Interface specifications

Interface information

The 9110, 9120, 9130, 9140, 9180 and 9181 analyzers are equipped with a standard serial interface output. This interface output is intended to be used with standard commercially available computer systems.

The data transmitted through the serial interface port employs the ASCII code.

The serial interface is terminated on the rear cover with a 9-pin male DB-9 connector.

The signal levels are as follows:

- Binary 1 = -12 V to -3 V
- Binary 0 = +3 V to +12 V

Two stop bits follow the eight data bits to complete the 10 bit word.

The baud rate is set at 9600 Baud fixed.

The maximal recommended cable length is 40 feet.

The pin assignment is as follows:

- pin 1...sample ground...GND
- pin 2...receive data....RxD
- pin 3...send data.....TxD
- pin 4...NC
- pin 5...signal ground...GND
- pin 6...NC
- pin 7...RTS (not used)
- pin 8...CTS(not used)
- pin 9...NC

(NC=Not Connected)

Higher discharge current

A higher discharge current can be expected when using the serial interface. This must be checked by suitably qualified personnel, depending on the local regulations.

Software

The patient sample data is sent at the end of each measurement, the calibration report is sent at the end of each calibration.

The interface is always on, independent of the printer settings; the data is always sent.

Note

The arrow up (e.g. out of normal range) is sent as HEX 18 (↑), the arrow down as HEX19 (↓) and the ? (degree) is sent as HEX1A (→).

Example data string information

Automatic Calibration Report

```
<sx>* AVL 9130*<cr><crlf>ELECTROLYTE ISE<cr><crlf> 03JAN92
10:51crcrlf*CALIBR REPORT*<cr><crlf><cr><crlf>
DailyMaintenance<cr><crlf>Performed Last: <cr><crlf> 02JAN92 10:35
<cr><crlf><cr><crlf> Standard A<cr><crlf>Na = -112mV (3)<cr><crlf>
K = -1392mV (3)<cr><crlf>Cl = -106mV (3)<cr><crlf><cr><crlf>
Difference A-B<cr><crlf>Na = 1402mV ( )<cr><crlf>K = 1032mV ( )
<cr><crlf>Cl = -1006mV ( ) <cr><crlf><cr><crlf>Fluid Pack:<cr><crlf>
68% Remaining<cr><crlf><cr><crlf><ex>
```

Serum sample report

```
<sx>* AVL 9130*<cr><crlf>ELECTROLYTE ISE<cr><crlf> 03JAN92
10:59<cr><crlf><cr><crlf> Name: .........<cr><crlf> .........
<cr><crlf>Sample: SERUM<cr><crlf><cr><crlf> Sample No.13
<cr><crlf><cr><crlf>Na= 159soh mmol/L<cr><crlf>K = 5.4 mmol/L
<cr><crlf>Cl= 122soh mmol/L<cr><crlf><cr><crlf>*PERFORM DAILY *
<cr><crlf>*MAINTENANCE ! *<cr><crlf><cr><crlf><ex>
```

Data Link Information (9180/9181 only)

The data link with the COMPACT 2/3 blood gas analyzer allows to combine ISE results with pH/blood gas results on one printout. If Ca^{2+} is activated on the 9180/9181, a pH-corrected Ca^{2+} value will be calculated and printed on the combined sample report.

For connection of the 9180/9181 analyzer to the COMPACT 2/3 analyzer, the optional Interface Kit is required. To install the kit, first turn both instruments off. Connect the interface filter provided in the kit to the RS232 port on the 9180/9181. Then connect one end of the cable to the interface filter, the other end to the COM 2 port on the COMPACT 2/3. On the COMPACT 2/3, select *9180* under the COM 2 interface options.

See COMPACT 2/3 Operator's Manual for details.