LTC2872
Half-Duplex Control Issue

Reported: July 2012
Resolved: March 2013

Update: This LTC2872 issue was corrected beginning with product date code 1339.

The LTC®2872 has a logic error that prevents the RS485 transceiver from entering half-duplex mode when one of the two ports is configured in RS232 mode. In this configuration, the port configured for RS485 mode will operate in full-duplex mode, independent of the state on the H/$\overline{F}$ pin. If both ports are configured for RS485 mode, the H/$\overline{F}$ pin works as expected, controlling both ports to be in half- or full-duplex mode. The behavior is captured in Table 1. Workarounds are described in the following section. The LTC2872 is being revised to correct this issue. Contact Linear Technology Corporation regarding availability.

Table 1. Mode Control (FEN = 1)

INPUT CONDITIONS ON PINS			RESULTING MODES*		COMMENT
H/$\overline{F}$	485/$\overline{232}$_1	485/$\overline{232}$_2	PORT 1	PORT 2	
0	0	0	RS232	RS232	Correct
0	0	1	RS232	RS485, FD	Correct
0	1	0	RS485, FD	RS232	Correct
0	1	1	RS485, FD	RS485, FD	Correct
1	0	0	RS232	RS232	Correct
1	0	1	RS232	**RS485, FD**	**Should be HD on Port 2**
1	1	0	**RS485, FD**	RS232	**Should be HD on Port 1**
1	1	1	RS485, HD	RS485, HD	Correct

* FD: Full Duplex, HD: Half Duplex

WORKAROUNDS

This issue only surfaces when one port is configured in RS232 mode and the other port is configured in RS485 mode, half duplex. The devices can be wired in half duplex mode externally if this configuration is required, as shown in Figure 1. In this case, if the internal termination is required for the RS485 lines, set TE485 high and DZ low on the port that is configured for RS485. Setting DZ low disables the 120Ω driver termination resistor between Y and Z, so that it is not in parallel with the 120Ω receiver termination resistor between A and B.

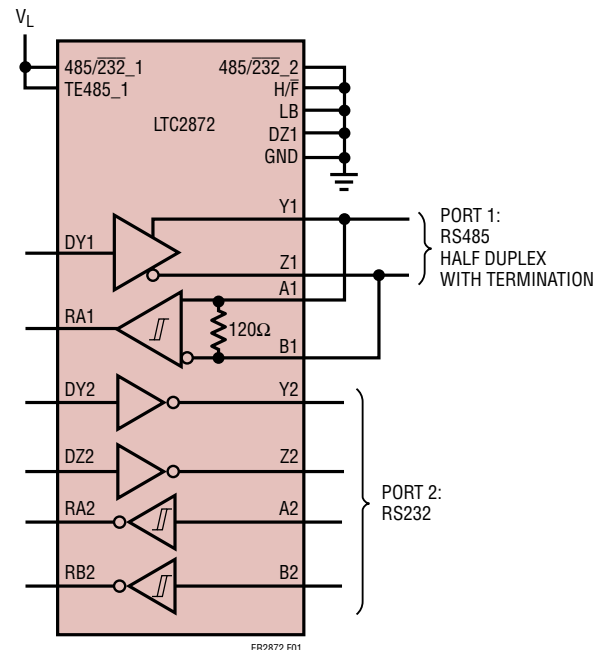**Figure 1. Using External Connections to Configure Port 1 in RS485 Mode, Half Duplex, While Port 2 is in RS232 Mode**

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