

SMD30 *Mézenc* – Remote Controller

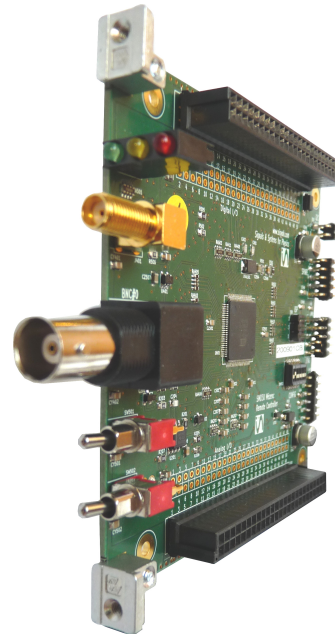
D-Series Modules – Subnanosecond Pulse Generator

FEATURES

- Remote control of SMD-Series modules
- Asynchronous serial interface
- Analog and digital monitoring
- Spare I/O available
- EMI noise immunity

APPLICATIONS

- Stroboscopic magnetic imaging TEM



Overview

The modules of the SMD-Series provide the experimentalists a complete line of instruments for the generation of short pulses at high repetition rates. First designed for stroboscopic magnetic imaging TEM (Transmission Electron Microscope), the SMD-Series offers a complete solution to deliver sub-nanosecond pulses into 50- Ω loads at repetition rates ranging from DC to 10 MHz.

The SMD30 *Mézenc* module allows the user to control the SMD-Series modules through serial commands coming from a computer. These commands must be sent to the module *via* an external asynchronous serial data converter. For a safe and reliable operation, it is recommended to use the SMZ320 module as USB to serial data interface, this module allowing an optical isolation of the SMD modules from the computer. For long distances or operation in noisy environments, the SMZ320 interface module also provides an optical link based on plastic optical fibers.

In order to control the SMD-Series modules, the SMD30 module features an analog-to-digital (ADC) converter, a serial control bus (SPI) and many digital I/Os, which are all managed by a microcontroller. The front panel accommodates led indicators, switches and coaxial connectors as a minimalistic user interface since most of control operations should be done using the remote interface.

Gathering other SMD-Series modules, the SR500 *Pulse Generator* is the ideal solution to generate high-voltage sub-nanosecond pulses at high repetition rate (10 MHz) for stroboscopic magnetic imaging TEM. With the additional SMZ320 *Serial Interface* module, the SR500 gives the user a complete control of the pulse generator over USB or optical interfaces.

Important Notice

The specifications provided apply to the SMD30-R20A module. Information in this document is subject to change without notice. Copyright © SISYPH, 2020. All rights reserved.

Digital Interface Specifications

General Purpose Inputs

Terminal	50-pin stack-through connector
Logic level	TTL/5-V CMOS compatible
Range	0 V to +5 V
Current limiting resistor	1 k Ω
Pull-up resistor	100 k Ω

SPI control bus

Terminal	50-pin stack-through connector
Logic level	TTL/5-V CMOS compatible
Range	0 V to +5 V
Current limiting resistor	1 k Ω
Pull-up resistor	100 k Ω

General Purpose Outputs

Terminal	50-pin stack-through connector
Logic level	TTL/5-V CMOS compatible
Range	0 V to +5 V
Current limiting resistor	1 k Ω

Power Supply Monitoring Input^a

Terminal	50-pin stack-through connector
Range	0 V to +35 V
Sensitivity	0.1 V/V
Input resistance	100 k Ω min.
Cutoff frequency	15 Hz

^aConnected to the ADC multiplexer's inputs.

Analog Interface Specifications

ADC

Range	0 V to +5 V
Resolution	10-bit (4.8 mV)
Accuracy	3 LSB ^a
Offset	±2 LSB ^a

Temperature Monitoring^c

Terminal	50-pin stack-through connector
Range	0 V to +5 V
Sensor	2-lead NTC thermistor ^b
Bias current	100 μ A \pm 2 μ A
Sensitivity	0.1 mV/ Ω

Monitoring Inputs^c

Terminal	50-pin stack-through connector
Range	0 V to +5 V
Sensitivity	1 V/V
Input resistance	100 k Ω min.
Cutoff frequency	15 Hz

^aNot measured, value extracted from the ADC's datasheet.

^bRefer to the SMD10 module's datasheet for details.

^cConnected to the ADC multiplexer's inputs.

Asynchronous Receiver-Transmitter Specifications

Remote Control Port^a

Terminal	6-pin header
I/O voltage Range	0 V to +5 V
Baudrate	9600 bps
Parity	none
Stop-bit	2

^aAdditional communication ports are available, contact us.

General Specifications

This module is designed to be operated in laboratory environment.

Operating

Temperature +15°C to +30°C

Power Requirements

+15 V 50 mA

–15 V Not used

+5 V $I \leq 50$ mA

+24 V Not used

Physical Properties

Height (component side) 17 mm max.

Weight ≤ 100 g

PCB 4-layer FR4, 100 mm \times 100 mm

Warranty

One (1) year parts and labor on defects

Ordering Information

Front Panel Options

SMD30-FP-xx Shielded 3U-4HP front-panel

SMD30-NP-xx none (standard)

Stack-through Header Options

SMD30-xx-SC 50-pin header^a (standard)

SMD30-xx-NC none

Example of Ordering Code

SMD30-NP-SC standard

^aTyco Part Number: 1-173145-4.

Document Identifier

SMD30-SS01-R20A