



Multi Data Digital

Product Overview

Interface Converters and Plug-in Modules

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RS232 Based Interface Powered

The **RS232 IP** family of interface converters allows full conversion between RS-232C and V.35, X.21 or RS-449 hardware. These converters all work **WITHOUT** an **EXTERNAL POWER SUPPLY**. The **RS232 IP** interface converters are very easy to implement. Simply connect the interface cable and set the required "Mode" switch setting.

RS-232 ← → V.35

V35IP

Features

- DCE/DTE/MONitor switchable.
- Indicators: Signal status.
DCE/DTE/MONitor mode.
External DC power.
- Connectors: RS-232 side -DB25F
V.35 side - V.35 cable
- Power Source: Interface Powered
(External DC9V adapter DC power acceptable)



RS-232 ← → RS-449

449IP

Features

- DCE/DTE/MONitor switchable.
- Indicators: Signal status.
DCE/DTE/MONitor mode.
External DC power.
- Connectors: RS-232 side -DB25F
RS-449 side - RS449/V.36 cable
- Power Source: Interface Powered
(External DC9V adapter DC power acceptable)



RS-232 ← → X.21

X21IP

Features

- DCE/DTE/MONitor switchable.
- Indicators: Signal status.
DCE/DTE/MONitor mode.
External DC power.
- Connectors: RS-232 side -DB25F
X.21 side -X.21 cable
- Power Source: Interface Powered
(External DC9V adapter DC power acceptable)



Common Features

- Dimension:** 14(L) x 8(W) x 2.5(H) cm
Temperature: 0~50°C
Power Source: Internal, no external DC power adapter is required for the "IP" converter family. However, an external adapter may be used if application of the unit is in a poor communication environment.
Humidity: Up to 90% Non-condensing
Weight: 150g net

RS-232 to RS-422/RS-485 Converters

The **ic485IP** interface converters allow full conversion between RS-232 and RS-485 hardware. The "IP" series converters work WITHOUT an EXTERNAL POWER SUPPLY. All the units are very easy to implement. Simply connect the appropriate interface cable and select the DCE/DTE type required with the Function Switches.

RS-232 ← → RS-485

ic485IP-1F

Features

- DCE/DTE device setting selectable.
- SIMulation/MONitor selectable.
- RTS/CTS control Full/Half duplex.
- Indicators: TD/RD
External DC power
- Connectors: RS-232 side DB25F
RS-485 side 4 screw terminal
- Power Source: Interface powered
External DC power Acceptable
- Dimension: 7.5(L) x 5.5(W) x 2(H) cm
Weight: 60g



RS-232 ← → RS-485

ic485IP-1M

Features

- DCE/DTE device setting selectable.
- SIMulation/MONitor selectable.
- RTS/CTS control Full/Half duplex.
- Indicators: TD/RD
External DC power
- Connectors: RS-232 side DB25M
RS-485 side 4 screw terminal
- Power Source: Interface powered
External DC power Acceptable
- Dimension: 7.5(L) x 5.4(W) x 2(H) cm
Weight: 57g



RS-232 ← → RS-485

ic485IP-2F

Features

- DCE/DTE device setting selectable.
- SIMulation only.
- RTS/CTS control Full/Half duplex.
- Indicators: TD/RD
External DC power
- Connectors: RS-232 side DB25F
RS-485 side RJ45
- Power Source: Interface powered
External DC power Acceptable
- Dimension: 5.7(L) x 5.3(W) x 2(H) cm
Weight: 47g



The *ic485-3* Interface Converter provides conversion between RS-232 interface and RS-485 standard. The RS-232 interface connection is via the unit's DB-25F female D-Type connector, while the RS-485 side's connection is via a five screw terminal block.

The *ic485-3* converter's circuitry provides a high degree of electrical isolation between the RS-232 and RS-485 sides. The RS-232 side may operate as DTE or DCE, has provisions for establishing hardware flow control, and has LEDs to indicate data transmission and reception. The RS-485 side may operate in either two wire half duplex or four wire half or full duplex and also has LED's to indicate data transmission and reception.



Features

- Easy to configure
- DTE/DCE selectable
- RS-232 handshaking; DTR/DSR, RTS/CTS, or Auto
- RS-485; 2 or 4 wire, Half or Full Duplex
- 2500V Isolation minimum
- External DC power required

Specifications

Connectors

RS-232	DB-25F
RS-485	5-screw terminals block

Power DC9V

Power Consumption <6W

Electrical Isolation 2500V minimum

Data Rate 1200, 2400, 4800, 9600, 19.2K, 38.4K, 57.6K or 115.2K

Dimensions 140(L) x 80(W) x 25 (H); m/m

Dimensions 5-5/8(L) x 3-1/8(W) x 1(H); inch

Power Source External DC9V/300mA Adapter

Humidity Up to 90% non-condensing

Temperature 0 ~ 50°C / 32 ~ 125°F

Weight 180g (6 1/2oz.) net

Ordering Information

<u>Model Name</u>	<u>Description</u>
ic485-3	RS232/DB25F-RS422/485; 5 screw terminals [DC Power required], Isolation, Auto. Flow control

RS232 V35Ip-CAB

RS-232 Based Interface Powered Series

The *Cable Type* family of interface converters allows full conversion between between RS-232 and V.35 hardware. The interface converter is very easy to implement.

When signal power of the RS-232 interface side is enough, the power indicator will light. No external DC power adapter is required in this case. The RS-232 DB25 PIN#9 external power is required only if application of the unit is in a poor communication environment.



Product Items

- **V35Ip-CAB/DCE**
RS-232DTE \leftrightarrow V35CAB/DCE \leftrightarrow V.35DCE
- **V35Ip-CAB/DTE**
RS-232DCE \leftrightarrow V35CAB/DTE \leftrightarrow V.35DTE

Specification

Power Source	:RS-232 Interface powered and external DC power acceptable(RS-232 DB25 PIN#9)
Speed	:up to 128kbps
Cable Length	:3 meter
Dimension	:7.5(L) x 5.3(W) x 2.2(H) cm
Weight	:500g
Temperature	:0~50°C
Humidity	:up to 90% non-condensing

Ordering Information

V35CAB/DCE Type

V35Ip-CAB/DCE-MF	V35/MB34-M:RS:RS232/DB25F
V35Ip-CAB/DCE-MM	V35/MB34-M:RS:RS232/DB25M
V35Ip-CAB/DCE-FF	V35/MB34-F:RS:RS232/DB25F
V35Ip-CAB/DCE-FM	V35/MB34-F:RS:RS232/DB25M

V35CAB/DTE Type

V35Ip-CAB/DTE-MM	V35/MB34-M:RS:RS232/DB25M
V35Ip-CAB/DTE-MF	V35/MB34-M:RS:RS232/DB25F
V35Ip-CAB/DTE-FM	V35/MB34-F:RS:RS232/DB25M
V35Ip-CAB/DTE-FF	V35/MB34-M:RS:RS232/DB25F

Four Channels RS-232 to TTL/CMOS Converter

The *ic232TTL* converts RS-232 to TTL/CMOS compatible level. Two channels are used to convert from RS-232 to 0/+5 VDC signals, and two channels are used to convert from 0/+5 VDC signals to RS-232. This converter supports TD, RD, RTS, and CTS. The RS-232 side is a DB9 female connector. The TTL/CMOS side is a DB9 male connector. This unit is powered from the RS-232 data and handshake lines whether the lines are high or low.

**Pin Assignment****DB9F:RS-232**

Pin	Function	Pin
5	GND	5
3(input)	TD	3(output)
2(output)	RD	2(input)
7(input)	RTS	7(output)
8(output)	CTS	8(input)

DB9M:TTL/CMOS

1	DCD
6	DSR
4	DTR

This unit may work at baud rates up to 128 kbps and is powered by the signals on pins 7(RTS), 4(DTR), and 3(TD) of the RS-232 interface. The handshaking lines may be in either a high or low condition, but must be present to power the converter.

It is important that TTL/CMOS logic, and only TTL/CMOS logic(0 to +5 VDC) be used for the TTL/CMOS side of the converter. The maximum sinking current for one TTL/CMOS output is 3.2 mA. The maximum source current for one TTL/CMOS is 1 mA. Signal levels are inverted by the converter. Please refer to the following table.

Electrical Specifications

TTL/CMOS Input	RS-232 Output
Low (<+0.8V)	+5V minimum, +9V typical
High (>+2V)	-5V minimum, -9V typical
RS-232 Input	TTL/CMOS Output
Low (<+0.8V) & (>-15V)	+3.5V minimum, +4.6V typical
High (>+2.8V) & (<+15V)	+0.4V minimum, +0.1V typical

Ordering Information**Model**

ic232TTL unit,

Description

RS232/DB9F:TTL/DB9M

Ordering Information

ic232TTL

V.35 Based Interface Powered

The **V35IP** (Interface Powered) family of interface converters allows full conversion between V.35 and RS-449, X.21 or RS-530 hardware. These converters all work WITHOUT an EXTERNAL DC POWER SUPPLY. The **V35IP** interface converters are very easy to implement. Simply connect the interface cables and set the required "Mode" switch setting.

V.35 ← → RS-449

V35/449IP

Features

- DCE/DTE switchable.
- Indicators: External DC power
- Connectors: V.35 side - V.35 cable adapter
RS-449 side - RS449 cable adapter
- Power Source: Interface Powered
External DC power acceptable
- Ordering Information:
V35/449 UNIT; VAC110/220
V35M or V35F cable
RS449M or RS449F cable



V.35 ← → X.21

V35/X21IP

Features

- DCE/DTE switchable.
- Indicators: External DC power
- Connectors: V.35 side - V.35 cable adapter
X.21 side - X.21 cable adapter
- Power Source: Interface Powered
External DC power acceptable
- Ordering Information:
V35/X21Ip UNIT; VAC110/220
V35M or V35F cable
X21M or X21F cable



V.35 ← → RS-530

V35/530IP

Features

- DCE/DTE switchable.
- Indicators: External DC power
- Connectors: V.35 side - V.35 cable adapter
RS-530 side - RS530 cable adapter
- Power Source: Interface Powered
External DC power acceptable
- Ordering Information:
V35/530Ip UNIT; VAC110/220
V35M or V35F cable
RS530M or RS530F cable



Common Features

- Dimension:** 14(L) x 8(W) x 2.5(H) cm
- Temperature:** 0~50°C
- Power Source:** Internal, no external DC power adapter is required for the "IP" converter family. However, an external adapter may be used if application of the unit is in a poor communication environment.
- Humidity:** Up to 90% Non-condensing
- Weight:** 150g net

The **V35/485-1** Interface Converter provides conversion between V.35 and RS-485 standard interfaces. The V.35 interface connection is via a supplied adapter cable and the unit's DB-25F female D-Type connector, while the RS-485 side's connection is via a five screw terminal block.

The **V35/485-1** converter's circuitry provides a high degree of electrical isolation between the V.35 and RS-485 sides. The V.35 side may operate as DTE or DCE, has provisions for establishing hardware flow control, and has LEDs to indicate data transmission and reception. The RS-485 side may operate in either two wire half duplex or four wire half full duplex.



Features

- Easy to configure
- DTE/DCE selectable
- V.35 handshaking; DTR/DSR, RTS/CTS, or Auto
- RS-485; 2 or 4 wire, Half or Full Duplex
- 2500V Isolation minimum
- External DC power required

Specifications

Connectors

V.35	DB-25F plus adapter cable
RS-485	5-screw terminal block

Power DC9V

Power Consumption <6W

Electrical Isolation 2500V minimum

Data Rate 1200, 2400, 4800, 9600, 19.2K, 38.4K, 57.6K or 115.2K

Dimensions (mm) 140(L) x 80 (W) x 25 (H)

Dimensions (in) 5-5/8(L) x 3-1/8(W) x 1(H)

Power Source External DC9V/300mA Adapter

Humidity Up to 90% non-condensing

Temperature 0 ~ 50°C / 32 ~ 125°F

Weight approx. 150g (1/3lb.) net

Ordering Information

<u>Model Name</u>	<u>Description</u>
V35/485-1	V35-RS422/485; 5 screw terminal [DC Power required], Isolation, Auto. Flow control w/V.35 cable , Adapter

SHORT HAUL MODEM

RS232 Short Haul Modem

The **ic232IP**, asynchronous, Short Haul Modem, overcomes the limited distances of the RS-232 standard by converting DCE/DTE equipment to full duplex 2 twisted pair wire (Category 3 or better). The **ic232IP-SM** operates up to 10 Km depending on the wire gauge and data rate.

RS-232 Short Haul Modem

ic232IP-SM/F

Features

- DCE/DTE switchable.
- SIMulation only
- Connectors: RS-232 side DB25F
Modem side RJ45
- Power Source: Interface powered
- Dimension: 5.6(L) x 5.3(W) x 2(H) cm
- Weight: 45g



RS-232 Short Haul Modem

ic232IP-2F

Features

- DCE/DTE switchable.
- SIMulation only
- Connectors: RS-232 side -DB25F
Modem side -4screw termination with Ground pin
- Power Source: Interface powered
- Dimension: 7.7(L) x 5.5(W) x 2(H) cm
- Weight: 57g



RS-232 Short Haul Modem

ic232IP-2M

Features

- DCE/DTE switchable.
- SIMulation only
- Connectors: RS-232 side -DB25M
Modem side -4screw termination with Ground pin
- Power Source: Interface powered
- Dimension: 7.6(L) x 5.4(W) x 2(H) cm
- Weight: 55g



CURRENT LOOP

Current Loop Converters Family

The icCL's interface converters allow full conversion between RS-232 and current loop hardware. The <IP> series converters work WITHOUT an EXTERNAL POWER SUPPLY. All the units are very easy to implement. Simply connect the appropriate interface cable and select the DCE/DTE type required with the Function Switches.

RS-232 ← → Current Loop

icCL-II/F

Features

- DCE/DTE switchable.
 - 20/60mA selectable.
 - Tx/Rx set Active or Passive.
 - Full duplex , 19.2Kbps to 4000ft.
- Connectors:
- | | |
|---------------|--|
| RS-232 side | -DB25F |
| Current Loop | -4 screw terminal |
| Power Source: | External DC (9V, 200mA) power required |
| Dimension: | (L)7.6x(W)5.4x(H)2 cm |
| Weight : | 60g |



RS-232 ← → Current Loop

icCL-II/M

Features

- DCE/DTE switchable.
 - 20/60mA selectable.
 - Tx/Rx set Active or Passive.
 - Full duplex , 19.2Kbps to 4000ft.
- Connectors:
- | | |
|---------------|--|
| RS-232 side | -DB25F |
| Current Loop | -4 screw terminal |
| Power Source: | External DC (9V, 200mA) power required |
| Dimension: | (L)7.6x(W)5.4x(H)2 cm |
| Weight : | 59g |



Current Loop Overview



ASYNC to SYNC / BOOSTERS

The *icAS/IP*, interface converter allows full conversion between a computer / terminal RS-232 ASYNChronous port and a SYNChronous modem. The *icAS/IP* conforms to the ITU-T V.22 standard and accommodates the difference in frequency between the asynchronous port and synchronous modem. This unit derives its baud rate automatically from the transmit clock of the modem and operates at data rates from 300 to 19200bps.

Asynchronous to Synchronous Converter

icAS/IP

Features

- Enable RS-232 Async terminals to use Sync modems and meet ITU V.22 standard.
- Automatically adjusts baud rate.
- Fully transparent to signals.
- Functions set by DIP switch.
- Indicators: Connection complete, external DC power.
- Connectors: ASYNC side-DB25F SYNC side-DB25M sync cable.
- Power Source: Interface powered or accepts external DC power
- Dimensions: 7.3(L) x 5.3(W) x 2(H) cm
- Weight: 150g

