

Internet Cable solutions for Small & Medium networks

FOCUSED ON VERY SMALL, SMALL AND MIDDLE SIZE CABLE NETWORKS DAMERY OFFERS YOU A COMPLETE RANGE OF CMTS'S FROM 40 MBITS TO 160 MBITS

DAMERY Cable Modem Termination System (CMTS) family is a high-performance, scalable, cost-effective solution for small and medium sizes cable networks.

Its modular design allows cable operators to interoperate cost effectively with standard CATV and DOCSIS-compliant equipments.

DAMERY CMTS Family complies with the Data over Cable Service Interface Specification (DOCSIS) 1.0 & 1.1 standards (**JADE**), (DOCSIS) 2.0 standards (**OPAL**) and (DOCSIS) 3.0 standards (**CORAL**).

DAMERY product lines include the models for outdoor usage (BK Models).

Interoperability with any DOCSIS compliant cable modem is assured. It opens the door to dependable high-speed service such as high-speed Data including controlled Quality-of-Service (QoS), Cable Telephony (VoIP), and Streaming Video services between cable modem subscriber and the data network.

Any **DAMERY** CMTS supports Simple Network Management Protocol (SNMP) for easy administration.

In addition, the system can be managed locally or remotely using Telnet. System and user security is assured with the CMTS's flexible Packet Filtering capability which is provisioned by cable operators.

- ✓ **Full System Scalability**
- ✓ **Low-cost initial deployment**
- ✓ **DOCSIS/Euro-DOCSIS 1.1/2.0 Compliance**
- ✓ **Operations Support (SNMP and Telnet)**
- ✓ **Remote Control**
- ✓ **Quality of Service provisioning**
- ✓ **Security**
- ✓ **DHCP Relay, Option 82, IP Helpers**

DAMERY CMTS family can be used in single, stand alone configuration or stacked with **ProBmo** provisioning server to provide from 40 Mbits to 160 Mbits bandwidth range.

Up to 40 Mbits	Single (D / E) 1.1	JADE - 1DS/1US
	Single (D / E) 2.0	OPAL - 1DS/2US
Up to 80 Mbits	Stack (D / E) 1.1	2 x JADE - 2DS/2US with PROBMO Server
	Stack (D / E) 2.0	2 x OPAL - 2DS/4-8US with PROBMO Server
	Single (D / E) 3.0	1 x CORAL - 2DS/4US with PROBMO Server
Up to 160 Mbits	Single (D / E) 3.0	CORAL - 4DS/8US with PROBMO Server

Using Damery CMTS, it is possible to start for a minimum investment using DOCSIS 1.1 features. When more bandwidth is needed the possibility to stack several units with ProBmo, provisioning server, or to upgrade to higher Docsis standard remains as most cost effective solution.

CMTS FAMILY



- Single, stand alone, all in one
- Stacked with Provisioning Server



ProBmo Provisioning server.

The single, stand alone configuration has an integrated provisioning software module (OnProMo) running onboard.

OnProMo on board OSS features

- **Web access, User Admission**
- **Monitoring, SNR graphs**
- **Provisioned Registration**
- **DHCP/TOD/TFTP/HTTP services**
- **QoS management & automatic configuration file generation**
- **Prepaid, post-paid traffic limited, Billing option**

Hardened Technology for Outdoor



DAMERY CONTACT INFO

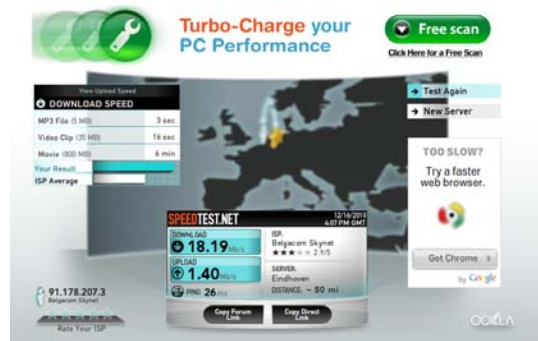
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www.damery.be

JADE excels in speed performances



Speed test with PC connected directly to hub

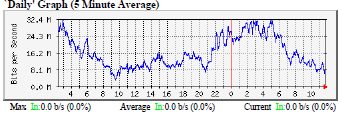
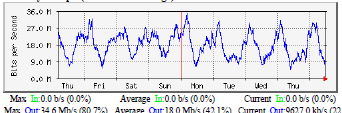
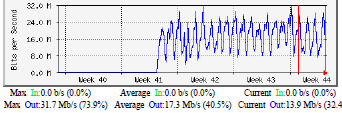
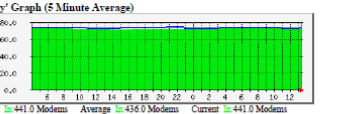
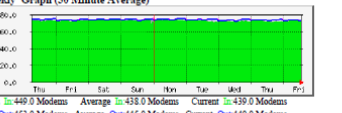
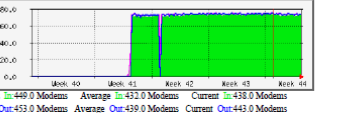
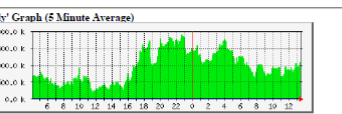
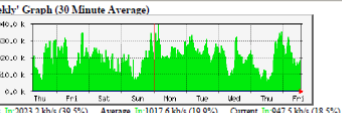
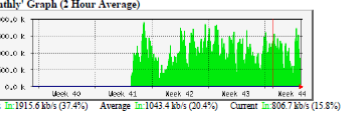


Speed test with PC connected to a modem, via the CMTS

Specifications : Tiny JADE

RF Specifications	Network and Security	Environnemental
<p>Downstream</p> <ul style="list-style-type: none"> ➤ Bandwidth: 6 MHz or 8 MHz ➤ Modulation: 64QAM, 256QAM ➤ Error Correction: Reed Solomon ➤ Frequency Range: 88 MHz to 860 MHz (Optional 37 or 44 MHz IF) ➤ Spectral Occupancy: 64 QAM: 0.18 SRRC, 256 QAM: 0.12 SRRC ➤ Return Loss: 14 dB ➤ Output Impedance: 75 ohms <p>Integrated up converter option:</p> <ul style="list-style-type: none"> ➤ Output RF level: 50 to 60 dBmV ➤ Output frequency range: 88 MHz to 880 MHz <p>Upstream</p> <ul style="list-style-type: none"> ➤ Modulation: QPSK, 16QAM ➤ Error Correction: Reed Solomon ➤ Frequency Range: 5MHz to 65MHz agile, in 100Hz steps ➤ Symbol Rate: 160, 320, 640, 1280, 2560 ksym/s ➤ Input Level: 0 dBmV -15 dBmV 	<p>Network Management</p> <ul style="list-style-type: none"> ➤ SNMP ➤ MIB Group: MIB II, DOCSIS MIB, Vendor-Specific MIB ➤ DHCP Relay ➤ Option 82 ➤ IP Helpers ➤ PPPoE ➤ Telnet <p>Media-Access-Control (MAC)</p> <ul style="list-style-type: none"> ➤ DOCSIS 1.0, DOCSIS 1.1 ➤ DOCSIS 1.1 features <ul style="list-style-type: none"> ➤ Fragmentation ➤ Payload Header suppression ➤ Concatenation ➤ Quality-of-Service Controls ➤ High-Performance Scheduler ➤ Rule-based packet filtering upstream and downstream <p>Network Interfaces</p> <p>10/100 Base-T Ethernet (RJ45 CAT-5)</p>	<p>Environmental parameters</p> <ul style="list-style-type: none"> ➤ Operating temperature 0°C ~ 40°C ➤ Storage temperature -25°C ~ 60°C ➤ Humidity 10 % ~ 90 % (non-condensing) <p>Power Supply</p> <p>Full range switching power supply</p> <p>On board ProMo OSS</p> <p>Available on board on all type of CMTS up to 500 users</p> <ul style="list-style-type: none"> ➤ Web access ➤ User Admission ➤ Configuration file building ➤ Support - Provisioned Registration ➤ DHCP/TOD/TFTP/HTTP services ➤ Subscriber and modem data base management ➤ Billing option: Prepaid, post-paid traffic limited ➤ Monitoring, SNR graphs ➤ CM/CPE/ IP History ➤ CMTS configuration

OPAL has excellent performances and stability on site

CATV Downstream Interface System : Maintainer : MICHELE DAMOISEAU (michele.damoiseau@daphne-sa.be) Description : DAMERY Opal Downstream Interface HW v1.0 SW v2.5.2 Type : CATV Downstream Interface Max Speed : 42 Mbit/s	Cable modem System : Maintainer : MICHELE DAMOISEAU (michele.damoiseau@daphne-sa.be) Description : Cable modem	CATV Upstream Interface 3 System : Maintainer : MICHELE DAMOISEAU (michele.damoiseau@daphne-sa.be) Description : DAMERY Opal Upstream Interface HW v1.0 SW v2.5.2 Type : CATV Upstream Interface Max Speed : 5 Mbit/s
<p>The statistics were last updated Friday, 4 November 2011 at 11:41.</p> <p>Daily' Graph (5 Minute Average)</p>  <p>Max In: 0.0 kbs (0.0%) Average In: 0.0 kbs (0.0%) Current In: 0.0 kbs (0.0%) Max Out: 32.0 Mb/s (74.7%) Average Out: 16.3 Mb/s (38.1%) Current Out: 6780.3 kbs (15.8%)</p> <p>Weekly' Graph (30 Minute Average)</p>  <p>Max In: 0.0 kbs (0.0%) Average In: 0.0 kbs (0.0%) Current In: 0.0 kbs (0.0%) Max Out: 34.6 Mb/s (80.7%) Average Out: 18.0 Mb/s (42.1%) Current Out: 5627.0 kbs (22.4%)</p> <p>Monthly' Graph (2 Hour Average)</p>  <p>Max In: 0.0 kbs (0.0%) Average In: 0.0 kbs (0.0%) Current In: 0.0 kbs (0.0%) Max Out: 31.7 Mb/s (73.9%) Average Out: 17.3 Mb/s (40.5%) Current Out: 13.9 Mb/s (32.4%)</p>	<p>The statistics were last updated Friday, 4 November 2011 at 13:21.</p> <p>Daily' Graph (5 Minute Average)</p>  <p>Max In: 441.0 Modems Average In: 438.0 Modems Current In: 441.0 Modems Max Out: 450.0 Modems Average Out: 443.0 Modems Current Out: 442.0 Modems</p> <p>Weekly' Graph (30 Minute Average)</p>  <p>Max In: 449.0 Modems Average In: 438.0 Modems Current In: 439.0 Modems Max Out: 453.0 Modems Average Out: 445.0 Modems Current Out: 440.0 Modems</p> <p>Monthly' Graph (2 Hour Average)</p>  <p>Max In: 449.0 Modems Average In: 432.0 Modems Current In: 438.0 Modems Max Out: 453.0 Modems Average Out: 439.0 Modems Current Out: 443.0 Modems</p>	<p>The statistics were last updated Friday, 4 November 2011 at 13:26, at which time 'jade.daphne-sa.be' had been up for 203974009.</p> <p>Daily' Graph (5 Minute Average)</p>  <p>Max In: 1910.9 kbs (37.3%) Average In: 938.9 kbs (18.3%) Current In: 1095.4 kbs (21.4%) Max Out: 0.0 kbs (0.0%) Average Out: 0.0 kbs (0.0%) Current Out: 0.0 kbs (0.0%)</p> <p>Weekly' Graph (30 Minute Average)</p>  <p>Max In: 2023.2 kbs (39.5%) Average In: 1017.6 kbs (19.9%) Current In: 947.5 kbs (18.5%) Max Out: 0.0 kbs (0.0%) Average Out: 0.0 kbs (0.0%) Current Out: 0.0 kbs (0.0%)</p> <p>Monthly' Graph (2 Hour Average)</p>  <p>Max In: 1915.6 kbs (37.4%) Average In: 1043.4 kbs (20.4%) Current In: 806.7 kbs (15.8%) Max Out: 0.0 kbs (0.0%) Average Out: 0.0 kbs (0.0%) Current Out: 0.0 kbs (0.0%)</p>

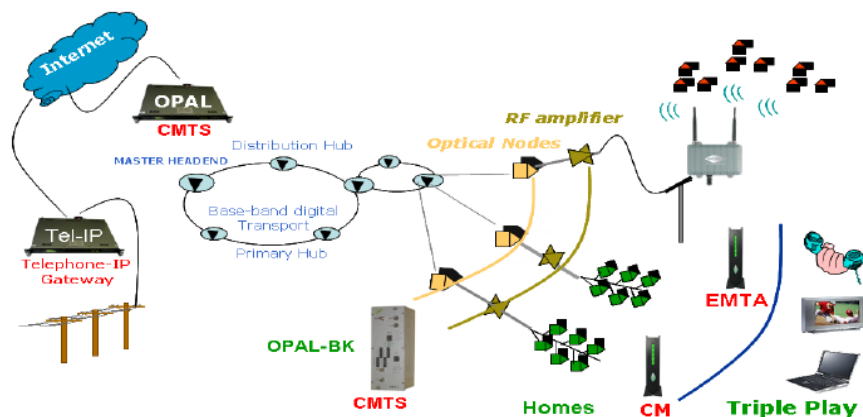
Specifications : OPAL-T /OPAL-TS CMTS

RF Specification	Network and Security	Environnemental
<p>Downstream</p> <ul style="list-style-type: none"> ➤ Bandwidth: 6 MHz or 8 MHz ➤ Modulation: 64QAM, 256QAM ➤ Symbol rate: 0.88 to 6.9 MSymb/s ➤ Frequency Range: 88 MHz to 860 MHz (Optional 37 or 44 MHz 1F) ➤ Spectral Occupancy: 64 QAM: 0.18 SRRC 256 QAM: 0.12 SRRC ➤ Return Loss: 14 dB ➤ Output Impedance: 75 ohms <p>Upstream</p> <ul style="list-style-type: none"> ➤ Modulation: QPSK, 8,16,32,64 QAM ➤ Error Correction: Reed Solomon ➤ Frequency Range: 5 MHz to 65 MHz agile, in 100 Hz steps ➤ Symbol Rate: 160, 320, 640, 1280, 2560, 5120 ksym/s ➤ Input Levels: -16dBmV to +26 dBmV 	<p>Network Management</p> <ul style="list-style-type: none"> ➤ SNMP ➤ MIB Group: MIB II, DOCSIS MIB, Vendor-Specific MIB ➤ DHCP Relay ➤ Option 82 ➤ IP Helpers ➤ PPPoE ➤ Telnet <p>Network Interfaces</p> <ul style="list-style-type: none"> ➤ Ethernet standard (IEEE 802.3) ➤ Ethernet interface: RJ 45 connector for 100BaseT <p>Media-Access-Control (MAC)</p> <p>DOCSIS 2.0, DOCSIS 1.1, DOCSIS 1.0</p> <p>IP Process</p> <ul style="list-style-type: none"> ➤ IGMP snooping ➤ VPN transparent 	<p>Environmental parameters</p> <ul style="list-style-type: none"> ➤ Operating temperature 0°C ~ 40°C ➤ Storage temperature -10°C ~ 60°C <p>Power Supply</p> <ul style="list-style-type: none"> ➤ 220V/110V ➤ Maximum power 65W <p>On board ProMo OSS</p> <p>Available on board on all type of CMTS up to 500 users</p> <ul style="list-style-type: none"> ➤ Web access ➤ User Admission ➤ Configuration file building ➤ Support - Provisioned Registration ➤ DHCP/TOD/TFTP/HTTP services ➤ Subscriber and modem data base management ➤ Billing option: Prepaid, post-paid traffic limited ➤ Monitoring, SNR graphs ➤ CM/CPE IP History ➤ CMTS configuration

Draft Specifications OPAL/BK CMTS

RF Specification	Network and Security	Environnemental
<p>Downstream</p> <ul style="list-style-type: none"> ➤ Bandwidth: 6 MHz or 8 MHz ➤ Modulation: 64QAM, 256QAM ➤ Symbol rate: 0.88 to 6.9 MSymb/s ➤ Frequency Range: 88 MHz to 860 MHz (Optional 37 or 44 MHz IF) ➤ Spectral Occupancy: 64 QAM: 0.18 SRRC 256 QAM: 0.12 SRRC ➤ Return Loss: 14 dB ➤ Output Impedance: 75 ohms <p>Upstream</p> <ul style="list-style-type: none"> ➤ Modulation: QPSK, 8,16,32,64 QAM ➤ Error Correction: Reed Solomon ➤ Frequency Range: 5 MHz to 65 MHz agile, in 100 Hz steps ➤ Symbol Rate: 160, 320, 640, 1280, 2560, 5120 ksym/s ➤ Input Levels: -16dBmV to +26 dBmV 	<p>Network Management</p> <ul style="list-style-type: none"> ➤ SNMP ➤ MIB Group: MIB II, DOCSIS MIB, Vendor-Specific MIB ➤ DHCP Relay ➤ Option 82 ➤ IP Helpers ➤ PPPoE ➤ Telnet <p>Media-Access-Control (MAC)</p> <p>DOCSIS 2.0, DOCSIS 1.1, DOCSIS 1.0</p> <p>IP Process</p> <ul style="list-style-type: none"> ➤ IGMP snooping ➤ VPN transparent <p>Security</p> <ul style="list-style-type: none"> ➤ DOCSIS Baseline Privacy (BPI) ➤ Software upgradeable to BPI+ 	<p>Environmental parameters</p> <ul style="list-style-type: none"> ➤ Operating temperature 0°C ~ 40°C ➤ Storage temperature -25°C ~ 60°C ➤ Humidity 10 % ~ 90 % (non-condensing) <p>Power Supply</p> <ul style="list-style-type: none"> ➤ +22,8V Min, + 24V Nom, +25,2V Max ➤ 18W Min, 20W Nom, 22W Max <p>Network Interfaces</p> <ul style="list-style-type: none"> ➤ Ethernet standard (IEEE 802.3) ➤ Ethernet interface: <ul style="list-style-type: none"> ○ 1 x 100BaseT management ○ 1 x 1000BaseT / Base X Port-Packet ➤ Types of interfaces: <ul style="list-style-type: none"> ○ special connectors for 100BaseT ○ RJ 45 connector for 1000BaseT ○ optical interface for 1000BaseX type of optical connector as required

Damery is offering global solution for Cable Internet and VOIP services



Sales and Service points

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