Electronics, optics

TDI VARIABLE OBSERVATION METHOD

Innovative TDI (Time Delay Integration) detector to process imagery with highly dynamic illumination, by adapting the number of TDI stages for each ground point

Technological advantages

Innovative technology

Unsaturated images for extremely wide illumination ranges

Ability to simultaneously take pictures in areas with both high and low light levels

High gain

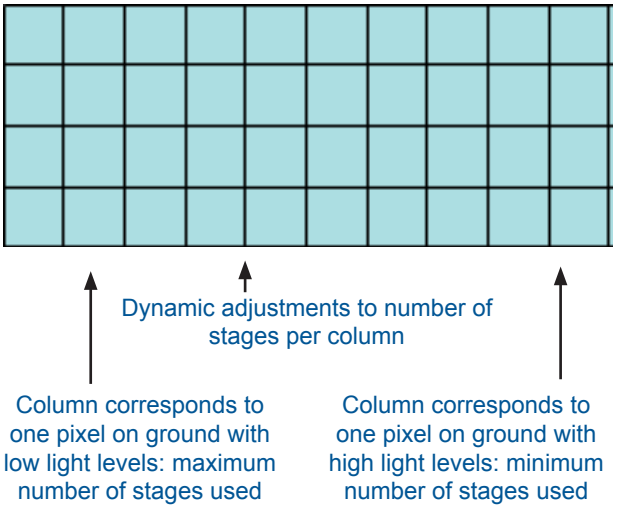
Significant increase in signal-to-noise ratio in areas of image with low light levels, without saturating image areas with high light levels

An innovative method

Increased exposure time

Movement of detecting instrument with respect to the observed scene is no longer a factor

TDI with variable stage quantities per column



Overview of invention

The number of stages per column is adapted based on the illumination of the observed scene

Method for summing up the stages until the total signal reaches a certain threshold, at which point the summation is stopped

Independent, «real-time» adjustment to number of TDI stages for each pixel (column):

- High quantity of stages where light levels are low
- Small quantity of stages where light levels are high

Commercial benefits

Innovative design to resolve problems for imagery with extremely high spatial resolution and dynamic range of luminance

TDI to a depth of 50 to 100 lines instead of 10 to 20 lines

Design adapted to industrial manufacturers of detectors and/or very high-resolution cameras

Potential applications

- High-resolution Earth observation satellites

- Civil and military drones: intelligence, cartography, high-contrast imagery

Patented invention, available under license

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For more information

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