#### **HWIC-4SHDSL** Datasheet

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### Overview

Cisco Integrated Services Routers offer a wide variety of WAN connectivity modules to accommodate the range of application needs in customer networks. The Cisco 2- and 4-Pair Symmetric High-Bit-Rate DSL High-Speed WAN Interface Cards offer G.SHDSL based WAN connectivity for modular routers deployed in small to medium-sized businesses and enterprise branch offices.

The 2-pair (HWIC-2SHDSL) and 4-pair (HWIC-4SHDSL) symmetric high-bit-rate DSL high-speed WAN interface cards (HWICs) provide G.SHDSL connectivity to a Wide Area Network. The 4-pair symmetric G.SHDSL HWIC provides two ports of 4-wire or four ports of 2-wire connectivity options, whereas the 2-pair G.SHDSL HWIC provides two ports of 2-wire or one port of 4-wire connectivity options. The 4-pair symmetric G.SHDSL HWIC also allows bonding single or dual-pair G.SHDSL ports up to a single 8-wire interface with increased bandwidth by using Inverse Multiplexing over ATM (IMA) or data interleaving with M-pair mode. These cards are supported in all integrated services routers that have HWIC slots.

The 2-pair and 4-pair G.SHDSL HWICs supersede the existing G.SHDSL WAN Interface Card (part number WIC-1SHDSL-V3), which is a WIC-based G.SHDSL solution. The two new G.SHDSL HWICs provide higher performance and increased reach when compared to the G.SHDSL WIC.

G.SHDSL technology offers customers high-speed, symmetrical WAN connectivity at a lower monthly cost than traditional WAN circuits. The 2- and 4-pair G.SHDSL HWICs together with Cisco integrated services routers provide businesses the necessary bandwidth for critical traffic such as voice and video conferencing, and enable customers to save money by integrating voice and data traffic on the same WAN link. Service providers can increase subscriber revenue by bundling services and offering differentiated service levels through service-level agreements.

The first standardized multirate symmetric DSL, G.SHDSL has been an accepted worldwide technology standard based on ITU recommendation G.991.2. G.SHDSL is designed to transport rate-adaptive symmetrical data across a single copper pair at data rates up to 2.304 Mbps for a single pair or up to 4.608 Mbps over two pairs. Later enhancements (Annexes F and G) to the G.991.2 specification allow for increased performance up to 5.696 Mbps over a single copper pair. IMA technology allows the 4-pair G.SHDSL HWIC to offer data rates up to 2.304 Mbps per pair and up to 9.2 Mbps over four pairs. These rates cover applications traditionally served by HDSL, SDSL, T1, E1, and services beyond E1. Refer to Table 2 for the data rates supported by the 2- and 4-pair G.SHDSL HWICs (HWIC-2SHDSL) under different configurations.

### Specification

General Information		
Manufacturer:	Cisco	
Product ID:	HWIC-4SHDSL	
Product Description:	4-pair G.shdsl HWIC with IMA support	
Product Type:	HWIC	
Marketing Information		
The LIMIC ACLIDEL 4 pair High Speed WAN Interface Cord provide C SUDSL connectivity to a Wide Area Naturaly The 4 pair symmetric C SUDSL LIMIC class		

The HWIC-4SHDSL 4-pair High-Speed WAN Interface Card provide G.SHDSL connectivity to a Wide Area Network. The 4-pair symmetric G.SHDSL HWIC also allows bonding single or dual-pair G.SHDSL ports up to a single 8-wire interface with increased bandwidth by using Inverse Multiplexing over ATM (IMA) or data interleaving with M-pair mode. These cards are supported in all integrated services routers that have HWIC slots.

Technical Information		
Application/Usage:	Wide Area Network	
Interfaces/Ports		
Interfaces/Ports:	1 x RJ-11 G.SHDSL WAN	
Media & Performance		
Connectivity Media:	Copper G.SHDSL	

Data Transfer Rate:	9.20 Mbps G.SHDSL	
Management & Protocols		
Digital Signaling Protocol:	SHDSL	
Protocols & Specifications:	ITU G.991.2 (G.shdsl)	
	Environmental Conditions	
Temperature:	32°F (0°C) to 104°F (40°C) Operating -4°F (-20°C) to 149°F (65°C) Storage	
Humidity:	10% to 90% Non-condensing Relative Humidity	
Physical Characteristics		
Dimensions:	0.7" Height x 2.8" Width x 4.0" Depth	
Weight (Approximate):	3.52 oz	
Miscellaneous		
Additional Information:	Based on ITU Recommendation G.991.2 Offers symmetrical WAN speeds of 2.304 Mbps per pair up to 9.2 Mbps over four pairs on the 4-pair by bonding with IMA Version 1.1 Supports Wetting Current Sustains up to 8 permanent virtual circuits (PVCs) per HWIC Offers extensive ATM class-of-service (CoS) and IP quality-of-service (QoS) support The minimum Cisco IOS Software Release required for the G.SHDSL HWICS	

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