DALLAS
SEMICONDUCTOR

Application Note 339
DS2141A, DS2151 Programming, D4 Framing Applications

Transmit Framing

In D4 framing applications, the transmit side of the DS2141A and DS2151 can be set up to automatically insert both the Ft and the Fs framing pattern. To have the devices insert the Ft pattern, set the TCR1.6 bit to zero. To have the devices insert the Fs pattern, first set the CCR2.5 bit to one, then set TCR1.2 to zero, and finally program the TFDL register with a value of XX011100 (or 1C hex). The DS2141A and DS2151 will automatically pull the Fs pattern from the TFDL register. The user can corrupt the Fs pattern by changing the value in the TFDL register.

If the user wishes to have the DS2141A and DS2151 not alter the Ft pattern that is present in the data stream, then the TCR1.6 bit should be set to one. If the Fs bits should not be altered, then the TCR1.2 bit should be set to one and the TLINK pin should be tied to the TSER pin.

Synchronizing

In all applications, it is recommended that the cross coupling sync criteria (RCR1.3 = 1) be used. This feature makes the synchronizer in the DS2141A and DS2151 impervious to false framing patterns such as Digital Milliwatt. Under special circumstances, the user may find it necessary to relax the sync criteria and via the RCR1.3 bit this can be accomplished.

Yellow Alarm Options

In most applications, the user will use the normal definition for yellow alarm which is the setting of bit 2 of all channels to zero. However, the DS2141A and DS2151 does offer an alternative yellow alarm in the D4 framing mode which is to set the Fs bit position in frame 12 to one. This yellow alarm is sometimes referred to as the "Japanese Yellow Alarm" and it is controlled in the devices via the RCR2.2 bit.