

IN-2000-IS RS232 to 422\485 Converter.

Converts and Isolates RS232 from a computer
to RS422 or RS485 for communication
to a field Datalogging system.

Features.

- Universal AC/DC Power Supply.
- Audible & Relay Alarms for Communication Failure.
- Easy to Install.
- LED Status Indications.
- Compact Desk Top Box.
- Low Cost.
- Isolation Between Field Units & Computer
- Complete With Serial Cable & 2m Power C
- Selectable Alarm Time Delays.



Specifications.

Comms Baud Rate (Standard)	9600 Baud.
Comms Input \ Output Isolation	1.5kV.
Power Supply	20~380Vdc and 24~270Vac 50\60Hz 4VA.
Ambient Temperature	0~50C.
Humidity	90%RH Max. Non Condensing.
Housing	Desk Top Metal Box.
Dimensions	L=125, W=127, H=48.
Weight	1000g. (Includes Cables.)
Alarm Relay	1A @ 24Vdc Max.

Note 1. Specifications based on Standard Calibration Unit, unless otherwise specified.

Note 2. Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification.
No liability will be accepted for errors, omissions or amendments to this specification.

Description of Alarm Function.

(In the description below we have selected an alarm time delay of 4 minutes).

After approx 4 minutes of the last R.X. data having been received the audible, relay and LED alarms activate.

- (1) If after 4 minutes has elapsed more R.X. data is received the unit stays in alarm until the Reset button is pushed at which time the audible, relay & LED alarms reset.
- (2) If after 4 minutes no more R.X. data is received and the Reset push button is pushed, only the audible alarm will reset. As soon as more R.X. data is received the relay & LED alarms will automatically reset.
- (3) To de-activate the audible alarm only, place **DIP SWITCH 6** in the on position.
- (4) To de-activate all the audible, relay and LED alarms, place **ALL DIP SWITCHES** in the off position.



IN-2000-IS
Front View

Quality Assurance Programme.

The modern technology and strict procedures of the ISO 9001 Quality Assurance Programme applied during design, development, production and final inspection grant the long term reliability of the instrument.

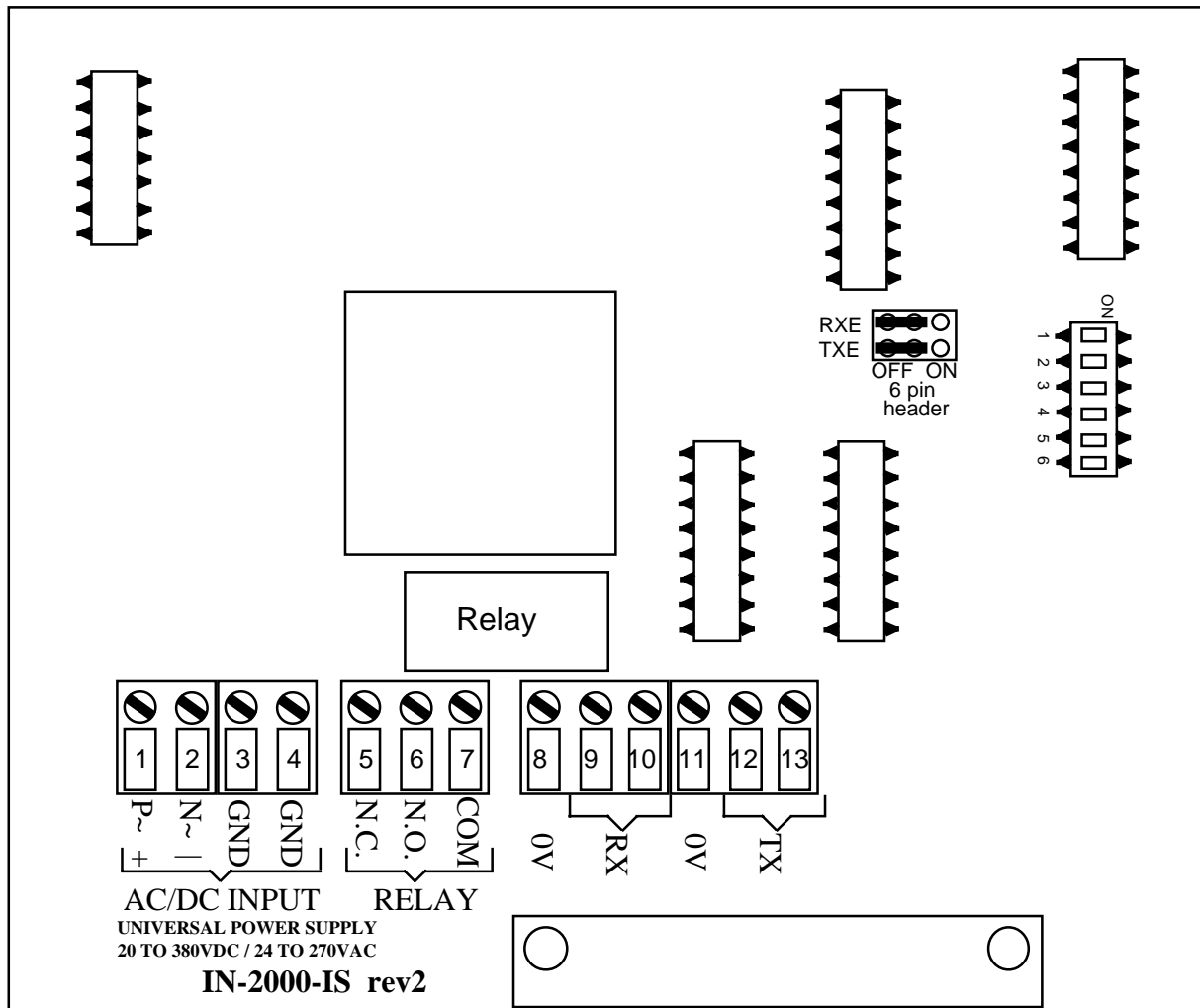
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Description of LED Function.

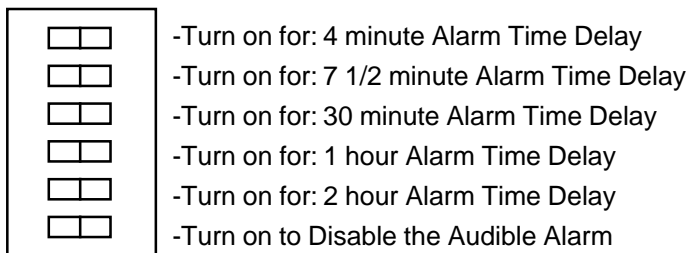
R.X.	LED	ON	Unit Receiving Data From the Field.
T.X.	LED	ON	Unit Transmitting Data to the Field.
T.X.E.	LED	ON	Transmit Enable Line Active.
AL	LED	ON	Unit in Alarm.
PWR	LED	ON	Unit has Power Connected.
RESET	Switch		Push this Switch to Reset the Alarm. (See Description of Alarm Function).

IN-2000-IS (Rev 2) Circuit Board Layout.



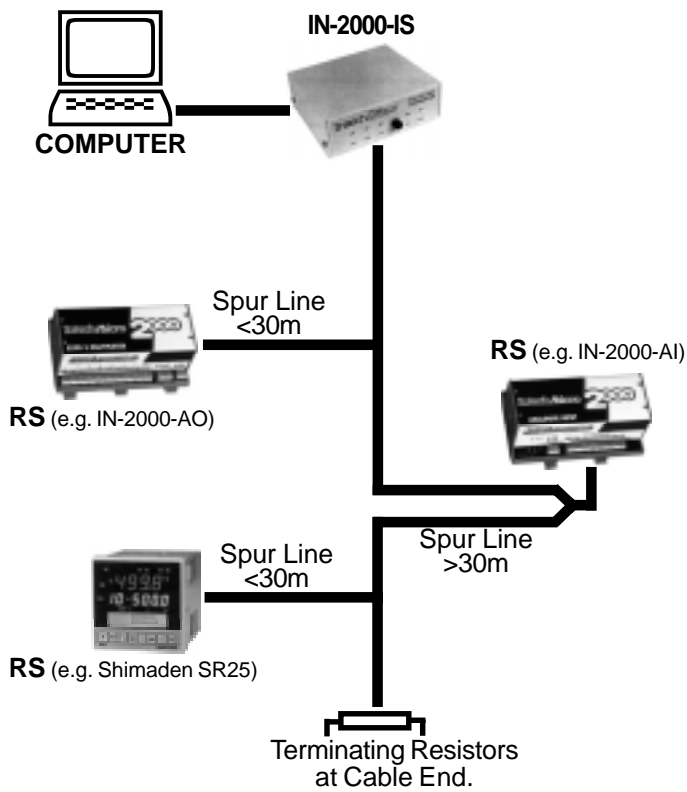
Selectable Alarm Time Delays.

6 Way DIP Switch

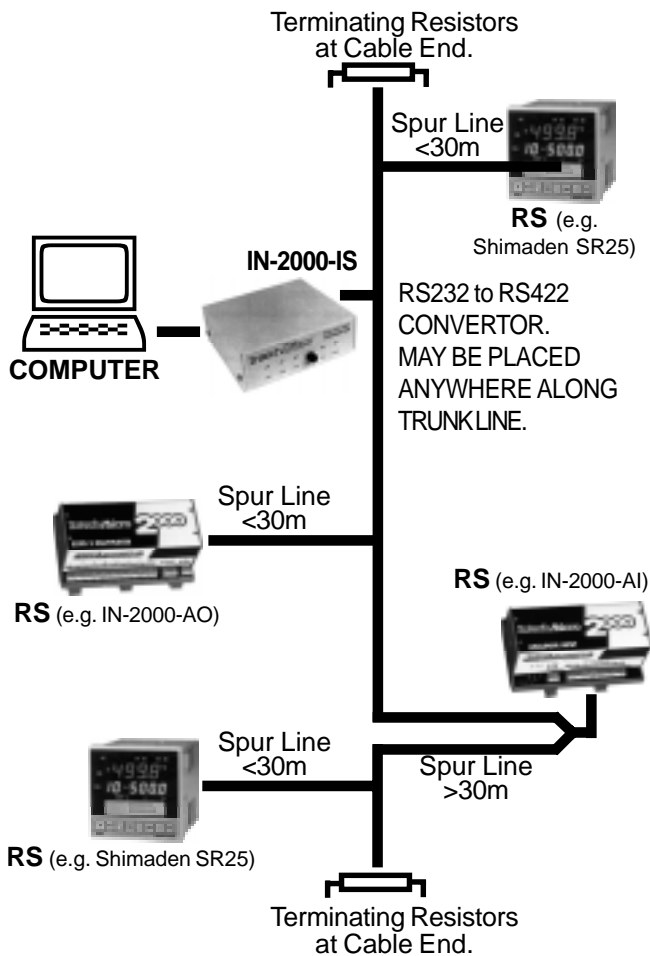


- Notes 1/ Only 1 of DIP switches 1 to 5 should be on at any one time.
 2/ To disable all the alarms put all DIP switches 1 to 5 in the off position.
 3/ All alarm time delays are approximate only.

**IN-2000 SCADA.
Data Cabling Installation e.g. 1.**

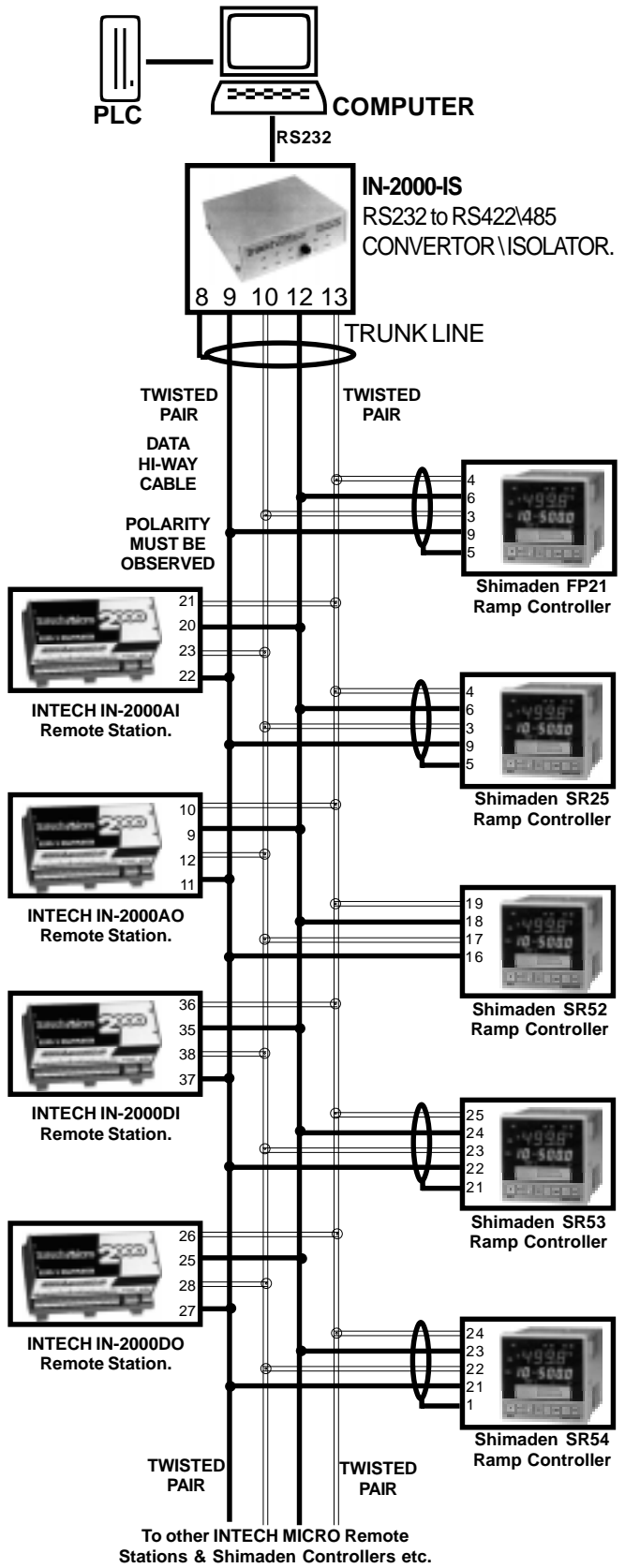


Data Cabling Installation e.g. 2.



RS = INTECH MICRO 2000 - Remote Stations, or SHIMADEN CONTROLLERS.
IMPORTANT: The accompanying Installation Instructions must be strictly adhered to.

**OUTSTATION LAYOUT.
RS 422 Serial Connections.**



- IMPORTANT:**
- (i) All cables must be screened.
 - (ii) All screens must be connected together.
 - (iii) The screen must not be earthed at any point.

The Proper Installation & Wiring of the IN-2000-IS.

MOUNTING.

- (1) Mount in a clean environment.
- (2) Do not subject to vibration, excess temperature or humidity variations.
- (3) Avoid mounting near power control equipment.

ANALOGUE SIGNAL CABLING.

- (1) All analogue cables should be good quality, overall screened, INSTRUMENTATION CABLE, with the screen earthed at one end only. (e.g. Austral Standard Cables B5102ES.)
- (2) Analogue signal cables should be laid a minimum distance of 300mm from power and data cables.
- (3) It is recommended that you do not ground current loops or use power supplies with ungrounded outputs.
- (4) Lightning arresters should be used on inputs and outputs when there is a danger from this source.
- (5) Refer to diagrams for connection details.

RS 422A COMMS CABLING.

- (1) Use only low capacitance, twisted pair, overall screened data cable. The cable must equal or better the following specifications.

Cable Specifications.		
Conductor Size.		7/0.20mm, 24AWG
Conductor Resistance @ 20C.		8.9Ω/100m
Max. Working Voltage.		300Vrms
Capacitance between wires of a pair.		50pF/m
Capacitance between each wire to all others bunched together.		95pF/m
Cross-talk between pairs:	@ 1kHz @ 100kHz	>-90dB/100m >-50dB/100m
Characteristic Impedance .	@ 100kHz	135Ω
Attenuation of a pair:	@ 1kHz @ 10kHz @ 100kHz @ 50kHz @ 1MHz @ 1.5MHz	0.15dB/100m 0.42dB/100m 0.8dB/100m 0.9dB/100m 1.9dB/100m 2.4dB/100m

- (2) Total length of trunk line, including spurs, is not to exceed 1000m without isolating boosters.
- (3) Terminating resistors -1000Ω, metal film, 0.6W, 1%.
- (4) Cabling paths should avoid sources of radio frequency interferences such as fluorescent lights, variable speed motor drives, welding equipment, radio transmitters, etc.
- (5) There should be a minimum of 200mm physical separation between power cables and data cables.
- (6) Data cables should not be exposed to excessive heat or moisture, and should not be buried directly in the ground without protection.
- (7) Avoid powering a remote station or controller from the same power supply as a variable speed drive.

NOTE: All cables are to be subject during manufacture to in-process spark testing @ 4kVrms.
All cables are to be tested between conductors and conductors to screen for 1min @ 1500Vrms.

- (8) Minimum cable pairs = 2. (Plus overall screen.)
- (9) Take care not to stress or damage cables during installation.