

Preliminary
Specification

RCSL : 44-RT 970
Date : February 1975
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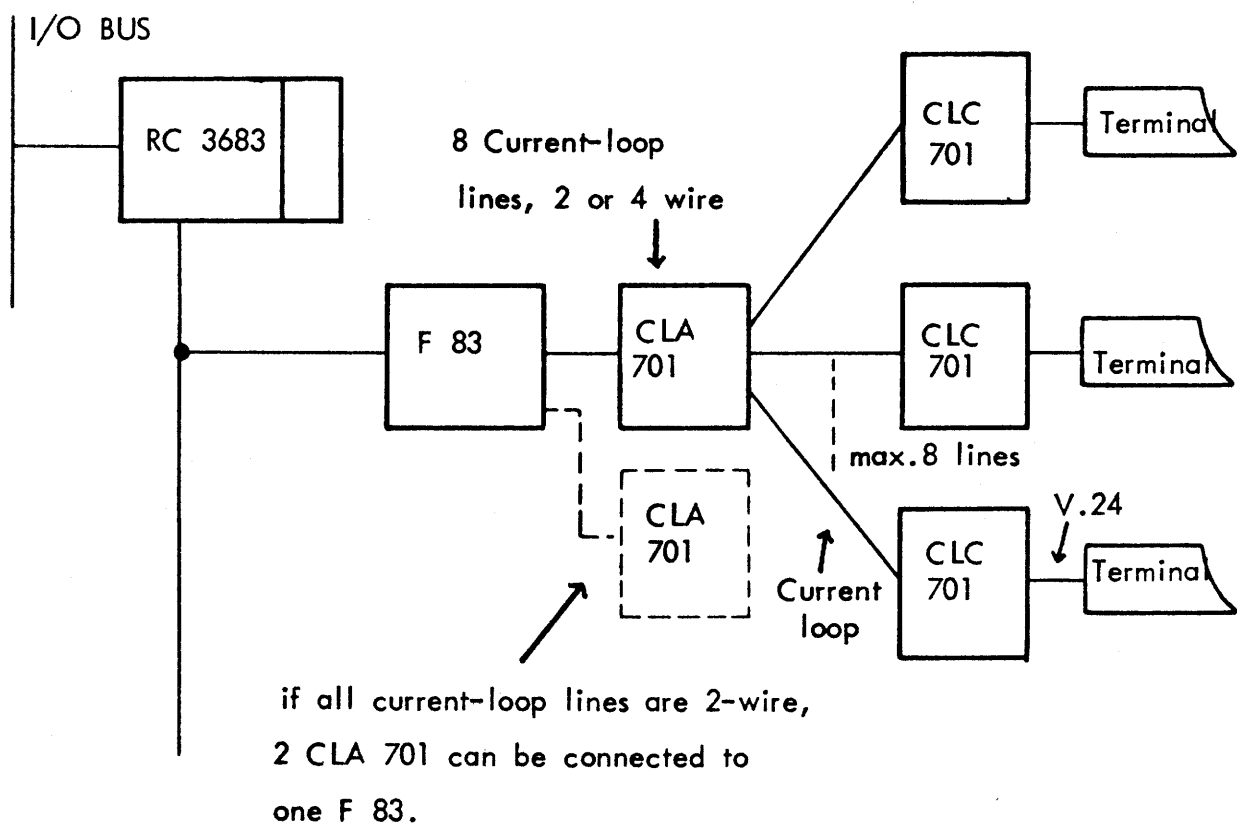
RC 3600 PERIPHERAL DEVICES
CURRENT-LOOP SYSTEM

INTRODUCTION.

The RC 3600 Current-loop system consists of a current-loop adapter CLA 701 and one or more current-loop converter, CLC 701.

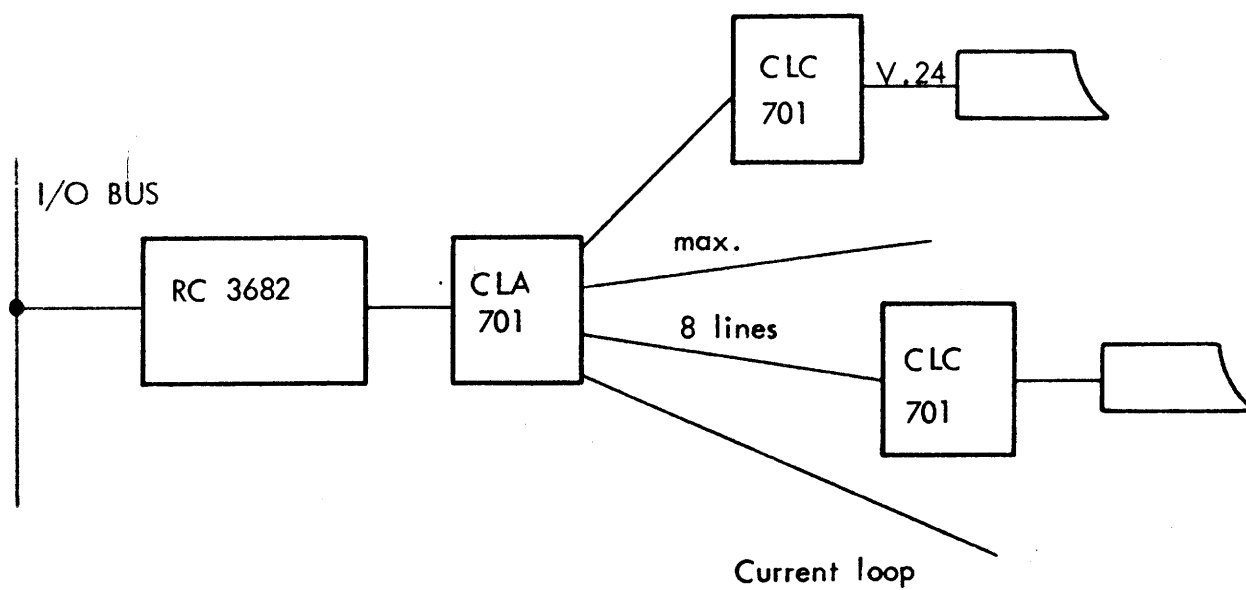
The current-loop adapter is connected to the RC 3600 system via the RC 3682 8 channel multiplexer or via the F 83 and RC 3683 multiplexer. The following 2 sketches should clarify how this connection is made:

1) Connection via RC 3683:



Each terminal requires one CLC 701 and one port in the CLA 701

2) Connection via RC 3682:



Only one CLA 701 can be connected to a RC 3682.

In the following the CLA 701 and the CLC 701 is specified.

SPECIFICATION.CURRENT-LOOP ADAPTER. CLA 701.General Description.

The Current-loop Adapter is designed to interface the telemultiplexer's RC 3682 or RC 3683 to the serial asynchronous high level signals of a current loop. The CLA 701 provides complete DC isolation for sending and receiving between the current loop and the RC 3600 computer. The operation is 20mA neutral mode and the output voltage from the CLA 701 is 32 volt. Half-duplex mode, or full-duplex mode is selected by the connection between the adapter and the line.

Description.

The Current-loop Adapter contains 8 identical circuits which can be connected to 8 telemultiplexer channels. Each circuit feeds 2 current loops if full-duplex mode is selected, and 1 current loop if half-duplex mode is selected. Each of the 8 circuits contains:

- a. One Transmitter Key.
- b. One Receiver.
- c. Two current Sources.
- d. Circuits, which converts Current-loop signals to V.24 signals.

The connection to the telemultiplexer is in accordance with the recommendation V.24 and the following signals are used.

- a. Transmitted Data.
- b. Received Data.
- c. Data Set Ready.

Transmitted Data is an input signal to the adapter (from telemultiplexer), and when the signal is logical one (-12v) the Transmitter Key is closed. When the signal is logical zero the Transmitter Key is open.

Received Data is an output signal from the adapter (to the telemultiplexer), and when the current in the Receiver is more positive than 10mA the signal is logical one (-12v), and if the current is less than 10mA the Received Data signal is logical zero (+12v).

Data Set Ready is an output signal from the adapter (to the telemultiplexer). Data Set Ready is logical ON (+12v), when the adapter is switched on and when both current loops are closed (only one loop in half-duplex mode).

SPECIFICATIONS:

Transmitter.

Output voltage	$32 \text{ v} \pm 5\%$
Output mark current	20-22mA
Output space current	0-0,1mA
Max. voltage over Transmitter Key, driving mark current	3,0 v
Capacitance between the Transmitter Key and computer	$\leq 2,5 \text{ pf}$

Receiver.

Max. input current	50mA
Max. voltage drop over Receiver	1,5 v
Input threshold current	$10\text{mA} \pm 5\%$
Capacitance between the Receiver and the computer	$\leq 1,5 \text{ pf}$

Current source.

Output current	20-22mA
Min. voltage drop	7 v

Line.

Max cable resistance	75 ohm/km
Max cable capacitance	50 nF/km
Max cable length	10 km
Max bitrate for 10 km cable	1200 b/s
max bitrate	4800 b/s

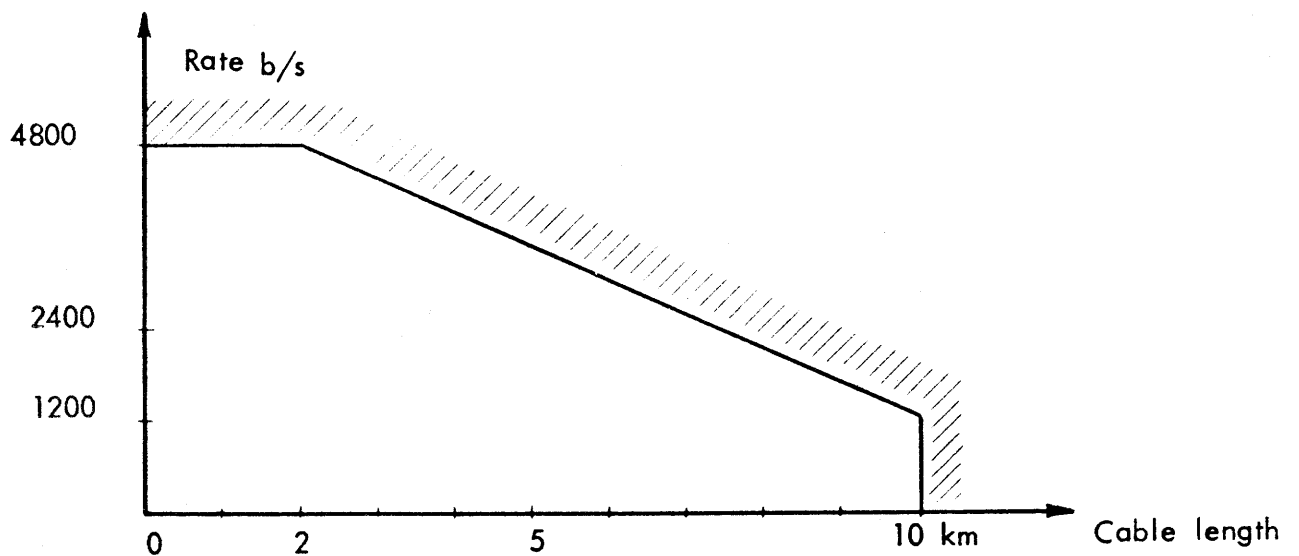


Figure 1. Max. allowed bit rate as a function of the length of the cable connected to the Current Loop Adapter CLA 701.

CURRENT LOOP CONVERTER. CLC 701.

General Description.

The Current-loop Converter is designed to match one terminal to the high level signals of a current-loop. The connection to the terminal is made in accordance with the recommendation V.24, and the connection to the Current-loop is made in accordance with the specifications for the Current-loop Adapter CLA 701. CLC 701 provides complete DC isolation for sending and receiving between the Current-loop and the terminal. The operation is 20mA neutral mode, and the voltage on the line is 32 V. This voltage is supplied by the CLA 701. Half-duplex mode or full duplex mode is selected by the connection between the converter and the line.

Description.

The Current Loop Converter contains a circuit which is connected to 2 Current-loops in full-duplex mode and 1 Current-loop in half-duplex mode. The circuit contains

- a. One Transmitter Key.
- b. One Receiver.
- c. Circuits which converts Current Loop signals to V.24 signals.

The connection to the terminal is in accordance with the recommendation V.24 and the following signals are used.

- a. Transmitted Data.
- b. Received Data.
- c. Data Set Ready.

Transmitted Data is an input signal to the converter (from the terminal), and when the signal is logical one (-12v) the Transmitter Key is closed. When the signal is logical zero the Transmitter Key is open.

Received Data is an output signal from the converter (to the terminal), and when the current in the Receiver is more positive than 10mA the signal is logical one (-12v), while if the current is less than 10mA the Received Data signal is logical zero (+12v).

Data Set Ready is an output signal from the converter (to the terminal), Data Set Ready is logical ON (+12v), when the converter is switched on and when current is flowing in both current-loops (only one loop in half-duplex mode).

SPECIFICATIONS:

Transmitter

Max voltage over Transmitter Key, when open	35v
Max current in Transmitter Key, when closed	40mA
Max current in Transmitter Key, when open	0,1mA
Max voltage over Transmitter Key, driving mark current	3,0v
Capacitance between the Transmitter Key and the terminal	$\leq 2,5$ pf

Receiver.

Max input current	50mA
Max voltage drop over Receiver	1,5v
Input threshold current	10mA \pm 5%
Capacitance between the Receiver and Terminal	≤ 1.5 pf

Line

Max. cable resistance	75 ohm/km
Max cable capacitance	50 nF/km
Max cable length	10 km
Max bit rate for 10 km cable	1200 b/s
max bit rate	4800 b/s

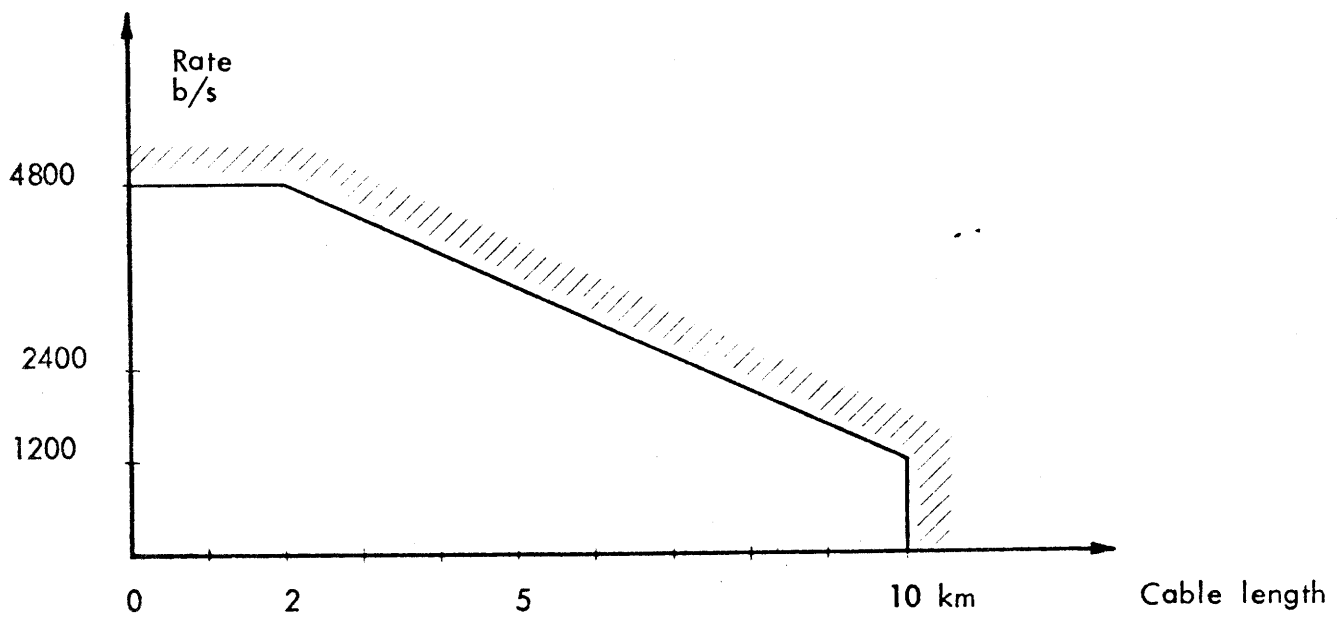


Figure 1. Max allowed bit rate as a function of the length of the cable connected to the Current Loop Converter CLC 701.