

## RC551 802.3ah OAM-Compliant Intelligent Ethernet Demarcation

Raisecom RC551 series is IEEE802.3ah OAM-Compliant Intelligent Ethernet Demarcation Device (EDD) which serves as a service border controller located at the customer premises and owned by the service provider. EDD delivers managed converged services (voice, video and data) over VLAN in an access network or a metro Ethernet network.

EDD offers considerable benefits to both carriers and their customers: end-to-end visibility and service control; SLA assurance and monitoring; multi-level Operation, Administration

and Maintenance (OAM); security controls (protection against denial-of-service attacks); rate limiting; VLAN stacking, swapping and rewriting; priority queuing and the like.

Raisecom RC551 series, both IEEE802.3ah and SNMP compliant Intelligent Ethernet Demarcation Device, with maximum interoperability, enables carriers and service providers to have a crystal-clear vision of their network and an easy convenient managed demarcation point.



RC551 802.3ah OAM-Compliant Intelligent Ethernet Demarcation

### Feature

#### \*General features

MTU	1632 Bytes
Digital diagnostic monitoring function	Optical SFP optical module with digital diagnostic monitoring function for a flexible installation
CWDM optical module	CWDM specific wavelength SFP optica module provides a flexible solution for CWDM transportation platform
VLAN	4K active IEEE802.1Q VLAN VLAN forwarding, swapping, and stacking (Q-in-Q)
Management	SNMP/Telnet/Console/IEEE802.3ah OAM
Fault Pass Through	Fault-Pass-Through is a troubleshooting feature that allows the EDD to monitor the optical link by shutdown the copper port if there is loss of signal on optical link
ALS	Auto Laser Shutdown enables the shutdown of optical TX signal when no RX signal detected to prevent hazardous laser radiation to personnel
Temperature monitoring	Real-time temperature monitoring, alarm will be sent when exceeded a threshold
Voltage monitoring	Real-time voltage monitoring, alarm will be sent when exceeded a threshold

#### \*IEEE802.3ah OAM features

IEEE802.3ah standard OAM	RC551 has two working modes: Master and Slave. Central Office device works at Master mode, and Customer Premise device at Slave mode. The OAM functions are originated by Master device.
OAM discovery	Check if remote device has implemented/enabled IEEE802.3ah OAM function, and negotiate with remote device.
Link performance monitoring with threshold alarms	Link performance monitoring sends alarms when the following events are detected on the link: <ul style="list-style-type: none"> <li>•Errored symbols per second exceeded a threshold within a specified period</li> <li>•Errored frames per second exceeded a threshold within a specified period</li> <li>•Errored frames per N frames exceeded a threshold</li> <li>•Errored frame seconds within N seconds exceeded a threshold</li> </ul>
Remote failure notification	Remote failure notification allows the remote device to indicate failure conditions to central office, including: <ul style="list-style-type: none"> <li>•Dying Gasp: power failure</li> <li>•Critical Event: voltage and temperature abnormal</li> <li>•Link Fault: link fault report of network site port</li> </ul>

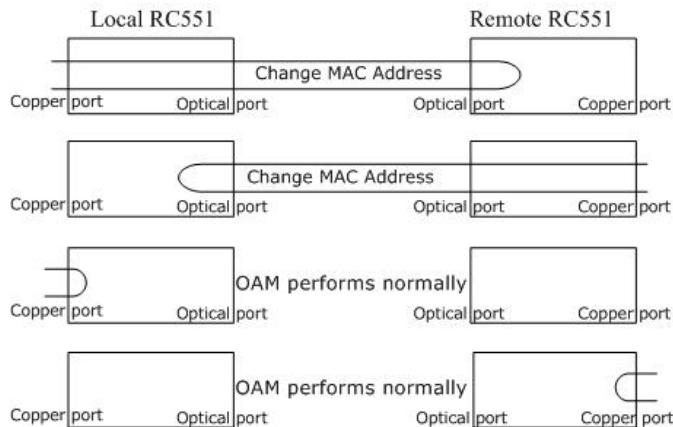
### Highlights

End-to-end visibility and service control
Enhanced SLA assurance and monitoring
Secure Layer-2/Ethernet delivery
Multi-level Operation, Administration and Maintenance (OAM)
Policy-aware Networking
Enhanced fault propagation: Optical fault pass through electrical interfaces; Electrical fault pass through optical interfaces; Automatic Laser Shutdown
4K active IEEE802.1Q VLAN VLAN forwarding, swapping, and stacking (Q-in-Q)
IP Stacking for integrated test capability of both premise and carrier's network
Rate limiting
SFP optical module with digital diagnostic monitoring function for a flexible installation
CWDM specific wavelength SFP module provides a flexible solution for CWDM transportation platform
Temperature monitoring
Voltage monitoring

### Specification

Management port	1 console (RJ45)
Serial port configuration	9600bps/8bit/none parity/1 stop bit/none flow control

**Remote/local loopback** Loopback enables network diagnostics from local or remote site, provides a flexible method for troubleshooting and is prohibitive to increase truck roll and other maintenance costs.



**MIB variable retrieval** MIB variable retrieval allows an EFMOAM device to get management information about Ethernet variables from remote site

**\*Raisecom extentions (Raisecom device only)**

**MIB variable rewriting** MIB variable rewriting allows master EFMOAM device to rewrite MIB variables of slave EFMOAM device

**Field upgade** Field firmware upgrade of slave device is available through master device

**Standard-based SNMP management** Standard-based Management using SNMP, Telnet, IP PING and IP Traceroute at layer-3 enables service providers to manage the EDD independently with its own IP address.

**IP Stacking** IP Stacking provides two IP addresses for both UNI (User Network Interface) and NID (Network Interface Device). One is for SNMP, the other is for integrated test of premise and carrier network by flexibly changing its IP address to communicate with tested equipment.

**\*Advanced features**

**SLA Provisioning** The EDD supports four egress queues for service prioritization. Traffic is prioritized based on layer-2 priority bits (CoS field) in the Ethernet frame, and layer-3 DSCP (ToS field) bits in the IP header. Default CoS priority is also available based on per port for the traffic frames without priority bits. The EDD performs both Strict Priority scheduling and Weighted round-robin (WRR) scheduling for the designated traffic. The Strict Priority scheduling assures the high priority packets are served first, while the WRR scheduling ensures that lower priority packets are served even during periods of higher priority traffic.

**Network Security** The EDD supports RADIUS to prevent unauthorized users from reconfiguring the equipment and also supports the user priviledge to limit different users' capability of managing the equipment. Access Control List (ACL) restricts the management IP address and allows certain administrator to access/configure the equipment. The EDD is impervious to denial of service (DoS) attacks under all traffic conditions and traffic patterns.

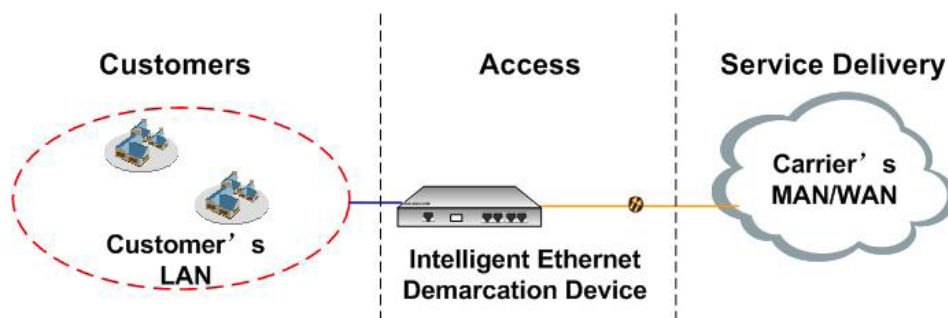
**Traffic Management** Traffic Management of the EDD allows to select specific network traffic, prioritize it according to its relative importance, and use congestion-management and congestion-avoidance technologies to give preferential treatment for latency-sensitive applications such as voice and video on a best-effort basis.

MTU	1632Bytes
Port specification RC551-FE	10BaseT, RJ45, Cat3/Cat4/Cat5 UTP 100BaseTX, RJ45, Cat5 UTP 100BaseFX, LC fiber connector, single/multi mode
Port specification RC551-4FE	10BaseT, RJ45, Cat3/Cat4/Cat5 UTP 100BaseTX, RJ45, Cat5 UTP 100BaseFX, LC fiber connector, single/multi mode
Port specification RC551-GE	10BaseT, RJ45, Cat3/Cat4/Cat5 UTP 1000BaseT, RJ45, Cat5 UTP 1000Base-LX/BX/FX, LC fiber connector, single/multi mode
Fixed port RC551-FE	1*10/100BaseT+1*100BaseFx
Fixed port RC551-4FE	4*10/100BaseT+1*100BaseFx
Fixed port RC551-GE	1*10/100/100BaseT+1*1000BaseFx
Dimension	260(W)*130(D)*38(H)mm
Weight	1.1kg
Power supply	AC: 90~264V, 47~63Hz DC: -36~-75V
Power consumption	≤ 10W (at max load)



Port rate limiting	Based on each port, increment from 94Kbps-256Mbps, totally 4095 levels
Flow control	IEEE802.3x standard flow control in full duplex mode and back pressure

## Typical Application



## Ordering Information

Part number	Description
RC551-FE	Intelligent Ethernet Demarcation Device with 1*10/100M electrical port and 1*100M optical port
RC551-4FE	Intelligent Ethernet Demarcation Device with 4*10/100M electrical port and 1*100M optical port
RC551-GE	Intelligent Ethernet Demarcation Device with 1*10/100/1000M electrical port and 1*1000M optical port
USFP-S2/L2	S2=03, GB, 48 (155M, 1.25G) L2=M, S1, S2, S3, indicates the transmission distance
USFP-03/M	155M, Transmission distance: 2km, Dual-strand fiber, multi mode, 1310nm, General optical SFP module
USFP-03/S1	155M, Transmission distance: 15km, Dual-strand fiber, single mode, 1310nm, General optical SFP module
USFP-03/S2	Rate: 155M, Transmission distance: 40km, Dual-strand fiber, single mode, 1310nm, General optical SFP module
USFP-03/S3	Rate: 155M, Transmission distance: 80km, Dual-strand fiber, single mode, 1310nm, General optical SFP module
USFP-03/SS13	Rate: 155M, Transmission distance: 15km, Single-strand fiber, single mode, 1310nmTX, General optical SFP module
USFP-03/SS15	Rate: 155M, Transmission distance: 15km, Single-strand fiber, single mode, 1550nmTX, General optical SFP module
USFP-03/SS23	Rate: 155M, Transmission distance: 40km, Single-strand fiber, single mode, 1310nmTX, General optical SFP module
USFP-03/SS25	Rate: 155M, Transmission distance: 40km, Single-strand fiber, single mode, 1550nmTX, General optical SFP module
USFP-GB/M	Rate: 1.25G, Transmission distance: 0.55km, Dual-strand fiber, multi mode, 850nm, General optical SFP module
USFP-GB/S1	Rate: 1.25G, Transmission distance: 15km, Dual-strand fiber, single mode, 1310nm, General optical SFP module
USFP-GB/S2	Rate: 1.25G, Transmission distance: 40km, Dual-strand fiber, single mode, 1550nm, General optical SFP module
USFP-GB/S3	Rate: 1.25G, Transmission distance: 80km, Dual-strand fiber, single mode, 1550nm, General optical SFP module
USFP-GB/SS13	Rate: 1.25G, Transmission distance: 15km, Single-strand fiber, single mode, 1310nmTX, General optical SFP module
USFP-GB/SS15	Rate: 1.25G, Transmission distance: 15km, Single-strand fiber, single mode, 1550nmTX, General optical SFP module