

CURRENT FEEDBACK AMPLIFIER HAVING
TRIM CIRCUITRY AND METHOD FOR CONTROLLING
AND EQUALIZING STATOR WINDING CURRENT

ABSTRACT OF THE DISCLOSURE

A current feedback amplifier (12) is provided for controlling a stator winding phase current in a polyphase stator winding, such as a three-phase stator winding (10), of a polyphase direct current motor. The current amplifier (12) includes a first stage current feedback amplifier C (27) and a second stage current feedback amplifier (100) coupled through a switch (101). The first stage current feedback amplifier C (27) detects a stator winding phase current I_{AB} flowing through a C-coil (15) of the three-phase stator winding (10) and generates an equalized sense current I_{sense} in response that is related to I_{AB} . The equalized sense current I_{sense} is generated using a phase trim FET (31) and an adjustable phase trim FET (32). The second stage current feedback amplifier (100) receives I_{sense} from the first stage current feedback amplifier C (27) and generates a control signal. This may be done by comparing I_{sense} to an amplitude adjusted reference current I_{ref} . The amplitude adjusted reference current I_{ref} is generated using an amplitude trim FET (81) and an adjustable amplitude trim FET (82). The second stage current feedback amplifier (100) provides the control signal to a driver circuit for controlling the stator winding phase current. The second stage current feedback amplifier (100) may sequentially or commutatively couple to other first stage current sense amplifiers, such as a first stage current feedback amplifier B (30) or a first stage current feedback amplifier A (28), to control other stator winding phase currents to generate equalized, amplitude adjusted stator winding phase currents.

Figure 2