PATTON ELECTRONICS COMPANY

PRODUCT QUICK REFERENCE

FAQs

3086 ipRocketLink G.SHDSL IADs: Frequently Asked Questions

Product Model 3086

Product Name IpLink™ G.SHDSL IADs

Applications

What is the 3086 IAD?

The Patton Model 3086 ipRocketLink IAD redefines access and sets the new standard for customer premise equipment. Based on ETSI and International Telecommunications Union (ITU) G.SHDSL G.991.2 standard, the Patton 3086 ipRocketLink enables nx64 (n=3...36 with software key to offer up to n = 72) over a single pair of wires and presents a unique dual port user interface. The 3086 is available in a variety of versions to provide customers with two local data interfaces. The 3086 line offers models that provide both a Synchronous Serial port (either V.35 or X.21 or T1/E1) and Ethernet port and incorporates a high-speed business class router. All 3086's models all the simultaneous use of Ethernet and the WAN port at the same time.

With Patton's FlexIP™ architecture, The Model 3086 offers both V.35/X21/T1/E1 WAN interfaces and 10/100 Ethernet ports. The sync serial port is available in either V.35 or X.21 versions. Integrated software selectable DCE/DTE (X.21) support eliminates messy crossover cables. The Ethernet port gives access to any IP network via ATM, PPP, HDLC or Frame Relay.

Both interfaces can be simultaneously selected with user-defined bandwidth for each port. The 3086 boasts easy installation with DIP switch, Telnet, and WEB/SNMP management. As part of Patton's family of ipDSL products, the Model 3086 offers a complete, managed, end-to-end system when used with Patton's central site access concentrators.

What is the primary application for the Model 3086 ipRocketLink G.SHDSL IAD?

Small to medium size enterprises are typically a perfect fit for the Patton model 3086 IADs. They can be used in Internet applications (connection to ISP), or in the connection of remote branches using DSL access and IP/FR/ATM/PPP. The 3086 IADs will most often be used in point-to-point applications or in conjunction with Patton's 3096RC ForeFront System, but the 3086 will also connect to third party compliant G.SHDSL devices. The 3086 IADs are perfect for a variety of applications including:

- Internet/Extranet Access
- IP/FR and TDM Access (using TDM or FRF.5 /FRF.8 internetworking)

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- IP/FR and Voice over DSL
- Metro Intranet Access

What are the interfaces available on the model 3086 IADs?

Each 3086 comes with all of the following interfaces:

- Control Port: An EIA-561 RJ-45 supporting external RS-232, VT-100 CLI configuration port
- G.SHDSL Port: A Two-Contact shielded RJ-11F (RJ-45F available via special order)
- Ethernet Port: Eight contact shielded RJ-45F, 10Base-T / 100Base-TX 10/100 Mbps (Auto-sensing) with support for full/half duplex operation

In addition each 3086 comes with one of the following interfaces:

- X.21 on a DB-15F with n x 64 kbps support up to 2.3 Mbps - DTE/DCE configurable
- V.35 on an M34F with n x 64 kbps support up to 2.3 Mbps
- V.35 on a DB-25F with n x 64 kbps support up to 2.3 Mbps
- E1 (G.703/G.704) on RJ-45 and Dual BNC with n x 64 kbps support up to 2.048 Mbps
- T1 on RJ-45 with n x 64 kbps support up to 1.544 Mbps

What are the distance/speed combinations of the 3086 ipRocketLink IAD?

Actual distance and link performance will vary based on the environment (cross talk/noise) and type/gauge of wire used. The charts below show examples of how the gauge of wire affects the distance/rate achievable for each model.

Distance Table: Patton **Model 3086 ipRocketLink IAD**

		NO NOISE														
DSL Line Rate		26g (0.4mm)			24g (0.5mm)			22g (0.6mm)			20g (0.8mm)			19g (0.9mm)		
N	kbps	feet	miles	km	feet	miles	km	feet	miles	km	feet	miles	km	feet	miles	km
3	200	22800	4.3	7.0	30400	5.7	9.4	42500	8.0	13.1	54700	10.3	16.8	63900	12.1	19.7
6	392	21400	4.0	6.6	28500	5.4	8.8	39900	7.5	12.3	51300	9.7	15.8	57000	10.8	17.5
8	520	20200	3.8	6.2	26900	5.1	8.3	37600	7.1	11.6	48400	9.2	14.9	51200	9.7	15.8
12	776	18300	3.5	5.6	24400	4.6	7.5	31700	6.0	9.8	41400	7.8	12.7	46400	8.8	14.3
18	1160	15800	3.0	4.9	21000	4.0	6.5	27300	5.2	8.4	35700	6.7	11.0	39900	7.5	12.3
24	1544	14900	2.8	4.6	19800	3.7	6.1	25700	4.9	7.9	33600	6.4	10.3	35700	6.7	11.0
32	2056	13000	2.5	4.0	17300	3.3	5.3	22400	4.2	6.9	29400	5.6	9.0	31200	5.9	9.6
36*	2312	12300	2.3	3.8	16400	3.1	5.0	21300	4.0	6.6	27800	5.3	8.6	29600	5.6	9.1
42	2696	12100	2.3	3.7	16100	3.0	5.0	20900	4.0	6.4	27300	5.2	8.4	29000	5.5	8.9
48	3080	11800	2.2	3.6	15700	3.0	4.8	20400	3.9	6.3	26600	5.0	8.2	28300	5.4	8.7
54	3464	10900	2.1	3.4	14500	2.7	4.5	18800	3.6	5.8	24600	4.7	7.6	26100	4.9	8.0
60	3848	10000	1.9	3.1	13300	2.5	4.1	17200	3.3	5.3	22600	4.3	7.0	24000	4.5	7.4
66	4232	9000	1.7	2.8	12000	2.3	3.7	15600	2.9	4.8	20400	3.9	6.3	21600	4.1	6.6
72	4616	8000	1.5	2.5	10600	2.0	3.3	13700	2.6	4.2	18000	3.4	5.5	19100	3.6	5.9

* Current versions support to 2.3 Mbps with nearterm enhancements planned to offer rates to 4.6 Mbps

NOTE: Distances are based on a minimum to no cross talk environment. These distance tables do NOT include the potential 328ft (100 m) Ethernet connections or serial interface connections on each end of the communications link.

3086 ipRocketLink G.SHDSL IADs: Frequently Asked Questions

How many wires are needed to connect at the maximum rates?

All versions of the model 3086 IADs use just a single twisted pair (2 wires) to transmit data up to the maximum data rate.

What is G.SHDSL?

G.SHDSL is the newest standard for symmetric DSL. It works over 2-wires and improves both the distances achievable by DSL and the spectral compatibility with other services often present in a twisted pair bundle. The ITU standard for G.SHDSL is G.991.2. Annex A describes the transmission and performance requirements for North America and Annex B describes performance and transmission requirements for Europe. SHDSL has been standardized by three different standardization bodies: ANSI (T1E1.4/2001-174) for North America, ETSI (TS 101524) for Europe and ITU-T (G.991.2) worldwide. All three are supported by the Model 3086 IADs.

Do the model 3086 ipRocketLink IADs support Annex A or Annex B?

All versions of the model 3086 offer user selectable support of both Annex A and Annex B environments.

What line coding do the ipRocketLink IADs use?

The model 3086 products implement TC-PAM 16 as the standard line coding.

Do the Model 3086 ipRocketLink IADs operate with symmetrical or asymmetrical transmission?

These devices use symmetrical data transmission as called out in the G.SHDSL standard.

Is surge protection provided within the model 3086 G.SHDSL IADs?

Yes, the model 3086 IADs utilize Solid State Technology and have integrated overvoltage protection provided for both the power line interface and the DSL line interface. These G.SHDSL IADs are protected in compliance with all FCC Part 68 and UL1950 specifications. A 58 – 77 V sidactor is utilized to provide isolation on the DSL link. In addition, the modems are designed to meet ITU-T recommendation K20 and K21.

How are the line rates set for the Model 3086 G.SHDSL IADs?

There are several methods of setting the G.SHDSL Line rates on these devices:

1) They can be set via the Web page management screen
2) There is a CLI provided which can also be utilized
3) DIP switches are provided for line speed configuring when devices are used in a serial only environment
4) The Remote unit can be set to follow the central unit for Plug & Play operation

Must the Model 3086 IADs be used in pairs?

In order to establish a G.SHDSL connection, there must be a modem on each end of the link. This can occur by having a model 3086 on each end but does not require each end of the link to be a model 3086 IAD. The model 3086 G.SHDSL IADs can be used with the following options on the other end of the twisted pair:

1) Another model 3086 IAD
2) Another Patton G.SHDSL CPE or IAD device such as the Patton Model 3201 G.SHDSL router.
3) One of Patton's G.SHDSL DSLAM options such as the 3096RC Digital Access Concentrator or the 3224 ipDSLAM
4) A third party G.SHDSL CPE modem
5) A third party G.SHDSL DSLAM

Are all of Patton s other G.SHDSL modems compatible with the model 3086 ipRocketLink IADs?

Yes, the Model 3086 IADs are completely compatible with Patton's other G.SHDSL modems (e.g. 3201, 3241, 3096RC, 3224) as well as third party modems following the G.SHDSL standard (operation of above 2.3Mbps will depend upon vendor implementation).

Will the Model 3086 IADs Operate with Third Party DSL modems?

Yes, the Model 3086 IADs will operate with other third party modems & DSLAMS (e.g. Alcatel ASAM7300, Zhone BAN, Nokia P50, etc.) that implement the G.SHDSL standard. Operation above 2.3 Mbps is dependant upon vendor implementation, and operability at these higher rates will vary from vendor to vendor. Also, the FlexIP architecture may not be available when used with third party solutions.

Do the ipRocketLink IADs support SNMP management?

Yes, the current software set provides users the ability to perform SNMP gets. Future upgrades will include Traps and SNMP sets for functions such as line rate. The management is an SNMP/HTTP based management system. The SNMPv1 (RFC1157) interface is complete with RFC (RFC 1213) standard MIB II variables as well as enterprise MIBs available for download from the Patton website. The MIBs used by Patton follow ASN.1 coding format and can be compiled into any third party management platform that supports enterprise MIBs. Call for update on SNMP Sets and Traps.

How is the model 3086 configured?

The model 3086 can easily be configured using several methods. The 3086 is user selectable to allow ATM, PPP, or HDLC WAN data link connections and allow a variety of local and remote configuration and management options:

- Web-Based configuration via embedded web server
- CLI menu for configuration, management, and diagnostics.
- Local/Remote CLI (VT-100 or Telnet).
- SNMPv1 (RFC 1157) MIB II (RFC 1213)

- Logging via SYSLOG, and VT-100 console. Console port set at 9600 bps 8/N/1 settings no flow control.
- EOC access for End-To-End management, configuration, and control.
- DIP switch control for serial only environments

Will I need to set up a web server to use the web-based management interface?

No, the HTML web pages are contained within each unit. All that is required in order to access the web pages via a PC that is connected to one of these units is a standard Web browser.

Can a third party vendor s network management platform manage these devices?

Yes, the enterprise MIBs are available for download from the Patton web site. The MIBs used by Patton follow ASN.1 coding format and can be compiled into any third party management platform that supports enterprise MIBs.

Do the model 3086 ipRocketLink IADs support software upgrades?

Yes, these models will support software upgrades via HTTP/web, TFTP or FTP. Patton Electronics publishes current as well as Beta software on the support pages of our web site. Downloads are available at:
http://upgrades.patton.com/

Do these models support Network Address Translation (NAT)?

Yes, they support NAT (RFC 3022) with Network Address Port Translation (NAPT). They also support MultiNat with 1:1, Many:1, Many:Many mapping as well as Port/IP redirection and mapping.

Do the G.SHDSL IADs support VLAN?

Yes, in bridge mode these models will support VLAN (802.1Q) by passing the larger sized packets transparently. These models do not have configuration commands to add a VLAN tag to a packet, nor do they stripe outbound traffic with tags.

Does the 3086 support PPP?

Yes, there are several options to choose from when configuring these devices:

- Point-to-Point Protocol over HDLC
- PPPoA (RFC 2364) Point-to-Point Protocol over ATM.
- PPPoE (RFC 2516) Client for autonomous network connection. Eliminates the requirement of installing client software on a local PC and allows sharing of the connection across a LAN.
- User configurable PPP PAP (RFC 1661) or CHAP (RFC 1994) authentication.

Does the 3086 G.SHDSL IAD support ATM?

Yes, there are several options to choose from when configuring these devices:

- Multiprotocol over ATM AAL5 and Multiprotocol Bridged encapsulation RFC 2684 (Formerly RFC 1483) and RFC 1577 Classical IP over ATM. Default RFC-1483 route mode. Logical Link Control (LLC)/ Subnetwork Access Protocol (SNAP) encapsulation. Default VC mux mode.

- ATM UNI 3.0, 3.1, and 4.0 signaling ATM QoS with UBR, CBR, nrt-VBR, and rt-VBR and per-VC queuing and shaping. IISP V.1.0 Q.2931 UNI L3 and Q.2971 UNI L3 support.
- LAN Emulation Client (LEC) V.1 with LEC via PVC or ILMI connection.
- Peak cell rate shaping on a per-VCC basis up to 32 active VCCs across VPI 0-255, VCI 0-65525. Single default PVC: 8/35 with PCR=5,500 cells.
- I.610 OAM network management including AIS/RDI, loop-back and performance monitoring.
- Enhanced ILMI 4.0 for auto-configuration of ATM PVCs.
- FRF.12 Frame Relay Fragmentation support, LMI for Frame Relay PVC Link Management, FRF.5 Frame Relay to ATM Network internetworking, and FRF.8 Frame Relay to ATM Service Internetworking. FRF.5 and FRF.8 is a keyed option. Call marketing/sales for information.

Do the ipRocketLink IADs support higher layer protocols?

Yes, they provide a variety of options to support higher level protocols such as:

- Complete internetworking with IP (RFC 741), TCP (RFC 793), UDP (RFC 768), ICMP (RFC 950), ARP (RFC 826).
- IP Router with RIP (RFC 1058), RIPv2 (RFC 2453) for up to 64 static routes.
- Built-in Ping and Traceroute facilities.
- Integrated DHCP Server (RFC 2131).
- DHCP relay agent (RFC 2132/RFC 1542) with 8 individual address pools.
- DNS Relay with primary and secondary Name Server selection.
- NAT (RFC 3022) with Network Address Port Translation (NAPT), MultiNat with 1:1, Many:1, Many:Many mapping, Port/IP redirection and mapping.

Do these models support bridging?

Yes, these models will automatically learn, age, and filter 1,024 source addresses. Destination addresses of incoming frames are compared with the Source Address in the address table and discarded if an entry exists; otherwise, they are forwarded over the DSL Extension.

What devices typically connect to the Ethernet 10/100Base-T port?

Devices that typically connect to the Ethernet port are Ethernet Hubs/Switches, Remote PC's, and any other network enabled device.

What is the MDI-X switch used for?

The MDI-X switch is used provides an easy method of allowing the units to connect to either a hub (DCE) or PC (DTE) device eliminating the confusion over whether a straight-through connection or a cross-over connection is needed. With a simple push of the MDI-X switch, the unit itself will change the connection from straight-through to a crossover or back again.

How is the Ethernet port configured to accept 10 or 100Base-T?

The Ethernet port automatically senses 10 or 100Base-TX Ethernet connections.

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Does the Ethernet port require configuration for full or half-duplex connections?

No, the Ethernet port will automatically sense full or half-duplex Ethernet connections.

What are the power supply options for these G.SHDSL IADs?

The Model 3086 IADs are available with an Internal UI (100-240VAC) power supply, or an internal 48VDC (-36 to -72 VDC). External UI or 120/230 VAC power supplies are available.

- **Country specific power cords are ordered separately.**
  - **NOTE: the 3086 uses the new style 2-pronged power cord. This power cord is identified as a -2 on the end of the standard Patton power cord. For Example: a standard three pronged (IEC320) Euro Power cord would have the catalog number of 0805EUR. The NEW 2-pronged power cord is an 0805EUR-2.**

- **THIS IS ONLY USED FOR THE INTERNAL VERSIONS OF THE POWER SUPPLY. ALL EXTERNALS STILL USE THE STANDARD IEC320 STYLE POWER CORD.**

Certifications

What Certifications/Approvals Do the Model 3086 ipRocketLink IADs have?

They each have been tested and Certified/approved for the following:

Safety	Emissions	Telecommunications
Patton Internal Safety and UL/CSA testing per: UL1950 (MET), Canadian cMET	RTTE 99/5/EC	FCC Part 68
ESD EN61000-4-2	FCC Part 15 Sub Part B, Class A	CE Mark
EN60950 – CB scheme		RTTE 99/5/EC
		Canadian CS-03
		CTR12 (RIK versions only)
		CTR13 (RIK versions only)

Australia Specific:

TS-001
TS016 (E1 Telecom) for the 3086/K only.
AZ/NZS 3260 Safety
AZ/NZS 35-48 EMC