

Title (en)
A METHOD FOR CONTROLLING A FUEL CELL SYSTEM, AN ELECTRONIC FUEL PRESSURE REGULATOR FOR PERFORMING THIS METHOD, AND FUEL CELL SYSTEM COMPRISING THIS REGULATOR

Title (de)
VERFAHREN ZUR STEUERUNG EINES BRENNSTOFFZELLENSYSTEMS, ELEKTRONISCHER BRENNSTOFFDRUCKREGLER ZUR DURCHFÜHRUNG DIESER VERFAHRENS UND BRENNSTOFFZELLENSYSTEM MIT DIESEM REGLER

Title (fr)
PROCÉDÉ DE COMMANDE D'UN SYSTÈME DE PILE À COMBUSTIBLE, RÉGULATEUR DE PRESSION DE COMBUSTIBLE ÉLECTRONIQUE POUR LA MISE EN OEUVRE DE CE PROCÉDÉ, ET SYSTÈME DE PILE À COMBUSTIBLE COMPRENANT CE RÉGULATEUR

Publication
EP 4122035 A1 20230125 (EN)

Application
EP 21717219 A 20210315

Priority
• IT 202000005917 A 20200319
• IB 2021052118 W 20210315

Abstract (en)
[origin: WO2021186316A1] A fuel cell system (1) comprises a supply line for a fuel, for example hydrogen, including a fuel tank (11) and a pressure reducer (12) for obtaining a first stage of reducing the pressure of the fuel coming from the tank (11). A second pressure reduction stage is achieved by means of an electronic pressure regulator (R), which comprises a proportional solenoid valve (100) and an electronic control unit (E1), which communicates with an electronic control unit (E) of the fuel cell (2). The electronic control unit (E1) of the electronic pressure regulator (R) is configured and programmed to control the proportional solenoid valve (100) to regulate the flow rate and pressure of the fuel supplied to the fuel cell (2) according to a demand for electrical energy to be delivered by the fuel cell (2), keeping the difference between the air pressure and the fuel pressure within the fuel cell (2) within a predetermined range. The electronic control unit (E1) of the electronic regulator (R) is also configured and programmed to detect an actuation of a fuel purge valve (16) and/or a water drain valve (33), and to control the proportional solenoid valve in such a way as to compensate for the pressure variations deriving from the aforesaid actuation. The electronic unit (E1) of the pressure regulator (R) also closes a shut-off valve (34) located downstream of the tank (11) when it detects a pressure drop indicative of an abnormal operating condition.

IPC 8 full level
H01M 8/0438 (2016.01); **H01M 8/04089** (2016.01); **H01M 8/04664** (2016.01); **H01M 8/04746** (2016.01); **H01M 8/1018** (2016.01)

CPC (source: EP)
H01M 8/04388 (2013.01); **H01M 8/04395** (2013.01); **H01M 8/04753** (2013.01); **H01M 8/04097** (2013.01); **H01M 8/04686** (2013.01); **H01M 2008/1095** (2013.01); **H01M 2250/20** (2013.01); **Y02E 60/50** (2013.01); **Y02T 90/40** (2013.01)

Citation (search report)
See references of WO 2021186316A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
WO 2021186316 A1 20210923; EP 4122035 A1 20230125; IT 202000005917 A1 20210919

DOCDB simple family (application)
IB 2021052118 W 20210315; EP 21717219 A 20210315; IT 202000005917 A 20200319