

AUTOMATIC GAIN CONTROL CIRCUIT
AND METHOD FOR FULL GAIN RESTART

ABSTRACT OF THE DISCLOSURE

An automatic gain control circuit (44) is provided for generating an output gain signal (64) in a control loop. The control loop may be a continuous-time control loop or a sampled-time control loop. The automatic gain control circuit (144) includes a gain control circuit (100), an amplifier circuit such as a first amplifier (120) or a second amplifier (122), a control circuit (126), and a low pass filter (84). The gain control circuit (144) receives a read signal and generates an error signal in response. The first amplifier (120) receives the error signal and generates an amplified error signal. The control circuit (126) controls various switches, such as a first switch (100) and a second switch (102), so that the amplified error signal and the error signal may be provided to the low pass filter (84) during different periods. The amplified error signal is provided during a first period that is shorter than the response time of the control loop. The error signal is provided next after the first period and after a second period that is longer than the response time of the control loop. The low pass filter (84) filters these signals and generates the output gain signal (64).

Figure 1