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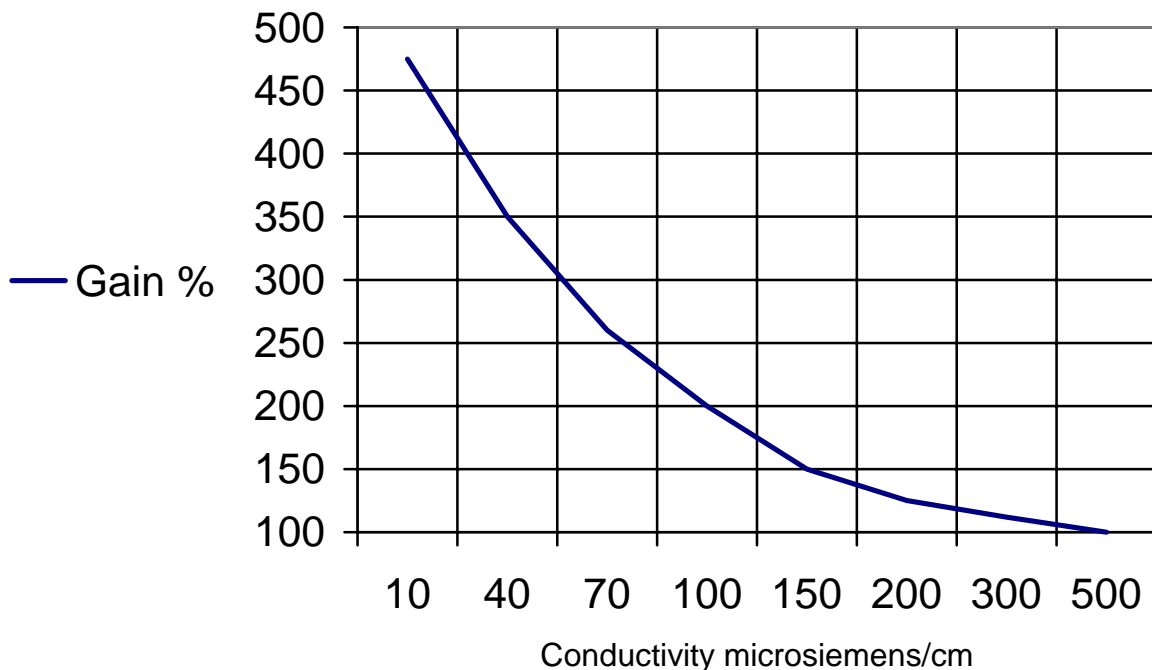
## Compensating for the effects of water conductivity In the 2100 and 1700 Aquantic Logie fish counters

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As stated in the operating and technical manuals for these counters, the magnitude of the signal produced by a given fish passing over the detection electrodes very much depends on the prevalent environmental conditions. The fish counter design allows for this fact by making regular measurements of the bulk resistance of the weir and then adjusting the gain of the signal processing stages in compensation.

In applications where fish significantly smaller than the electrode separation distance are intended to be counted, problems can arise because of the high resistance of the water separating the fish from the electrodes **under low conductivity conditions**. In locations that routinely experience wide variations in conductivity, (from hundreds to tens of micro siemens per centimetre) it is recommended that the fish counter be equipped with the conductivity compensation option. The action of this equipment is to continuously measure the water conductivity and then modify the signal processing gain such that uniform signal magnitudes are ensured even under adverse conductivity/fish size conditions.

In conditions of good water conductivity, say 300 $\mu$ S and above, no special adjustment is necessary even for fish smaller than the electrode separation. However, as conductivity values fall, it is found necessary to provide an increasingly accentuated gain. The gain compensation/conductivity adjustment curve has been established after extensive research and takes the following form:



On delivery, the fish counter has this compensation curve established as a default set of parameters and will refer to it in the set-up procedure prior to normal operation.

## Selecting Conductivity Settings

Optimum fish counter operation can only be achieved at a given site if the typical seasonal variation of conductivity at that site is known. The action to be taken by the user depends on the circumstances that prevail, and can be categorised as follows:

### Sites exhibiting a wide variation in conductivity

For these sites, a conductivity channel should have been installed. On power-up and every thirty minutes thereafter the counter will automatically take a conductivity reading and set the gain appropriately. Thus uniform performance will be ensured even under changing environmental conditions.

Action required: For most users, the default compensation profile should ensure satisfactory operation. Under certain circumstances, experienced users may wish to tailor the profile to suit their own special needs. This can be achieved using the 'E6' command (see manual, section 1.5.4).

### Sites exhibiting conductivities greater than or equal to 300 $\mu$ S/cm

In locations where water conductivity is always high and variations are small, optional equipment for its measurement should not be necessary. On power-up, the counter verifies the lack of such equipment and uses a fixed conductivity value when establishing the gain compensation operating point.

Action required: The user should ensure that the default conductivity value setting of their counter is appropriate for their site\*.

### Sites exhibiting conductivities less than 300 $\mu$ S/cm

In locations where water conductivity is always low and variations are small, optional equipment for its measurement should not be necessary, but the user must enter a site-specific value. On power-up, the counter verifies the lack of optional conductivity equipment and uses the user-entered value when establishing the gain compensation operating point.

Action required: The user should ensure that the default conductivity value setting of their counter is appropriate for their site\*.

It should be noted that these instructions are given only as a guide and that further adjustment may be found necessary in specific locations. Users may find that some "trial and error" estimation is necessary before optimum settings are established for their site.

#### \*Setting the default conductivity value:

This only applies where optional conductivity equipment is not fitted.

- 1 Select extended command 'E3'; display shows current default value.
- 2 Enter new three-digit value, or press 'D' to accept value shown.