Diablo data

Slingshot Mini Product Specifications

Diablo Data, LLC

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Revision 1

Slingshot Mini Introduction

The Diablo Data Slingshot Mini is a high-performance, cost-effective cable network edge device, Supporting DOCSIS 3.0 / Euro-DOCSIS 3.0 / C-DOCSIS standards.

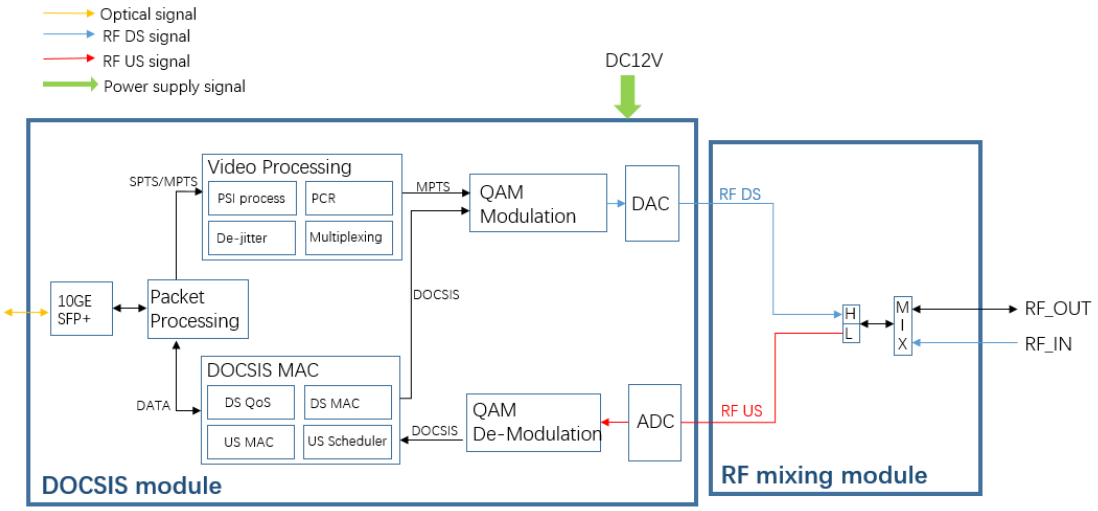
Product Features

- Compatible with DOCSIS 3.0 / 2.0 / C-DOCSIS
- Supports DAA/R-CCAP access architecture
- Supports up to 32*DS and 8*US channels
- Provides maximum downstream rate of 1.1 Gbps and upstream rate of 208 Mbps (after DOCSIS overhead)
- Supports up to 96 cable modem devices
- Supports DOCSIS, PacketCable / PCMM, EQAM and Optical receiver for applications including internet, voice, VoD and CATV
- Supports corridor installation or wall-mount locations
- Management and maintenance modes include CLI and a Web GUI

Performance and Specifications

Slingshot Mini Introduction

Slingshot Mini is composed of a DOCSIS module, power module and RF mixing module.



- DOCSIS module: Support up to 32*DS and 8*US, provide 10G Combo SFP+ Interface,
- Support DOCSIS and EQAM function
- RF module: Support up to 1GHz.
- Power module: Local power supply (AC110/ AC220V)
- (Optional) Industrial grade SFP+ optical module

Overall characteristic

Specifications	Description
Dimension	227mm×225mm×61mm
Product form	Cast aluminum half shell, port exposed
Weight	<3kg (rough weight)
Ingress protection rating	IP20
Operating temperature	-40~+70℃
Operating humidity	10%-90% (non-condensing)
Power supply	Local power supply
Power consumption	<40W
Device grounding	PGND
LED indicators	Support
Optional status monitoring and control	Support
Number of ports	
Power supply port	1
RF out port	1
RF in port	1
Frequency division	85/ 108MHz
Output impedance	75ohm
Default RF port type	F type

DOCSIS Module

The DOCSIS module provides a 10GbE Combo SFP+ Interface and DOCSIS / EQAM functionality. It supports centralized management through a Web GUI which can greatly simplify the installation and maintenance and remote management. It provides a user experience similar to the Slingshot Node CMTS product.

DOCSIS module characteristic

Specifications	Description	
Standard	DOCSIS 3.0 / Euro-DOCSIS 3.0	
	DOCSIS 2.0 / Euro-DOCSIS 2.0	
	C-DOCSIS	
SNI	1 10GE SFP+	
Management interface	1 MGMT RJ45 management interface	
	1 RJ45 console interface	
CM Qty. supported		
DOCSIS 3.0 & 2.0 CM	≤96	
Working channel	**DS**	**US**
Channel frequency range		
American Standard	108-1002MHz	5-88MHz
Working channel	32	8
Channel width	6 / 8MHz	1.6 / 3.2 / 6.4MHz
Communication protocol	--	ATDMA
Modulation mode	64/256/1024 QAM	QPSK, 16/ 32/ 64/ 256 QAM
Reception level range	--	-7-+23dBmV@6.4MHz
		-10-+20dBmV@3.2MHz
		-13-+17dBmV@1.6MHz
MER	≥35dB (Equalizer off)	--
	≥43dB (Equalizer on)	
Maximum output power level	104 dBuV@32channels	--
System function		
MTU	1532 Byte	
IP Stack	Support IPv4 and IPv6 dual-stack	
DHCP	Support DHCP relay/ snooping	
	Support DHCP bundle	
	Support DHCP lease query	
	Support according to Option 60 to identify equipment type	
	Support insert Remote-ID, Interface-ID, CMTS capabilities and CM MAC	
DHCPv6	Support DHCPv6 relay/ snooping	
	Support DHCPv6 bundle	
	Support DHCPv6 lease query	
	Support DHCPv6-PD	
	Support Option 60 to identify equipment type	
	Support insert Remote-ID, Interface-ID, CMTS capabilities and CM MAC	
VLAN&L2VPN	Support 802.1ad/ 802.1q/ subnet VLAN	
	Support service flow-based VLAN addition or deletion	
	Support VLAN addition according to device type	
	Support the L2VPN	
	Support VLAN conversion	
MAC domain management	Support MDD & MDF enable and disable	
	Support MTC & MRC enable and disable	
	Support UDC enable and disable	
	Support upstream automatic frequency hopping	
	Support piggyback, shared-secret, channel bonding	
Multicast	Support multicast authentication	
	Support static multicast	
	Support IGMP V2/ V3 Snooping	
	Support MLD V1/ V2 Snooping	
Load balance	Support RLBG/ GLBG	
	Support load balance priority	

QoS	Support static/ dynamic service flow
	Support service class
	Support best effort, UGS, UGS-AD, RTPS, NRTPS
	Support the DOCSIS 3.0 USCB scheduling
	Support PowerBoost
Packetcable	Support Packetcable 1.5/2.0 & PCMM
	Support DQoS
Management & Monitor	
CM management	Support CM status review
	Support CM steering
	Support CM blacklist
	Support remote query
	Support flap-list
	Support admission control
CPE management	Support CPE query and clear
Network management	Support SSH/telnet
	Support SNMP
	Support SYSLOG
	Support graphical WEB GUI management
	Support integrate to NMS (graphical EMS)
System diagnostic and monitor	Support system information acquisition and monitoring
	Support optical receiver information monitoring
	Support show-tech
	Support ping, DOCSIS ping, tracert
	Support spectrum monitor
	Support PNM using Pre-equalization
IPDR	Support IPDR/SP over TCP
	Support DOCSIS IPDR
	Support based on the data IPDR/XDR encoding
	Support time interval / event-based / ad-hoc data acquisition method
Security	Support AAA (TACACS+, RADIUS)
	Support RA guard
	Support BPI+
	Support EAE
	Support source verify
	Support prevent DoS attack
	Support blacklist, white list, the firewall
Software upgrade	Support via CLI / WEB GUI
	Support remote upgrade, version reversion when upgrade failure

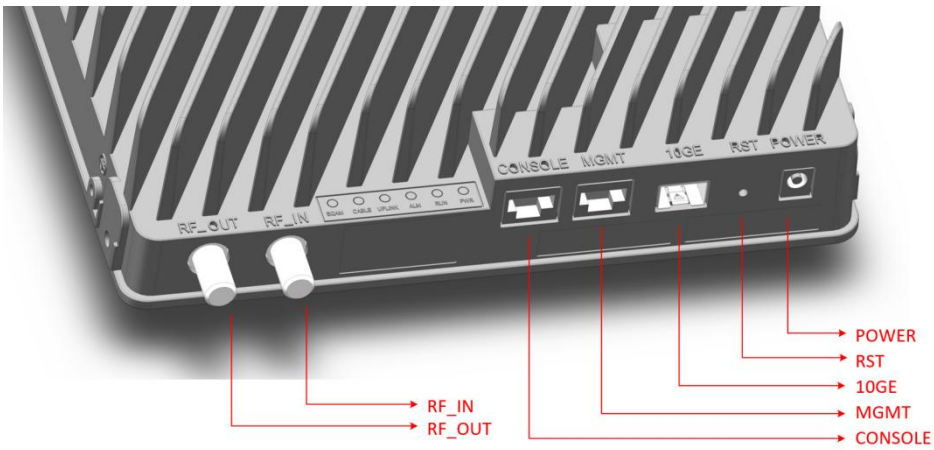
AC Adapter

Slingshot Mini supports an AC adapter.

AC adapter characteristic

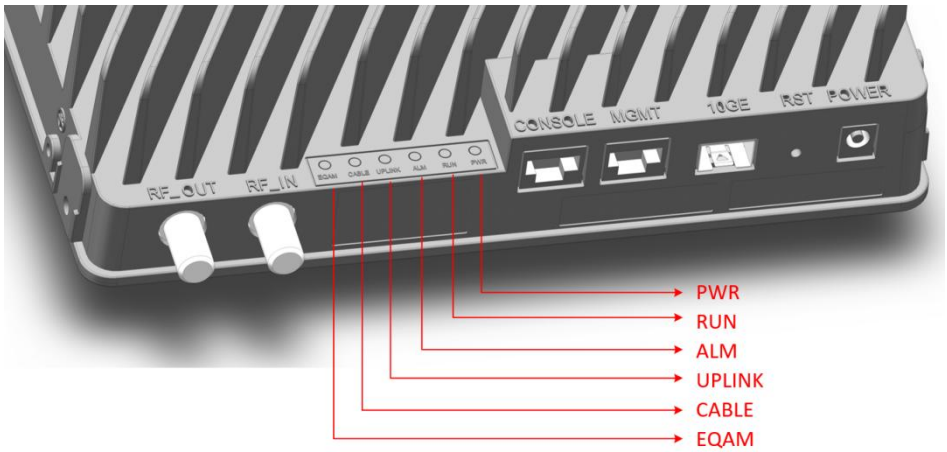
Specifications	Description
Power supply	
Input voltage range	90V-240V AC, 50/60 Hz
Output voltage	12V DC
Max. output power	60W

External Interfaces



Labeling	Interface	Description
RF_OUT	RF output interface	1 RF mixed RF signal output interface
RF_IN	CATV input interface	1 RF input interface
POWER	Power	The interface is used to connect the AC to DC power adapter.
RST	Reset button	Hardware reset of the device. If the long-press time is less than five seconds, the device is reset; If it is pressed for more than five seconds, the factory settings will be restored
10GE	Uplink interface	1* 10GE SFP+
MGMT	Management interface	RJ-45, Gigabit management electric interface
CONSOLE	Serial interface	RJ-45, serial port protocol, the system is configured in CLI mode using terminal software, and the baud rate is 115200bps

LEDs



Labeling	Indicator name	Color	Description
PWR	Power indicator	Green	Always on: power module output is normal Off: abnormal output of power module
RUN	Running state	Green	Flash: The system is initializing Slow flash: the system completes initialization

Labeling	Indicator name	Color	Description
ALM	Alarm indicator	Red	Always on: the system gives an alarm Off: no alarm
UPLINK	Status indicator of the optical interface	Green	Always on: the uplink is connected normally Flashing: uplink data transmission Off: the uplink is unconnected
CABLE	CMs online indicator	Green	Always on: CM is online Off: no CM online
EQAM	EQAM indicator	Green	Always on: EQAM signal is normal Flashing: abnormal EQAM signal Off: EQAM signal is off

(Optional) Industrial-grade Optical Module

GE Industrial Optical Module

Option:	1	2
Central Wavelength	TX: 1310nm RX: 1550nm	TX: 1550nm RX: 1310nm
Package	SFP	SFP
Rate (Gbps)	1.25	1.25
Connector	BIDI LC/UPC	BIDI LC/UPC
Fiber type	Single mode	Single mode
Transmission distance	20km	20km
Launched power range (dBm)	-9~-3	-9~-3
Receive power range (dBm)	-23~-3	-23~-3

10GE Industrial Optical Module

Option:	1	2
Central Wavelength	TX: 1270nm RX: 1330nm	TX: 1330nm RX: 1270nm
Package	SFP+	SFP+
Rate (Gbps)	10	10
Connector	BIDI LC/UPC	BIDI LC/UPC
Fiber type	Single mode	Single mode
Transmission distance	20km	20km
Launched power range (dBm)	-3~3	-3~3
Receive power range (dBm)	-14.5~0.5	-14.5~0.5

Industrial GPON SFP ONT

Type	Class B+
Central Wavelength	TX: 1310nm RX: 1490nm
Package	SFP

Rate(Gbps)	TX: 1.25; RX: 2.5
Connector	SC/UPC
Fiber type	Single mode
Launched power range (dBm)	0.5~5
Receive power range (dBm)	-28~-8

Diablo Data, LLC.
6050 Summer Circle, Dawsonville, GA, 30534
Tel: +1 678-636-9741
Website: http://www.diablodata.com