



US 20230232132A1

(19) **United States**(12) **Patent Application Publication**
XHAKONI et al.(10) **Pub. No.: US 2023/0232132 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **PIXEL AND METHOD FOR OPERATING A PIXEL**(71) Applicant: **ams Sensors Belgium BVBA,**
ANTWERPEN (BE)(72) Inventors: **Adi XHAKONI, KESSEL LO (BE);**
Xiaoliang GE, ANTWERPEN (BE)(73) Assignee: **ams Sensors Belgium BVBA,**
ANTWERPEN (BE)(21) Appl. No.: **18/002,413**(22) PCT Filed: **Jun. 17, 2021**(86) PCT No.: **PCT/EP2021/066353**

§ 371 (c)(1),

(2) Date: **Dec. 19, 2022**(30) **Foreign Application Priority Data**

Jun. 26, 2020 (EP) 20182563.5

Publication Classification(51) **Int. Cl.****H04N 25/771** (2006.01)**H04N 25/78** (2006.01)(52) **U.S. Cl.****CPC** **H04N 25/771** (2023.01); **H04N 25/78**
(2023.01); **G03B 15/02** (2013.01)

(57)

ABSTRACT

A pixel includes a transfer gate, and a sample structure having a first sample stage and a second sample stage. The transfer gate and the first and the second sample stages are configured to be operated in conjunction with a light source in response to a control signal. The first sample stage is configured to sample a first sample value that depends on radiation incident on the photosensitive element from an object or a scene that is illuminated by the light source emitting light at a first output power, while the second sample stage is configured to sample a second sample value that depends on radiation incident on the photosensitive element from the object or the scene that is illuminated by the light source emitting light at a second output power. The first output power is different, in particular significantly different, from the second output power.

