

# Operation Manual



**IN6901 - RS-232 to 6 Relay Converter**  
**IN6902 - RS-232 to 17 Relay Converter**





## Installation and Safety Instructions

### *For Models without a Power Switch:*

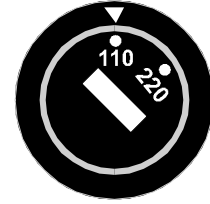
The socket outlet shall be installed near the equipment and shall be accessible.

### *For Models with 110 / 220V Power Selector:*

**Caution:** Before applying power to this unit, the voltage selector must be set to the appropriate setting to match local A/C line voltage. Improper setting of the voltage selector may cause damage to the unit and create a potential fire hazard.

The voltage selector is a round switch located next to the A/C power input connector which looks like this:

Using a straight slot screwdriver or small coin, rotate the selector to the correct position so that the arrow lines up with 110 or 220 as appropriate for local power line voltage as indicated in the chart below:



Local A/C Voltage	Voltage Selector Setting
110 ~ 120 VAC	110
220 ~ 240 VAC	220

### *For all Models:*

No serviceable parts inside the unit. Refer service to a qualified technician.

### *For Models with Internal or External Fuses:*

For continued protection against fire hazard, replace only with same type and rating of fuse.

### *For IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:*

**Caution:** Double pole / neutral fusing.

### *For all Models with Integral Lithium Battery:*

**Caution:** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



## Instructions d'installation et de sécurité

### *Pour les modèles sans interrupteur de courant:*

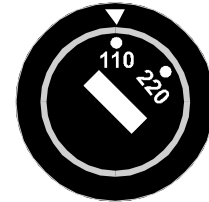
La prise de courant d'alimentation sera installé près de l'équipement et sera accessible.

### *Pour les modèles avec un sélecteur d'alimentation 110V/220V:*

**Attention:** Avant de connecter l'appareil au circuit d'alimentation, le sélecteur de courant doit être positionné sur la sélection appropriée correspondant au voltage du circuit de courant alternatif local. Une mauvaise sélection peut engendrer des dommages à l'appareil et créer un danger d'incendie.

Le sélecteur d'alimentation est un commutateur rond positionné près du connecteur d'alimentation. Il se représente comme suit:

A l'aide d'un tourne-vis plat ou d'une pièce de monnaie, le sélecteur peut être tourné dans la position adéquate en veillant que la flèche corresponde avec 110 ou 220, en fonction de la valeur du circuit de courant local. (Voir tableau ci-dessous)



Circuit local AC	Position Sélecteur
110 ~ 120 VAC	110
220 ~ 240 VAC	220

### *Pour tout les modèles:*

Pas de composants à entretenir à l'intérieur. Confiez toute réparation à un technicien qualifié.

### *Pour les modèles équipés de fusibles internes ou externes:*

Afin d'éviter tout danger d'incendie, ne remplacer qu'avec le même type et la même valeur de fusible.

### *Pour IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:*

**Attention:** Double pôle / fusible au neutre.

### *Pour tout les modèles avec une batterie au lithium interne:*

**Attention:** Danger d'explosion si la batterie est incorrectement remplacée. Ne remplacez la batterie qu'avec le même modèle, ou avec un modèle recommandé par le constructeur. Traitez les batteries usagées selon les instructions du fabricant, ou selon les normes écologiques en vigueur.



## Installations und Sicherheitshinweise

### Für Geräte ohne Netzschalter:

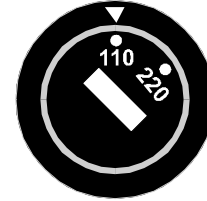
Die Netzsteckdose soll in der Nähe des Gerätes installiert und frei zugänglich sein.

### Für Geräte mit 110 / 220V Spannungswähler:

**Achtung:** Bevor Sie dem Gerät Spannung zuführen, muß der Spannungswähler entsprechend der Spannung des lokalen Wechselspannungsnetzes eingestellt werden. Die falsche Stellung des Spannungswählers kann eine Beschädigung des Gerätes und möglicherweise ein Feuer verursachen.

Der Spannungswähler ist ein runder Schalter in der Nähe der Netzeingangsbuchse mit folgendem Aussehen:

Drehen Sie den Wähler mit einem normalen Schraubenzieher oder einer kleinen Münze so, daß der Pfeil auf die 110 oder 220 zeigt, entsprechend der Spannung Ihres lokalen Netzes wie hier angezeigt:



Lokale Netzwechselspannung	Stellung des Spannungswählers
110 ~ 120 V	110
220 ~ 240 V	220

### Für alle Geräte:

Keine Wartung innerhalb des Gerätes notwendig. Reparaturen nur durch einen Fachmann!

### Für Geräte mit interner oder externer Sicherung:

Für dauernden Schutz gegen Feuergefahr darf die Sicherung nur gegen eine andere gleichen Typs und gleicher Nennleistung ausgewechselt werden.

### Für IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:

**Achtung:** Allpolige Absicherung

### Für alle Geräte mit eingebauter Lithium Batterie:

**Achtung:** Explosionsgefahr bei falschem Batterieeinsatz. Batterie nur ersetzen durch den gleichen oder entsprechenden Typ wie vom Hersteller empfohlen. Entsorgung verbrauchter Batterien nur nach den Anweisungen des Herstellers.



## Instalacion E Instrucciones de Seguridad

### Modelos Sin Interruptor:

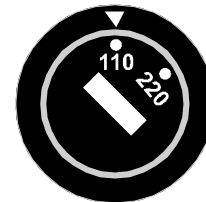
La conexión debe ser instalada cerca del equipo y debe ser accesible.

### Modelos con Selector de Voltaje de 110/220V:

**Precaución:** Antes de operar esta unidad, el selector de voltaje debe instalarse de forma que corresponda a la línea de voltaje local. Instalación inadecuada del selector de voltaje puede causar daño a la unidad y originar un incendio.

El selector de voltaje es un cambio vía redondo localizado cerca de la conexión eléctrica, como se ve en el dibujo:

Use un destornillador común o una moneda pequeña, mueva el selector a la posición correcta, de forma que las flechas indiquen 110 o 220 de acuerdo con el voltaje local, como está indicado a continuación.



Voltaje Local A/C	Selector de Voltaje
110 ~ 120 VAC	110
220 ~ 240 VAC	220

### Para Todos Los Modelos:

Dentro de la unidad, no hay partes para reparar. Llame un técnico calificado.

### Modelos con Fusibles Internos o Externos:

Para prevenir un incendio, reemplace solo con el mismo tipo de fusible.

### Modelos IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:

**Precaución:** Double Polo / Fusible Neutral.

### Modelos con Batería de Lithium Interna:

**Precaución:** Peligro de explosión si la batería es reemplazada incorrectamente. Reemplace solamente con la misma clase de batería, o una equivalente recomendada por el fabricante. Deseche las baterías usadas de acuerdo con las instrucciones del fabricante.

**CE COMPLIANCE**

All products exported to Europe by Inline, Inc. after January 1, 1997 have been tested and found to comply with EU Council Directive 89/336/EEC. These devices conform to the following standards:

EN50081-1 (1991), EN55022 (1987)

EN50082-1 (1992 and 1994), EN60950-92

**Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) standards governing this device.**

**FCC COMPLIANCE**

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

## DESCRIPTION

The **IN6901 Series II** and **IN6902 Series II** are serial command to contact closure converters. After receiving RS-232 commands the units will open, close, toggle, or pulse (short temporary toggle) their relays, providing latching or momentary contact closures. The **IN6901** and **IN6902** allow devices with contact closure controls to be remotely controlled using serial commands.

The **IN6901** and **IN6902** operate identically. The main difference between the units is their size and the number of relays they contain:

The **IN6901** has 6 relays.

The **IN6902** has 17 relays.

The **IN6901 / IN6902** are ideal for adding RS-232 remote control functionality to **INLINE 3500 Series** switchers including the following products:

IN3502		IN3562	IN3572
IN3504	IN3554	IN3564	IN3574
IN3506	IN3556	IN3566	IN3576

The **IN6901 / IN6902** may be used to control many types of equipment which accept momentary or latching contact closure control including switchers, motorized screens, cassette decks, lighting, drapes, and projector lifts.

Since the **IN6901** and **IN6902** have multiple relays, they can also control multiple switchers. For instance, a single **IN6901** with 6 relays could control two **IN3500 Series** 2-Input switchers and one 4-Input switcher. One **IN6902** (17 relays) could control four **IN3500 Series** 4-Input switchers and one 2-Input switcher from a single RS-232 control port.

## USING RS-232 CONTROL

The **IN6901** / **IN6902** include an 9-pin D male remote control port which will accept serial commands from a control system, computer serial port, or any other device capable of sending out serial ASCII commands at 1200 baud. These commands may be used to control individual relays, multiple relays or all relays. Using the appropriate RS-232 codes, the unit relays may be commanded to open, close, toggle to the opposite state, or pulse (temporarily change to the opposite state for 50 msec and return).

When a relay is selected to close, the contact closure is made between the relay and the common. Thus, closing Relay 1 on the **IN6901** results in a closure between pins 6 and 7.

A complete listing of RS-232 codes is included on page 4.

## COMMUNICATION PROTOCOL

1200 baud  
 No parity check  
 8 data bits  
 1 stop bit

## COMMAND CODE STRUCTURE

All commands sent to the unit must contain a leading code, the command code, and an ending code. Each command must be completely executed before the unit will accept a new command. When a command is completed, the unit provides a response code:

“OK” indicates the command was received and executed.

“ERR” indicates there is a problem with the code and the command was not executed.

The **IN6901** and **IN6902** always look for serial commands with the following delimiters: [ ] Commands sent without these delimiters will be ignored.

A complete command consists of:

[	The leading code
<b>RLY01C</b>	The command code. (This would cause relay 01 to close)
]	The ending code

Sample command codes:

<b>[RLY02O]</b>	Open Relay 2
<b>[RLY12T]</b>	Toggle Relay 12
<b>[LCCCOOO]</b>	Load and execute the following states: Relays 01, 02, 03 Closed Relays 04, 05, 06 Open

## RS-232 CONTROL PORT PIN-OUTS - IN6901 / IN6902

Connector: 9-Pin D male

<b>Pin</b>	<b>Signal</b>
2	Receive
3	Transmit
7	Ground

## OUTPUT RELAY PIN-OUTS: IN6901

Connector: 9-Pin D female

<b>Pin</b>	<b>Signal</b>
1	Relay 6
2	Relay 5
3	Relay 4
4	Relay 3
5	Relay 2
6	Relay 1
7	Common
8	No connection
9	No connection

## OUTPUT RELAY PIN-OUTS: IN6902

Connector: 25-Pin D female

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	Relay 13	14	+5V DC
2	Relay 12	15	+5V DC
3	Relay 11	16	No Connection
4	Relay 10	17	No Connection
5	Relay 9	18	Ground
6	Relay 8	19	Ground
7	Relay 7	20	No Connection
8	Relay 6	21	Common
9	Relay 5	22	Relay 17
10	Relay 4	23	Relay 16
11	Relay 3	24	Relay 15
12	Relay 2	25	Relay 14
13	Relay 1		

**RS-232 COMMAND CODES - FIRMWARE VERSION 1.0A**

*nn*: Any two digit number ranging from 00 to 17 (00 selects all relays.)

COMMAND	DESCRIPTION	RESPONSE
[RLYnnC]	Close relay <i>nn</i> .	[OK]
[RLYnnO]	Open relay <i>nn</i> .	[OK]
[RLYnnT]	Toggle relay <i>nn</i> . The relay will switch to the opposite state (If it was open, it will close, and vice-versa).	[OK]
[RLYnnP]	Pulse relay <i>nn</i> . The relay will switch to the opposite state for 50 msec and then return.	[OK]
[Lr <sub>1</sub> r <sub>2</sub> ...r <sub>n</sub> ]	<p>Load and execute the state for relays <i>r<sub>1</sub>, r<sub>2</sub>, ...r<sub>n</sub></i>. The first character after "L" is the state for relay 1, the second for relay 2, etc. The command can range from 4 characters (load the state of relay 1 only) to 20 characters (load the state for all 17 relays for the IN6902). The states are as follows:</p> <p style="padding-left: 40px;">N     Normal. The relay remains in the same state  C     Close the relay  O     Open the relay  T     Toggle the relay</p> <p><b>Ex. 1:</b> [LCCCOOO]  The above example will perform the following:  Close relays 1, 2 and 3  Open relays 4, 5 and 6</p> <p><b>Ex. 2:</b> [LNNTTCCOO]  The above example will perform the following:  Toggle relays 3 and 4  Close relays 5 and 6  Open relays 7 and 8 for the IN6902.  Relays 1 and 2 remain unchanged for the IN6901.  For the IN6902, relays 1, 2, and 9-17 remain unchanged.</p> <p><i>Note: The Pulse command "P" cannot be used with this command.</i></p>	[OK]
[INFO]	Get the firmware version	[IN690X V1.0a]

## SPECIFICATIONS

	<b>IN6901</b> <b>RS-232 to 6 Control Relays</b>	<b>IN6902</b> <b>RS-232 to 17 Control Relays</b>
<b>RS-232 Control Input</b>		
Connector type	9-Pin D male	9 Pin D male
Control Signal	1200 Baud, No Parity, 8 Data Bits, 1 Stop Bit	
Command Codes	[ ]	
<b>Output</b>		
Connector type	9-Pin D female	25- Pin D female
Relay Maximum Load	1 Amp @ 30V	
<b>Dimensions</b>		
Power	9V 500 mA DC	9V 500 mA DC
Size	Height: 0.9"    Width: 3.5" Depth: 2.75"	Height: 1"    Width: 7.75" Depth: 4.1"
Shipping Weight	1 lb.	2 lbs.

## WARRANTY

- ◆ INLINE warrants the equipment it manufactures to be free from defects in materials and workmanship.
- ◆ If equipment fails because of such defects and INLINE is notified within two (2) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications.
- ◆ Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.
- ◆ **This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.**

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(800) 882-7117 " (714) 921-4100 " FAX (714) 921-4160 " [www.inlineinc.com](http://www.inlineinc.com)