DEVELOPMENT OF A MINI-PYRANOMETER

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Abstract:
In thispaper,we presenta detailed descriptionofamini pyranometer8-bit2-input.This device isdedicated to the measurementof incident solar radiationdirectlyin thevisible and nearinfrared (withtwo photodiodesbroad-spectrum,respectively, aBPW21, andBPW34.This deviceis oftencoupledwithanautomaticregister(datalogger), to establish ataking of measurementsfor a long period, tomakeagood dimensioningof aphotovoltaicsystemon a regionundersolarelectrification. The realizationof this circuit isbased on the useof the smallestmicrocontroller8-bit existingin today's market, a6-pin PIC10F222onlythebaselinerangeofMicrochip.This microcontrolleris responsible forall functions providedin thisdevice (measures, controlsandmanagement of aLUTfor each sensorat stake),throughspecialized integratedmodulessuch asanalog to digital converter8-bit two-channelmeasurementandone8-bittimerwithpre-divider.It's very lowpower consumption (<170µA under2V, 4 MHz) makes itparticularly recommended forthedesign and constructiondevice oflong-rangeenergy,particularly,products and accessoriesdedicated to the measurement ,thecontrol and regulationin the variousfields ofsolar energy.

Keywords:
Pyrometer;solar radiation; visible; near infrared; photovoltaic panel.