



# Nokia ACL2i Line Terminal & DSL2i Regenerator

Nokia ACL2i Line Terminal with an optional DSL2i Regenerator are highly efficient and cost-effective n\*64 kbit/s Single-pair High bit rate Digital Subscriber Line (SHDSL) equipment for standard, unconditioned copper wire local loop environment.

## ACL2i

Nokia ACL2i is a SHDSL line terminal for data transmission over twisted copper pairs. It provides n\*64 kbit/s access to the digital trunk network over a customer line. The user data is conveyed either transparently or in a G.704/2M frame structure. The equipment interface of the ACL2i line terminal is according to specification G.703/704. On the subscriber line ACL2i uses TC-PAM line coding according to the SHDSL standard. ACL2i fully integrates into Nokia's access transmission system family (Dyanet); it share the same mechanical racking, power, and management systems. ACL2i line card interworks with all Nokia compliant SHDSL Network Terminals (such as DNT2Mi) in tributary applications, DSL2i regenerators in extremely long distance connections, and with other ACL2i units in aggregate applications.

## DSL2i

Nokia DSL2i is a n\*64 kbit/s SHDSL regenerator which enables the use of exceptionally long local loops to connect remote users via a SHDSL line system to the transmission network. One DSL2i

in the copper line doubles the maximum reach of the connection. Different housing alternatives exist for different types of installation environment (pole, manhole, inhouse installations). The housing options are the same than for Nokia's HDB3 and HDSL line systems. DSL2i can take its power either from the line, or it can be powered locally.

## Application Areas

ACL2i line cards and DSL2i regenerators can be used in a number of applications which requires highly efficient remote subscriber access over copper lines. ACL2i line cards (and possible DSL2i regenerators) connected over the local loop to a Nokia DNT2Mi SHDSL Network Terminal at the subscriber end, provides an effective way to create versatile data communication networks and modem pool applications. At the network end the customer line is terminated by the ACL2i Line Terminal which provide a G.703/704 access to other 2Mbit/s equipment (multiplexers, cross connects etc.) in the transport network. Installed at the subscriber end ACL2i Line Terminal typically connects to a

multiplexer that provides interfaces to voice, data, or PBX services.

## Network Management

Nokia ACL2i as well as other Nokia Dyanet products can be managed locally with Nokia Service Terminal or by using PC-based management tools. Remote management is enabled by using Nokia Network Management system (NMS) platform tools. The management features include remote configuration, test loop activation, line quality monitoring, and alarms.

## Technical Highlights

- ITU-T G.991.2 compliant
- TC-PAM line coding
- 2-wire / 4-wire operation
- n\*64 kbit/s line rates
- 2Mbit/s of aggregate bandwidth
- Remote powering
- Complies with Nokia NMS management system
- n\*64 kbit/s services

Technical data	ACL2i	DSL2i
<b>Product Codes</b>	T65570.01 (DC) T65580.01 (Power Feeding) T65590.01 (Remote Powered)	T665595.01
<b>Interfaces</b>		
Line	Type (Cu) Physical Line code Line rate Signal bandwidth Line impedance TX power (0dB power backoff)	2-wire or 4-wire 2x32 euro TC-PAM (Trellis Coded Pulse Amplitude Modulation) n*64 kbit/s (192...2048 kbit/s) 0...300 kHz (2 Mbit/s) 135 ohm 11.5 dBm@135 ohm (192...1984 kbit/s) 13.5d Bm@135 ohm (2048 kbit/s)
Equipment	Physical Framing	2x32 euro (sym), 2 x SMB (asym) G.704/2M (G.703/704) N.A. N.A.
Network Management	Physical	1/4 Euro (V.11) N.A.
Local management interface	Physical	D9F (V.24/V.28) RJ45 (V.24/V.28)
<b>Performance</b>	Meets or exceeds ITU-T G991.2	
<b>Power</b>	DC Supply Consumption	-39 to -75 V (T65570) -39 to -75 V (T65580) 50 to 150 V (T65590) 5.5 W (T65570) 6.0-20 W (T65580) depending on power feeding 5 W (T65590) 40 to 140 V (remote or locally powered) 4.5 W 2w mode 5.5 W 4w mode
<b>MTBF</b>	>70 years (T65570) >60 years (T65580) >60 years (T65590)	>40 years
<b>Protection</b>	Surge protection ITU-T K20, K21 Overall product safety EN60950	K17
<b>Environmental Specifications</b>	Transportation Storage Operation	ETSI ETS 300 019-2-2 class 2.3 ETSI ETS 300 019-2-1 class 1.2 ETSI ETS 300 019-2-3 class 3.2
<b>Electromagnetic Compatibility</b>	EN 300386-2000	
ACL2i/DSL2i complies with the specification above, provided that required EMC structures (subracks, cartridges, cables, etc.) are used.		
<b>Temperature range</b>	-5 to +45 C	-20 to +75 C
<b>Mechanics</b>	For use in Dimensions (h x w x d)	17 slot subrack (T30506.09) 233 x 21,5 x 160 mm Euro-2 size PCB 2 slot housing (TFC4168.02) 4 slot housing (TFC4166.02) 100 x 39,5 x 160 mm
<b>Power unit</b>	SPA power unit (T30581.02) EPSA power unit (T30800.09) Option for up to four subracks	N.A. N.A. N.A.

All Nokia products are subject to continuous research and development; we therefore reserve the right to alter technical specifications without prior notice. NOKIA is trademark of Nokia Corporation. Any other trademarks mentioned in the document are property of their respective owners. Nokia Corporation 2002