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Product End of Life Notification

Date: December 21st, 2011

Product Being Discontinued

Model Number	Description
422OPINA	ISO4CH232TO422/85CONV

Replacement Product

Model Number	**Description**
485LDRC9	ISO.RS232 TO RS485 DB9 DINRAIL

Orders will be accepted and shipped until the following dates

Last Time Buy: April 1st, 2012
Last Time Ship: April 30th, 2012

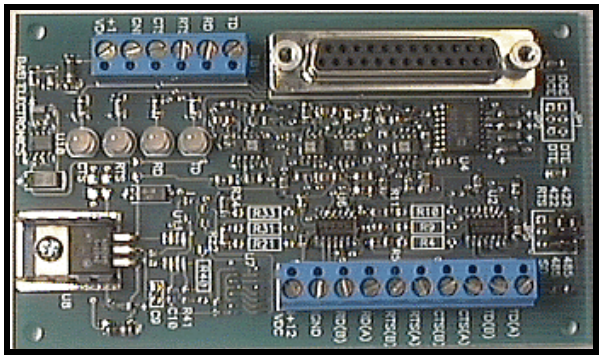
Please contact us immediately if you have any special needs for this product or have any other concerns.

Thank You,

Brian Foster, Product Manager
bfoster@bb-elec.com

Optically Isolated RS-232 to RS-422/485

Model 422OPINA



Description:

The 422OPINA converts unbalanced, full-duplex RS-232 signals to balanced, full or half-duplex RS-422 or RS-485 signals. The following signals are supported: TD on pin 2, RD on pin 3, RTS on pin 4, and CTS on pin 5.

Specifications:

Signals Supported:	TD, RD, RTS, & CTS
Dimensions:	Approximately 2.75" x 4.60" x 0.68"
Data Rate:	Up to 19.2K baud
Connectors:	
RS-232:	DB25S (female) and Terminal Blocks
RS-422/485:	Terminal Blocks
Isolation:	2500VAC optical isolation of data signals and ground
Power Requirements:	
RS-232 Side:	From +12VDC to +18VDC at 40mA maximum. Apply to TB1 at +12VDC and GND.
RS-422/485 Side:	From +12VDC to +18VDC at 160mA maximum. Apply to TB2 at I+12VDC and IGND.

Configuration:

In RS-485 mode, the driver enable is controlled with the RTS line from the RS-232 port. We refer to this as RTS control. With jumper JP3 in the 485 position the driver is enabled when the RTS handshaking line is asserted by your software. You must then disassert RTS in order to disable the RS-485 driver. With jumper JP4 in the 485 position, the receiver will be disabled while the driver is enabled. Jumper JP4 can be put in the 422 position for constant enable of the receiver.

In RS-422 mode, jumpers JP3 & JP4 should be in the 422 position. In 422 mode the driver and receiver will always be enabled for full-duplex communications.

There are 4 two-color LEDs for monitoring the supported signals (red = neg. voltage, green = pos. voltage).

The board layout has an option for termination resistors (approx. 120 ohm): R9 for the 422/485 RD lines, and R31 for the 422 CTS lines.

The RS-422 Standard recommends 24AWG copper conductor, twisted-pair telephone cable with a shunt capacitance of 16pf per foot up to 4000 feet.

The 232 and 485 power sources must be isolated in order to keep the optical isolation. Power for the 232 side will be connected to TB1 at +12VDC and GND. The 485 power connects to TB2 at I+12VDC and IGND.

Connect the 422/485 signals to TB2 as follows:

2-WIRE MODE

	422OPINA:	**485 Device:**
	TD(A) & RD(A)	---------- (A) or (-)
	TD(B) & RD(B)	---------- (B) or (+)
If used:	RTS(A) & CTS(A)	------- (A) or (-)
	RTS(B) & CTS(B)	-------- (B) or (+)

4-WIRE MODE

	422OPINA:	**422/485 Device:**
	TD(A)	-------- Receive Data (A) or (-)
	TD(B)	-------- Receive Data (B) or (+)
	RD(A)	--------Transmit Data (A) or (-)
	RD(B)	--------Transmit Data (B) or (+)
If used:	RTS(A)	------ Clear To Send (A) or (-)
	RTS(B)	------ Clear To Send (B) or (+)
	CTS(A)	------ Request To Send (A) or (-)
	CTS(B)	------ Request To Send (B) or (+)

This product designed and manufactured in USA of domestic and imported parts by

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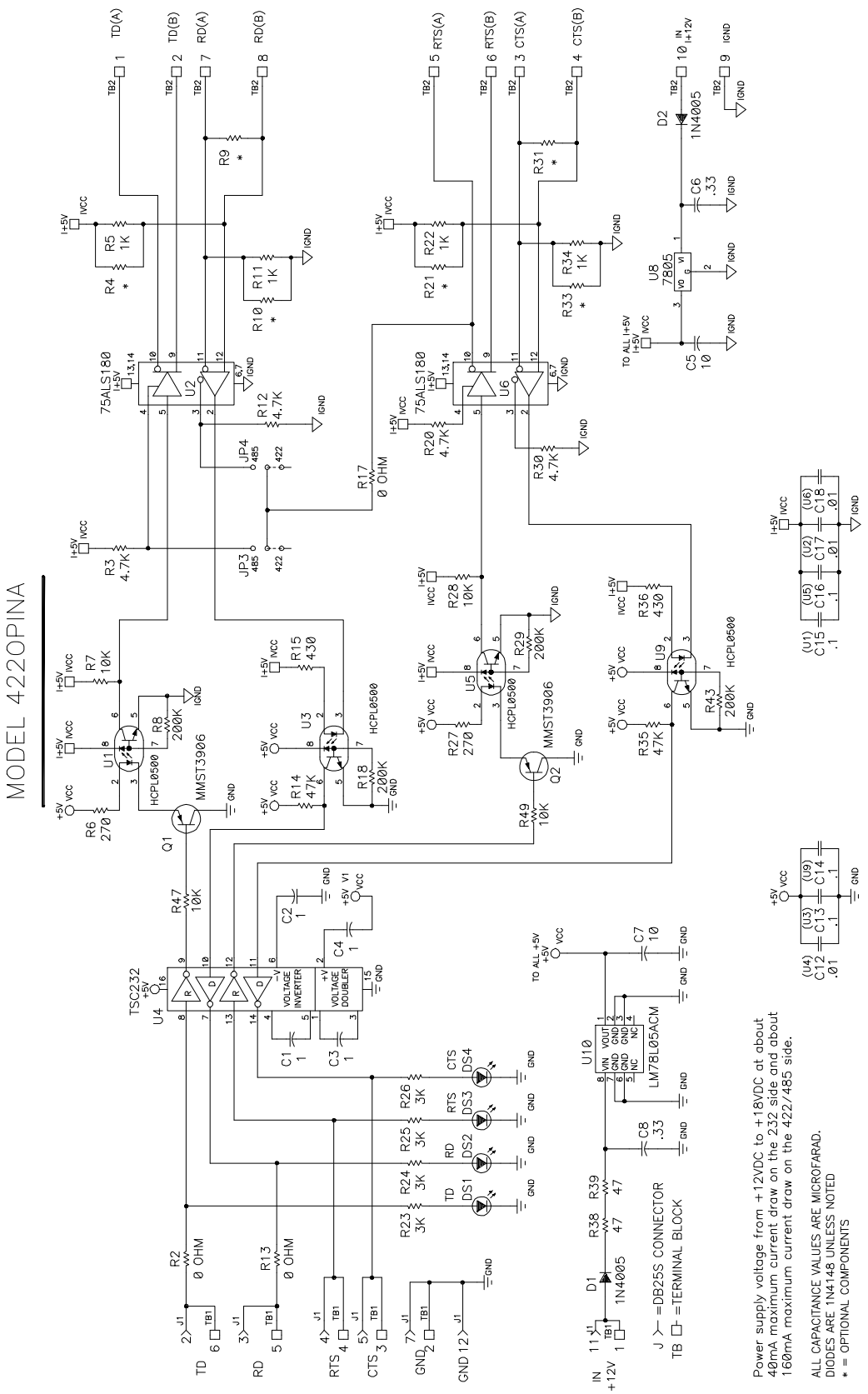

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PRODUCT INFORMATION

485LDRC9

Industrial RS-232 to RS-422/485 Converter

- ✓**Extend Data up to 4000 ft / 1.2 km**
- ✓**2000V Optically Isolated Data Lines**
- ✓**Wide Operating Temperature**
- ✓**Modbus ASCII/RTU**
- ✓**Automatic Send Data Control**
- ✓**Switchable 120Ω Termination**

E222870

The 485LDRC9 is an optically isolated RS-232 to RS-422/485 Converter. RS-232 signals interface through a convenient DB9 F connector or through a terminal block. RS-422/485 signals and the power inputs connect to the terminal block. Built in Send Data Control circuitry eliminates the need for external software to control handshake signals. Optically isolated data lines, with 500W surge suppression, ensures that the connected equipment is protected even in the harshest of environments.

The converter operates on externally sourced 10 – 30 VDC power. The enclosure has a DIN rail mount that is designed to fit easily on a standard 35mm rail. The 485LDRC9 is ideal for your critical industrial communications needs.

Specifications

RS-232	
Connector	DB9 F (DCE)
Signals	TD, RD, GND
Connector	Terminal Block
Signals	TD, RD, GND
RS-422	
Connector	Terminal Block
Signals	TDA(-), TDB(+), RDA(-), RDB(+), GND
Termination	120Ω (Switchable)
RS-485	
Connector	Terminal Block
Signals	TDA(-), TDB(+), RDA(-), RDB(+), GND
Modes	2-Wire and 4-Wire
Termination	120Ω (Switchable)
Isolation	
Lines Protected	Data Lines
Method	Optical
Rating	2000 V
Surge Suppression	
Lines Protected	Data Lines
Method	TVS
Rating	7.5V bi-directional avalanche breakdown device 500W peak power dissipation
Response Time	< 1 pico-second
Industrial Bus	
	MODBUS ASCII/RTU
Power	
Connector	Terminal Block
Voltage	10 to 30 VDC
Power Consumption	0.5 W
Source	External
Terminal Blocks	
Wire Size	24 to 14 AWG
Torque	4 kgf-cm
LED Indicators	
Power (RED)	On when power applied
TD (RED)	Flashes when RS-422/485 data sent
RD (RED)	Flashes when RS-422/485 data received
Enclosure	
Material	Plastic
IP Rating	20
Dimensions	1.0 x 3.1 x 3.7 in (2.5 x 7.9 x 9.5 cm)
Mounting	35 mm DIN (Panel Mount Adapter is available)
Environmental	
Operating Temperature	-40 to 80 C (-40 to 176 F)
Storage Temperature	-40 to 85 C (-40 to 185 F)
Operating Humidity	0 to 95% Non-condensing
MTBF	257448 hours
MTBF Calculation Method	Parts Count Reliability Prediction
Agency Approvals	CE, FCC cULus Recognized, File E222870 Declaration of Conformity available for download at www.bb.elec.com
Ordering Information	
Model Number	485LDRC9
Power Supply	An external source is required.
Panel Mount Adapter	DRPM25

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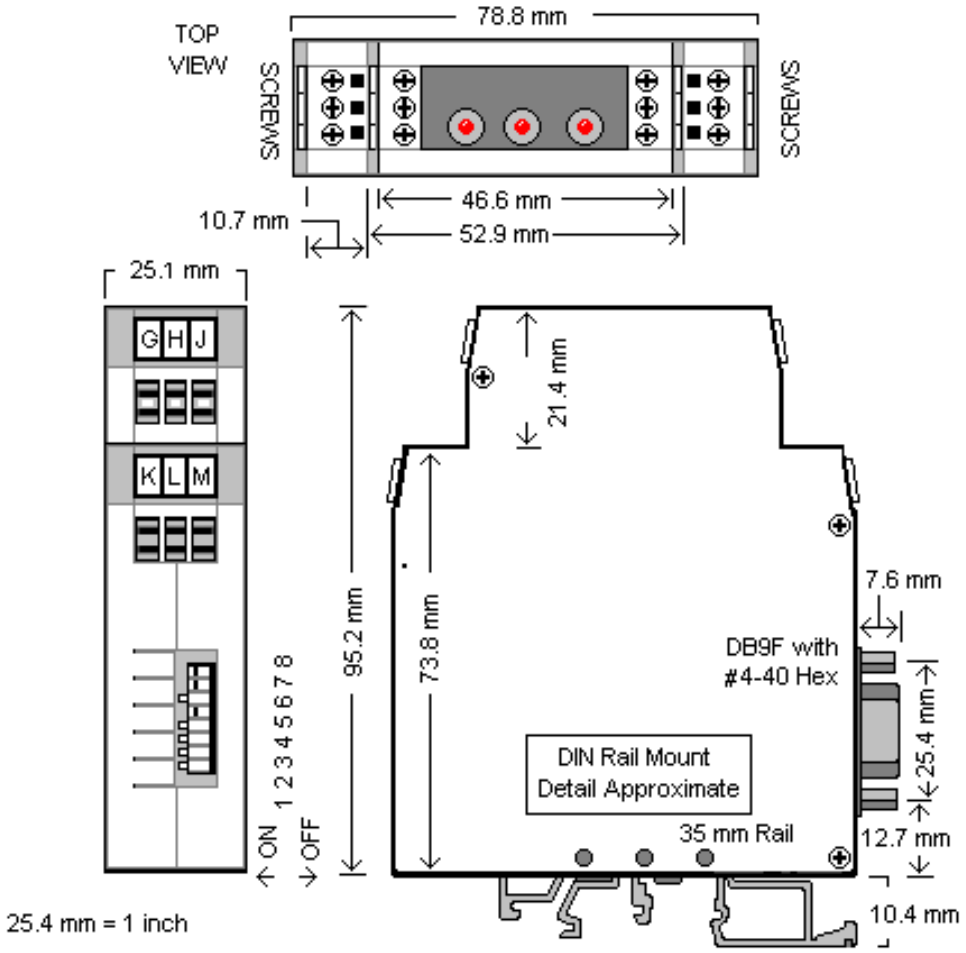

Documentation Number –p/n 8413R1 485LDRC9-1210qsg

Quick Start Guide
485LDRC9
Optically Isolated RS-232 to RS-422/485 Converter

1 Check for All Required Hardware

- ❑ 485LDRC9 Serial Converter
- ❑ This Quick Start Guide
- ❑ Additional Items Required but not included
  - o Power Supply
  - o RS-232 cable.
  - o RS-422/485 Cable.

2 UL Installation Information

Underwriters Laboratories Conditions of Acceptability – When installed in the end-use equipment, consideration should be given to the following:

1. The wiring terminals are suitable for factory wiring only.
2. This device is to be mounted in a suitable enclosure in the end-product.
3. This device is suitable for operation at a maximum surrounding air temperature as described in the documentation.
4. These devices are intended for use in a pollution degree 2 environment.

- Input Voltage: 10 – 30 VDC
- Input Power: 0.5 Watts
- Wire Range: 12 – 24 AWG
- Tightening Torque: 4 kgf-cm
- Temperature rating of field installed conductors is 105 C minimum, sized for 60 C ampacity.
- Use copper wire only
- Maximum surrounding ambient air temperature 80 C.

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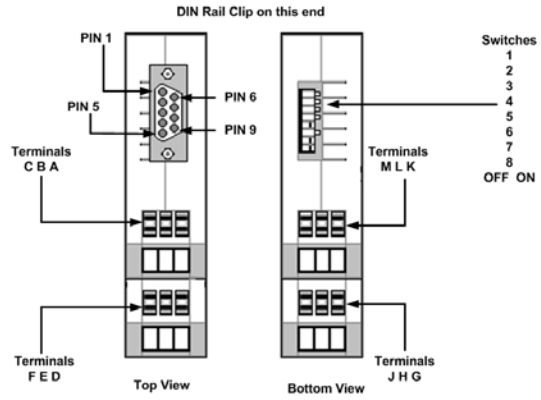
3 Information – Connectors

Figure 1- Connections and DIP Switch



Terminal Block	Signal	Direction
A	RS-232 Receive Data (RD)	Output
B	RS-232 Signal Ground (SG)	-------
C	Power Ground (PWR GND)	-------
D	RS-232 Transmit Data (TD)	Input
E	NOT USED	-------
F	10 – 30 VDC Power Input	-------
G	RS-422/485 TD A(-)	Output
H	RS-422/485 TD B(+)	Output
J	NOT USED	-------
K	RS-422/485 RD A(-)	Input
L	RS-422/485 RD B(+)	Input
M	Isolated Ground	-------

DB9 F Pins (Converter is DCE)

PIN	Signal	Direction
2	RS-232 Receive Data (RD)	Output
3	RS-232 Transmit Data (TD)	Input
5	RS-232 Signal Ground (SG)	-------

Note: On the DB9F Connector, control signals are looped back. Pin 1 (DCD), Pin 4 (DTR), and Pin 6 (DSR) are tied together. Pin 7 (RTS) and Pin 8 (CTS) are tied together.

4 Information - DIP Switch

Table 3 – Communications Mode

	SW-1	SW-2	SW-3	SW-4
RS-485 2-Wire Half Duplex	ON	ON	ON	ON
RS-485 4-Wire Full Duplex	ON	OFF	OFF	OFF
RS-422 Full Duplex	OFF	OFF	OFF	OFF

Table 4 – Termination Resistor

	SW-5
Use the 120Ω Built in Termination	ON
Use External or no termination	OFF

Table 5 – Timeout Selection

	SW-6	SW-7	SW-8	Timeout (MS)	
1200	OFF	OFF	OFF	8.33	#
2400	OFF	OFF	ON	4.16	
4800	OFF	ON	OFF	2.08	
9600	ON	OFF	OFF	1.04	
19.2K	ON	ON	ON	0.580	
38.4K	OFF	OFF	OFF	0.260	#
57.6K	OFF	OFF	OFF	0.176	#
115.2K	OFF	OFF	OFF	0.0868	#

Timeout selections are equal to one character time at the indicated baud rate. Setting the converter 9600 will generally work at 9600 and higher baud rates. **In RS-422 mode, timeouts are not required.**

To achieve these timeouts you must place a through - hole resistor on the circuit board. See Step 5 for more information.

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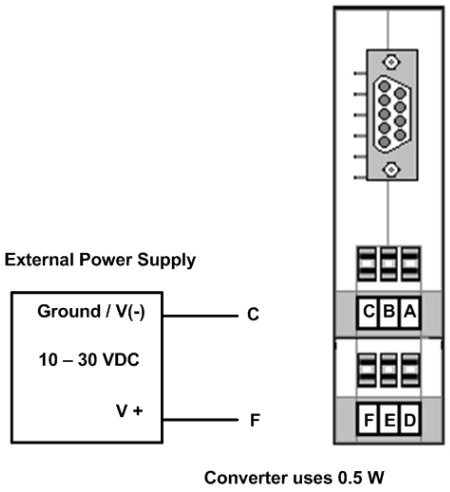
5 Through-hole resistor placement (Optional)

- If you need to support timeouts indicated with a # in Step 4, Table 5, you must place a through-hole resistor on the PCB. Place the resistor in the R-11 spot designated on the board. The R-11 location is clearly visible on the PCB.

Table 6 – Through-hole Resistor Values

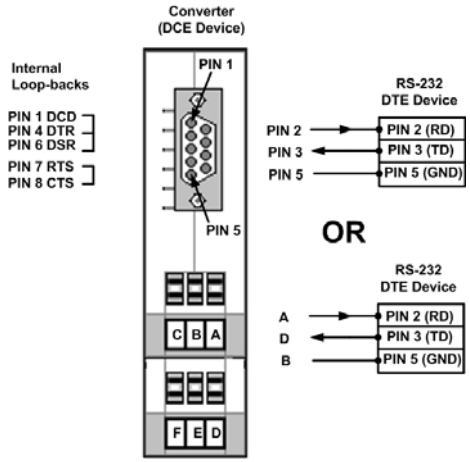
Baud Rate	Timeout (MS)	R-11 Value
1200	8.33	820 KΩ
38.4K	0.260	27 KΩ
57.6K	0.176	16 KΩ
115.2K	0.0868	8.2 KΩ

6 Power Connection



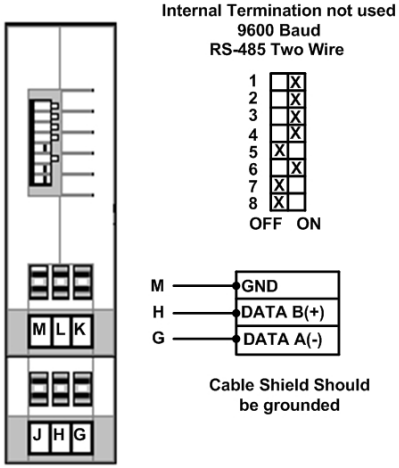
Converter uses 0.5 W

7 RS-232 Connection

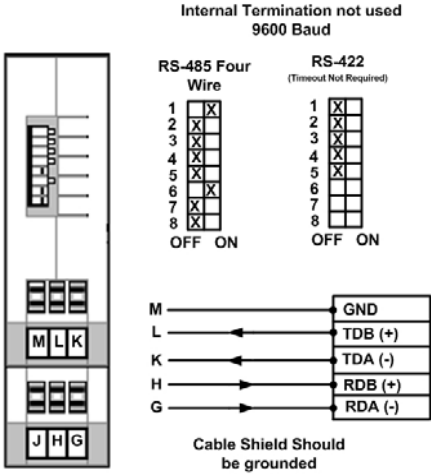


8 Wiring Examples

- . Two Wire RS-485

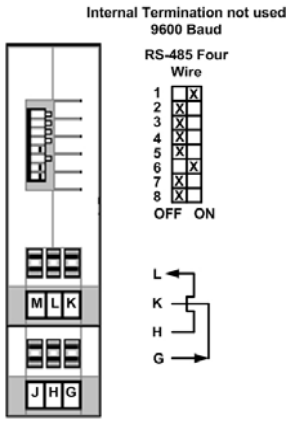


- RS-422/ Four Wire RS-485



9 Loop Back Test / Troubleshooting

- Configure for RS-485 Four wire, 9600 baud
- Jumper terminals H to L and G to K
- Connect a PC to the RS-232 port (see Step 7).
- Using hyper terminal or similar program, connect to the appropriate COM port (remember to set the baud rate to 9600).Turn off hyper terminal local echo
- Transmit data. The same data should be returned
- LED Indicators: Power is ON when power is applied. TD flashes when RS-422/485 data is sent. RD flashes when RS-422/485 Data is received.



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