



Life Energy Motion

Product Change Notification

PCN-031_2020_0-OMTB2014601

One update of performance in data sheet CTSR series

Beijing, 19th June 2020

Based on the JEDEC JESD46 standard (latest release)

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Dear customer,

To answer to continuous market requirement for improved performances, and in a permanent effort to improve the quality of its products, LEM intends to proceed to some modification on **CTSR series**.

Concerned products:

CTSR 0.3-P; CTSR 0.3-P/SP10; CTSR 0.3-P/SP3; CTSR 0.3-P/SP5;

CTSR 0.3-P T;

CTSR 0.6-P; CTSR 0.6-P/SP10;

CTSR 1-P; CTSR 1-P/SP10;

CTSR 2-P/SP10;

CTSR 5-P; CTSR 5-P/SP3; CTSR 5-P/SP5;

CTSR 0.3-TP/SP14; CTSR 0.3-TP/SP15; CTSR 0.3-TP/SP17; CTSR 0.3-TP/SP4;

CTSR 0.6-TP/SP16; CTSR 0.6-TP/SP18; CTSR 0.6-TP/SP2;

CTSR 1-TP/SP15; CTSR 1-TP/SP18; CTSR 1-TP/SP19;

CTSR 1.5-TP/SP18;

CTSR 2-TP/SP19;

CTSR 3-TP/SP19;



Change:

➤ **Description of the technical change:**

One update of performance in data sheet.

V_{out} : Output voltage referred to V_{ref} (test current) : let's call it "Vofat" as follows:

| Version | Current Datasheet Spec | Future Datasheet spec |
|---------------------|------------------------|-----------------------|
| CTSR 0.3X | 0.7 V ~ 1.7 V | 0.001 V ~ 1.7 V |
| CTSR 0.6X | 0.4 V ~ 1.1V | 0.001 V ~ 1.1V |
| CTSR 0.6-P/SP10 | 0.7 V ~ 1.7 V | 0.001 V ~ 1.7 V |
| CTSR 1X | 0.2 V ~ 0.5 V | 0.001 V ~ 0.5 V |
| CTSR 1.5X | 0.05 V ~ 0.35 V | 0.001 V ~ 0.35 V |
| CTSR 5X except /SP3 | 0.25 V ~ 0.45 V | 0.001 V ~ 0.45 V |



➤ **Reason of the technical change:**

The value at 0.001 V provides enough information that the Fluxgate and the DRV401 amplifier are working fine. No need to have a higher value. This higher value was generating some scrap of finished goods during manufacturing delaying some deliveries.

The test mode voltage is applied to check the functionality of the Fluxgate and the amplifier of the DRV401 used inside.

1. At the moment of test mode, current of about 1.5 mA is injected from Vcc to the Fluxgate winding and causes the Fluxgate output signal from the normal operating state. Normally, if the inductance increases, the current injection has more impact on the Fluxgate output voltage and causes a higher Vofat. If the inductance of the Fluxgate decreases, the impact decreases and the Vofat decreases at the same time.
2. The Fluxgate inductance change impacts on the sensitivity of the Fluxgate.
3. The Fluxgate sensor works in the feedback system and then does not have direct impact on the sensitivity and accuracy of CTSR compared to the winding turns and sample resistance as the sensitivity of Fluxgate to magnetic flux density decreases.
4. The checking of the Fluxgate working state can be done at a small value versus what is indicated in the current data sheets.
5. The value setting at 1mV of Vofat still allows to check the functionality of checking for Amplifier.

Impact on the product:

- On the form: NO
- On the fit: NO
- On the function: NO
- On the reliability: NO
- On the data sheet: YES





Life Energy Motion

Schedule of the modification:

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| Start of delivery of modified products | Mid July 2020 |
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Sincerely yours,

Stéphane ROLLIER

Product Manager

