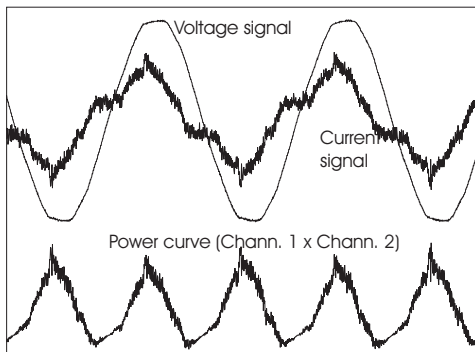
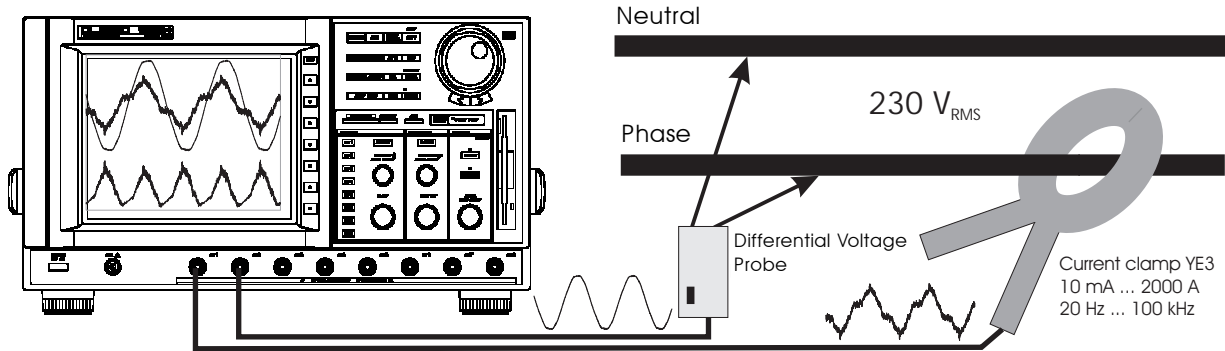


# A1

# Application

## Power measurement using a DSO



The following steps are carried out to perform a power computation with a DSO.

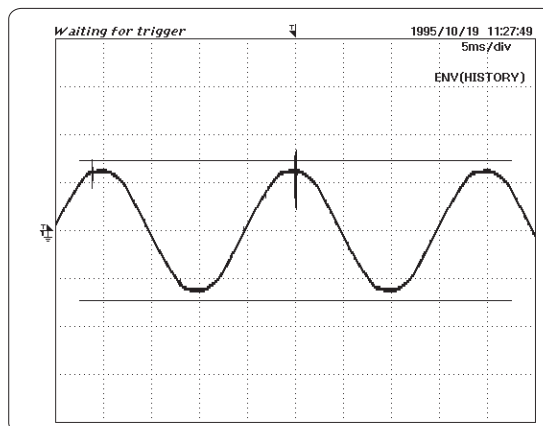
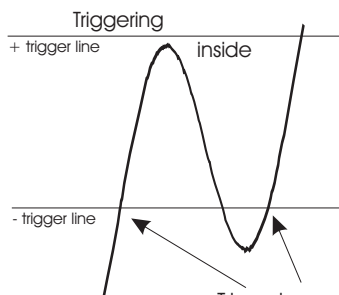
1. Scale the current waveform into Amps (1mV = 1A).
2. Use the MATHS function to multiply ch1 and ch2 (V\*I).
3. Use the AVERAGE function on the MATHS channel waveform.
4. Scale the Maths channel into Watts.

# A2

# Application

## Detection of power failures and spikes

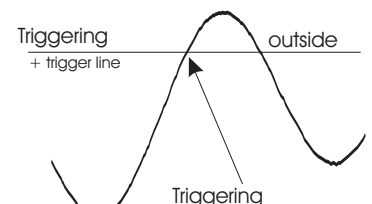
The window trigger allows the simultaneous monitoring of two voltage levels. As soon as a waveform exceeds one of the two limits, either by going inside or outside of the window, a trigger is detected. The monitoring period can be as long as necessary.



A tip:

Also use the ENVELOPE mode!

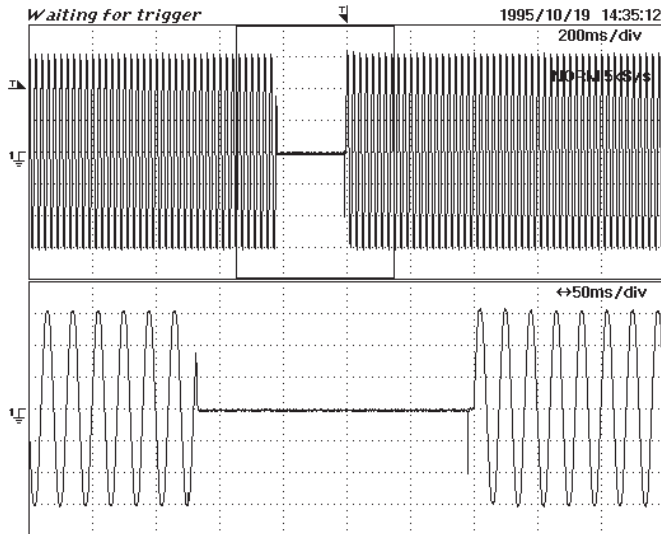
The DSO will operate at its highest sampling rate and it is therefore possible to acquire pulses in the nano-second region. Without the ENVELOPE mode, the measurement shown would only have used a 20KS/s sampling rate.



# A3

# Application

## Measurement of mains interruptions



The pulse width trigger facility of the Yokogawa DL1540 can be used to generate a trigger if a signal reappears after a preset interval. If a mains interruption lasts longer than a half cycle (10ms), both the failure and the recovery can be displayed.

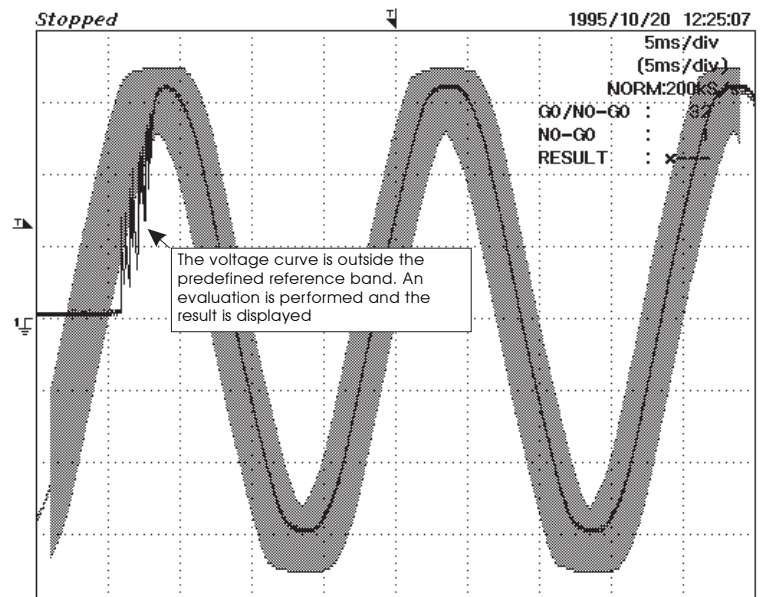
# A4

# Application

## Graphical monitoring of the shape of waveforms

The GO/NO-GO function of the DL1540 enables a waveform to be assessed either by its shape or its signal parameters. This function is particularly useful for the acquisition of shape deviations since any waveshape can be used as a reference. Each channel can have an individual reference and they can all be monitored simultaneously.

The results can be automatically printed or saved to a floppy disk.

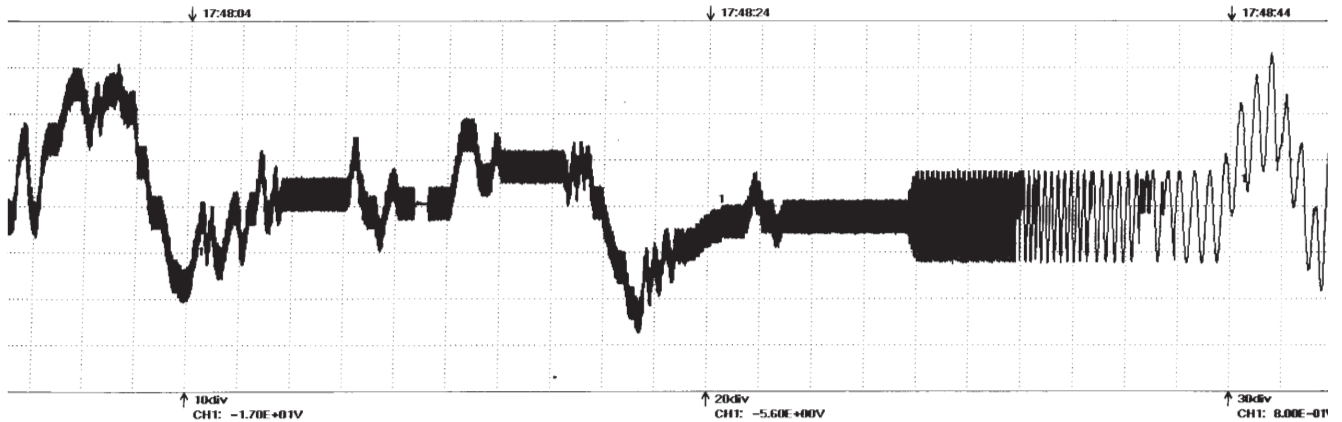


# A5

# Application

## Long term Real-Time print function

The real-time printing function of the DL1540 can be used for continuous long term recording. In this way a 4 channel chart recorder can be simulated. Unlike a pen recorder, however, very fast signal transients or pulses in the nanosecond range can be printed by using the envelope mode.

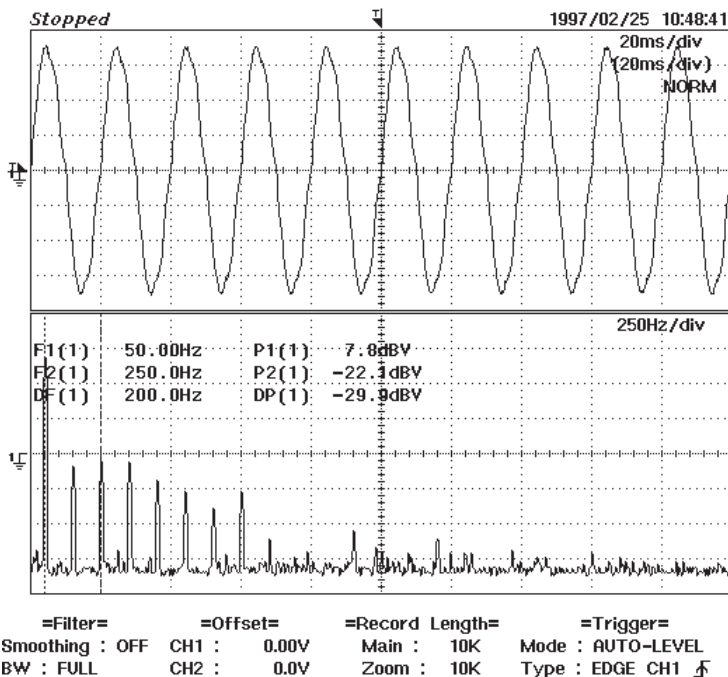


You can record continuously for more than two days with one roll of paper!!!

# A6

# Application

## FFT analysis



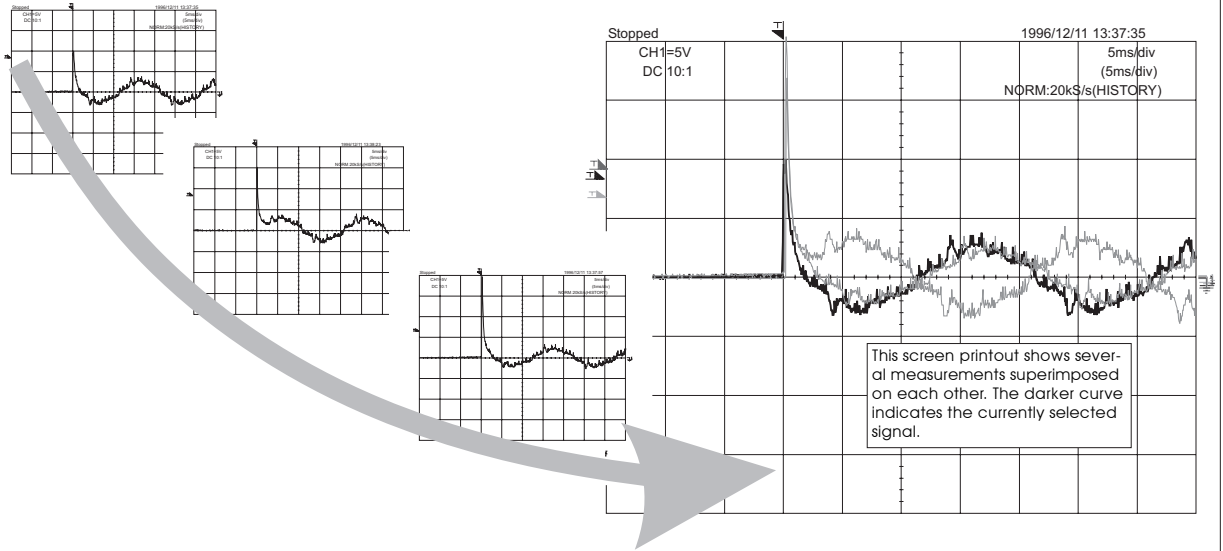
With the FFT function, a DL series DSO can perform high-speed frequency analysis of the input signal. In the example, a 50Hz mains signal is shown together with its frequency spectrum. The two selected cursors which, also display their relative content, are positioned on the fundamental frequency and the 5th harmonic. In this way, a DSO can provide a rapid assessment of the higher harmonics. The FFT analysis is performed on a window of 1000 measured values, which can be freely positioned within the total acquisition memory. In order to allow the analysis of both transient and continuous signals, like the 50Hz waveform, both rectangular and hanning windows are provided.

# A7

# Application

## Fault finding with the History function

Many users of Yokogawa DSOs particularly appreciate the History function, which enables erroneous signals to be found easily. With a traditional DSO, if an abnormal signal only occurs occasionally and cannot be defined with enough accuracy to use suitable trigger settings, the fault signal will have disappeared from the display by the time the stop key is pressed. Yokogawa DSOs store the last 100 acquisitions within its memory and therefore the abnormal signal can be redisplayed and analysed.



# A8

# Application

## Acquiring digital signals

For measurements on digital circuits, Yokogawa DSOs provide the appropriate trigger functions, e.g.:

### Pattern trigger

All the input channels are monitored and their logic states are compared against a defined pattern (AND gate). The logic level for each channel is individually selectable.

### OR trigger

All the input channels are monitored. A signal that exceeds the individual pre-set level on any channel will generate a trigger (OR gate).

### Pulse width trigger

Allows the acquisition of a time dependent event. After a change of state, the high or low level is monitored for a specified duration.

