

## 100/200/400/800/1000 Mbps, 18/36/72 Ch, Digital IO / Digital Pattern Generator and Analyzer with FPGA Option



### Features

- 100 / 200 / 400 / 800 / 1000 Mbps per digital I/O channel
- 18 / 36 / 72 digital I/O channels
  - Single-ended, differential signaling or both
  - Programmable I/O direction
  - Selectable Single/Double Data Rate operation (SDR/DDR)
- Single-ended logic standards:
  - 1.2V to 5V I/O voltages (TTL, LVTTTL, LVCMOS compatible)
  - 3.3V models are 5V compatible/tolerant
  - 24 mA output current
- Differential logic standards:
  - LVDS (Low Voltage Differential Signaling)
- Embedded Digital Waveform Generators (DWGs)
  - Advanced triggering (HW trigger, HVI trigger, SW trigger)
  - Waveform queue system with cycles, delays and prescalers
- Feature-rich Data Acquisition system (DAQ)
  - Advanced triggering (HW trigger, HVI trigger, SW trigger)
  - Programmable cycles and data bursts to avoid PC saturation
- 16 MB, 128 MB or 1 GB of RAM
- Hardware programming using Signadyne HVI Technology
  - User-friendly flowchart-style programming (no VHDL needed)
  - Ultra-fast real-time execution & decision making by hardware
  - Built-in inter-module synchronization & data exchange
  - Complete robustness, PC-independent execution without OS
- Onboard user-programmable FPGA (F models)
  - Xilinx Kintex-7 160T/325T
- Mechanical/Interface:
  - 1 slot 3U/6U (modular standards)
  - Up to 350 MB/s transfer speed with P2P communication
  - Independent DMA channels for fast and efficient data transfer

### Programming Tools and Application Software

- Off-the-shelf functionalities:
  - Software execution: programming libraries for most common languages, e.g. C, C++, C#, VB, LabVIEW, MATLAB, etc.
  - Hardware execution: real-time HVI technology with Signadyne ProcessFlow, a flowchart-style programming environment
- Signadyne VirtualKnob: software front panels

### Applications

- High performance sequencing / process control / triggering
- Semiconductor control & test
- Hardware-In-the-Loop (HIL) / ATE (Automated Test Equipment)
- R&D / Scientific research equipment
- OEM for industrial machinery
- Aerospace & defense COTS equipment

### General Description

The SD DIO-H3000/H3000F Series are FPGA-based high-performance modules with digital inputs/outputs and with advanced digital waveform generation and analysis functionalities (DWGs, DAQs, etc.). Thanks to a feature-rich firmware, these powerful devices simplify the development of the most demanding applications. Signadyne's HVI technology allows the user to develop real-time applications without the need to program VHDL. In addition, users can also program custom FPGA code for onboard real-time digital signal processing (F models).

### Product Table

Speed (Mbps)	Single-ended (SE)		Differential (LVDS)		Mixed	SE I/O Level (V)	I/O Direction Selection	FPGA Program.
	36 CH	72 CH	18 CH	36 CH	36 SE + 18 LVDS			
100	DIO-H3333(F)	DIO-H3334(F)	DIO-H3343(F)	DIO-H3344(F)	DIO-H3353(F)	2.5, 3.3, 5	Per bank (8 ch)	✓ <sup>2</sup>
200	DIO-H3433(F)	DIO-H3434(F)	DIO-H3443(F)	DIO-H3444(F)	DIO-H3453(F)	1.2 - 3.3 <sup>1</sup>	Per channel	✓ <sup>2</sup>
400	DIO-H3533(F)	DIO-H3534(F)	DIO-H3543(F)	DIO-H3544(F)	DIO-H3553(F)	1.2 - 3.3 <sup>1</sup>	Per channel	✓ <sup>2</sup>
800	DIO-H3633(F)	DIO-H3634(F)	DIO-H3643(F)	DIO-H3644(F)	DIO-H3653(F)	1.2 - 3.3 <sup>1</sup>	Per channel	✓ <sup>2</sup>
1000	-	-	DIO-H3743(F)	DIO-H3744(F)	-	-	Per channel	✓ <sup>2</sup>

<sup>1</sup> 100 mV Steps, 5V compatible/tolerant

<sup>2</sup> F models