Product Change Notification

Ensenso N30/N35 Rev. 2 cameras replace current N30/N35 cameras

Affected Product:	All Ensenso N30 and N35 cameras (detailed list appended)
Type of Product Change:	☒ Electrical Specification ☐ Mechanical Specification ☒ Optical Specification (Projector unit only) ☒ Firmware Specification ☐ Regulatory or Compliance ☒ Change of Part Number for Rev. 2 ☒ Discontinued Product or Part
Document Version:	1.5 – public release
Document release date:	2020-10-16
Proposed date of change:	Switch to Rev. 2 models: N30/N35 **IR** models: 2020-11-01 N30/N35 **BL** models: 2021-01-15



Overview and scope

The Ensenso N30/N35 Rev. 2 cameras feature a new internal electronics revision superseding the current N30/N35 models which are thereby discontinued. The N30/N35 Rev. 2 cameras have the same housing, connectors, optical setup and are compatible to the same EnsensoSDK versions as the current N30/N35 models. Thus N30/N35 Rev. 2 cameras are a 1:1 replacement for the current N30/N35 cameras for any application and can provide some functional benefits and differences described here.

Reasons and description of the product adaption

Housing, connectors, optical setup

The camera housing as well as the external data and GPIO ports remain unchanged between the N30/N35 Rev. 2 and the current N30/N35 (hereafter Rev. 1). Also the internal optical setup remains the same. Thus there is no difference in mechanical integration or working volume.

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Internal electronics revision

The internal electronics of the N30/N35 Rev. 2 are revised in order to reduce the assembly complexity, improve on power efficiency, and improve internal temperature compensation.

In more detail, the following changes are made:

- Internal FFC cabling is replaced with FlexPCB
- LED current regulator efficiency is improved
- N35 models only: Piezo-mechanical system is updated to the system used in Ensenso X series featuring improved temperature compensation
- IR models only: New IR LED model with greater output power is used.

The internal changes result in the following functional benefits and differences:

- For all N30/N35 Rev. 2 models, the **projector LED duty cycle limit is increased from 5% to 10%** allowing faster image acquisition. E.g., when using an N35 with many FlexView exposures, the overall acquisition time can shorten by up to a factor of two depending on the chosen exposure time. Please note that this does not apply to acquisitions using the front light LED.
- The **N30/N35 Rev. 2 IR models require lower exposure times** to achieve the same brightness and projector pattern contrast in the raw images. Production testing shows effective exposure time reductions of 10-35% for varying conditions. Depending on the application setup, this can improve performance, distance range, data quality, and/or robustness versus environment illumination.
- The revised **N35 FlexView pattern shift direction is aligned with the stereo baseline** instead of tilted against the stereo baseline. This difference is apparent when inspecting the FlexView raw image pairs but does not affect the 3D data quality.
- The LED wear is reduced improving the system reliability.
- To account for the slightly increased current demand of the revised electronics, the **minimum supply voltage at the GPIO port is 11.5V** (previously 11V). Also for long supply wiring the voltage must not drop below and it is recommended to connect to 24V.

Software compatibility

The discovery and recognition of N30/N35 Rev. 2 models in the EnsensoSDK is identical to the Rev.1 models. This means that **all EnsensoSDK and IDS uEye Software Suite versions supporting the N30/N35 Rev. 1 cameras also support the N30/N35 Rev. 2 cameras**. This includes, e.g., EnsensoSDK versions from the 1.3 and 2.0 branch.

The Rev. 2 models are listed by the Ensenso NxLib API with the identical “ModelName” based on the combination of projector module and optical setup, i.e., “N35-802-16-BL”, and also no other distinction is made. In consequence, **no software adaptation is necessary to use the N30/N35 Rev. 2 cameras in existing applications** unless one of the points above requires checking.

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Forthcoming EnsensoSDK versions in branch 2.3 and later will offer the revision information also via the API.

Ensenso firmware versions

The above means that the **N30/N35 Rev. 2 cameras are also compatible to all IDS uEye camera firmware versions supporting the Rev. 1**. In addition, Rev. 2 cameras carry an Ensenso N series projector firmware version ≥ 8 which is **backwards compatible to all EnsensoSDK versions since the initial support of the N30/N35 models**. The Ensenso projector firmware is also included in the EnsensoSDK and firmware version 8 is included from EnsensoSDK version 2.2.175 onwards.

Given that older EnsensoSDK versions include older N series projector firmware versions < 8 that are not compatible with the N30/N35 Rev. 2 models, please note that a forced downgrade of the projector firmware should not be attempted and will not happen by default. However, the NxLib includes functions that allow users to deliberately force a projector firmware downgrade. E.g., the NxLib command “Open” features a command parameter “FirmwareUpload” > “Projector” that can be explicitly specified as “true” (default is “false”). If such a parametrization were deliberately executed using an older NxLib version on an N30/N35 Rev. 2 model it would downgrade its projector firmware to an incompatible version < 8, thereby rendering the projector module unable to function correctly.

This issue can be easily resolved by opening the affected camera using EnsensoSDK 2.2.175 or newer which will by default upgrade the projector firmware again.

Recommended actions for customers

Please check whether the differences in function described above, i.e., the potentially faster image acquisition due to increased LED duty cycle or the reduced exposure time for the N30/N35 IR models possibly require adaptations in the parametrization of the N30/N35 cameras. Please also check whether the minimum supply voltage is maintained.

In case of doubt, please check whether your NxLib implementation forces projector firmware downgrades as described above and eventually take measures to prevent those for N30/N35 Rev. 2 camera models.

No further regulatory actions are required by customers unless the product is certified, e.g., in a medical application. If this should be the case, please contact IDS sales for an evaluation sample.

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Affected Part Numbers

Part numbers (Rev. 1)	Article Matchcode
AB00725	N30-602-16-bl Stereo-3D-Kamera, Bereich 460-3000mm
AB00788	N30-602-16-ir Stereo-3D-Kamera, Bereich 460-3000mm
AB00726	N30-604-16-bl Stereo-3D-Kamera, Bereich 330-1100mm
AB02665	N30-604-16-ir Stereo-3D-Kamera, Bereich 330-1100mm
AB00698	N30-606-16-bl Stereo-3D-Kamera, Ber. 260-490 mm
AB02628	N30-606-16-ir Stereo-3D-Kamera, Ber. 260-490 mm
AB00727	N30-608-16-bl Stereo-3D-Kamera, Bereich 210-300mm
AB00857	N30-608-16-ir Stereo-3D-Kamera, Bereich 210-300mm
AB00728	N30-610-16-bl Stereo-3D-Kamera, Bereich 170-210mm
AB00729	N30-802-16-bl Stereo-3D-Kamera, Bereich 700-3000mm
AB02636	N30-802-16-ir Stereo-3D-Kamera, Bereich 700-3000mm
AB00730	N30-804-16-bl Stereo-3D-Kamera, Bereich 470-1100mm
AB00731	N30-806-16-bl Stereo-3D-Kamera, Bereich 350-550mm
AB00732	N30-808-16-bl Stereo-3D-Kamera, Bereich 280-360mm
AB00733	N30-810-16-bl Stereo-3D-Kamera, Bereich 240-270mm
AB00734	N30-1202-16-bl Stereo-3D-Kamera, Ber. 1100-2300mm
AB00735	N30-1204-16-bl Stereo-3D-Kamera, Bereich 600-850mm
AB02887	N30-1204-16-ir Stereo-3D-Kamera, Bereich 600-850mm
AB00736	N30-1206-16-bl Stereo-3D-Kamera, Bereich 410-500mm
AB00737	N30-1208-16-bl Stereo-3D-Kamera, Bereich 330-360mm
AB00738	N30-1210-16-bl Stereo-3D-Kamera, Bereich 270-270mm
AB02922	N30-1602-20-bl Stereo-3D-Kamera, Ber. 1300-1900mm
AB02923	N30-1604-20-bl Stereo-3D-Kamera, Bereich 700-800mm
AB02924	N30-1606-20-bl Stereo-3D-Kamera, Bereich 440-480mm
AB02925	N30-1608-20-bl Stereo-3D-Kamera, Bereich 340-350mm
AB02926	N30-1610-20-bl Stereo-3D-Kamera, Bereich 270-270mm
AB00744	N35-602-16-bl Stereo-3D-Kamera, Bereich 460-3000mm
AB00781	N35-602-16-ir Stereo-3D-Kamera, Bereich 460-3000mm
AB00745	N35-604-16-bl Stereo-3D-Kamera, Bereich 330-1100mm
AB00973	N35-604-16-ir Stereo-3D-Kamera, Bereich 330-1100mm
AB00746	N35-606-16-bl Stereo-3D-Kamera, Bereich 260-490 mm
AB00768	N35-606-16-ir Stereo-3D-Kamera, Bereich 260-490 mm
AB00747	N35-608-16-bl Stereo-3D-Kamera, Bereich 210-300mm
AB00748	N35-610-16-bl Stereo-3D-Kamera, Bereich 170-210mm
AB00723	N35-802-16-bl Stereo-3D-Kamera, Bereich 700-3000mm
AB00785	N35-802-16-ir Stereo-3D-Kamera, Bereich 700-3000mm
AB00749	N35-804-16-bl Stereo-3D-Kamera, Bereich 470-1100mm
AB00817	N35-804-16-ir Stereo-3D-Kamera, Bereich 470-1100mm

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AB00750	N35-806-16-bl Stereo-3D-Kamera, Bereich 350-550mm
AB02909	N35-806-16-ir Stereo-3D-Kamera, Bereich 350-550mm
AB00751	N35-808-16-bl Stereo-3D-Kamera, Bereich 280-360mm
AB02517	N35-808-16-ir Stereo-3D-Kamera, Bereich 280-360mm
AB00752	N35-810-16-bl Stereo-3D-Kamera, Bereich 240-270mm
AB00753	N35-1202-16-bl Stereo-3D-Kamera, Ber. 1100-2300mm
AB02731	N35-1202-16-ir Stereo-3D-Kamera, Ber. 1100-2300mm
AB00754	N35-1204-16-bl Stereo-3D-Kamera, Bereich 600-850mm
AB00816	N35-1204-16-ir Stereo-3D-Kamera, Bereich 600-850mm
AB00755	N35-1206-16-bl Stereo-3D-Kamera, Bereich 410-500mm
AB00756	N35-1208-16-bl Stereo-3D-Kamera, Bereich 330-360mm
AB00757	N35-1210-16-bl Stereo-3D-Kamera, Bereich 270-270mm
AB02927	N35-1602-20-bl Stereo-3D-Kamera, Ber. 1300-1900mm
AB02928	N35-1604-20-bl Stereo-3D-Kamera, Bereich 700-800mm
AB02948	N35-1604-20-ir Stereo-3D-Kamera, Bereich 700-800mm
AB02929	N35-1606-20-bl Stereo-3D-Kamera, Bereich 440-480mm
AB02930	N35-1608-20-bl Stereo-3D-Kamera, Bereich 340-350mm
AB02931	N35-1610-20-bl Stereo-3D-Kamera, Bereich 270-270mm
AB02932	N35-1610-20-ir Stereo-3D-Kamera, Bereich 270-270mm

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