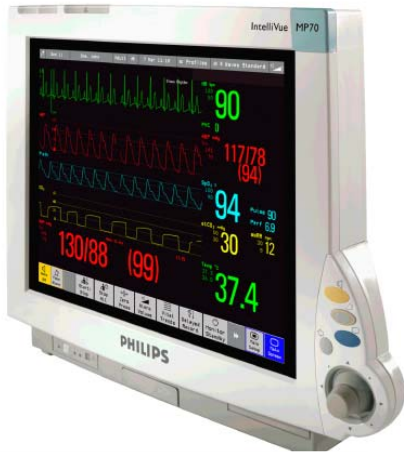


Options and pitfalls when using ICM+ for collecting data from Philips Intellivue- and Hemedex CBF-monitors

Frederick Daher ¹, Martin Soehle ²

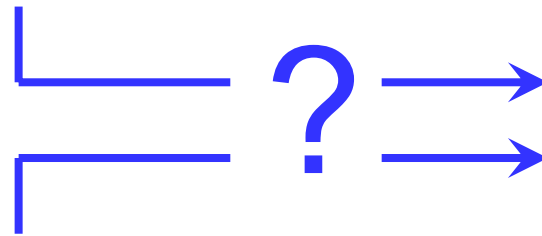
Dept. of Neurosurgery ¹,
Dept. of Anaesthesiology and Intensive Care Medicine ²,
University of Bonn, Germany

The challenge ...



Philips IntelliVue:

- arterial blood pressure
- intracranial pressure
- ECG, SpO₂, etc...



Hemedex Bowman Perfusion Monitor:

- regional CBF
- brain temperature



IntelliVue - Prerequisites

1.) serial interface card

- two serial interfaces (RJ 45)
- baud rate: 19,200 or 115,200

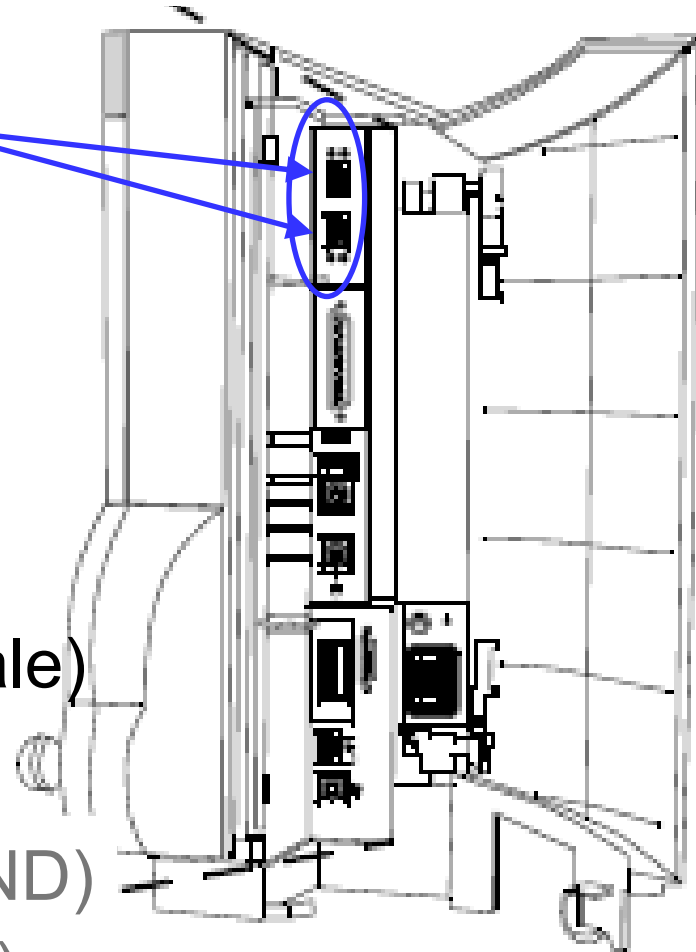
Configuration: Main Setup /
Setup Hardware / Data Export

2.) special interface cable

(RJ45 male — DB9 female)

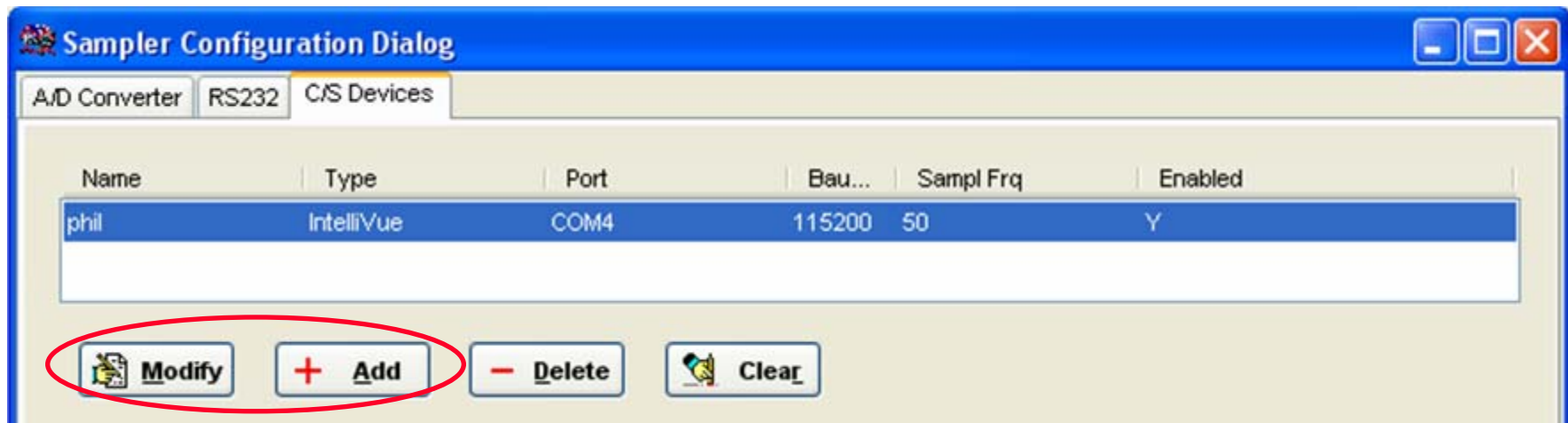


| | | | |
|-------|---|---|-------|
| pin 4 | — | 5 | (GND) |
| pin 5 | — | 2 | (Tx) |
| pin 7 | — | 3 | (Rx) |



ICM+ configuration

Configure IntelliVue as client/server (**C/S Devices**):



IntelliVue as C/S Device

Client Server Device Configuration Dialog

Device Name: Device Type:

List of available numerics received
Available signals list:
ECG,II,Pleth,ART,ICP,CO2,Resp,Trect,HR,RR,AbpPulse,SpO2,PlethPulse

list of recordable waves

Interface type
 RS232
 Network

COM Port:

Baud Rate:

IP Address:

Sampl. Freq.

Enabled:

Choose 115200 for recording of multiple waves

configuration of signals

Sampler Configuration Dialog

A/D Converter | RS232 | C/S Devices

| Name | Type | Port | Bau... | Sampl Frq | Enabled |
|------|------------|------|--------|-----------|---------|
| phil | IntelliVue | COM4 | 115200 | 50 | Y |

Modify **Add** **Delete** **Clear**

| Name | Units | Device | vWaveform | Min ... | Max ... | Enabled |
|-------|-------|--------|-----------|---------|---------|---------|
| abp | mmHg | phil | ABP | 0 | 300 | Y |
| icp | mmHg | phil | ICP | 0 | 200 | Y |
| SpO2 | % | phil | SpO2 | 0 | 100 | Y |
| ptiO2 | mmHg | phil | P | 0 | 200 | Y |
| HR | /min | phil | HR | 0 | 200 | Y |
| etCO2 | mmHg | phil | CO2 | 0 | 100 | Y |

Modify **Add** **Delete** **Clear**

OK **Cancel** **Save** **Load** **Advanced**

Assignment of signals to waveforms

Choose a **label for arterial blood pressure** at the IntelliVue monitor (e.g. **ABP** or **ART**), and **keep it!**

The image shows two overlapping software dialog boxes. The background dialog is titled "Client/Server Serial Device Signals Selection Dialog". It has a "Device" dropdown menu set to "phil". Below it are input fields for "Signal Name" (containing "abp"), "Signal Units" (containing "mmHg"), and "Waveform" (containing "ART"). A small square button with three dots is circled in blue next to the "Waveform" field. Below these fields is an "Enabled" checkbox which is checked. At the bottom are "OK" and "Cancel" buttons. A "Preview" window in the center shows a red waveform on a grid with a y-axis from 70 to 130. Below the preview are "Start" and "Stop" buttons. The foreground dialog is titled "Signal selection dialog" and contains a list of available signals: ECG, II, Pleth, ART, ICP, CO2, Resp, Trect, HR, RR, AbpPulse, SpO2, and PlethPulse. The "ART" signal is circled in red. At the bottom are "OK" and "Cancel" buttons. A blue arrow points from the circled button in the background dialog to the "ART" signal in the foreground dialog.

Hemedex Bowman Perfusion Monitor

(equipped with RS232 interface as standard)

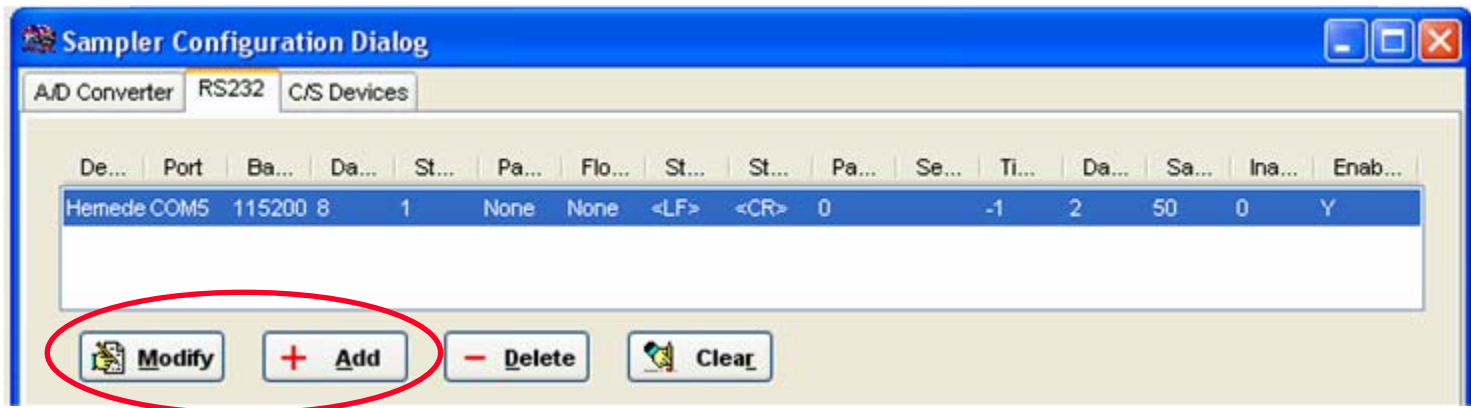
Requirements:

- standard serial cable (DB9 male – female),
- no nullmodem cable

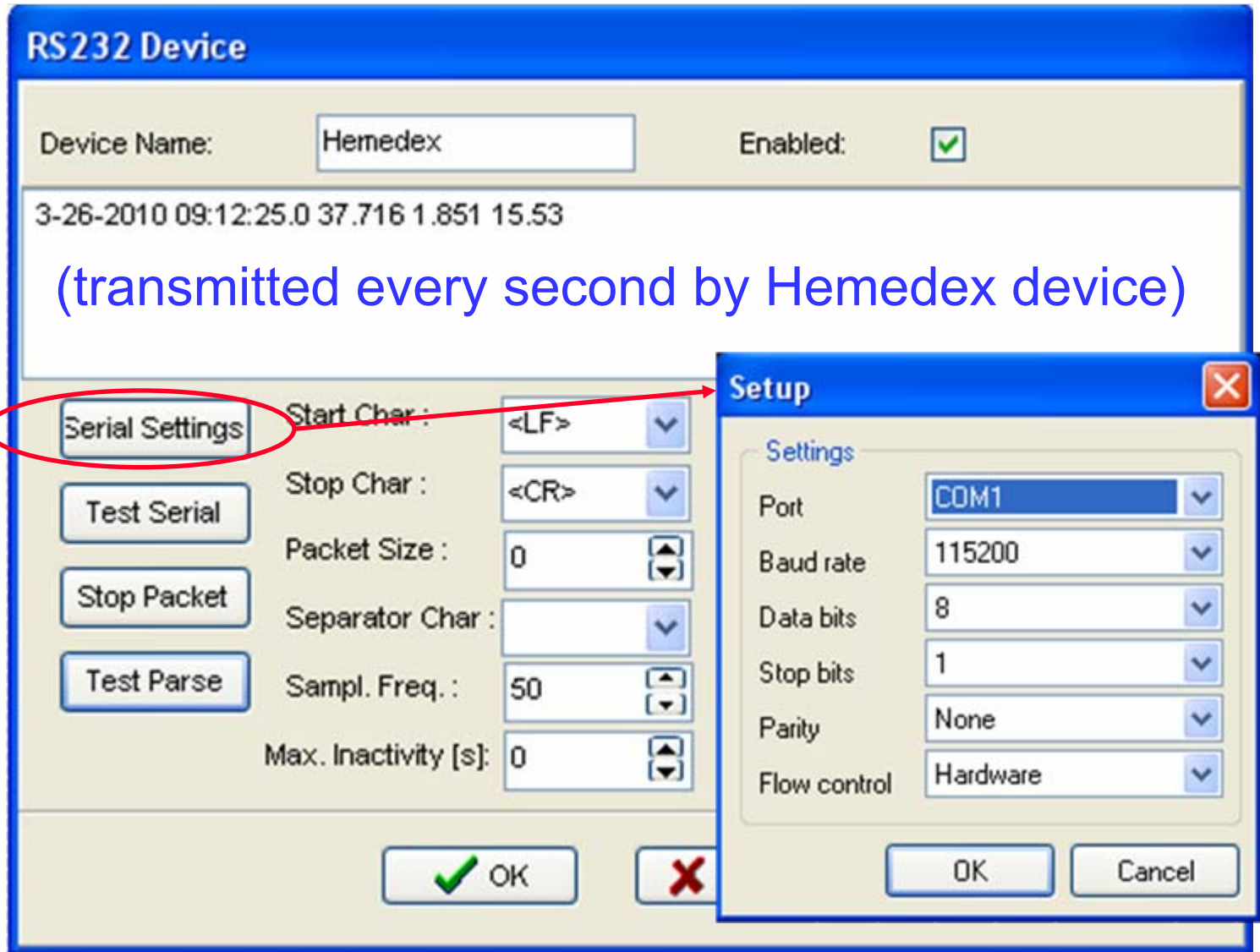


ICM+ configuration

Configure Hemedex as RS232 device ([RS232](#)):



Hemedex as RS232 device



Parsing is crucial !!!

RS232 Device

Device Name: Enabled:

3-26-2010 09:12:25.0 37.716 1.851 15.53

Serial Settings
Test Serial
Stop Packet
Test Parse

Start Char : <LF>
Stop Char : <CR>
Packet Size : 0
Separator Char :
Sampl. Freq. : 50
Max. Inactivity [s]: 0

Time field: -1
First data field: 2
Time Stamp:

Data:
3-26-2010
09:12:25.0
37.716
1.851
15.53

date
time 1
temp 2
 Δ temp 3
rCBF 4

data field
signal pos

space character

OK Cancel

Assignment of signals

Signal Position: 0 → brain temp, 2 → rCBF

RS232 Signal Editor

RS-232 Device : Hemedex

Signal Name : rCBF

Signal Units : ml/100g/min

Signal Position : 2

Enabled

Valid Values Range

Min Value : 0

Max Value : 300

Preview

Start Stop

OK Cancel

Summary of pitfalls

Philips IntelliVue Monitor:

- serial **interface card** required
- set **baud rate** to **115200**
- **special cable** required
- configure as client/server (C/S) device
- **choose label** for arterial blood pressure **and keep it**

Hemedex Bowman Perfusion Monitor:

- configure as RS 232 device
- use **correct parsing**