US 20220352706A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0352706 A1**

KUBBA et al. (43) **Pub. Date: Nov. 3, 2022**

(54) **FAULT-PROTECTED ANALOG AND DIGITAL INPUT/OUTPUT INTERFACE**

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(21) Appl. No.: **17/244,692**

(22) Filed: **Apr. 29, 2021**

Publication Classification

(51) **Int. Cl.**

H02H 3/00	(2006.01)
H03K 5/24	(2006.01)
H03K 5/01	(2006.01)

(52) **U.S. Cl.**

CPC ***H02H 3/003*** (2013.01); ***H03K 5/24*** (2013.01); ***H03K 5/01*** (2013.01)

(57) **ABSTRACT**

An input/output (I/O) interface includes a resistance-to-current (R/I) converter; an internal resistor; first, second, and third current sources; first and second diodes; and a comparator. The R/I converter is coupled to an I/O pin and generates an output current based on an external resistance at the I/O pin during an analog operating mode. The internal resistor is coupled to the I/O pin and to ground. The first current source is coupled to the R/I converter circuit. The first diode is coupled to the R/I converter and to the I/O pin. The second current source is coupled to the R/I converter and the first diode and to ground. The second diode is coupled to the I/O pin and to the third current source. The comparator has inputs coupled to the I/O pin and to a reference voltage, and outputs a control signal indicative of a digital operating mode.