



## Recommended Additions for Certain Bourns® Rotary Optical Encoders

### *Model EM14 and EN Series*

Riverside, California – September 17, 2021 – On April 8, 2021, Bourns issued a [Product Change Notification](#) regarding a change in ASICs for the [Model EM14](#) and [EN Series](#) Rotary Optical Encoders.

Additional testing has revealed that the new ASIC requires one pull-up resistor and one capacitor per channel to substantially reduce or eliminate undesired noise present in the output. Bourns recommends adding a 1K ohm pull-up resistor and a 22 nF capacitor tied to ground for each ASIC channel.

Please see the modified data sheets for the updated schematics.

Implementation date with the new ASIC remains unchanged (and has already passed):

*Production date of Rotary Optical Encoders with the new ASIC: May 18, 2021*

If you have any questions or need additional information, please feel free to [contact Customer Service/Inside Sales](#).

To review the published PCN please use the following link:

[https://bourns.com/docs/technical-documents/product-change-notifications/Bourns\\_SC2110\\_EM14\\_EN\\_PCN.pdf](https://bourns.com/docs/technical-documents/product-change-notifications/Bourns_SC2110_EM14_EN_PCN.pdf)

#### Affected part numbers are listed below:

|                   |                   |                   |
|-------------------|-------------------|-------------------|
| EM14A1A-B24-L008N | EM14A0A-C24-L064S | EM14A0D-515-L032H |
| EM14A1A-B28-L032N | EM14A0A-C28-L232N | EM14A0D-520-R264N |
| EM14A1B-517-L032H | EM14A0B-503-L064H | EM14A0D-B24-L032S |
| EM14A1B-C24-L032H | EM14A0B-513-L064H | EM14A0D-B24-L064S |
| EM14C1A-C24-L032N | EM14A0B-525-L064S | EM14A0D-B28-L008S |
| EM14C1A-E24-L008N | EM14A0B-B24-L064H | EM14A0D-B28-L032N |
| EM14C1A-E24-L032H | EM14A0B-B28-L064H | EM14A0D-B28-L032S |
| EM14A0A-504-L064H | EM14A0B-B28-R064N | EM14A0D-B28-L064N |

SC2132

**Affected part numbers are listed below:**

|                   |                   |                   |
|-------------------|-------------------|-------------------|
| EM14A0A-505-L064H | EM14A0B-C24-L064H | EM14A0D-B28-L064S |
| EM14A0A-B24-L064N | EM14A0B-C24-L064S | EM14A0D-C24-L008N |
| EM14A0A-B24-L064S | EM14A0D-506-L064N | EM14A0D-C24-L016S |
| EM14A0A-B24-L164N | EM14A0D-507-L064N | EM14A0D-C24-L032H |
| EM14A0D-C24-L032N | EM14A1D-C24-L032H | EM14R0B-528-L032N |
| EM14A0D-C24-L032S | EM14A1D-C24-L032N | EM14R0B-529-L064S |
| EM14A0D-C24-L064H | EM14A1D-C24-L032S | EM14R0B-C24-L064S |
| EM14A0D-C24-L064N | EM14A1D-C24-L108S | EM14R0B-M20-L064N |
| EM14A0D-C24-L064S | EM14A1D-C24-L132N | EM14R0B-M20-L064S |
| EM14A0D-C24-L132N | EM14A1D-C24-L208H | EM14R0B-M25-L064N |
| EM14A0D-C24-L132S | EM14A1D-C24-L232H | EM14R0B-M25-L064S |
| EM14A0D-C24-L164N | EM14A1D-C24-L232S | EM14R0B-R20-L064N |
| EM14A0D-C24-L216S | EM14A1D-C28-L032S | EM14R0B-R20-R064S |
| EM14A0D-C24-L264H | EM14A1D-C28-R032H | EM14R0D-M15-L016N |
| EM14A0D-C24-R008S | EM14A1D-C28-R232H | EM14R0D-M20-L008N |
| EM14A0D-C28-L032N | EM14C0A-E24-L064H | EM14R0D-M20-L016N |
| EM14A0D-C28-L032S | EM14C0A-E24-L064S | EM14R0D-M20-L064H |
| EM14A0D-C28-L064N | EM14C0A-E28-R164H | EM14R0D-M20-L064N |
| EM14A1A-B24-R032N | EM14C0D-E24-L016S | EM14R0D-M20-L064S |
| EM14A1A-B24-R032S | EM14C0D-E24-L032S | EM14R0D-M20-L132S |
| EM14A1A-C24-L032S | EM14C0D-E24-L064N | EM14R0D-M20-L216N |
| EM14A1B-502-L032N | EM14C0D-E24-L064S | EM14R0D-M20-L232N |
| EM14A1B-516-L032N | EM14C0D-E24-L264N | EM14R0D-M20-R064N |
| EM14A1B-526-L008S | EM14C0D-E28-L016N | EM14R0D-M20-R464N |
| EM14A1B-527-L032H | EM14C0D-E28-L032S | EM14R0D-M25-L016N |
| EM14A1B-B24-L032N | EM14C0D-E28-L064N | EM14R0D-M25-L032N |
| EM14A1B-C24-L008H | EM14C0D-E28-L064S | EM14R0D-M25-L064N |
| EM14A1B-C24-L008N | EM14C1A-E28-L032N | EM14R0D-M25-L064S |
| EM14A1B-C24-L032N | EM14C1D-B24-L032S | EM14R0D-R20-L032N |
| EM14A1B-C24-L032S | EM14C1D-E24-L008S | EM14R0D-R20-L032S |
| EM14A1B-C24-R008N | EM14C1D-E24-L032S | EM14R0D-R20-L064S |
| EM14A1B-C24-R032S | EM14C1D-E28-L032S | EM14R0D-R20-R016S |
| EM14A1D-501-L032H | EM14C0A-E24-L064S | EM14R0D-R20-R032N |
| EM14A1D-511-L008H | EM14R0A-500-L016N | EM14R0D-R25-L032N |
| EM14A1D-512-L232H | EM14R0A-508-L064H | EM14R0D-R25-L032S |
| EM14A1D-514-L232N | EM14R0A-M20-L064H | EM14R0D-R25-L064S |
| EM14A1D-518-L232H | EM14R0A-M20-L064N | EM14R1A-M20-L032S |
| EM14A1D-519-L232N | EM14R0A-M20-L264H | EM14R1A-M20-R032S |
| EM14A1D-B24-L032S | EM14R0A-M20-R064N | EM14R1A-M25-L008H |

Affected part numbers are listed below:

|                   |                   |                   |
|-------------------|-------------------|-------------------|
| EM14A1D-B28-L032H | EM14R0A-M25-L064S | EM14R1A-M25-L032S |
| EM14A1D-B28-L032N | EM14R0A-M25-R032N | EM14R1A-R20-L008N |
| EM14A1D-B28-L032S | EM14R0A-M25-R064N | EM14R1A-R20-L032S |
| EM14A1D-C24-L008H | EM14R0B-510-L064N | EM14R1B-523-L032S |
| EM14A1D-C24-L008N | EM14R0B-522-L064N | EM14R1B-M20-L032N |
| EM14A1D-C24-L008S | EM14R0B-524-L064N | EM14R1B-M20-L032S |
| EM14R1B-M25-L008H | ENA1D-B22-L00064  | ENA1J-B20-L00064L |
| EM14R1D-M20-L008S | ENA1D-B24-L00064  | ENA1J-B20-L00100  |
| EM14R1D-M20-L032H | ENA1D-B28-L00050  | ENA1J-B20-L00100L |
| EM14R1D-M20-L032S | ENA1D-B28-L00064  | ENA1J-B20-L00128  |
| EM14R1D-M20-L208S | ENA1D-B28-L00100  | ENA1J-B20-L00128L |
| EM14R1D-M20-R008N | ENA1D-B28-L00100L | ENA1J-B20-R00064  |
| EM14R1D-M25-L032N | ENA1D-B28-L00128  | ENA1J-B20-R00064L |
| EM14R1D-M25-L032S | ENA1D-B28-L00128L | ENA1J-B24-L00100  |
| EM14R1D-R20-L032N | ENA1D-B28-L00256  | ENA1J-B28-L00025  |
| EM14R1D-R20-L032S | ENA1D-B28-N00128L | ENA1J-B28-L00025L |
| EM14R1D-R25-L032S | ENA1D-B28-R00064  | ENA1J-B28-L00050  |
| ENA1D-472-L00050  | ENA1D-B28-R00064L | ENA1J-B28-L00064  |
| ENA1D-472-L00050L | ENA1D-B28-R00128  | ENA1J-B28-L00064L |
| ENA1D-477-L00100  | ENA1D-B28-R00128L | ENA1J-B28-L00100  |
| ENA1D-481-L00100  | ENA1D-B28-R00256  | ENA1J-B28-L00100L |
| ENA1D-481-L00100L | ENA1D-B28-R00256L | ENA1J-B28-L00128  |
| ENA1D-482-R00064  | ENA1D-B28-W00256L | ENA1J-B28-L00128L |
| ENA1D-491-Y00200  | ENA1D-B32-L00025  | ENA1J-B28-L00256  |
| ENA1D-494-L00100  | ENA1D-C16-L00100  | ENA1J-B28-L00256L |
| ENA1D-494-L00100L | ENA1D-C28-L00256L | ENA1J-B28-M00128  |
| ENA1D-510-N00064L | ENA1D-C28-R00256L | ENA1J-B28-N00128  |
| ENA1D-511-N00128L | ENA1J-442-M00128  | ENA1J-B28-N00128L |
| ENA1D-514-L00064L | ENA1J-456-L00128  | ENA1J-B28-R00064  |
| ENA1D-514-L00066L | ENA1J-456-L00128L | ENA1J-B28-R00064L |
| ENA1D-519-N00128L | ENA1J-473-Y00064  | ENA1J-B28-R00100L |
| ENA1D-B16-L00064  | ENA1J-482-R00064  | ENA1J-B28-R00128  |
| ENA1D-B16-L00100  | ENA1J-492-M00100  | ENA1J-B28-W00128  |
| ENA1D-B16-R00064  | ENA1J-498-R00064  | ENA1J-B40-L00025  |
| ENA1D-B16-R00128  | ENA1J-498-R00064L | ENA1J-C20-N00128L |
| ENA1D-B20-L00025  | ENA1J-500-L00256  | ENA1J-C28-L00064L |
| ENA1D-B20-L00064  | ENA1J-501-N00064  | ENA1J-C28-L00100L |
| ENA1D-B20-L00064L | ENA1J-501-N00064L | ENA1J-C28-L00128  |
| ENA1D-B20-L00100  | ENA1J-505-L00128  | ENA1J-C28-L00128L |

Affected part numbers are listed below:

|                   |                   |                   |
|-------------------|-------------------|-------------------|
| ENA1D-B20-L00100L | ENA1J-509-W00128L | ENA1J-C28-N00128L |
| ENA1D-B20-L00128  | ENA1J-512-L00100L | ENA1J-C28-R00128  |
| ENA1D-B20-L00128L | ENA1J-516-M00256L | ENA1J-C28-R00128L |
| ENA1D-B20-R00025  | ENA1J-518-N00128L | ENA1J-C28-Y00128  |
| ENA1D-B20-R00025L | ENA1J-520-W00128L | ENA1J-D28-L00256  |
| ENA1D-B20-R00128  | ENA1J-B16-L00064  | ENA1P-427-L00128  |
| ENA1D-B20-W00128  | ENA1J-B16-Y00025L | ENA1P-453-L00050  |
| ENA1D-B20-W00128L | ENA1J-B20-L00064  | ENA1P-453-L00050L |
| ENA1P-B16-L00050  | ENC1J-465-R00064  | ENS1D-460-W00128  |
| ENA1P-B28-L00050  | ENC1J-487-L00100  | ENS1D-464-M00128  |
| ENA1P-B28-L00050L | ENC1J-D16-L00064  | ENS1D-474-M00128  |
| ENA1P-B28-L00128  | ENC1J-D16-L00064L | ENS1D-475-Y00200  |
| ENA1P-B28-L00128L | ENC1J-D16-L00128  | ENS1D-475-Y00200L |
| ENA1P-C24-L00256L | ENC1J-D16-L00128L | ENS1D-489-W00100  |
| ENA2D-B28-L00064  | ENC1J-D16-L00200  | ENS1D-489-W00100L |
| ENA2J-B28-L00064  | ENC1J-D16-L00256  | ENS1D-B28-L00064  |
| ENA2J-B28-L00064L | ENC1J-D16-R00128  | ENS1D-B28-L00064L |
| ENA2J-B28-L00100  | ENC1J-D16-R00256  | ENS1D-B28-L00100  |
| ENA2J-B28-L00100L | ENC1J-D16-R00256L | ENS1D-B28-L00100L |
| ENA2J-B28-R00100  | ENC1J-D20-L00064  | ENS1D-B28-L00128  |
| ENA2J-C28-L00128  | ENC1J-D20-L00100  | ENS1D-B28-L00128L |
| ENA2J-C28-L00128L | ENC1J-D20-L00100L | ENS1D-B28-L00256  |
| ENC1D-429-W00064  | ENC1J-D20-L00128  | ENS1D-B28-L00256L |
| ENC1D-484-R00128  | ENC1J-D20-L00128L | ENS1D-B28-R00050  |
| ENC1D-485-L00100  | ENC1J-D20-L00256  | ENS1D-B28-R00050L |
| ENC1D-487-L00100  | ENC1J-D20-R00125L | ENS1D-B28-R00064  |
| ENC1D-D16-L00064  | ENC1J-D20-R00128L | ENS1D-B28-Y00256  |
| ENC1D-D16-L00064L | ENC1J-D24-R00064  | ENS1D-B28-Y00256L |
| ENC1D-D16-L00128  | ENC1J-D28-L00025  | ENS1D-C28-L00128  |
| ENC1D-D16-L00128L | ENC1J-D28-L00050  | ENS1D-C28-L00128L |
| ENC1D-D16-L00256  | ENC1J-D28-L00064  | ENS1D-C28-W00128  |
| ENC1D-D20-L00128  | ENC1J-D28-L00064L | ENS1J-440-L00128  |
| ENC1D-D20-L00128L | ENC1J-D28-L00100  | ENS1J-448-M00100  |
| ENC1D-D20-L00256  | ENC1J-D28-L00100L | ENS1J-448-M00100L |
| ENC1D-D20-R00128  | ENC1J-D28-L00128  | ENS1J-450-R00256  |
| ENC1D-D28-L00064  | ENC1J-D28-L00128L | ENS1J-450-R00256L |
| ENC1D-D28-L00064L | ENC1J-D28-L00200  | ENS1J-454-L00100  |
| ENC1D-D28-L00100  | ENC1J-D28-L00256  | ENS1J-454-L00100L |
| ENC1D-D28-L00100L | ENC1J-D28-L00256L | ENS1J-466-W00128  |

**Affected part numbers are listed below:**

|                   |                   |                   |
|-------------------|-------------------|-------------------|
| ENC1D-D28-L00128  | ENC1J-D28-M00064  | ENS1J-466-W00128L |
| ENC1D-D28-L00128L | ENC1J-D28-R00064  | ENS1J-469-L00256  |
| ENC1D-D28-N00128  | ENC1J-D28-R00128L | ENS1J-469-L00256L |
| ENC1D-D28-R00025  | ENC1J-D28-W00128  | ENS1J-470-W00128  |
| ENC1D-D28-R00025L | ENC1P-421-L00128  | ENS1J-470-W00128L |
| ENC1D-D28-R00064  | ENC1P-D28-L00128  | ENS1J-476-L00256  |
| ENC1D-D28-R00256  | ENC2J-D16-R00100L | ENS1J-478-M00128  |
| ENC1D-D28-R00256L | ENS1D-441-M00128  | ENS1J-497-L00256  |
| ENC1J-421-L00128  | ENS1D-452-Y00256  | ENS1J-504-L00256  |
| ENC1J-459-L00128  | ENS1D-452-Y00256L | ENS1J-504-L00256L |
| ENS1J-508-R00128L | ENS1J-C24-R00025L | ENT1D-D28-M00256  |
| ENS1J-517-L00128L | ENS1J-C28-L00064L | ENT1D-D28-M00256L |
| ENS1J-B16-L00100  | ENS1J-C28-L00128  | ENT1D-D28-R00100  |
| ENS1J-B16-L00100L | ENS1J-C28-L00128L | ENT1D-D28-R00100L |
| ENS1J-B16-L00128  | ENS1J-C28-R00128  | ENT1D-D28-W00100  |
| ENS1J-B16-L00256L | ENS1J-C28-R00128L | ENT1D-D28-W00100L |
| ENS1J-B16-R00100  | ENS1J-C28-Y00256  | ENT1D-D20-L00128  |
| ENS1J-B20-L00064  | ENS1P-427-L00128  | ENT1J-445-M00100  |
| ENS1J-B20-L00100  | ENS1P-458-L00128  | ENT1J-D16-L00256  |
| ENS1J-B20-L00100L | ENS1P-458-L00128L | ENT1J-D20-L00256  |
| ENS1J-B20-L00128  | ENS1P-B28-L00128  | ENT1J-D20-R00256  |
| ENS1J-B20-L00256  | ENS2D-B28-L00128  | ENT1J-D20-R00256L |
| ENS1J-B20-L00256L | ENS2J-B28-L00064  | ENT1J-D28-L00025  |
| ENS1J-B20-R00025  | ENS2J-B28-L00100  | ENT1J-D28-L00025L |
| ENS1J-B20-R00256L | ENS2J-B28-L00128  | ENT1J-D28-L00064  |
| ENS1J-B28-L00025  | ENS2J-B28-L00128L | ENT1J-D28-L00064L |
| ENS1J-B28-L00050  | ENS2J-C20-R00050  | ENT1J-D28-L00100  |
| ENS1J-B28-L00064  | ENT1D-419-Y00128  | ENT1J-D28-L00100L |
| ENS1J-B28-L00064L | ENT1D-430-Y00050  | ENT1J-D28-L00128  |
| ENS1J-B28-L00100  | ENT1D-431-W00064  | ENT1J-D28-L00128L |
| ENS1J-B28-L00100L | ENT1D-437-L00256  | ENT1J-D28-L00256  |
| ENS1J-B28-L00128  | ENT1D-437-L00256L | ENT1J-D28-L00256L |
| ENS1J-B28-L00128L | ENT1D-438-L00256  | ENT1J-D28-M00128  |
| ENS1J-B28-L00256  | ENT1D-438-L00256L | ENT1J-D28-R00050  |
| ENS1J-B28-L00256L | ENT1D-449-Y00064  | ENT1J-D28-R00128  |
| ENS1J-B28-R00100  | ENT1D-449-Y00064L | ENT1J-D28-R00256  |
| ENS1J-B28-R00100L | ENT1D-457-Y00050  | ENW1D-432-W00064  |
| ENS1J-B28-R00128  | ENT1D-467-Y00064  | ENW1D-432-W00064L |
| ENS1J-B28-R00128L | ENT1D-467-Y00064L | ENW1D-461-M00100  |

## Affected part numbers are listed below:

|                   |                   |                   |
|-------------------|-------------------|-------------------|
| ENS1J-B28-R00256  | ENT1D-502-W00064  | ENW1D-479-L00256  |
| ENS1J-B28-W00100  | ENT1D-502-W00064L | ENW1D-D16-R00256  |
| ENS1J-B28-W00128  | ENT1D-D16-L00256  | ENW1D-D24-L00064  |
| ENS1J-B28-Y00128  | ENT1D-D16-R00128  | ENW1D-D28-L00128  |
| ENS1J-B28-Y00128L | ENT1D-D20-L00128  | ENW1D-D28-L00256  |
| ENS1J-B28-Y00256  | ENT1D-D20-L00256  | ENW1D-D28-L00256L |
| ENS1J-B28-Y00256L | ENT1D-D20-L00256L | ENW1J-D28-L00128  |
| ENS1J-B32-W00256  | ENT1D-D20-R00128  | ENZ1D-411-W00100  |
| ENS1J-B40-L00025  | ENT1D-D20-R00256L | ENZ1D-416-L00128  |
| ENS1J-B60-L00100  | ENT1D-D28-L00100  | ENZ1D-417-L00100  |
| ENS1J-C20-Y00256  | ENT1D-D28-L00100L | ENZ1D-423-Z00128  |
| ENS1J-C24-R00025  | ENT1D-D28-L00256  | ENZ1D-423-Z00128L |
| ENZ1D-444-L00100  | ENZ1D-493-L00100  | ENZ1J-405-L00128  |
| ENZ1D-444-L00100L | ENZ1D-494-L00100  | ENZ1J-410-Y00025  |
| ENZ1D-461-M00100  | ENZ1D-495-L00100  | ENZ1J-410-Y00025L |
| ENZ1D-463-L00100  | ENZ1D-495-L00100L | ENZ1J-462-L00050  |
| ENZ1D-471-Z00128  | ENZ1D-496-L00100  | ENZ1P-436-L00050  |
| ENZ1D-471-Z00128L | ENZ1D-506-Z00128L | ENZ1P-436-L00050L |
| ENZ1D-488-L00100  | ENZ1D-507-Z00128L | ENZ1P-515-L00050L |
| ENZ1D-488-L00100L | ENZ1J-401-L00256  |                   |