

# EPICS Driver for Bergoz BCM-RF

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# Overview

- Configuration interface of the Bergoz BCM-RF
- No existing EPICS driver was found  
(queried Tech-Talk on Oct 11, 2016)
- Serial protocol: use asyn and StreamDevice
- Eliminates the need for a Windows laptop

# Bergoz Turbo-ICT & BCM-RF

[www.bergoz.com](http://www.bergoz.com)



# Overcoming the Windows Requirement

- Vendor supports only a Windows driver
- Linux recognizes the USB device type
- Required Linux kernel option:  
    USB Modem (CDC ACM) support
- Linux device: `/dev/ttyACM0`

# Driver Requirements

- Read:
  - Sampled ADC value
  - Serial number
  - Average points
  - Reverse
  - Qcal
  - Ucal
- Read and Write:
  - Delay line
  - Switches

# StreamDevice: Example Protocols

```
Terminator = NL NUL;

#
# D0: Read digital delay value
#
# Command: D0?\n\000
# Reply:   D0:0000=00000000\n\000
#

getDelay {
    in "D0:%*4X=%8X";
    @init { out "D0?"; }
}

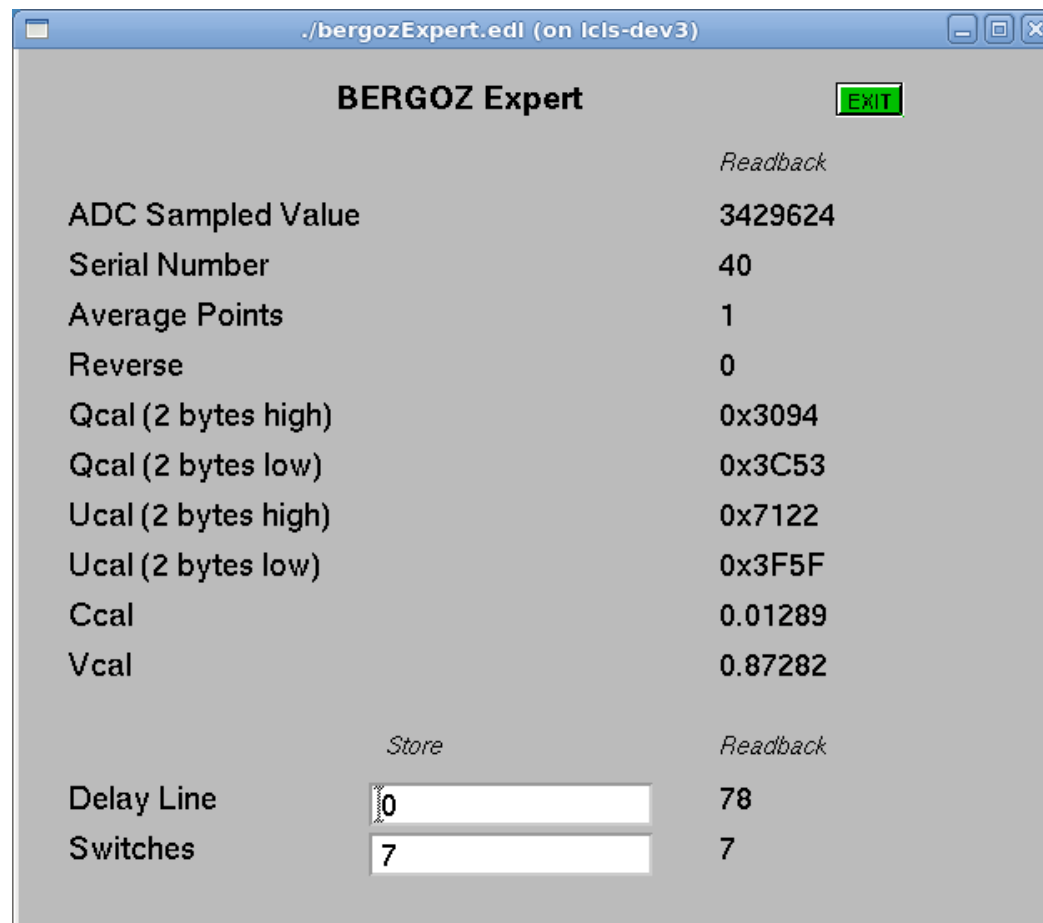
setDelay {
    out "D0:00%02X";
    out "D0?";
}
```

# StreamDevice: Example Records

```
record(longin, "$(P)$(R)DELAY:Rd")
{
    field(DESC, "Get digital delay value")
    field(DTYP, "stream")
    field(INP, "@devBergozBCM.proto getDelay $(PORT) $(A)")
    field(SCAN, "I/O Intr")
}

record(longout, "$(P)$(R)DELAY:St")
{
    field(DESC, "Set digital delay value")
    field(DTYP, "stream")
    field(OUT, "@devBergozBCM.proto setDelay $(PORT) $(A)")
    field(SCAN, "Passive")
}
```

# Example GUI





# EPICS StreamDevice References

- **StreamDevice doc - Dirk Zimoch**  
<http://epics.web.psi.ch/software/streamdevice/doc/>
- **StreamDevice tutorial - W. Eric Norum**  
[http://www.aps.anl.gov/epics/modules/soft/asyn/R4-24/HowToDoSerial/HowToDoSerial\\_StreamDevice.html](http://www.aps.anl.gov/epics/modules/soft/asyn/R4-24/HowToDoSerial/HowToDoSerial_StreamDevice.html)
- **Keithley PicoAmmeter driver**  
[/afs/slac/g/lcls/epics/R3-14-12-4\\_1-1/modules/Keithley6487/Keithley6487-R1-1\\_1-0](/afs/slac/g/lcls/epics/R3-14-12-4_1-1/modules/Keithley6487/Keithley6487-R1-1_1-0)

# Bergoz Hardware Requires USB

- USB Pros
  - Ubiquitous
  - Hotplug Convenience
- USB Cons
  - Software Complexity
  - Distance Limitation
  - Hotplug Problems