

## 1. Description

The RS-232 serial module AL-2405/232 is to be used with AL-2005/RTMP or AL-2003 processors. This interface have an EIA RS-232 electric interface standard for use with asynchronous protocols, with our without modem.

## 2. Packing List

The product packing contains the following parts:

- AL-2405/232: serial RS-232 module

## 3. Functional Characteristics

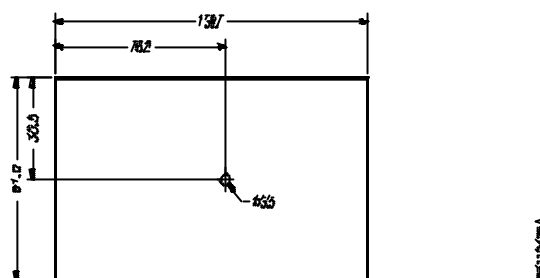
### 3.1. General Characteristics

- Module to be connected to AL-2005/RTMP or AL-2003 processors
- Network physical interface:  
EIA RS-232C
- Communication speed:  
to 38 kbits/s
- Connector:  
9 pins
- Operation temperature: 0 to 60°C  
exceeding IEC 1131 standard
- Storage temperature: -25 to 75°C  
according IEC 1131 standard
- Operation relative humidity: 5 to 95% (no condensing)  
according IEC 1131 standard
- MTBF: 150000 hours @ 40°C  
according to MIL-HDBK-217E standard
- Weight:  
net: 100 g  
shipped: 200 g

### 3.2. Electrical Characteristics

- Power Supply:  
Supplied by the processor
- Maximum module dissipation  
1,5 W (300 mA @ 5V)
- Electrostatic discharge immunity (ESD):  
according IEC 1131 standard, level 3
- Damped oscillatory wave conducted noise immunity:  
according IEC 1131, level A, and IEEE C37.90.1 (SWC) standards
- Fast transient conducted noise immunity:  
according IEC 1131 standard, level B  
according IEC 801-4 standard, level 3
- Radiated electromagnetic field immunity:  
10 V/m @ 140 MHz  
according IEC 1131 standard
- Protection against electrical shock:  
according to IEC 536-1976 standard, class I

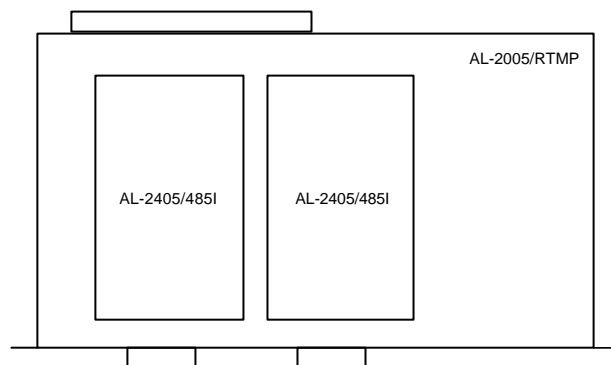
## 4. Physical Dimensions



## 5. Installation

The module may be installed on AL-2005/RTMP or AL-2003 processors.

In case of AL-2005/RTMP processor two AL-2405 modules may be installed at a time, using one or two of the available positions (see following figure). The module is attached by its connectors.



### 5.1. Connections

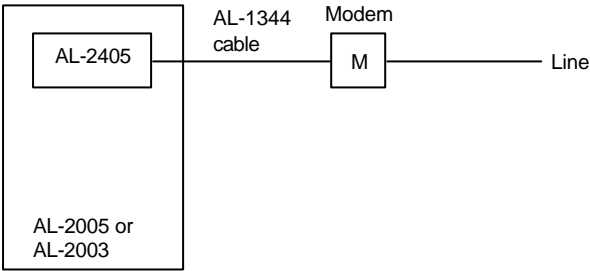
In AL-2005/RTMP processor installation, the module AL-2405 is associated with the corresponding position DB9 connector, available at AL-2005 panel. The following table shows DB9 connector pinout:

Pin	Mnemo	Description
1	PGND	Protective Ground
2	TXD	Transmitted data
3	RXD	Received data
4	RTS	Request to Send
5	CTS	Clear to Send
6	DSR	Data Set Ready
7	GND	Signal Ground
8	DCD	Data Carrier Detected
9	DTR	Data Terminal Ready

### 5.2. Modem Connection

The connection of RS-232 interface to a modem is accomplished through a AL-1344 cable, shown in the following figure.

The AL-2405/RS232 board can be directly connected to a PC computer through AL-1383 (25 pins) or AL-1390 (9 pins) cables.



6. Handbooks

For more information about AL-2005 consult AL-2005/RTMP User Manual.  
For installation of AL-2405/232 in AL-2003 processor, consult AL-2003 User Manual.

7. Ordering Data

7.1. Optionals

The following items may be ordered separately:

	Description
AL-1344	Modem cable
AL-1383	25 pins microcomputer cable
AL-1390	9 pins microcomputer cable

The AL-1344 cable permits the connection of AL-2405/232 board directly to a modem.  
The AL-1383 cable permits the connection of AL-2405/232 to a PC microcomputer using a 25 pin connector.  
The AL-1390 cable permits the connection of AL-2405/232 to a PC microcomputer using a 9 pin connector.

---

## 8. Revisions

This Technical Characteristic is valid for  
AL-2405/232: RS-232 serial module, revision A and above.

The revision of this document is shown on top of the page,  
indicating content changing or format improvements.

Altus reserve the right to change this TC without previous  
warning.

The following account shows the observations corresponding  
to each revision:

Revision: A	Date: 11/08/98
Approval: Luís Fernando Saraiva	
Author: Sérgio Bordini	

Remarks:

■ Initial revision