

# ACE909-2 RS 232 / RS 485 converter



ACE909-2 RS 232/RS 485 converter.

## Function

The ACE909-2 converter is used to connect a master/central computer equipped with a V24/RS 232 type serial port as a standard feature to stations connected to a 2-wire RS 485 network.

Without requiring any flow control signals, after the parameters are set, the ACE909-2 converter performs conversion, network polarization and automatic dispatching of frames between the master and the stations by two-way simplex (half-duplex, single-pair) transmission.

The ACE909-2 converter also provides a 12 V DC or 24 V DC supply for the distributed power supply of the Sepam ACE949-2, ACE959 or ACE969 interfaces. The communication settings should be the same as the Sepam and supervisor communication settings.

### CAUTION

#### HAZARD OF ELECTRIC SHOCK, ELECTRIC ARC OR BURNS

■ Only qualified personnel should install this equipment. Such work should be performed only after reading this entire set of instructions and checking the technical characteristics of the device.

■ NEVER work alone.

■ Turn off all power supplying this equipment before working on or inside it. Consider all sources of power, including the possibility of backfeeding.

■ Always use a properly rated voltage sensing device to confirm that all power is off.

■ Start by connecting the device to the protective earth and to the functional earth.

■ Screw tight all terminals, even those not in use.

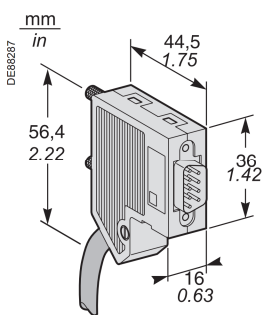
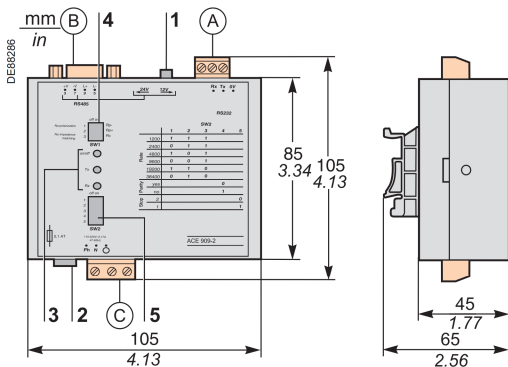
**Failure to follow these instructions will result in death or serious injury.**

## Characteristics

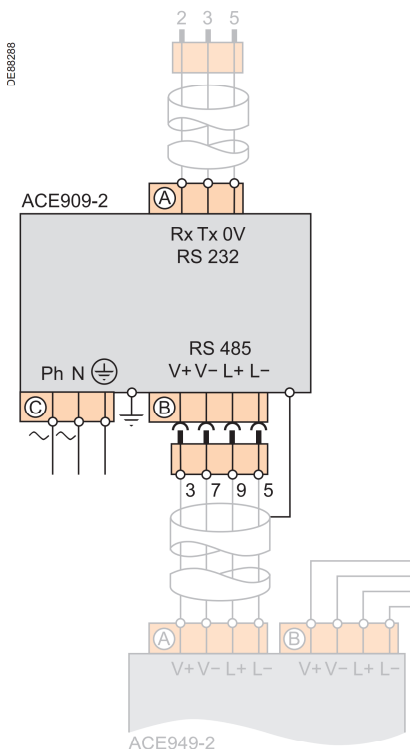
Mechanical characteristics		
Weight	0.280 kg (0.617 lb)	
Assembly	On symmetrical or asymmetrical DIN rail	
Electrical characteristics		
Power supply	110 to 220 V AC $\pm$ 10%, 47 to 63 Hz	
Galvanic isolation between ACE power supply and frame, and between ACE power supply and interface supply	2000 Vrms, 50 Hz, 1 min	
Galvanic isolation between RS 232 and RS 485 interfaces	1000 Vrms, 50 Hz, 1 min	
Protection by time-delayed fuse 5 mm x 20 mm (0.2 in x 0.79 in)	1 A rating	
Communication and Sepam interface distributed supply		
Data format	11 bits: 1 start, 8 data, 1 parity, 1 stop	
Transmission delay	< 100 ns	
Distributed power supply for Sepam interfaces	12 V DC or 24 V DC, 250 mA max	
Maximum number of Sepam interfaces with distributed supply	12	
Environmental characteristics		
Operating temperature	-5°C to +55°C (+23°F to +131°F)	
Electromagnetic compatibility		
	IEC standard	Value
Fast transient bursts, 5 ns	60255-22-4	4 kV with capacitive coupling in common mode 2 kV with direct coupling in common mode 1 kV with direct coupling in differential mode
1 MHz damped oscillating wave	60255-22-1	1 kV common mode 0.5 kV differential mode
1.2/50 $\mu$ s impulse waves	60255-5	3 kV common mode 1 kV differential mode

# ACE909-2

## RS 232 / RS 485 converter



Male 9-pin sub-D connector supplied with the ACE909-2.



### Description and dimensions

- (A) Terminal block for RS 232 link limited to 10 m (33 ft).
- (B) Female 9-pin sub-D connector to connect to the 2-wire RS 485 network, with distributed power supply.  
1 screw-type male 9-pin sub-D connector is supplied with the converter.
- (C) Power-supply terminal block

- 1 Distributed power supply voltage selector switch, 12 V DC or 24 V DC.
- 2 Protection fuse, unlocked by a 1/4 turn.
- 3 LEDs:
  - ON/OFF: on if ACE909-2 is energized
  - Tx: on if RS 232 sending by ACE909-2 is active
  - Rx: on if RS 232 receiving by ACE909-2 is active.
- 4 SW1, parameter setting of 2-wire RS 485 network polarization and line impedance matching resistors.

Function	SW1/1	SW1/2	SW1/3
Polarization at 0 V via Rp -470 Ω	ON		
Polarization at 5 V via Rp +470 Ω		ON	
2-wire RS 485 network impedance matching by 150 Ω resistor			ON

- 5 SW2, parameter setting of asynchronous data transmission rate and format (same parameters as for RS 232 link and 2-wire RS 485 network).

Rate (bauds)	SW2/1	SW2/2	SW2/3	SW2/4	SW2/5
1200	1	1	1		
2400	0	1	1		
4800	1	0	1		
9600	0	0	1		
19200	1	1	0		
38400	0	1	0		
Format				SW2/4	SW2/5
With parity check				0	
Without parity check				1	
1 stop bit (compulsory for Sepam)					1
2 stop bits					0

### Converter configuration when delivered

- 12 V DC distributed power supply
- 11-bit format, with parity check
- 2-wire RS 485 network polarization and impedance matching resistors activated.

### Connection

#### RS 232 link

- To 2.5 mm<sup>2</sup> (AWG 12) screw type terminal block (A)
- Maximum length 10 m (33 ft)
- Rx/Tx: RS 232 receiving/sending by ACE909-2
- 0V: Rx/Tx common, do not earth.

#### 2-wire RS 485 link with distributed power supply

- To connector (B) female 9-pin sub-D
- 2-wire RS 485 signals: L+, L-
- Distributed power supply: V+ = 12 V DC or 24 V DC, V- = 0 V.

#### Power supply

- To 2.5 mm<sup>2</sup> (AWG 12) screw type terminal block (C)
- Reversible phase and neutral
- Earthed via terminal block and metal case (ring lug on back of case).



# ACE919CA and ACE919CC RS 485 / RS 485 converters



ACE919CC RS 485/RS 485 converter.

## Function

The ACE919 converters are used to connect a master/central computer equipped with an RS 485 type serial port as a standard feature to stations connected to a 2-wire RS 485 network.

Without requiring any flow control signals, the ACE919 converters perform network polarization and impedance matching.

The ACE919 converters also provide a 12 V DC or 24 V DC supply for the distributed power supply of the Sepam ACE949-2, ACE959 or ACE969 interfaces.

There are 2 types of ACE919 converter:

- ACE919CC, DC-powered
- ACE919CA, AC-powered.

### ⚠ CAUTION

#### HAZARD OF ELECTRIC SHOCK, ELECTRIC ARC OR BURNS

■ Only qualified personnel should install this equipment. Such work should be performed only after reading this entire set of instructions and checking the technical characteristics of the device.

■ NEVER work alone.

■ Turn off all power supplying this equipment before working on or inside it. Consider all sources of power, including the possibility of backfeeding.

■ Always use a properly rated voltage sensing device to confirm that all power is off.

■ Start by connecting the device to the protective earth and to the functional earth.

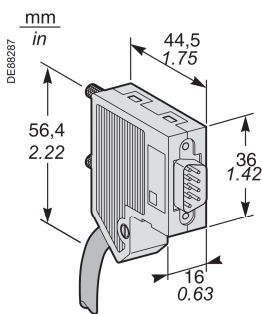
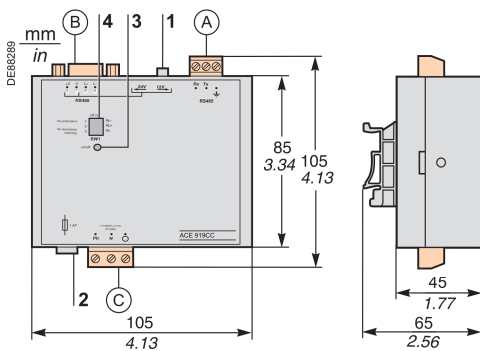
■ Screw tight all terminals, even those not in use.

**Failure to follow these instructions will result in death or serious injury.**

## Characteristics

Mechanical characteristics		
Weight	0.280 kg (0.617 lb)	
Assembly	On symmetrical or asymmetrical DIN rail	
Electrical characteristics		
	ACE919CA	ACE919CC
Power supply	110 to 220 V AC ±10%, 47 to 63 Hz	24 to 48 V DC ±20%
Protection by time-delayed fuse 5 mm x 20 mm (0.2 in x 0.79 in)	1 A rating	1 A rating
Galvanic isolation between ACE power supply and frame, and between ACE power supply and interface supply		2000 Vrms, 50 Hz, 1 min
Communication and Sepam interface distributed supply		
Data format	11 bits: 1 start, 8 data, 1 parity, 1 stop	
Transmission delay	< 100 ns	
Distributed power supply for Sepam interfaces	12 V DC or 24 V DC, 250 mA max	
Maximum number of Sepam interfaces with distributed supply	12	
Environmental characteristics		
Operating temperature	-5°C to +55°C (+23°F to +131°F)	
Electromagnetic compatibility		
	IEC standard	Value
Fast transient bursts, 5 ns	60255-22-4	4 kV with capacitive coupling in common mode 2 kV with direct coupling in common mode 1 kV with direct coupling in differential mode
1 MHz damped oscillating wave	60255-22-1	1 kV common mode 0.5 kV differential mode
1.2/50 µs impulse waves	60255-5	3 kV common mode 1 kV differential mode

# ACE919CA and ACE919CC RS 485 / RS 485 converters



Male 9-pin sub-D connector supplied with the ACE919.

## Description and dimensions

- (A) Terminal block for 2-wire RS 485 link without distributed power supply.
- (B) Female 9-pin sub-D connector to connect to the 2-wire RS 485 network, with distributed power supply.  
1 screw-type male 9-pin sub-D connector is supplied with the converter.
- (C) Power supply terminal block.

- 1 Distributed power supply voltage selector switch, 12 V DC or 24 V DC.
- 2 Protection fuse, unlocked by a 1/4 turn.
- 3 ON/OFF LED: on if ACE919 is energized.
- 4 SW1, parameter setting of 2-wire RS 485 network polarization and line impedance matching resistors.

Function	SW1/1	SW1/2	SW1/3
Polarization at 0 V via Rp -470 Ω	ON		
Polarization at 5 V via Rp +470 Ω		ON	
2-wire RS 485 network impedance matching by 150 Ω resistor			ON

### Converter configuration when delivered

- 12 V DC distributed power supply
- 2-wire RS 485 network polarization and impedance matching resistors activated.

## Connection

### 2-wire RS 485 link without distributed power supply

- To 2.5 mm<sup>2</sup> (AWG 12) screw type terminal block (A)
- L+, L-: 2-wire RS 485 signals
- ≡ Shielding.

### 2-wire RS 485 link with distributed power supply

- To connector (B) female 9-pin sub-D
- 2-wire RS 485 signals: L+, L-
- Distributed power supply: V+ = 12 V DC or 24 V DC, V- = 0 V.

### Power supply

- To 2.5 mm<sup>2</sup> (AWG 12) screw type terminal block (C)
- Reversible phase and neutral (ACE919CA)
- Earthed via terminal block and metal case (ring lug on back of case).

