# Channel Controls

These enable selection of displayed traces and adjustment of vertical sensitivity and offset.

TRACE ON/OFF — Pressing these buttons either displays or switches off the corresponding channel trace. When a channel is switched on, the OFFSET and VOLTS/DIV controls will then be attributed to this, the *active* channel. On two-channel models (*right*), each channel has its own set of unique, dedicated controls.
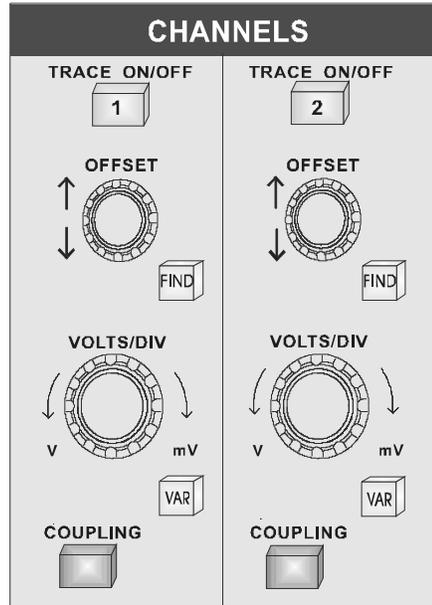
SELECT CHANNEL — On four-channel models (*right*), these buttons are used to attribute all the vertical controls to one channel, independent of whether or not it is the channel displayed. The selected channel number is highlighted in the Acquisition Summary field (*see previous chapter*).
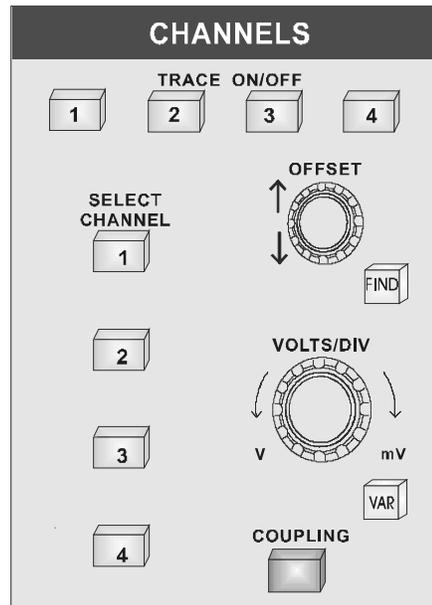
OFFSET — vertically positions the active channel.

FIND — automatically adjusts offset and volts/div to match the active channel's input signal.
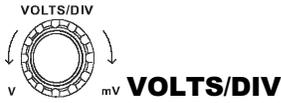
VOLTS/DIV — selects the vertical sensitivity factor either in a 1–2–5 sequence or continuously (*see VAR, below*). The effect of gain changes on the acquisition offset can be chosen from the "SPECIAL MODES" menu.

VAR — allows the user to determine whether the VOLTS/DIV knob will modify the vertical sensitivity in a continuous manner or in discrete 1–2–5 steps.

The format of the vertical sensitivity in the Acquisition Summary field (bottom left of screen) shows whether the VOLTS/DIV knob is operating in *continuous* or *stepping* mode.

COUPLING — menu-entry button that accesses the "Coupling" menus (*see next section*).

Coupling

Coupling Menus

Press \boxed{} ^{COUPLING} for access to selection of:

- ➤ **Coupling and grounding of each input channel**
- ➤ **ECL or TTL gain, offset and coupling preset for the channel shown**
- ➤ **Bandwidth limiter for all channels**
- ➤ **Probe attenuation of each input channel.**

```
CHANNEL 1
┌─Coupling─┐
│          │
│ DC50Ω    │
│ Grounded │
│ DC1MΩ    │
│ Grounded │
│ AC1MΩ    │
└──────────┘
┌V/div Offset┐
│  NORMAL    │
│ ECL  TTL   │
└────────────┘
┌─Global BWL─┐
│ OFF  25MHz │
│   200MHz   │
└────────────┘


┌─Probe Atten─┐
│ ×1          │
│ ×2          │
│ ×5          │
│ ×10         │
│ ×20         │
└─────────────┘
```

Coupling

Used to select the input channel's coupling. If an overload is detected, the instrument will automatically set the channel to the grounded state: the menu can then be reset to the desired coupling.

V/div Offset

When NORMAL is highlighted, pressing the corresponding menu button sets the offset, Volts/div, and input coupling to display ECL signals. Press the button a second time and the settings for TTL signals are given. And a third time returns the settings to those used at the last manual setup of the channel.

Global BWL

To turn the bandwidth limit "**OFF**" or "**ON**". The bandwidth can be reduced from 500 MHz or 1 GHz, to either 200 MHz or 25 MHz, or 30 MHz (–3dB), depending on the model (*see* Appendix A). Bandwidth limiting can be useful in reducing signal and system noise or preventing high-frequency aliasing, reducing — for example — any high-frequency signals that may cause aliasing in single-shot applications.

> **Note:** *This command is global and affects all input channels.*

Probe Atten

Sets the probe attenuation factor related to the input channel (*see following for probe details*).
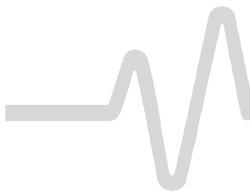
Probes and Probe Calibration

Probe Calibration

To calibrate the probe supplied, connect it to one of the input channels' BNC connectors. Connect the probe's grounding alligator clip to the CAL BNC ground and touch the tip to the inner conductor of the CAL BNC. The CAL signal is a 1 kHz square wave, 1 V p-p.

Set the channel coupling to DC 1 MΩ, turn the trace ON and push AUTO SETUP to set up the oscilloscope. If over- or undershoot of the displayed signal occurs, the probe can be adjusted by inserting the small screwdriver, supplied with the probe package, into the trimmer on the probe's barrel and turning it clockwise or counter-clockwise to achieve the optimal square-wave contour.

More On Coupling

In the AC position, signals are coupled capacitively, thus blocking the input signal's DC component and limiting the signal frequencies below 10 Hz.

In the DC position, all signal frequency components are allowed to pass through, and 1 MΩ or 50 Ω may be chosen as the input impedance.

The maximum dissipation into 50 Ω is 0.5 W and inputs will automatically be grounded whenever this is attained. An overload message will be displayed in the Acquisition Summary Field and "Grounded" will be indicated in the "Coupling" menu. The overload condition is reset by removing the signal from the input and again selecting the 50 Ω input impedance from the menu.

ProBus System

LeCroy's ProBus system provides a complete measurement solution from probe tip to oscilloscope display. This intelligent interconnection between LeCroy oscilloscopes and a growing range of accessories is achieved via a six-wire bus following Philips' I^{2}C protocol. It provides major benefits over standard BNC or even probe-ring connections:

➢ **Autosensing the probe type**, eliminating all the guesswork — and the errors — from manually setting attenuation or amplification factors, and ensuring proper input coupling.

➢ **Transparent gain and offset control** right from the front panel — particularly useful for FET (*FET menus shown here*) and current probes.

➢ **Gain and offset correction factors** are uploaded from the ProBus EPROMS on FET probes and **automatically compensated** to achieve fully calibrated measurements.

Coupling

Used to select the input channel's coupling. If an overload is detected, the instrument will automatically set the channel to the grounded state: the menu can then be reset to the desired coupling.

V/div Offset

When NORMAL is highlighted, pressing the corresponding menu button sets the offset, Volts/div, and input coupling to display ECL signals. Press the button a second time and the settings for TTL signals are given. And a third time returns the settings to those used at the last manual setup of the channel.

Global BWL

To turn the bandwidth limit "**OFF**" or "**ON**". The bandwidth can be reduced from 500 MHz or 1 GHz, to either 200 MHz or 25 MHz, or 30 MHz (–3dB), depending on the model (*see* Appendix A). Bandwidth limiting can be useful in reducing signal and system noise or preventing high-frequency aliasing, reducing — for example — any high-frequency signals that may cause aliasing in single-shot applications.

When a FET probe is used, "Probe sensed…", automatically appears to indicate settings. When other ProBus probes are used, this is redefined.

```
    CHANNEL 1
 ┌─Coupling─┐
 │ DC1MΩ    │
 │ Grounded │
 │ AC1MΩ    │
 └──────────┘

 ┌─V/div OFFset┐
 │  NORMAL     │
 │  ECL   TTL  │
 └─────────────┘
 ┌─Global BWL──┐
 │ OFF  25MHz  │
 │   200MHz    │
 └─────────────┘


  Probe sensed
  (AP020)
  ×10
```