4 mm holes	2 x Ø 4 mm holes	2 x Ø 4 mm holes	4 x Ø 5 mm holes
Average range in unobstructed area*	600 m	600 m	200 m	600 m
Average range in industrial environment*	250 m	250 m	100 m	250 m
HF power	< 10 mW	< 10 mW	< 1 mW	< 10 mW
Radio frequencies	UHF band 433.100Mhz to 434.700 Mhz licence not required			idem TIET and TIR•
Number of available radio channels	7	8	56	8
Number of radio channels (selectable by microswitches)	7	8	8	8
Bandwidth occupied	3 x 25 KHz	25 KHz	25 KHz	25 KHz
HIP feature (High jamming immunity)	Yes	No	No	No
Type of radio link	Unidirectional	Unidirectional	Unidirectional	Bidirectional

* = The range varies according to environment conditions, the reception antenna and its position (the range is decreased in case of metal obstacles such as: metal frameworks, walls etc.)

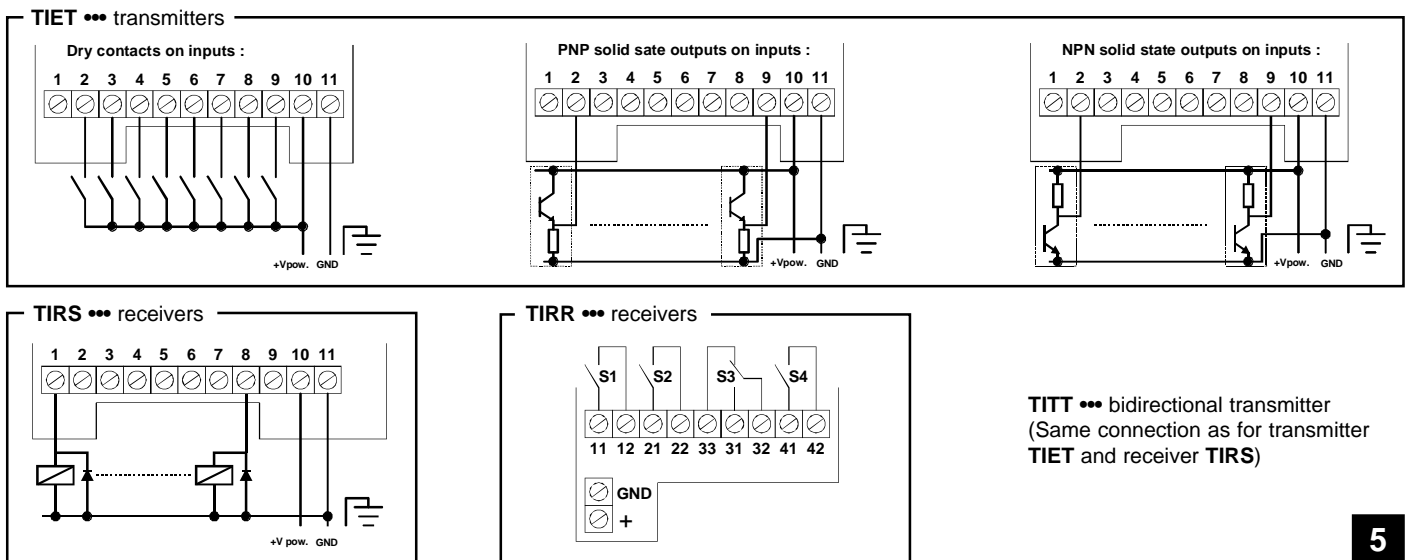
6.1.2 Transmitters

	TIET 841 to TIET 84A	TITT 842 (transmitter part)
Power supply	10 to 30Vdc (protected against polarity inversions)	idem TIET •••
Power consumption	30 mA	
Number of inputs	8	
Type of inputs	Dry contact compatible, PNP or NPN outputs (see below)	
Input impedance	48 Kohms	TITT 842 Transmitter TIET 842 Transmitter TIR• •42 receiver
Switching threshold	Logical 0 = V input < (V Ti pow.sup./ 3) ; Logical 1 = V input > 2 x (V Ti pow.sup./ 3)	
Associable receivers	TIRS 841 to TIRS 84A (8 solid states outputs receivers) TIRR 441 to TIRR 44A (4 relays outputs receivers)	
Display LED	Power supply	Power supply

6.1.3 Receivers

	TIRS 841 to 84A	TIRR 441 to 44A	TITT 842 (receiver part)
Power supply (protected against polarity inversions)	10 to 30Vdc	12 to 30Vdc	10 to 30Vdc
Power consumption	60 mA	60 mA	60 mA
Response time	100 ms for TIR• 842 to TIR• 84A 100 ms to 300 ms for TIR• 841		100 ms
Number of outputs	8	4	8
Type of outputs	Solid states	Relays	Solid states
Max. current delivered	100 mA (Outputs n°1 to n°7) 1 A (Output n°8)	AC15, 10 A under 250 VAC DC13, 5 A under 24VDC	100 mA (Outputs n°1 to n°7) 1 A (Output n°8)
Electrical service life	Unlimited	3.10 ⁶ cycles under 230VAC / 70VA / cos 0.75	Unlimited
Diagnostic output	YES	YES	YES
Display LEDs	- Output Status indication - Power ON indication - Radio reception indication	- Output Status indication - Power ON indication - Radio reception indication	- Output Status indication - Power ON indication - Radio reception indication

6.1.4 Connections



6.2 Analogue I/O transfer unit technical characteristics

6.2.1 Common characteristics of transmitters and receivers

TIEA 441 transmitter and TIRA 441 receiver	
Housing	Metal
Weight	700 g
Dimensions	124 x 80 x 58 (without antenna and cable gland)
Operating temperature range	-20°C to +60°C
Connection	Screw terminal, 1.5mm ² capacity
Cable lead-outs	PG13.5 (for cable Ø6mm to Ø12 mm)
Tightness	IP65
Mounting	2 x Ø 4 mm holes
Average range in unobstructed area*	600 m
Average range in industrial environment*	250 m
HF power	< 10 mW
Radio frequencies	UHF band 433.125Mhz to 434.675 Mhz licence not required
Number of available radio channels	7
Number of radio channels (selectable by microswitches)	7
Bandwidth occupied	3 x 25 KHz
HIP feature (High jamming immunity)	Yes
Type of radio link	Unidirectional

* = The range varies according to environment conditions, the reception antenna and its position (the range is decreased in case of metal obstacles such as: metal frameworks, walls etc.)

6.2.2 Transmitter

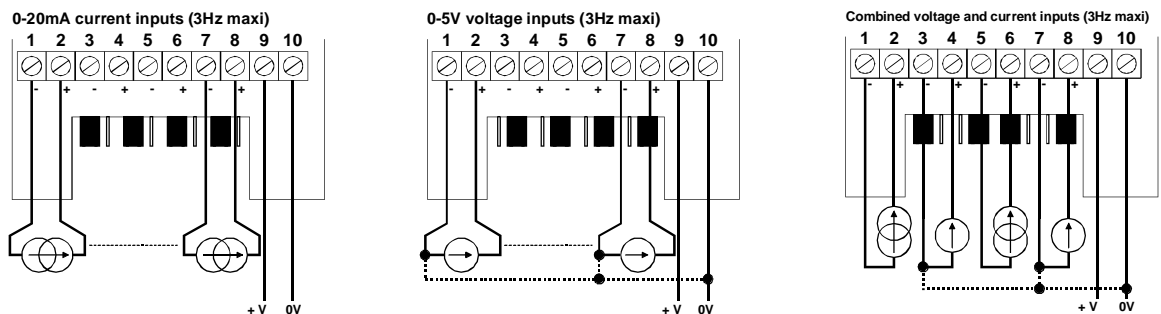
TIEA 441	
Power supply	10 to 30Vdc (protected against polarity inversions)
Power consumption	30 mA
Number of inputs (selectable by microswitches)	3 (10-bit resolution) or 4 (8-bit resolution)
Sampling period	106 ms
Conversion specification	1,5 % variation in temperature +/- 1 LSB
Type of inputs (selectable by jumpers)	Current : 0 to 20 mA DC Voltage : 0 to 5 VDC
Associable receiver	TIRA 441

6.2.3 Receiver

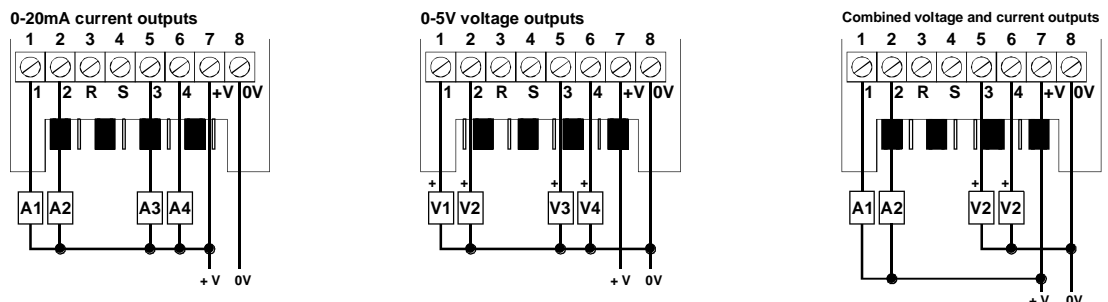
TIRA 441	
Power supply	10 to 30Vdc (protected against polarity inversions)
Power consumption	60 mA
Response time	100 ms to 300 ms
Type of outputs	Solid state
Number of inputs (selectable by microswitches on transmitter)	3 (10-bit resolution) or 4 (8-bit resolution)
Delivered value (selectable by jumpers)	Current : 0 to 20 mA DC Voltage : 0 to 5 VDC
Electrical service life	Unlimited
Diagnostic output	Yes
Display LEDs	- Power indication - Radio reception indication

6.2.4 Connection

Inputs on
TIEA *** transmitter:



Outputs on
TIRA *** receiver :



6.3 Modems technical characteristics

6.3.1 Common characteristics of master and slave modems

	TIM2•411	TIM2•41X	TIM4•411	TIM4•41X
Housing	Metal			
Weight	700 g			
Dimensions	124 x 80 x 58 (without antenna and cable gland)			
Operating temperature range	-20°C to +60°C			
Connection	Screw terminal, 1.5mm ² capacity			
Cable entry	PG13.5 (for cable Ø6mm to Ø12 mm)			
Tightness	IP65			
Mounting	2 x Ø 4 mm holes			
Average range in unobstructed area*	200 m			
Average range in industrial environment*	80 m			
HF power	< 10 mw			
Radio frequencies	UHF band 433.125Mhz to 434.700 Mhz licence not required			
Number of available radio channels	8			
Bandwidth occupied	180 KHz			
HIP feature (High jamming immunity)	No			
Type of radio link	Bi-directional			
Power supply	10 to 30Vdc (protected against polarity inversions)			
Power consumption	60 mA			

* = The range varies according to environment conditions, the reception antenna and its position (the range is decreased in case of metal obstacles such as: metal frameworks, walls etc.)

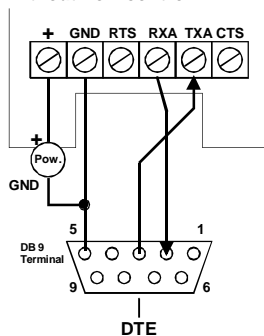
6.3.2 Serial links and protocols

	TIM2•411	TIM2•41X	TIM4•411	TIM4•41X
Type of input	RS 232	RS 232	RS 485 / RS 422	RS 485 / RS 422
True output	9600 bauds	From 1200 to 57600 bauds	9600 bauds	From 1200 to 57600 bauds
Flow control	Without	Without or RTS / CTS	Without	Without
Number of bit	8	7 or 8	8	7 or 8
Parity control	Without	Without / Even / Odd	Without	Without / Even / Odd
Mode	Single pairs / Stars			
Service	None	None / Acknowledge or Repeat	None	None / Acknowledge or Repeat
Frame transmission	- By 32-character packets - By 25 ms timeout	- By 1 to 32-character packets - By timeout from 1 ms to 25 ms - By ASCII character	- By 32-character packets - By 25 ms timeout	- By 1 to 32-character packets - By timeout from 1 ms to 25 ms - By ASCII character
Protocol compatibility	Modbus Unitelway DF1 Datalink			
Controller compatibility (contact us for all controller compatibilities)	Schneider Twido / TSX37 / TSX57 Rockwell SLC500 / Micrologix / Compact logix / Flex logix / Control logix Omron			

6.3.3 Connection

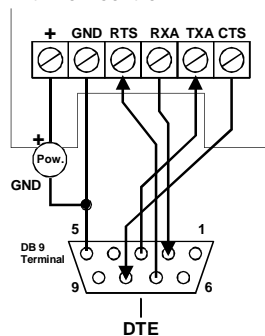
TIM2•••• RS 232
Modems :

Standard modem
without flow control



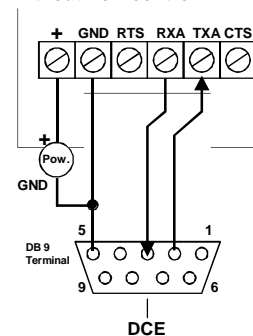
(DTE : Data terminal equipment, designates a terminal or a PC)

Customized modem (TIM2•••X)
with flow control



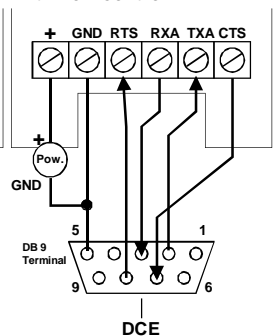
DTE

Standard modem
without flow control



DCE

Customized modem (TIM2•••X)
with flow control

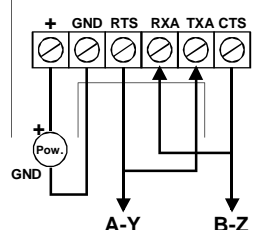


DCE

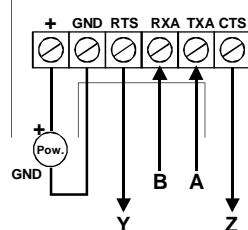
(DCE : Data Communication Equipment, designates a modem or a device integrating a modem)

TIM2•••• RS 485-422
Modems :

RS 485



RS 422



7- Selection guide, references for ordering

References	Description	HIP ⁽¹⁾ feature	Type of radio link	Range ⁽²⁾	Number of selectable radio channels
Logical I/O transfers					
TIET 841	Transmitter with 8 logical inputs				
TIRS 841	Receiver with 8 solid state outputs (to be associated with TIET841)	YES	Unidirectional	600 m	7 groups of 3 channels : (21, 44, 65), (18, 41, 62), (15, 36, 59), (12, 33, 56), (09, 30, 53), (06, 27, 50) and (03, 24, 47).
TIRR 441	Receiver with 4 relay outputs (to be associated with TIET841)				
TIET 842	Transmitter with 8 logical inputs				
TIRS 842	Receiver with 8 solid state outputs (to be associated with TIET842)	NO	Unidirectional	600 m	8 channels : 44, 47, 50, 53, 56, 59, 62 and 65
TIRR 442	Receiver with 4 relay outputs (to be associated with TIET842)				
TIET 843	Transmitter with 8 logical inputs				
TIRS 843	Receiver with 8 solid state outputs (to be associated with TIET843)	NO	Unidirectional	200 m	8 odd channels 1 to 15 : 1, 3, 5, 7, 9, 11, 13 and 15
TIRR 443	Receiver with 4 relay outputs (to be associated with TIET843)				
TIET 844	Transmitter with 8 logical inputs				
TIRS 844	Receiver with 8 solid state outputs (to be associated with TIET844)	NO	Unidirectional	200 m	8 odd channels 17 to 31 : 17, 19, 21, 23, 25, 27, 29 and 31
TIRR 444	Receiver with 4 relay outputs (to be associated with TIET844)				
TIET 845	Transmitter with 8 logical inputs				
TIRS 845	Receiver with 8 solid state outputs (to be associated with TIET845)	NO	Unidirectional	200 m	8 odd channels 33 to 47 : 33, 35, 37, 39, 41, 43, 45 and 47
TIRR 445	Receiver with 4 relay outputs (to be associated with TIET845)				
TIET 846	Transmitter with 8 logical inputs				
TIRS 846	Receiver with 8 solid state outputs (to be associated with TIET846)	NO	Unidirectional	200 m	8 odd channels 49 to 63 : 49, 51, 53, 55, 57, 59, 61 and 63
TIRR 446	Receiver with 4 relay outputs (to be associated with TIET846)				
TIET 847	Transmitter with 8 logical inputs				
TIRS 847	Receiver with 8 solid state outputs (to be associated with TIET847)	NO	Unidirectional	200 m	8 even channels 2 to 16 : 2, 4, 6, 8, 10, 12, 14 and 16
TIRR 447	Receiver with 4 relay outputs (to be associated with TIET847)				
TIET 848	Transmitter with 8 logical inputs				
TIRS 848	Receiver with 8 solid state outputs (to be associated with TIET848)	NO	Unidirectional	200 m	8 even channels 18 to 32 : 18, 20, 22, 24, 26, 28, 30 and 32
TIRR 448	Receiver with 4 relay outputs (to be associated with TIET848)				
TIET 849	Transmitter with 8 logical inputs				
TIRS 849	Receiver with 8 solid state outputs (to be associated with TIET849)	NO	Unidirectional	200 m	8 even channels 34 to 48 : 34, 36, 38, 40, 42, 44, 46 and 48
TIRR 449	Receiver with 4 relay outputs (to be associated with TIET849)				
TIET 84A	Transmitter with 8 logical inputs				
TIRS 84A	Receiver with 8 solid state outputs (to be associated with TIET84A)	NO	Unidirectional	200 m	8 even channels 50 to 64 : 50, 52, 54, 56, 58, 60, 62 and 64
TIRR 44A	Receiver with 4 relay outputs (to be associated with TIET84A)				
TITT 842	Transmitter (1 TIET 842 transmitter and 1 TIRS 842 receiver) Caution : 2 TITT transmitters are needed to realize 1 radio link	NO	Bidirectional	600 m	8 channels : 44, 47, 50, 53, 56, 59, 62 and 65

Analogue I/O transfer					
TIEA 441	Transmitter with 4 analogue inputs	YES	Unidirectional	600 m	7 groups of 3 radio channels : (20, 43, 64), (08, 29, 52), (14, 35, 58), (02, 23, 46), (17, 40, 61), (05, 26, 49) and (11, 32, 55).
TIRA 441	Receiver with 4 analogue outputs	YES	Unidirectional		

Modems					
TIM2M 411	Standard RS 232 master modem (Programming : 9600 bauds / 8 bits / 1 stop bit / without flow control)	NO	Bidirectional	200 m	8 channels : 44, 47, 50, 53, 56, 59, 62 and 65
TIM2E 411	Standard RS 232 slave modem (Programming : 9600 bauds / 8 bits / 1 stop bit / without flow control)				
TIM2M 41X	Customized RS 232 master modem (Programming to be defined with our customer service department)	NO	Bidirectional	200 m	8 channels : 44, 47, 50, 53, 56, 59, 62 and 65
TIM2E 41X	Customized RS 232 slave modem (Programming to be defined with our customer service department)				
TIM4M 411	Standard RS 485-422 master modem (Programming : 9600 bauds / 8 bits / 1 stop bit / without flow control)	NO	Bidirectional	200 m	8 channels : 44, 47, 50, 53, 56, 59, 62 and 65
TIM4E 411	Standard RS 485-422 slave modem (Programming : 9600 bauds / 8 bits / 1 stop bit / without flow control)				
TIM4M 41X	Standard RS 485-422 master modem (Programming to be defined with our customer service department)	NO	Bidirectional	200 m	8 channels : 44, 47, 50, 53, 56, 59, 62 and 65
TIM4E 41X	Standard RS 485-422 slave modem (Programming to be defined with our customer service department)				

(1) = HIP system "High immunity to radio interference", the radio link is set up on three frequencies.

(2) = Range in unobstructed area, the range varies according to environment conditions, the reception antenna and its position.

The products presented in this document are subject to change. Product descriptions and characteristics are not contractually binding.

E720 C - 1103



Headoffice and plant :
 176 rue Lavoisier Montbonnot St Martin
 F38334 ST ISMIER Cedex - FRANCE
 Tel. : +33 (0)4 76 41 44 00
 Fax : +33 (0)4 76 41 44 44
 Web : www.jay-electronique.fr

Distributor stamp :
ELEKTRO-TRADING sp. z o.o.
 Tel. +48 (0-32) 734-55-72
 Tel/Fax +48 (0-32) 734-55-70
 E-Mail et@elektro-trading.com.pl
 http://www.elektro-trading.com.pl