

Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

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Please visit <http://support.dell.com> if you require further help and assistance, or to obtain drivers or firmware upgrades.

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Cartridge Care and Cleaning: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

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Appearance of SDLT Tapes

From the outside, the Super DLTape™ cartridge looks very similar to the DLTape IV cartridges. The basic geometry, write protection switch, and label space are unchanged from the DLTape IV cartridge. This simplifies the integration of Super DLTape into existing operating environments and into automated tape libraries.

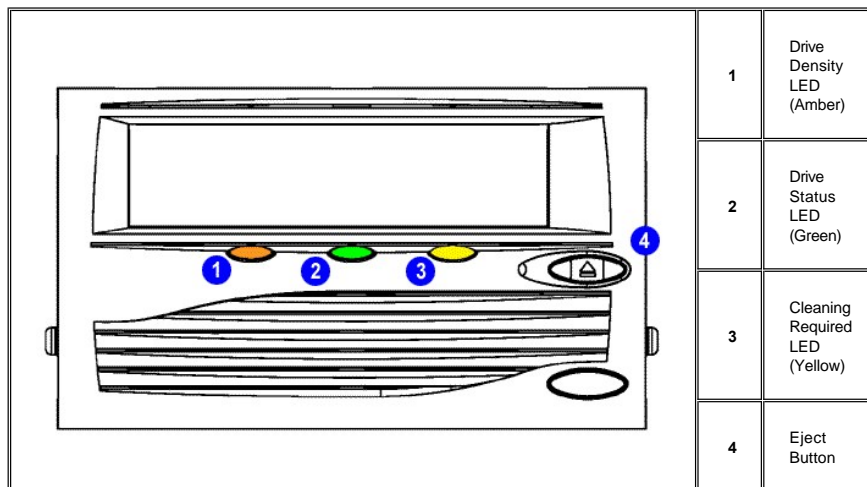
The Super DLTape cartridge is easy to recognize; it has a different color than the DLTape IV cartridge and contains a distinctive pattern molded into the shell. The Super DLTape cartridge has a keying feature to ensure you can not load it into previous generation DLTape systems.

Cleaning the Tape Mechanism

When to Use the Cleaning Cartridge

SuperDLTape drives do not require regular preventative cleaning due to improvements in the design. Do not clean your drive unless required. Your backup software or the yellow Cleaning Required light (LED) notify you if you need to clean the drive. The location of the yellow Cleaning Required LED is shown in [Figure 1](#).

Figure 1. Front Panel LEDs



Compatibility

The SDLT cleaning cartridge is for use in Super DLTape drives, autoloaders, and libraries only.

Capacity

Each SDLT cleaning cartridge is good for 20 uses. Use one of the attached labels to keep track of the number of uses.

Loading a Cleaning Cartridge

To load a cleaning cartridge, follow these steps:

1. Insert the cleaning cartridge (with the front slide label slot facing outward) fully into the drive until the drive engages the cartridge and begins to take up the cleaning media.

The green In Use light will blink and the cleaning cycle will begin automatically.

When the cleaning cycle completes the cartridge automatically ejects from the drive and the yellow Cleaning Required light shuts off.

2. Remove the cartridge, place it back into a plastic case, and mark the label after each cleaning.



NOTE: On the last cleaning, the cleaning cartridge will not eject. Use the Eject button on the front of the drive to eject the expired cleaning cartridge and dispose the cartridge.

For additional details about using cleaning cartridges in autoloaders and libraries, refer to the owner's manual for that product.

Cleaning Cartridge Care

- 1 Protect cartridges from shock, vibration and magnetic fields.
- 1 Avoid exposure to direct sunlight, heat and moisture.
- 1 Store cleaning cartridges vertically.
- 1 Never touch the tape or tape leader. Dust and oils from your skin will contaminate the tape and affect performance.
- 1 Always visually inspect a media cartridge before placing it in the drive. If damage is apparent, do not use the cartridge.

Caring for Regular (Non-cleaning) Tape Cartridges



CAUTION: Ensure that only one label is stuck to the label area of the cartridge. Never use nonstandard labels, and never stick anything to the cartridge other than in the label area.

- 1 Always keep each tape cartridge in its protective plastic case when it is not in the tape drive.
- 1 When carrying tape cartridges in their cases, always orient the cases so that the grooves in the cases interlock. This prevents the cases from slipping apart and falling.
- 1 Never stack the tape cartridges in a stack of more than five.
- 1 When placing tape cartridges in archival storage, stand each tape cartridge vertically.
- 1 Do not carry cartridges loosely in a box or any other container. Allowing cartridges to hit together exposes them to unnecessary physical shock.
- 1 Always observe the proper environmental conditions for the storage of tape cartridges. Refer to the cartridge reference card supplied with each cartridge. The ambient operating environment for the tape cartridge is:

Temperature	10°C to 40°C (50°F to 104°F)
Relative Humidity	20% to 80% (non-condensing)

- 1 If storage or transportation of a tape cartridge have exposed it to conditions outside the ambient values above, "condition" the tape cartridge to its operating environment for a 24-hour period.
- 1 Do not place cartridges on or near devices that may produce magnetic fields such as computer monitors, motors, or video equipment. Such exposure can alter or erase data on the tape.
- 1 Never apply adhesive labels or adhesive notes on the top, side, or bottom of a tape cartridge. Only use the user slide-in type label provided with each cartridge and slide it over the label slot on the cartridge.
- 1 Do not touch or allow direct contact with tape or tape leader. Dust or natural skin oils can contaminate the tape and impact tape performance.
- 1 Do not expose the tape cartridge to moisture or direct sunlight.
- 1 Do not insert any cartridge that has been dropped into tape drive without a thorough visual inspection. A dropped cartridge may have dislodged, loosened, or damaged internal components.
- 1 Avoid unnecessary opening of the cartridge door; this may expose the tape to contamination or physical damage.
- 1 Do not use graphite pencils, water-soluble felt pens, or other debris-producing writing instruments on your labels. Never erase a label—replace it.
- 1 Make sure you place the unused cartridge labels in the protective box so that you do not inadvertently pick them up along with the cartridge during subsequent usage. (A static electricity charge on a cartridge may cause a label to cling to the cartridge.) A label that is accidentally inserted into the drive along with a cartridge can prevent the hub reel and drive gear from meshing.
- 1 Maintain clean operating, working, and storage environments.
- 1 Follow all tape cartridge handling instructions that accompany your cartridges or tape drive.

SCSI Connectors: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

Figure 1 shows the location of the two 68-pin SCSI connectors available from the back of the Dell PowerVault 110T SDLT 320 tape drive, external model.

Figure 2 shows the location of the SCSI port available from the back of the Dell PowerVault 110T SDLT 320 tape drive, internal model.

Figure 1. Location of SCSI Connectors on Back of External Drive

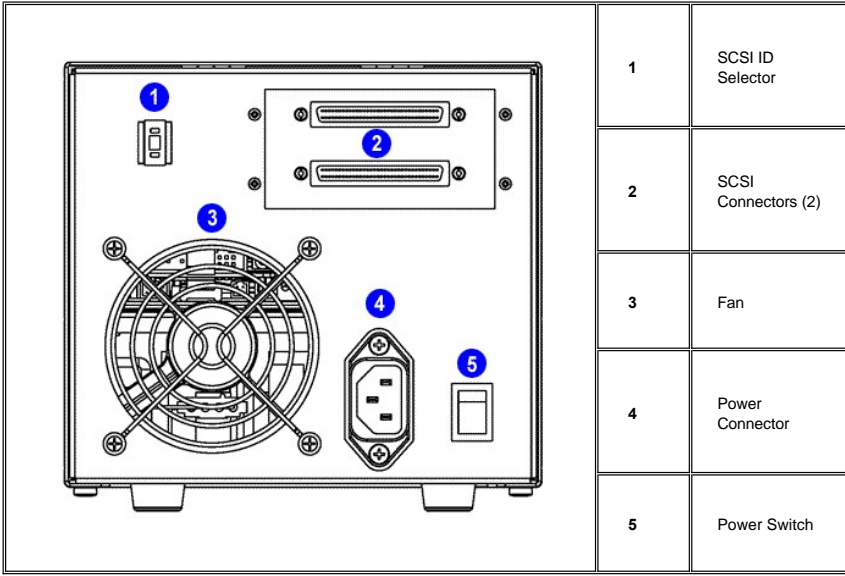
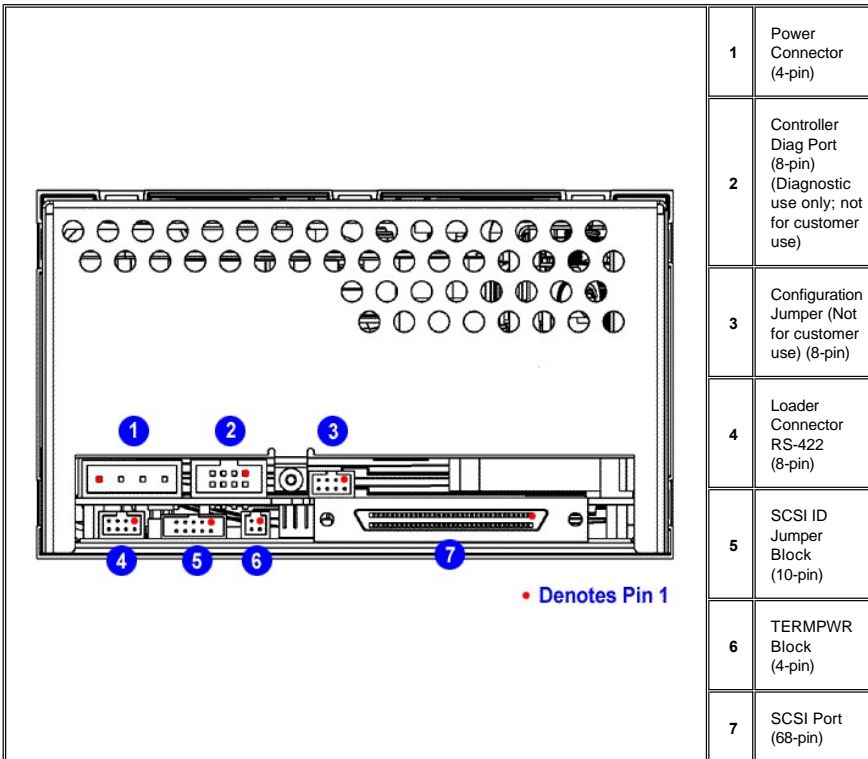


Figure 2. Location of SCSI Port on Back of Internal Drive



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Contacting Dell: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

To contact Dell electronically, you can access the following websites:

- 1 www.dell.com
- 1 support.dell.com (technical support)
- 1 premiersupport.dell.com (technical support for educational, government, healthcare, and medium/large business customers, including Premier, Platinum, and Gold customers)

For specific web addresses for your country, find the appropriate country section in the table below.

NOTE: Toll-free numbers are for use within the country for which they are listed.

When you need to contact Dell, use the electronic addresses, telephone numbers, and codes provided in the following table. If you need assistance in determining which codes to use, contact a local or an international operator.

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
Anguilla	General Support	toll-free: 800-335-0031
Antigua and Barbuda	General Support	1-800-805-5924
Argentina (Buenos Aires)	Website: www.dell.com.ar	
International Access Code: 00	Tech Support and Customer Care	toll-free: 0-800-444-0733
Country Code: 54	Sales	0-810-444-3355
City Code: 11	Tech Support Fax	11 4515 7139
	Customer Care Fax	11 4515 7138
Aruba	General Support	toll-free: 800-1578
Australia (Sydney)	E-mail (Australia): au_tech_support@dell.com	
International Access Code: 0011	E-mail (New Zealand): nz_tech_support@dell.com	
Country Code: 61	Home and Small Business	1-300-65-55-33
City Code: 2	Government and Business	toll-free: 1-800-633-559
	Preferred Accounts Division (PAD)	toll-free: 1-800-060-889
	Customer Care	toll-free: 1-800-819-339
	Corporate Sales	toll-free: 1-800-808-385
	Transaction Sales	toll-free: 1-800-808-312
	Fax	toll-free: 1-800-818-341
Austria (Vienna)	Website: support.euro.dell.com	
International Access Code: 900	E-mail: tech_support_central_europe@dell.com	
Country Code: 43	Home/Small Business Sales	01 795 67602
City Code: 1	Home/Small Business Fax	01 795 67605
	Home/Small Business Customer Care	01 795 67603
	Preferred Accounts/Corporate Customer Care	0660 8056
	Home/Small Business Technical Support	01 795 67604
	Preferred Accounts/Corporate Technical Support	0660 8779
	Switchboard	01 491 04 0
Bahamas	General Support	toll-free: 1-866-278-6818
Barbados	General Support	1-800-534-3066
Belgium (Brussels)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: tech_be@dell.com	
Country Code: 32	E-mail for French Speaking Customers: support.euro.dell.com/be/fr/emaildell/	
City Code: 2	Technical Support	02 481 92 88
	Customer Care	02 481 91 19
	Home/Small Business Sales	toll-free: 0800 16884
	Corporate Sales	02 481 91 00

	Fax	02 481 92 99
	Switchboard	02 481 91 00
Bermuda	General Support	1-800-342-0671
Bolivia	General Support	toll-free: 800-10-0238
Brazil	Website: www.dell.com/br	
International Access Code: 00	Customer Support, Technical Support	0800 90 3355
Country Code: 55	Tech Support Fax	51 481 5470
City Code: 51	Customer Care Fax	51 481 5480
	Sales	0800 90 3390
British Virgin Islands	General Support	toll-free: 1-866-278-6820
Brunei	Customer Technical Support (Penang, Malaysia)	604 633 4966
Country Code: 673	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales (Penang, Malaysia)	604 633 4955
Canada (North York, Ontario)	Automated Order-Status System	toll-free: 1-800-433-9014
International Access Code: 011	AutoTech (automated technical support)	toll-free: 1-800-247-9362
	Customer Care (from outside Toronto)	toll-free: 1-800-387-5759
	Customer Care (from within Toronto)	416 758-2400
	Customer Technical Support	toll-free: 1-800-847-4096
	Sales (direct sales—from outside Toronto)	toll-free: 1-800-326-9463
	Sales (direct sales—from within Toronto)	416 758-2200
	Sales (federal government, education, and medical)	toll-free: 1-800-567-7542
	Sales (major accounts)	toll-free: 1-800-387-5755
	TechFax	toll-free: 1-800-950-1329
Cayman Islands	General Support	1-800-805-7541
Chile (Santiago)	Sales, Customer Support, and Technical Support	toll-free: 1230-020-4823
Country Code: 56		
City Code: 2		
China (Xiamen)	Tech Support website: support.ap.dell.com/china	
Country Code: 86	Tech Support E-mail: cn_support@dell.com	
City Code: 592	Tech Support Fax	818 1350
	Home and Small Business Technical Support	toll-free: 800 858 2437
	Corporate Accounts Technical Support	toll-free: 800 858 2333
	Customer Experience	toll-free: 800 858 2060
	Home and Small Business	toll-free: 800 858 2222
	Preferred Accounts Division	toll-free: 800 858 2062
	Large Corporate Accounts GCP	toll-free: 800 858 2055
	Large Corporate Accounts Key Accounts	toll-free: 800 858 2628
	Large Corporate Accounts North	toll-free: 800 858 2999
	Large Corporate Accounts North Government and Education	toll-free: 800 858 2955
	Large Corporate Accounts East	toll-free: 800 858 2020
	Large Corporate Accounts East Government and Education	toll-free: 800 858 2669
	Large Corporate Accounts Queue Team	toll-free: 800 858 2572
	Large Corporate Accounts South	toll-free: 800 858 2355
	Large Corporate Accounts West	toll-free: 800 858 2811
	Large Corporate Accounts Spare Parts	toll-free: 800 858 2621
Colombia	General Support	980-9-15-3978
Costa Rica	General Support	0800-012-0435
Czech Republic (Prague)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: czech_dell@dell.com	
Country Code: 420	Technical Support	02 22 83 27 27
City Code: 2	Customer Care	02 22 83 27 11
	Fax	02 22 83 27 14
	TechFax	02 22 83 27 28
	Switchboard	02 22 83 27 11

Denmark (Copenhagen) International Access Code: 00 Country Code: 45	Website: support.euro.dell.com	
	E-mail Support (portable computers): den_nbk_support@dell.com	
	E-mail Support (desktop computers): den_support@dell.com	
	E-mail Support (servers): Nordic_server_support@dell.com	
	Technical Support	7023 0182
	Customer Care (Relational)	7023 0184
	Home/Small Business Customer Care	3287 5505
	Switchboard (Relational)	3287 1200
	Fax Switchboard (Relational)	3287 1201
	Switchboard (Home/Small Business)	3287 5000
Fax Switchboard (Home/Small Business)	3287 5001	
Dominica	General Support	toll-free: 1-866-278-6821
Dominican Republic	General Support	1-800-148-0530
Ecuador	General Support	toll-free: 999-119
El Salvador	General Support	01-899-753-0777
Finland (Helsinki) International Access Code: 990 Country Code: 358 City Code: 9	Website: support.euro.dell.com	
	E-mail: fin_support@dell.com	
	E-mail Support (servers): Nordic_support@dell.com	
	Technical Support	09 253 313 60
	Technical Support Fax	09 253 313 81
	Relational Customer Care	09 253 313 38
	Home/Small Business Customer Care	09 693 791 94
	Fax	09 253 313 99
Switchboard	09 253 313 00	
France (Paris) (Montpellier) International Access Code: 00 Country Code: 33 City Codes: (1) (4)	Website: support.euro.dell.com	
	E-mail: support.euro.dell.com/fr/fr/emaildell/	
	Home and Small Business	
	Technical Support	0825 387 270
	Customer Care	0825 823 833
	Switchboard	0825 004 700
	Switchboard (calls from outside of France)	04 99 75 40 00
	Sales	0825 004 700
	Fax	0825 004 701
	Fax (calls from outside of France)	04 99 75 40 01
	Corporate	
	Technical Support	0825 004 719
	Customer Care	0825 338 339
	Switchboard	01 55 94 71 00
	Sales	01 55 94 71 00
	Fax	01 55 94 71 01
	Germany (Langen) International Access Code: 00 Country Code: 49 City Code: 6103	Website: support.euro.dell.com
E-mail: tech_support_central_europe@dell.com		
Technical Support		06103 766-7200
Home/Small Business Customer Care		0180-5-224400
Global Segment Customer Care		06103 766-9570
Preferred Accounts Customer Care		06103 766-9420
Large Accounts Customer Care		06103 766-9560
Public Accounts Customer Care		06103 766-9555
Switchboard		06103 766-7000
Grenada	General Support	toll-free: 1-866-540-3355
Guatemala	General Support	1-800-999-0136
Guyana	General Support	toll-free: 1-877-270-4609
Hong Kong International Access Code: 001	Technical Support (Dimension™ and Inspiron™)	296 93188
	Technical Support (OptiPlex™, Latitude™, and Dell Precision™)	296 93191

Country Code: 852	Customer Service (non-technical, post-sales issues)	800 93 8291	
	Transaction Sales	toll-free: 800 96 4109	
	Large Corporate Accounts HK	toll-free: 800 96 4108	
	Large Corporate Accounts GCP HK	toll-free: 800 90 3708	
India	Technical Support	1600 33 8045	
	Sales	1600 33 8044	
Ireland (Cherrywood) International Access Code: 16 Country Code: 353 City Code: 1	Website: support.euro.dell.com		
	E-mail: dell_direct_support@dell.com		
	Ireland Technical Support	1850 543 543	
	U.K. Technical Support (dial within U.K. only)	0870 908 0800	
	Home User Customer Care	01 204 4095	
	Small Business Customer Care	01 204 4444	
	U.K. Customer Care (dial within U.K. only)	0870 906 0010	
	Corporate Customer Care	01 204 4003	
	Ireland Sales	01 204 4444	
	U.K. Sales (dial within U.K. only)	0870 907 4000	
	SalesFax	01 204 0144	
	Fax	01 204 5960	
	Switchboard	01 204 4444	
	Italy (Milan) International Access Code: 00 Country Code: 39 City Code: 02	Website: support.euro.dell.com	
E-mail: support.euro.dell.com/it/it/emaildell/			
Home and Small Business			
Technical Support		02 577 826 90	
Customer Care		02 696 821 14	
Fax		02 696 821 13	
Switchboard		02 696 821 12	
Corporate			
Technical Support		02 577 826 90	
Customer Care		02 577 825 55	
Fax		02 575 035 30	
Switchboard		02 577 821	
Jamaica		General Support (dial from within Jamaica only)	1-800-682-3639
Japan (Kawasaki) International Access Code: 001 Country Code: 81 City Code: 44		Website: support.jp.dell.com	
	Technical Support (servers)	toll-free: 0120-1984-98	
	Technical Support outside of Japan (servers)	81-44-556-4162	
	Technical Support (Dimension™ and Inspiron™)	toll-free: 0120-1982-26	
	Technical Support outside of Japan (Dimension and Inspiron)	81-44-520-1435	
	Technical Support (Dell Precision™, OptiPlex™, and Latitude™)	toll-free:0120-1984-33	
	Technical Support outside of Japan (Dell Precision, OptiPlex, and Latitude)	81-44-556-3894	
	24-Hour Automated Order Service	044-556-3801	
	Customer Care	044-556-4240	
	Business Sales Division (up to 400 employees)	044-556-1465	
	Preferred Accounts Division Sales (over 400 employees)	044-556-3433	
	Large Corporate Accounts Sales (over 3500 employees)	044-556-3430	
	Public Sales (government agencies, educational institutions, and medical institutions)	044-556-1469	
	Global Segment Japan	044-556-3469	
	Individual User	044-556-1760	
	Faxbox Service	044-556-3490	
Switchboard	044-556-4300		
Korea (Seoul) International Access Code: 001 Country Code: 82 City Code: 2	Technical Support	toll-free: 080-200-3800	
	Sales	toll-free: 080-200-3600	
	Customer Service (Seoul, Korea)	toll-free: 080-200-3800	
	Customer Service (Penang, Malaysia)	604 633 4949	
	Fax	2194-6202	

	Switchboard	2194-6000
Latin America	Customer Technical Support (Austin, Texas, U.S.A.)	512 728-4093
	Customer Service (Austin, Texas, U.S.A.)	512 728-3619
	Fax (Technical Support and Customer Service) (Austin, Texas, U.S.A.)	512 728-3883
	Sales (Austin, Texas, U.S.A.)	512 728-4397
	SalesFax (Austin, Texas, U.S.A.)	512 728-4600 or 512 728-3772
Luxembourg International Access Code: 00 Country Code: 352	Website: support.euro.dell.com	
	E-mail: tech_be@dell.com	
	Technical Support (Brussels, Belgium)	02 481 92 88
	Home/Small Business Sales (Brussels, Belgium)	toll-free: 080016884
	Corporate Sales (Brussels, Belgium)	02 481 91 00
	Customer Care (Brussels, Belgium)	02 481 91 19
	Fax (Brussels, Belgium)	02 481 92 99
	Switchboard (Brussels, Belgium)	02 481 91 00
Macao Country Code: 853	Technical Support	toll-free: 0800 582
	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales	toll-free: 0800 581
Malaysia (Penang) International Access Code: 00 Country Code: 60 City Code: 4	Technical Support	toll-free: 1 800 888 298
	Customer Service	04 633 4949
	Transaction Sales	toll-free: 1 800 888 202
	Corporate Sales	toll-free: 1 800 888 213
Mexico International Access Code: 00 Country Code: 52	Customer Technical Support	001-877-384-8979 or 001-877-269-3383
	Sales	50-81-8800 or 01-800-888-3355
	Customer Service	001-877-384-8979 or 001-877-269-3383
	Main	50-81-8800 or 01-800-888-3355
Montserrat	General Support	toll-free: 1-866-278-6822
Netherlands Antilles	General Support	001-800-882-1519
Netherlands (Amsterdam) International Access Code: 00 Country Code: 31 City Code: 20	Website: support.euro.dell.com	
	E-mail: support.euro.dell.com/nl/nl/emaildell/	
	Technical Support	020 674 45 00
	Home/Small and Medium Business	020 674 55 00
	Home/Small and Medium Business Fax	020 674 47 75
	Home/Small and Medium Business Customer Care	020 674 42 00
	Corporate	020 674 50 00
	Corporate Fax	020 674 47 79
	Corporate Customer Care	020 674 43 25
New Zealand International Access Code: 00 Country Code: 64	E-mail (New Zealand): nz_tech_support@dell.com	
	E-mail (Australia): au_tech_support@dell.com	
	Home and Small Business	0800 446 255
	Government and Business	0800 444 617
	Sales	0800 441 567
	Fax	0800 441 566
Nicaragua	General Support	001-800-220-1006
Norway (Lysaker) International Access Code: 00 Country Code: 47	Website: support.euro.dell.com	
	E-mail Support (portable computers):	
	nor_nbk_support@dell.com	

	E-mail Support (desktop computers):	
	nor_support@dell.com	
	E-mail Support (servers):	
	nordic_server_support@dell.com	
	Technical Support	671 16882
	Relational Customer Care	671 17514
	Home/Small Business Customer Care	23162298
	Switchboard	671 16800
	Fax Switchboard	671 16865
Panama	General Support	001-800-507-0962
Peru	General Support	0800-50-669
Poland (Warsaw)	Website: support.euro.dell.com	
International Access Code: 011	E-mail: pl_support@dell.com	
Country Code: 48	Customer Service Phone	57 95 700
City Code: 22	Customer Care	57 95 999
	Sales	57 95 999
	Customer Service Fax	57 95 806
	Reception Desk Fax	57 95 998
	Switchboard	57 95 999
Portugal	E-mail: support.euro.dell.com/es/es/emaildell/	
International Access Code: 00	Technical Support	800 834 077
Country Code: 35	Customer Care	800 300 415 or 800 834 075
	Sales	800 300 410 or 800 300 411 or 800 300 412 or 121 422 07 10
	Fax	121 424 01 12
Puerto Rico	General Support	1-800-805-7545
St. Kitts and Nevis	General Support	toll-free: 1-877-441-4731
St. Lucia	General Support	1-800-882-1521
St. Vincent and the Grenadines	General Support	toll-free: 1-877-270-4609
Singapore (Singapore)	Technical Support	toll-free: 800 6011 051
International Access Code: 005	Customer Service (Penang, Malaysia)	604 633 4949
Country Code: 65	Transaction Sales	toll-free: 800 6011 054
	Corporate Sales	toll-free: 800 6011 053
South Africa (Johannesburg)	Website: support.euro.dell.com	
International Access Code:	E-mail: dell_za_support@dell.com	
09/091	Technical Support	011 709 7710
Country Code: 27	Customer Care	011 709 7707
City Code: 11	Sales	011 709 7700
	Fax	011 706 0495
	Switchboard	011 709 7700
Southeast Asian and Pacific Countries	Customer Technical Support, Customer Service, and Sales (Penang, Malaysia)	604 633 4810
Spain (Madrid)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: support.euro.dell.com/es/es/emaildell/	
Country Code: 34	Home and Small Business	
City Code: 91	Technical Support	902 100 130
	Customer Care	902 118 540
	Sales	902 118 541
	Switchboard	902 118 541
	Fax	902 118 539
	Corporate	
	Technical Support	902 100 130
	Customer Care	902 118 546

	Switchboard	91 722 92 00
	Fax	91 722 95 83
Sweden (Upplands Vasby)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: swe_support@dell.com	
Country Code: 46	E-mail Support for Latitude and Inspiron: Swe-nbk_kats@dell.com	
City Code: 8	E-mail Support for OptiPlex: Swe_kats@dell.com	
	E-mail Support for Servers: Nordic_server_support@dell.com	
	Technical Support	08 590 05 199
	Relational Customer Care	08 590 05 642
	Home/Small Business Customer Care	08 587 70 527
	Employee Purchase Program (EPP) Support	20 140 14 44
	Fax Technical Support	08 590 05 594
	Sales	08 590 05 185
Switzerland (Geneva)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: swisstech@dell.com	
Country Code: 41	E-mail for French-speaking HSB and Corporate Customers: support.euro.dell.com/ch/fr/emaildell/	
City Code: 22	Technical Support (Home and Small Business)	0844 811 411
	Technical Support (Corporate)	0844 822 844
	Customer Care (Home and Small Business)	0848 802 202
	Customer Care (Corporate)	0848 821 721
	Fax	022 799 01 90
	Switchboard	022 799 01 01
Taiwan	Technical Support (portable and desktop computers)	toll-free: 00801 86 1011
International Access Code: 002	Technical Support (servers)	toll-free: 0080 60 1256
Country Code: 886	Transaction Sales	toll-free: 0080 651 228 or 0800 33 556
	Corporate Sales	toll-free: 0080 651 227 or 0800 33 555
Thailand	Technical Support	toll-free: 0880 060 07
International Access Code: 001	Customer Service (Penang, Malaysia)	604 633 4949
Country Code: 66	Sales	toll-free: 0880 060 09
Trinidad/Tobago	General Support	1-800-805-8035
Turks and Caicos Islands	General Support	toll-free: 1-866-540-3355
U.K. (Bracknell)	Website: support.euro.dell.com	
International Access Code: 00	Customer Care website: dell.co.uk/lca/customerservices	
Country Code: 44	E-mail: dell_direct_support@dell.com	
City Code: 1344	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees])	0870 908 0500
	Technical Support (direct/PAD and general)	0870 908 0800
	Global Accounts Customer Care	01344 373 185 or 01344 373 186
	Home and Small Business Customer Care	0870 906 0010
	Corporate Customer Care	0870 908 0500
	Preferred Accounts (500–5000 employees) Customer Care	01344 373 196
	Central Government Customer Care	01344 373 193
	Local Government & Education Customer Care	01344 373 199
	Health Customer Care	01344 373 194
	Home and Small Business Sales	0870 907 4000
	Corporate/Public Sector Sales	01344 860 456
Uruguay	General Support	toll-free: 000-413-598-2521
U.S.A. (Austin, Texas)	Automated Order-Status Service	toll-free: 1-800-433-9014
International Access Code: 011	AutoTech (portable and desktop computers)	toll-free: 1-800-247-9362

Country Code: 1	Consumer (Home and Home Office)	
	Technical Support	toll-free: 1-800-624-9896
	Customer Service	toll-free: 1-800-624-9897
	DellNet™ Service and Support	toll-free: 1-877-Dellnet (1-877-335-5638)
	Software Application Support	toll-free: 1-800-433-9005
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Financial Services website: www.dellfinancialservices.com	
	Financial Services (lease/loans)	toll-free: 1-877-577-3355
	Financial Services (Dell Preferred Accounts [DPA])	toll-free: 1-800-283-2210
	Business	
	Service and Technical Support	toll-free: 1-800-822-8965
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Projectors Technical Support	toll-free: 1-877-459-7298
	Public (government, education, and healthcare)	
	Service and Technical Support	toll-free: 1-800-234-1490
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Dell Sales	toll-free: 1-800-289-3355 or toll-free: 1-800-879-3355
	Dell Outlet Store (Dell refurbished computers)	toll-free: 1-888-798-7561
	Software and Peripherals Sales	toll-free: 1-800-671-3355
	Spare Parts Sales	toll-free: 1-800-357-3355
	Extended Service and Warranty Sales	toll-free: 1-800-247-4618
	Fax	toll-free: 1-800-727-8320
	Dell Services for the Deaf, Hard-of-Hearing, or Speech-Impaired	toll-free: 1-877-DELLTTY (1-877-335-5889)
U.S. Virgin Islands	General Support	1-877-673-3355
Venezuela	General Support	8001-3605

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Diagnostics: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

• [Obtaining Drivers and Firmware Upgrades](#) • [Tape Alert](#)

Obtaining Drivers and Firmware Upgrades

To obtain the latest operating system drivers and firmware upgrades, please visit <http://support.dell.com>.

Tape Alert

TapeAlert is a tape drive status monitoring and messaging utility that makes it easy to detect problems that could affect backup quality. From the use of worn-out tapes to defects in the drive hardware, TapeAlert provides easy-to-understand warnings of errors as they arise, and suggests a course of action to remedy the problem.

TapeAlert allows users and network managers to eliminate unnecessary errors and ensure that data integrity and security are never compromised. To take advantage of TapeAlert, you need:

- 1 TapeAlert-compatible tape drives
- 1 TapeAlert-compatible backup software

How it works

TapeAlert compatible tape drives—such as the DELL PowerVault 110T SDLT 320 drive—are delivered with standard TapeAlert features. The internal TapeAlert firmware constantly monitors the tape drive hardware and the media, checking for errors and potential difficulties. Any problems identified are flagged on a new SCSI log page.

After a backup has been completed, the TapeAlert-compatible backup application automatically reads the drive's TapeAlert SCSI log page to check for any problems. If an error is flagged, the backup software displays a clear warning message on the user's monitor, and adds the TapeAlert messages to its logs. These messages are standard across all applications that support TapeAlert, and are designed to give a clear explanation of the problem and suggested resolution. For example, users attempting to back up onto a worn-out tape would encounter the message:

WARNING: The tape cartridge has reached the end of its useful life:

1. Copy the data you need to another tape
2. Discard the old tape

Errors Monitored

TapeAlert currently checks for the following types of errors:

- 1 Drive recoverable read problems
- 1 Drive recoverable write problems
- 1 Drive unrecoverable read problems
- 1 Drive unrecoverable write problems
- 1 Drive hardware defects
- 1 Worn-out media
- 1 Wrong media used
- 1 Abnormal error conditions

TapeAlert is an advanced technological standard that provides a comprehensive range of state-of-the-art features and functions. It has also been designed to allow considerable expansion and development in the future, as new possibilities and opportunities open up.

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Frequently Asked Questions: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

How can I ensure the tape drive works optimally?	You must provide adequate air flow for the internal tape drive to dissipate the heat resulting from continuous drive operation. Ensure that empty bays have the appropriate blanking plates installed so that cooling airflow is maintained. For long-term, troublefree operation, use the SDLT tape drives in a clean, smoke-free environment. For external drives, do not place the drive in a dirty environment, for example, on the floor, near a busy walkway, or near a door. Avoid locations subject to sudden temperature changes, such as near an outside door or window. For specific environmental limits, refer to the " Specifications " section.
How many times can I use an SDLT cartridge?	The recommended maximum number of passes over any single part of the tape is 1,000,000. In practical terms, this is equivalent to about 17,850 uses.
How many times can I use an SDLT cleaning cartridge?	Each SDLT cleaning cartridge is good for 20 uses. Use one of the labels that come with the tape to keep track of the number of uses.
What types of tape cartridges can I use with my drive?	Use Super DLTtape I format cartridges with your drive, as specified in the SDLT standard. The tape drive can read, but not write, DLTtape IV cartridges written by earlier DLTtape drives.
For how long can I archive tapes?	SDLT cartridges can preserve the integrity of stored data for at least 30 years if proper storage conditions are observed. See Cartridge Care: Caring for Tape Cartridges .

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Getting Help: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

• [Technical Assistance](#) • [Dell Enterprise Training and Certification](#) • [Problems With Your Order](#) • [Product Information](#) • [Returning Items for Warranty Repair or Credit](#) • [Before You Call](#)

Technical Assistance

If you need assistance with a technical problem, perform the following steps:

1. Complete the procedures in the [Troubleshooting](#) section.
2. Run the system diagnostics and record any information provided.
3. Use Dell's extensive suite of online services available at Dell Support at support.dell.com for help with installation and troubleshooting procedures.

For more information, see the [Online Services](#) section.

4. If the preceding steps have not resolved the problem, call Dell for technical assistance.



NOTE: Call technical support from a phone near or at the system so that technical support can assist you with any necessary procedures.



NOTE: Dell's Express Service Code system may not be available in all countries.

When prompted by Dell's automated telephone system, enter your Express Service Code to route the call directly to the proper support personnel. If you do not have an Express Service Code, open the **Dell Accessories** folder, double-click the **Express Service Code** icon, and follow the directions.

For instructions on using the technical support service, see [Technical Support Service](#) and [Before You Call](#).



NOTE: Some of the following services are not always available in all locations outside the continental U.S. Call your local Dell representative for information on availability.

Online Services

You can access Dell Support at support.dell.com. Select your region on the **WELCOME TO DELL SUPPORT** page, and fill in the requested details to access help tools and information.

You can contact Dell electronically using the following addresses:

- 1 World Wide Web

www.dell.com/

www.dell.com/ap/ (for Asian/Pacific countries only)

www.euro.dell.com (for Europe only)

www.dell.com/la (for Latin American countries)

- 1 Anonymous file transfer protocol (FTP)

[ftp.dell.com/](ftp://ftp.dell.com/)

Log in as user:anonymous, and use your e-mail address as your password.

- 1 Electronic Support Service

support@us.dell.com

apsupport@dell.com (for Asian/Pacific countries only)

support.euro.dell.com (for Europe only)

- 1 Electronic Quote Service

sales@dell.com

apmarketing@dell.com (for Asian/Pacific countries only)

- 1 Electronic Information Service

info@dell.com

AutoTech Service

Dell's automated technical support service—AutoTech—provides recorded answers to the questions most frequently asked by Dell customers about their portable and desktop computer systems.

When you call AutoTech, use your touch-tone telephone to select the subjects that correspond to your questions.

The AutoTech service is available 24 hours a day, 7 days a week. You can also access this service through the technical support service. See the contact information for your region.

Automated Order-Status System

You can call the automated service to check on the status of any Dell products that you have ordered. A recording prompts you for the information needed to locate and report on your order. See the contact information for your region.

Technical Support Service

Dell's technical support service is available 24 hours a day, 7 days a week, to answer your questions about Dell hardware. Our technical support staff use computer-based diagnostics to provide fast, accurate answers.

To contact Dell's technical support service, see [Before You Call](#) and then see the contact information for your region.

Dell Enterprise Training and Certification

Dell Enterprise Training and Certification is available now; see www.dell.com/training for more information. This service may not be offered in all locations.

Problems With Your Order

If you have a problem with your order, such as missing parts, wrong parts, or incorrect billing, contact Dell for customer assistance. Have your invoice or packing slip available when you call. See the contact information for your region.

Product Information

If you need information about additional products available from Dell, or if you would like to place an order, visit the Dell website at www.dell.com. For the telephone number to call to speak to a sales specialist, see the contact information for your region.

Returning Items for Warranty Repair or Credit

Prepare all items being returned, whether for repair or credit, as follows:

1. Call Dell to obtain a Return Material Authorization Number, and write it clearly and prominently on the outside of the box.

For the telephone number to call, see the contact information for your region.

2. Include a copy of the invoice and a letter describing the reason for the return.
3. Include a copy of any diagnostic information indicating the tests you have run and any error messages reported by the system diagnostics.
4. Include any accessories that belong with the item(s) being returned (such as power cables, media such as CDs and diskettes, and guides) if the return is for credit.
5. Pack the equipment to be returned in the original (or equivalent) packing materials.

You are responsible for paying shipping expenses. You are also responsible for insuring any product returned, and you assume the risk of loss during shipment to Dell. Collect-on-delivery (C.O.D.) packages are not accepted.

Returns that are missing any of the preceding requirements will be refused at our receiving dock and returned to you.

Before You Call



NOTE: Have your Express Service Code ready when you call. The code helps Dell's automated-support telephone system direct your call more efficiently.

If possible, turn on your system before you call Dell for technical assistance and call from a telephone at or near the computer. You may be asked to type some commands at the keyboard, relay detailed information during operations, or try other troubleshooting steps possible only at the computer system itself. Ensure that the system documentation is available.



CAUTION: Before servicing any components inside your computer, see your *System Information* document for important safety information.

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Introduction: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

• [Overview](#) • [Features](#) • [SCSI Bus Interface](#) • [Tape Backup Software](#) • [Obtaining Driver and Firmware Upgrades](#) • [Front Panel Features](#)

Overview

The Dell™ PowerVault™ 110T SDLT 320 tape drive builds on the successful DLTtape platform and technology, combining capacity and performance with reliability and low cost of ownership, while maintaining backward read compatibility with earlier generations of DLTtape drives. With a combination of data compression and compaction, the Dell PowerVault 110T SDLT 320 tape drive offers a formatted cartridge capacity of 160 GB (320 GB assuming a 2:1 compression ratio) and a sustained user data transfer rate of 16 MB/s (up to 32 MB/s with 2:1 compression).

The Dell PowerVault 110T SDLT 320 tape drive conforms to a 5.25-inch, full-height form factor and primarily uses Super DLTtape cartridges. It offers backward read capability when using DLTtape IV cartridges.

Features

The Dell PowerVault 110T SDLT 320 tape drive has the following features:

- 1 Breakthrough recording technology - Laser Guided Magnetic Recording
- 1 Capacity of 160 GB (native), 320 GB (compressed*) on a single Super DLTtape cartridge
- 1 Partial Response Maximum Likelihood (PRML) data encoding
- 1 Sustained transfer rate of 16 MB/s (native)
- 1 Backward read compatible with DLTtape IV cartridge media recorded on earlier DLTtape drives
- 1 [TapeAlert](#) support
- 1 Low Voltage Differential (LVD) Ultra 2 SCSI interface
- 1 Ability to operate in a mode that is completely compatible with an earlier version of the product, Dell PowerVault 110T SDLT 220. If operating in this mode, the Drive Density LED (labeled underneath with *220*) will be illuminated. For details, see [Front Panel Features](#) later in this introduction

* Assumes 2:1 compression ratio. The actual capacity depends on the data set, which affects the actual compression ratio.

SCSI Bus Interface

Dell PowerVault 110T SDLT 320 tape drives are SCSI devices designed to operate on a Low Voltage Differential (LVD) Ultra 2 SCSI bus with a burst transfer rate of 80 MB/second. Do not attach the drive to a single-ended SCSI bus, and do not install the drive on the same SCSI bus as any single-ended devices: this will switch the LVD host adapter into single-ended mode and will restrict performance.

Your host system must have a properly installed and configured SCSI host adapter or a SCSI controller on the system board (SCSI-2 or SCSI-3 compliant) with driver software that supports the PowerVault 110T SDLT 320 drive. Dell recommends that you use a dedicated host bus adapter for the tape drive. Check the server documentation for the specification of any built-in SCSI channels. Do not connect to a RAID controller channel; these are for disk drives only. Consult your system documentation.

Tape Backup Software

Drivers for Microsoft™ Windows® 2000 for your PowerVault 110T SDLT 320 tape drive are included on the CD that came with your drive. You will need tape backup software that supports the Dell PowerVault tape drive. Note that native backup applications (for example, the Unix *tar* command) generally do not provide the required data streaming rate to get the full performance of your tape drive. Dell recommends using a backup application that provides improved memory management as well as other useful features, such as TapeAlert. The Dell PowerSuites provide suitable products that have been tested with Dell PowerVault 110T SDLT 320 drives, as listed below:

Computer Associates™	CA ARCserveIT® 7.0 (or later) for Linux CA ARCserveIT® 7.0 (or later) for Novell® NetWare® CA ARCserve® 2000 (or later) for Windows 2000
Veritas®	Backup Exec™ 8.6 (or later) for Windows 2000 Backup Exec™ 9.0 (or later) for Novell® NetWare®

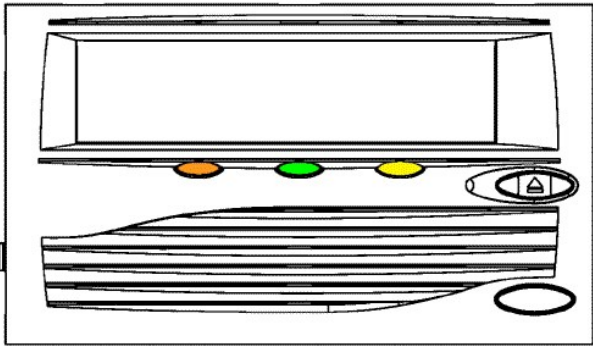
Refer to the Operating Guide supplied with your backup application for full details of how to use your specific tape backup software. Make sure the latest patches and support packs are installed for your software; obtain these from <http://support.dell.com>.

Obtaining Drivers and Firmware Upgrades

To obtain the latest operating system drivers, installation procedures, or firmware upgrades, please visit <http://support.dell.com>.

Front Panel Features

Figure 1. Front Panel



The front panel (see [Figure 1](#)) of your Dell PowerVault 110T SDLT 320 tape drive has three lights (LEDs), a grille through which air is drawn, and an eject button as described below:

LED/Button	Symbol	LED Color	Description
Drive Density LED (Left)	220	Amber	On = The tape is 220-formatted Off = The tape is 320-formatted
Drive Status LED (Center)	○	Green	Blinking = The tape drive is in use. This includes functions such as: <ul style="list-style-type: none"> ! The tape is moving ! The drive is calibrating, reading, writing, or rewinding the tape ! The tape is loading, unloading, or rewinding. On = The drive is idle. There may or may not be a cartridge in the tape drive. Off = The tape drive has not been turned on or is not plugged into a power source.
Cleaning Required LED (Right)	△	Yellow	On = Cleaning required Off = Cleaning is not required
Eject Button	△		Press the Eject button to eject the tape cartridge from the drive. When you press the button, the drive completes any active writing of data to the tape, then ejects the cartridge.

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Jumpers: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

Figure 1 shows the various adjustments that you can make in the SCSI ID jumper block to change the SCSI ID of an internal tape drive. If you need to change the SCSI ID, do so on the back of the Dell PowerVault 110T SDLT 320 tape drive. The table below shows the same information, but in a tabular form. For your convenience, Figure 2 shows the location of the SCSI ID jumper block on an internal drive.

To change the SCSI ID of an external tape drive, use a different approach. The external tape drive has a SCSI ID selector block that you manipulate with a slender object such as a screwdriver or a ball-point pen. For details, see [Setup: Installing External Drives](#).

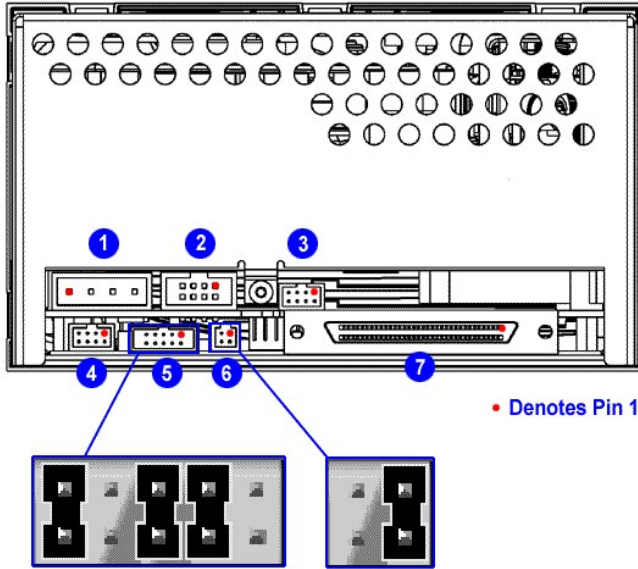
Figure 1. Setting SCSI ID: Jumper Placement

SCSI ID	0	1	2	3
Jumper Block				
SCSI ID	4	5	6 (default)	7
Jumper Block				
SCSI ID	8	9	10	11
Jumper Block				
SCSI ID	12	13	14	15
Jumper Block				

Table 1. Placing Jumpers to Select the SCSI ID

SCSI ID	Jumper Across Pins				
	9-10	7-8	5-6	3-4	1-2
0	1	0	0	0	0
1	1	0	0	0	1
2	1	0	0	1	0
3	1	0	0	1	1
4	1	0	1	0	0
5	0	0	0	0	1
6 (default)	1	0	1	1	0
7	1	0	1	1	1
8	1	1	0	0	0
9	1	1	0	0	1
10	1	1	0	1	0
11	1	1	0	1	1
12	1	1	1	0	0
13	1	1	1	0	1
14	1	1	1	1	0
15	1	1	1	1	1
0=No jumper installed			1 = Jumper installed		

Figure 2. Necessary Jumpers on the SCSI ID and TERMPWR Blocks (on Back of Internal Drive)



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Regulatory Compliance: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

• [Safety Regulations](#) • [Electromagnetic Field Specifications](#) • [Acoustic](#)

Safety Regulations

This section lists the safety regulations that the PowerVault 110T tape system meets or exceeds, such as UL, CSA, EN/IEC, and "GS" Mark.

Safety Certifications

The SDLT tape system meets or exceeds requirements for safety in the United States (UL 1950), Canada (CSA950 C22.2 No. 950) and Europe (EN60950/IEC 950), and is certified to bear the GS mark.

Safety Requirements

Safety requirements include:

UL1950: Information Technology Including Electrical Business Equipment

CSA950 C22.2 No. 950: Information Technology Including Electrical Business Equipment

EN60950/IEC 950: Information Technology Including Electrical Business Equipment

Electromagnetic Field Specifications

Electromagnetic Emissions

Once the internal tape drive is mounted into an enclosure and grounded, the internal drive complies with FCC Class A; the external tape drive complies with the FCC Class B limits.

Conducted Emissions

Limits for Class B equipment are in the frequency range from 0.15 to 30 MHz.

Table 1. Conducted Emissions

Frequency Range	Limits dB	
	Quasi-peak	Average
0.15 to 0.50 MHz	66 to 56*	56 to 46
0.50 to 5 MHz	56	46
5 to 30 MHz	60	50

* The limit decreases linearly with the logarithm of the frequency.

Radiated Emissions

Limits of radiated interference field strength, in the frequency range from 30 MHz to 1000 MHz at a test distance of 10 meters, are listed in Table 2.

Table 2. Radiated Emissions

Frequency Range	Quasi-peak limits dB (µV/m)	
	Class A	Class B
30 to 230 MHz	40	30
230 to 1000 MHz	46	37
Above 1000 MHz	54	Not applicable

Susceptibility and ESD Limits

Table 3 and Table 4 list radiated, magnetic radiated, and conducted susceptibility and ESD failure level limits for the tape drive.

Table 3. Radiated, Magnetic Radiated, and Conducted Susceptibility

Type	Specifications	Comments
Radiated Immunity - High Frequency, Electric Fields	3 V/m (rms), 80% modulated, 1 KHz, 26 to 1000 MHz	No errors* No screen distortion
Magnetic Radiated - Low Frequency, Magnetic Fields	3 A/m @ 230V/50 Hz	No errors* No screen distortion
EFT- Fast Transient (Bursts) for Power and Data Cables	2 kV	No errors*
PLT- High Energy Transient Voltage for Power Cables	1.2 kV (Differential) 2.5 kV (Common mode)	No errors*
Low-Level Conducted ± Interference for AC and DC Cables	3 V/m (rms), 80% modulated, 1 kHz, 0.15 - 80 MHz	No errors* No screen distortion

* The tape drive shall maintain normal operation both in Read/Write and in Standby conditions. No errors attributable to the test shall be encountered.

‡ Conducted: The transient voltage is the actual peak voltage above the normal AC voltage from the power source. The maximum energy in a single pulse from the transient generator must be limited to 2.5 W.

Table 4. ESD Failure Level Limits

Failure Type	Equipment	Specifications	Comments
Hard	Office	1 to 12 kV	No operator intervention (soft recoverable allowed)
Hardware	Office	Up to 15 kV	No component damage; operator intervention allowed (soft/hard errors allowed)

Acoustic Noise Emissions

Table 5 provides the tape drive's acoustic noise emission levels, both as noise power and sound pressure.

Table 5. Acoustic Noise Emissions, Nominal

Acoustics - Preliminary declared values per ISO 9296 and ISO 7779/EN27779		
Mode	Noise Power Emission Level (LNPEc) Internal Version	External Version
Idle	Not applicable	5.4 Bel
Streaming	5.9 Bel	5.9 Bel
Mode	Sound Pressure Level (LPAc) Internal Version	External Version
Idle	Not applicable	42 dB
Streaming	47 dB	53 dB

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Setup: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

• [Pre-installed Internal Drives](#) • [Internal Drive: Rear Panel View](#) • [Installing Internal Drives](#) • [External Drive: Rear Panel View](#) • [Installing External Drives](#) • [Loading Device Drivers](#) • [Verifying Drive Operation](#)

Pre-installed Internal Drives

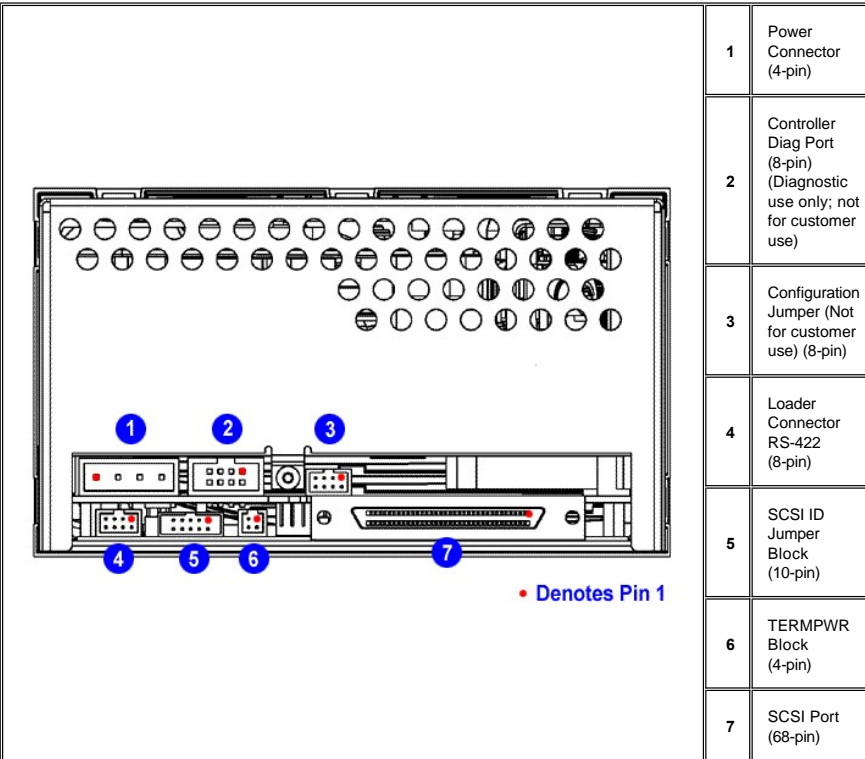
Dell performs the installation and setup of internal tape drives that are shipped as part of a system.

Store any backup software CD-ROMs or diskettes that come with your system in case you ever need to reinstall the software.

Internal Drive: Rear Panel View

The rear panel of the internal tape drive offers the jumper and connector blocks shown in [Figure 1](#).

Figure 1. Internal Drive: Rear Panel View



Installing Internal Drives



NOTE: Check your system documentation to verify that you have a supported configuration of tape drive.

If your internal tape drive is not pre-installed, follow these installation instructions.

Installing the Tape Backup Software

Refer to your tape backup software documentation for full details about how to install and operate your backup software application. Make sure the latest patches and support packs are installed for your software; obtain these from <http://support.dell.com>.

Installation Prerequisites

Dell PowerVault 110T SDLT 320 drives are Ultra 2 wide SCSI devices designed to operate on a Low Voltage Differential (LVD) SCSI bus with a burst transfer rate of 80 MB/sec. Dell recommends that you use a dedicated host bus adapter for the tape drive.

Never install the drive on a single-ended SCSI bus because this will restrict performance. Do not install the tape drive on the same bus with other single-ended devices

because this will switch the LVD host adapter into single-ended mode and restrict performance.

You need the appropriate Ultra 2 or Ultra wide SCSI ribbon cable with the correct termination, provided with the tape drive. (Dell PowerVault drives have 68-pin wide, high-density SCSI connectors.) If you are using a Dell PowerVault drive on an internal bus with other peripherals that run at Ultra 2 speeds, use a 68-pin LVD-compatible ribbon cable.

CAUTION: Static electricity can damage electronic components. Always wear an antistatic wrist strap if possible. If not, to equalize the electromagnetic charges, touch a bare metal part of the system (such as the back plate) before you remove the tape drive from its bag.

Mounting Bay

You need one industry-standard, 5.25-inch, full-height bay in which to install the PowerVault drive.

Ensure that all fans in your system are in place and operational. Make sure that empty bays have the appropriate blanking plates installed so that airflow is maintained.

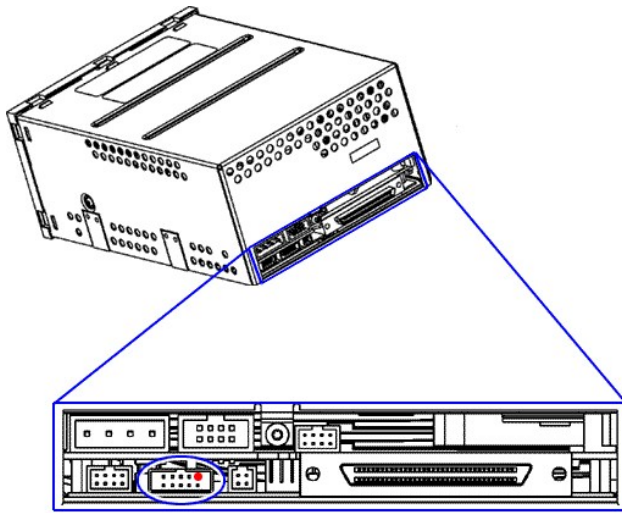
Mounting Hardware

Some servers require a special mounting tray or rails to secure the drive into the empty bay. If this is the case with your system, make sure you have the parts **before** installation.

Step-by-Step Installation Instructions

Step 1: Setting the SCSI ID

Figure 2. Setting the SCSI ID



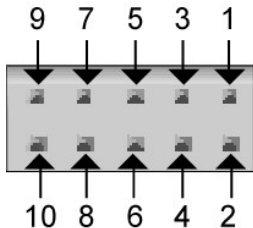
A red dot in the illustration denotes Pin 1 on the jumper block or connector.

Your Dell PowerVault drive is shipped with a default SCSI ID of 6, but you can opt to use any **unused** ID between 0 and 15, except 7. Do not use SCSI ID 7; that ID is reserved for the SCSI controller.

NOTE: Each device on the SCSI bus must have a unique SCSI ID address. For specific recommendations for assigning SCSI IDs, refer to the system or SCSI controller documentation.

The SCSI ID is set using jumpers on a set of pins at the rear of the drive. [Figure 3](#) shows the empty jumper block that you use to set the SCSI ID. If you decide it is necessary to change the tape drive's SCSI ID, use your fingers to move the jumpers to the pattern corresponding to the ID you want (see [Figure 3](#) and the related table of SCSI jumper settings in [Jumpers](#)).

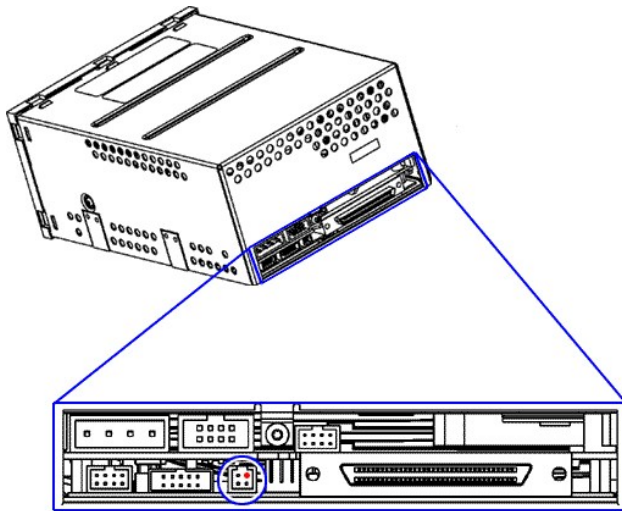
Figure 3. Detail of the Empty SCSI ID Jumper Block



NOTE: The computer system and the tape drive SCSI IDs are only checked at power-on. To change the SCSI ID after installation, power down both the system and the tape drive, change the drive's SCSI ID, power up the tape drive, and then power up the system.

Step 2: Configure the Internal Drive for TERMPWR

Figure 4. TERMPWR Configuration



A red dot in the illustration denotes Pin 1 on the jumper block or connector.

A SCSI bus must be terminated at each end of the bus. At least one device must supply terminator power (TERMPWR).

If you want to enable TERMPWR, install the jumper across Pins 1 and 2 (Figure 4) on the TERMPWR jumper block. Remove the jumper to disable TERMPWR. Pins 3 and 4 on this block are reserved and require no jumpering.

Step 3: Prepare the Mounting Bay



CAUTION: To avoid personal injury or damage to the computer system or tape drive, ensure the system is disconnected from the power supply while you install the drive.

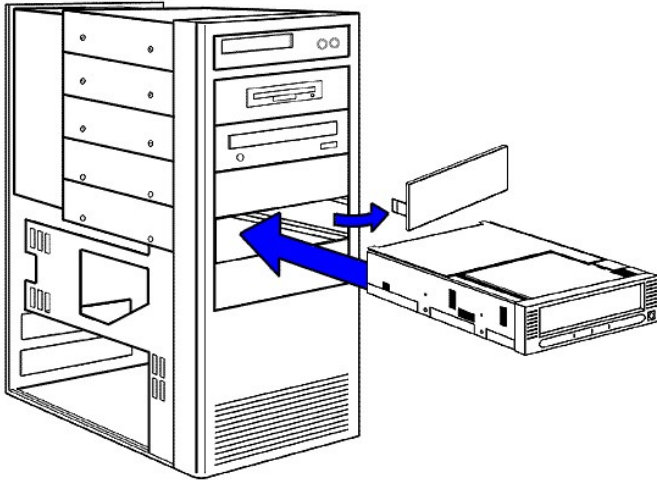
1. Assemble the necessary tools and materials:
 - Phillips, flat blade, or Torx screwdriver, depending on your computer system
 - The manuals for your system (for reference during installation)
2. Perform a normal system shutdown and unplug the system and any connected peripherals.
3. Remove the cover and/or front panel from the computer system, as described in its accompanying documentation.
4. If necessary, disconnect the SCSI cable or power cable from other devices to fit the tape drive into place. When you do this, make a note of their locations and connections for correct reassembly.
5. Remove the front filler panel from a full-height, 5.25-inch bay of your system.

Step 4: Attach Mounting Hardware

If your system requires mounting brackets or other hardware to install the tape drive, mount them on the tape drive in this step. If your system does not require special mounting hardware, proceed immediately to Step 5.

Step 5: Install the Tape Drive

Figure 5. Tape Drive Slides Into Host System

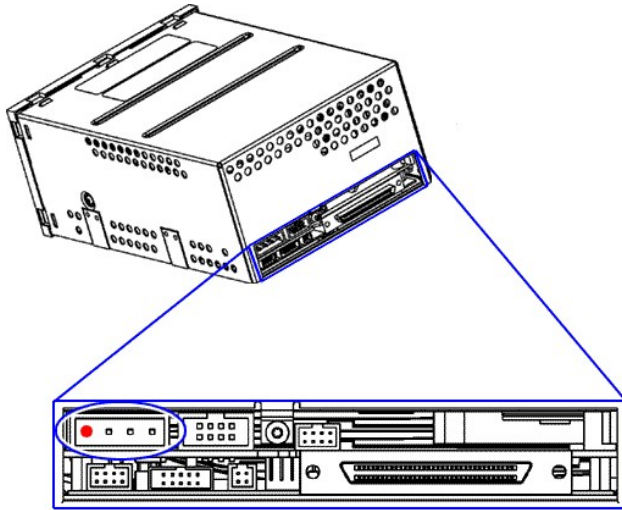


Slide the tape drive into the open bay, aligning the tray or rails with the slots in the bay. A "generic" host system with several unused bays is shown in [Figure 5](#). If your system does not require mounting hardware, check that the holes in the system's chassis are aligned with the holes in the side of the tape drive.

Do not fully secure the drive yet; you may have to move it to connect the power and SCSI cables.

Step 6: Attach Power and SCSI Cables

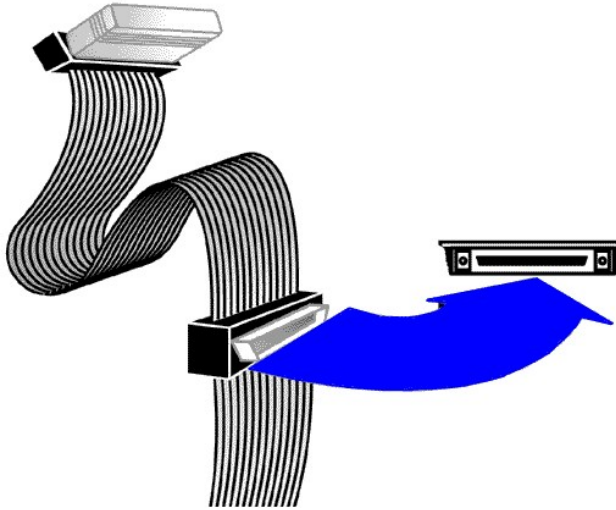
Figure 6. Power and SCSI Cable Connectors



A red dot in the illustration denotes Pin 1 on the jumper block or connector.

Attach a spare power cable from the computer system's internal power supply to the power connector, as shown in [Figure 6](#), upper left. Attach a spare SCSI connector on the system's SCSI ribbon cable to the SCSI connector, as shown in [Figure 7](#). (The location of the SCSI connector on the back of the drive is shown in [Figure 6](#), lower right.)

Figure 7. Attach the SCSI Connector



 NOTE: If the drive is the last device on the SCSI bus, it must be terminated, as shown in [Figure 7](#).

Step 7: Secure the Drive

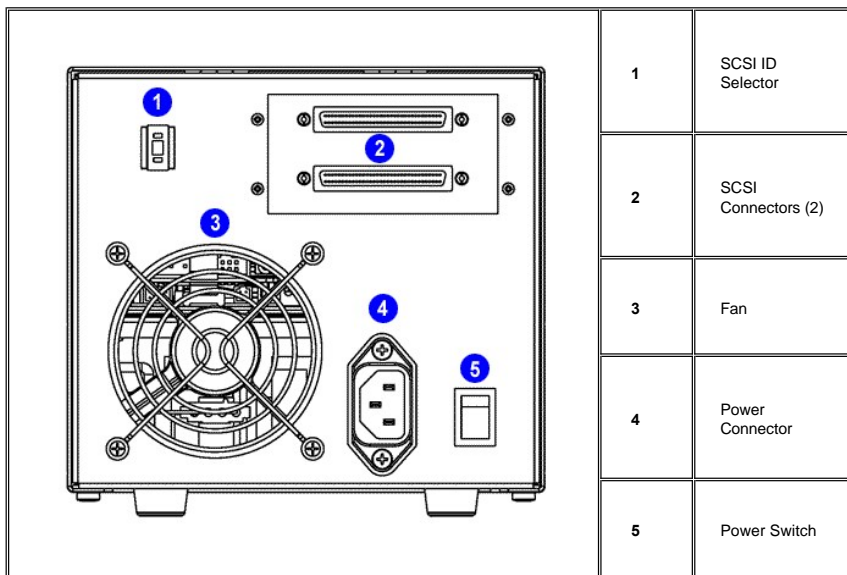
Secure the tape drive into place by pushing it gently into the bay until you feel it snap into place. At the same time, you will hear a faint clicking noise. These are your cues that the drive is fully secured.

Replace the system's exterior cover.

External Drive: Rear Panel View


The rear panel of the external tape drive offers the features shown in [Figure 8](#).

Figure 8. External Drive: Rear Panel View



Installing External Drives

Installing the Tape Backup Software

 NOTE: Check your system documentation to verify that you have a supported configuration of tape drive. Also, refer to your tape backup software documentation for full details about how to install and operate your backup software application.

Installation Prerequisites

Dell PowerVault 110T SDLT 320 drives are Ultra 2 wide SCSI devices designed to operate on a Low Voltage Differential (LVD) SCSI bus with a burst transfer rate of 80 MB/sec. Dell recommends that you use a dedicated host bus adapter for the tape drive.

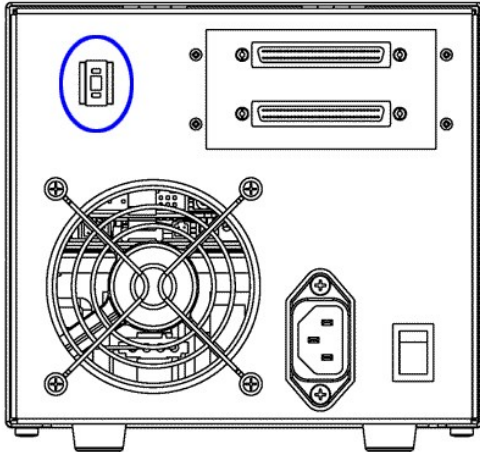
Never install the drive on a single-ended SCSI bus because this will restrict performance. Do not install the tape drive on the same bus with other single-ended devices because this will switch the LVD host adapter into single-ended mode and restrict performance.

Dell PowerVault drives have 68-pin wide, high-density SCSI connectors. To install the tape drive, you need the appropriate Ultra 2 or Ultra wide SCSI ribbon cable with the correct termination.


Step-by-Step Installation Instructions

Step 1: Setting the SCSI ID


Figure 9. Setting the SCSI ID



Your Dell PowerVault drive is shipped with a default SCSI ID of 6, but you can opt to use any **unused** ID between 0 and 15, except 7. Do not use SCSI ID 7; that ID is reserved for the SCSI controller.

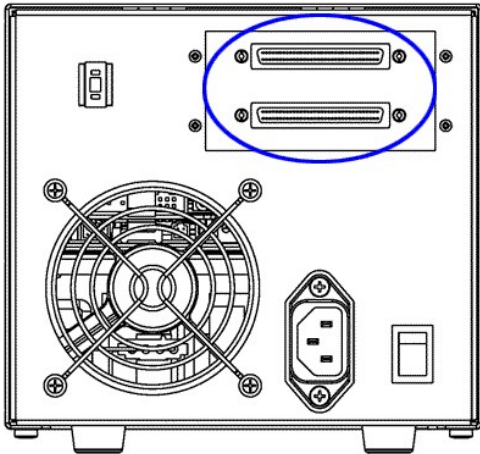
 NOTE: Each device on the SCSI bus must have a unique SCSI ID address. For specific recommendations for assigning SCSI IDs, refer to the system or SCSI controller documentation.

Change the tape drive's SCSI ID, if necessary, by using a small screwdriver or a ball-point pen to press the upper or lower SCSI ID selector block on the rear panel until the required value is displayed. Do not use a pencil because bits of pencil lead could contaminate the drive. [Figure 9](#) shows the location of the SCSI ID selector block.

 NOTE: The computer system and the tape drive SCSI IDs are only checked at power-on. To change the SCSI ID after installation, power down both the system and the tape drive, change the drive's SCSI ID, power up the tape drive, and then power up the system.

Step 2: Connecting the SCSI Cable

Figure 10. Connecting the SCSI Cable

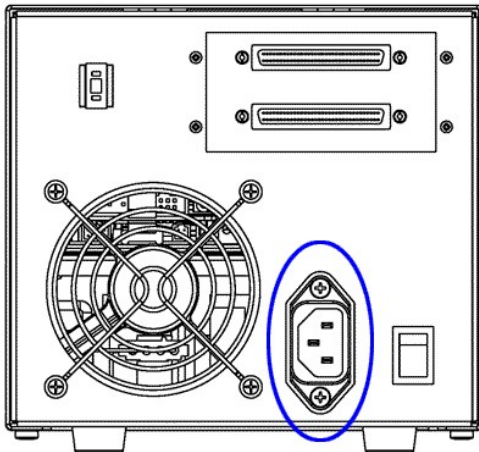


Connect the SCSI bus cable leading from the host adapter to either of the two SCSI connectors. If the tape unit is the last device on the bus, then install a terminator on the open connector. If the bus continues from the tape drive to another SCSI device, then install a SCSI cable between the open connector and the next device on the bus.

1. Before connecting the tape drive to the host computer system, make sure the drive and system are turned OFF.
2. If you are connecting several devices to the SCSI bus, connect only the drive at this time. Confirm that the host computer system and drive are communicating correctly before adding additional devices.
3. If the tape drive is the last or only device connected to the SCSI bus, attach the enclosed SCSI terminator to one of the connectors on the back of the drive. Depending on the terminator supplied, snap the wire cable clamps into place or tighten the screws to secure the terminator.
4. Align the appropriate SCSI cable to its matching connector on the drive, and then carefully connect the cable to avoid bending or damaging the connector pins.
5. Check the SCSI cable and terminator connections and ensure that they are attached correctly and seated firmly.
6. Snap the wire cable clamps or tighten the screws into place to secure the cables.

Step 3: Connecting the Power Cable

Figure 11. Connecting the Power Cable



An external Dell PowerVault drive will operate using any voltage in the range 100-240 volts (50-60 Hz). No adjustment is needed. To connect your drive to the power source, follow these steps:

1. Plug the power cable securely into the socket on the rear panel of the drive ([Figure 11](#)).
2. Plug the other end of the power cable into a known-good power outlet.

Loading Device Drivers



NOTE: You will need the device drivers supplied on the Dell PowerVault 110T SDLT 320 Drive CD if you intend to use native operating system backup applications. Commercial backup applications provide all necessary device driver support.

Microsoft™ Windows® 2000 (step-by-step instructions)

Follow these steps to install the driver:

1. Shut down Windows 2000 if it is running and power down the system.
2. Connect the target SDLT tape drive to the system. Ensure the SCSI bus is terminated correctly and that there are no target ID conflicts.
3. Startup the system and log in to bring up Windows.
4. Right click the **My Computer** icon and select **Manage**. This will bring up the **Computer Management** applet.
5. In the **Computer Management** applet window, double-click **Device Manager**. A list of device subsystems is displayed in the right view.
6. The target tape drive may be found in either the Tape drives or Other devices section. Expand the section where the target drive is located. Right click the target PowerVault 110T SDLT drive and select **Properties**.

If Windows 2000 does not see the drive in the Tape drives or Other devices sections, you need to troubleshoot the tape drive's SCSI bus. Do not continue installation until this is resolved. Refer to the [Troubleshooting](#) section.

7. In the **Properties** window, verify that the SCSI ID matches that of the tape drive you are installing.
8. Select the **Driver** tab and then select **Update Driver....** This will start the **Upgrade Device Driver Wizard**.
9. In the device wizard, select **Next**.
10. Select the **Display a list of the known drivers for this device so that I can choose a specific driver** radio button.
11. Select **Next**.
12. If the tape drive is unknown to the system, the next view is **Hardware Type**. Otherwise, the **Select a Device Driver** view is displayed.
 - a. For **Hardware Type** view, select either **Other devices** or **Tape drives**. Then select **Have Disk...** on the next view.
 - b. For **Select a Device Driver** view, select **Have Disk...**
13. Insert the CD-ROM into the CD-ROM drive. Make sure that path name to the drive is correct.
14. Click **OK**.
15. Highlight the listed tape driver for the PowerVault 110T SDLT tape drive and click **Next**.
16. You may see a dialog box indicating that the driver may not be compatible with your hardware. Select **Yes** to continue driver installation.
17. The **Start Device Driver Installation** view is displayed.
18. Click **Next** to install the driver.
 - a. If the wizard indicates that the driver already exists on the system and prompts you for a selection, select **New**.
 - b. The Windows 2000 setup window is displayed. Verify the correct path to the driver, then select **Continue**.
19. The next view is **Completing the Upgrade Driver Wizard**. Click **Finish**. You may be prompted to reboot your system.
20. The tape driver is installed.

Verifying Drive Operation

To confirm the installation, power on the tape drive and the host system. The screens displayed at power-up contain BIOS, operating system, and SCSI controller information. If the first screen displays host adapter and SCSI ID information, then the system has been recognized and the installation is successful.

To perform a trial backup, insert a cartridge. Push the cartridge completely into the tape drive. The tape will load automatically.

Following the instructions given with your backup software application, write test data to a tape, read the test data from the tape, and compare the data read from the tape with the original data on disk. Some backup applications may refer to this as "verifying" your data. If the test data is completely restored and verified to be without errors, you have correctly installed the tape drive.

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Using the Tape Backup Software: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

See the User's Operating Guide supplied with your backup software, and make sure the latest patches and support packs are installed for your software. If the backup software does not detect the tape drive, refer to the [Troubleshooting](#) section. To obtain the latest operating system drivers, patches, support packs, and firmware upgrades, visit <http://support.dell.com>.

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Specifications: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

• [Product Specifications](#) • [Functional Specifications](#) • [Environmental Specifications](#) • [Recording Media Specifications](#)



NOTE: These specifications are provided by the manufacturer for information purposes only and do not constitute an extension of Dell's warranty to you. Dell's warranty is contained in the documentation for your system.

Product Specifications

Manufacturer	Manufactured for Dell by Quantum Corp.
Model Number	DELL PowerVault 110T SDLT 320 Tape Drive: SDLT Internal; SDLT External
Interface Type	LVD, Ultra 2 SCSI running at 80 MB/sec

Physical Dimensions

Table 1 provides physical dimensions for the tape system.

Table 1. Physical Dimensions

Description	Internal Version	Tabletop Version
Height	82.55 mm (3.25 in) without front bezel; 85.73 mm (3.38 in) with front bezel.	164.46 mm (6.48 in)
Width	146.05 mm (5.75 in) behind front bezel; 148.59 mm (5.85 in) with front bezel.	174.75 mm (6.88 in)
Depth	203.20 mm (8.00 in) measured from back of front bezel; 212.73 mm (8.38 in) including front bezel.	320.04 mm (12.6 in)
Weight	2.38 kg (5 lbs 4 oz)	6.27 kg (13 lbs 13 oz)
Shipping Weight*	3.77 kg (8 lbs 5 oz)	9.90 kg (21 lbs 13 oz)
* Weights depend on configuration. Note that for the shipping weight, the packaging may change.		
Note: Mounting hole pattern for the bottom and sides of the system is industry standard.		

Storage Capacity

The following provides native and compressed capacity ranges for the Super DLTtape I cartridge:

- 1 Native Storage Capacity = 160 GB
- 1 Compressed Storage Capacity = 320 GB (2:1 compression ratio)

In accordance with industry practice, a typical compression ratio of 2:1 is quoted. Actual compression ratios achieved depend on the redundancy of data files being recorded.

Data Integrity

SDLT data transfer errors are extremely rare; the following table shows the data integrity for the overall tape system.

Table 2. Data Transfer Error Rates

Error Type	Frequency
Error Rates Recoverable READ	< 1 error in 10E6 bits read
Detected, Unrecoverable READ	< 1 error in 10E17 bits read
Undetected READ	< 1 error in 10E27 bits read
Rewrite errors	< 5 per 10E6 bits written

Reliability (MTBF)

Mean time between failures (MTBF) for the tape system is 250,000 hours. Head life is a minimum of 30,000 tape motion hours, and an average of 50,000 tape motion hours. Media durability is 1,000,000 passes over any single part of the tape.

Note that this specification does not warrant that predicted MTBF is representative of any particular unit installed for customer use. Actual figures vary from unit to unit.

Load and Unload Cycles

Load and unload cycles are rated at 15,000 for the cartridge itself. The following table shows the number of load and unload cycles and tape insertions the drive itself can perform before it needs to be replaced.

Load/unload cycles	100,000
Tape insertions*	100,000
* An insertion is when a tape is inserted into the receiver, loaded to BOT, and unloaded.	

Functional Specifications

Performance Data

The following table provides performance data for the tape system.

Table 3. Performance Data

Feature	Description		
Drive Read/Write Transfer Rate	16 MB/second, native		
SCSI Bus Transfer Rates*	LVD (Ultra 2)	40 MB/second 80 MB/second	Narrow, native Wide, native
Tracks	56 logical tracks; 448 physical tracks		
Track Density	1058 tracks per inch (tpi)		
Linear Bit Density	193 k bits per inch (bpi)		
READ / WRITE Tape Speed	122 inches per second (ips)		
Rewind Tape Speed	160 ips		
Linear Search Tape Speed	160 ips		
Average Rewind Time	69 seconds		
Maximum Rewind Time	140 seconds		
Average Access Time (from BOT)	70 seconds		
Maximum Access Time (from BOT)	142 seconds		
Load to BOT	12 seconds (typical) 40 seconds (unformatted tape)		
Unload from BOT	12 seconds		
Nominal Tape Tension	Stationary = 3.0 ± 0.5 oz Operating Speed = 3.5 ± 0.5 oz		
* Depends on data type, SCSI bus limitations, and system configuration.			
Note that data is typical; times may be longer if error recovery time is needed.			

Shock and Vibration Specifications

The following tables provide non-operating and operating shock and vibration specifications for the tape drive.

Table 4. Non-Operating Shock Specifications

Shock (Unpackaged)		
Pulse Shape:	Square wave	½ sine pulse
Peak Acceleration:	40 G	140 G
Duration:	10 ms (180 inches/second)	2 ms
Application:	X,Y,Z axes, twice in each axis (once in each direction)	
Shock (Packaged, Drop)		
Drop:	42 inches (internal drive) 36 inches (tabletop)	16 drops total 16 drops total

Table 5. Non-Operating Vibration Specifications

Vibration (Unpackaged)		
Type:	Sine	Sweep
Frequency Range:	5 - 500 - 5 Hz	Upward and downward sweep
Acceleration Level:	0.02 " DA 1 G	Between 5 and 31 Hz (crossover) Between 31 and 500 Hz (crossover)
Application:	X,Y,Z axes Sweep rate = ½ octave /minute	
Type:	Random	
Frequency Range:	10 - 500 Hz	
Acceleration Level:	2 G	
PSD Envelope:	0.008 G ^ 2/Hz	
Application:	X,Y,Z axes Sweep rate = 60 minutes /axis	
Vibration (Packaged)		
Type:	Random	
Frequency Range (Vibration Level):	Truck Profile* (0.5 Grms) Air Profile* (1.0 Grms)	
Application:	X,Y,Z axes (30 minutes, each profile and each axis, for a total of 3 hours)	
Type:	Sine, Sweep, and Dwell	
Frequency Range:	5 - 150 - 5 Hz; 0.5 octave /minute, 0.5 G	
Application:	X,Y,Z axes; dwell at lowest resonant frequency in axis for 30 minutes.	

Additional 30 minutes for each additional resonance; up to 4 resonances total.
 * Air and truck profiles are specified in ASTM D4728, Standard Test Method for Random Vibration Testing of Shipping Containers.

Table 6. Operating Shock and Vibration Specifications

Shock		
Pulse Shape:	½ sine pulse	
Peak Acceleration:	10 G	
Duration:	10 ms	
Application:	X,Y,Z axes, twice in each axis (once in each direction)	
Vibration		
Type:	Sine	Sweep
Frequency Range:	5 - 500 - 5 Hz	Upward and downward sweep
Acceleration level:	0.25 G 0.010" DA	Between 22 and 500 Hz Between 5 and 22 Hz (crossover)
Application:	X,Y,Z axes	Sweep rate = 1 octave per minute

Current and Power Requirements

The following table provides the applicable power requirements for both versions of the tape system. The tabletop version requires AC power.

The tape drive uses the most current (and power) during its native write modes and backward-read compatibility (BRC) read modes, so they are outlined in the table. *Standby* is measured with the tape loaded and tensioned or untensioned, and *Idle* is measured with power on with no tape loaded. (The power drawn in these two modes is similar enough that they are listed together.) Power-up current surges are less than those encountered during motor accelerations, and are not listed separately.


 **NOTE:** In Table 7, the current and DC power values are relevant to the internal drive, while the AC power values are relevant to the tabletop drive.

Table 7. Current and Power Specifications

Mode	5 V Current (A)			12 V Current (A)			DC Power (W)		AC Power (W)	
	MaxPk ¹	MaxRms ²	Typ ³	MaxPk ¹	MaxRms ²	Typ ³	Max ⁴	Typ ⁵	Max ⁶	Typ ⁷
Standby / Idle	3.2	3.0	2.9	0.6	0.5	0.4	20	19	34	29
Media Loading / Unloading	3.8	3.1	2.9	4.8	1.0	0.7	25	24	38	33
220/320 Write—Motor Start ⁶	6.1	3.1	3.0	4.8	1.0	0.7	25	24	33	30
220/320 Write—Streaming	6.3	4.3	3.8	2.1	0.7	0.7	28	27	42	38
Max for SDLT Modes ⁹		4.3			1.0		28		42	
BRC Read—Motor Start ⁶	3.9	3.0	2.8	2.3	0.7	0.6	23	22	38	32
BRC Read—Streaming	5.2	3.3	3.1	1.8	0.7	0.6	24	22	41	33
Max for BRC Modes ⁹		3.3			0.7		24		41	

1. The Max-Peak value represents short current spikes drawn for durations of < 50µs. On the 12V supply, the peaks correspond to the pulse width modulated switching of the motors. These values are calculated from the average of Peak-ripple-current + 2 sigma, measured at +5% DC voltage.
2. The Max-Rms value is the average of the maximum RMS current drawn during this operating mode. These values are calculated from the average of RMS current + 3 sigma, measured at nominal DC voltage.
3. The typical current is calculated from the average of all RMS current drawn during this operating mode, measured at nominal DC voltage.
4. The Max DC power is calculated from the typical DC power + 3 sigma, measured at nominal DC voltage. This value takes into account that the peak currents on the 5V and 12V do not occur at the same time.
5. The typical DC power is calculated from the average RMS DC power drawn during this operating mode, measured at nominal DC voltage. This value also takes into account that the peak currents on the 5V and 12V do not occur at the same time.
6. The Max AC power is calculated from the typical AC power in tabletop drives + 3 sigma.
7. The typical AC power is calculated from the average AC power drawn in external drives.
8. The motor start modes draw the most current from the 12V supply, so they are shown separately. These events last < 1 second and occur at a duty cycle of less than 25%.
9. The Max values for each mode are based on the Max-Rms values, since the peak values are of very short duration.

Tape System Recording Method

The Dell PowerVault tape drive uses the Partial Response Maximum Likelihood (PRML) 32/33 encoding method for reading and writing SDLT 320 and 220 format.

Environmental Specifications

The following tables provide the operating, non-operating, storage, and shipping environmental specifications for the tape drive. For long-term, trouble-free operation, use the tape drive in a clean, smoke-free environment.

Table 8. Environmental Specifications

Specification	Operating Limits	Non-Operating Limits (Power On; No Tape Loaded)
Wet Bulb Temperature	25°C (77°F)	25°C (77°F)
Dry Bulb Temperature Range	10°C to 40°C (50°F to 104°F)	10°C to 40°C (50°F to 104°F)
Temperature Gradient	11°C (20°F)/hour (across range)	15°C (27°F)/hour (across range)
Relative Humidity	20% to 80% (non-condensing)	10% to 90% (non-condensing)
Humidity Gradient	10% / hour	10% / hour
Altitude	Normal pressure from -500 feet to 10,000 feet; to 30,000 feet for temperatures within 15 ± 5°C	
Airflow Velocity	125 Linear Feet per Minute (LFM) measured directly in front of the bezel	

Storage and Shipment Specifications

Do not exceed the ambient storage and shipment environment limits shown in Table 9. (The specifications shown in the table are valid for both the internal and external tape drives.)

Table 9. Storage and Shipment Specifications

Description	Storage (Unpacked or Packed)	Shipping
Dry Bulb Temperature	-40°C to 66°C (-40°F to 150°F)	-40°C to 66°C (-40°F to 150°F)
Wet Bulb Temperature	46°C (114°F)	46°C (114°F)
Temperature Gradient	20°C (36°F) /hr (across range)	20°C (36°F) /hr (across range)
Relative Humidity	5 to 95% (non-condensing)	5 to 95% (non-condensing)
Humidity Gradient	10%/hr	10%/hr

Note that these specifications apply to the tape drive only. Media shipping specifications are listed in [Recording Media Specifications](#).

Particulate Contamination Limits

Do not exceed the ambient operating environment particulate counts shown in Table 10.

Table 10. Particulate Contamination Limits

Particle Size (microns)	Number of Particles ≥ Particle Size per Cubic Meter	Number of Particles ≥ Particle Size per Cubic Foot
0.1	8.8 x 10E7	2.5 x 10E6
0.5	3.5 x 10E7	1.0 x 10E6
5.0	2.5 x 10E5	7.0 x 10E3

Recording Media Specifications

Table 11 provides specifications for Super DLTape I media. Table 12 provides operating, storage, and shipping environment limits for the DLTape IV cartridges.

Table 11. Super DLTape I Media Specifications

Description	Specifications
Width	0.5 in.
Magnetic Coating	300 nm metal particle
Length	1800 feet (1765 feet usable)
Coercivity	1800 Oe
Cartridge Dimensions	4.1 in. x 4.1 in. x 1.0 in.
Shelf Life	30 years min. @ 20°C & 40% RH (non-condensing)
Usage	1,000,000 passes (typical office/computer environment)
Cartridge Housing Color	Dark Green

Table 12. DLTape Media Operating and Storage Limits

Operating Conditions		
Temperature	10° to 40°C (50° to 104°F)	
Relative Humidity	20% to 80% (non-condensing)	
Storage Conditions	With Data:	Without Data:
Temperature	18° to 28°C (64° to 82°F)	16° to 32°C (61° to 89°F)
Relative Humidity	40% to 60% (non-condensing)	20% to 80% (non-condensing)
Shipping Conditions		
Temperature	-18°C to 49°C (0°F to 120°F)	
Relative Humidity	20 to 80% (non-condensing)	
Maximum Wet Bulb Temperature	26°C (79°F)	

Maximum Dew Point	2°C (36°F)
-------------------	------------

Backward-Read Compatibility (BRC) Transfer Rates

A backward read compatibility feature is available for the tape drive. This option allows the drive to read, but not write to, DLTape IV tapes. Transfer rates quoted are nominal reading uncompressed data.

Table 13. Backward-Read Compatibility (BRC) Transfer Rates

Media Format (Uncompressed)	BRC Transfer Rate (Nominal, Native)
(160 GB) SDLT 320	16.0 MB/second
(110 GB) SDLT 220	11.0 MB/second
(40 GB) DLT 8000	4.0 MB/second
(35 GB) DLT 7000	3.5 MB/second
(20 GB) DLT 4000	1.5 MB/second
(40 GB) Benchmark drive type DLT-1	3.0 MB/second
Notes: Transfer rates quoted are nominal, measured reading uncompressed data. Non-SDLT drives will eject a cartridge written in SDLT 320 format.	

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Troubleshooting: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

• [Obtaining Drivers and Firmware Updates](#) • [General Guidelines](#) • [Problems with the Host System](#) • [Problems with the Drive and Cartridge](#) • [Interpreting the LEDs](#) • [The Application Does Not Recognize the Tape Drive](#) • [Reinstalling the Backup Software](#) • [Reinstalling the Drivers for Microsoft Windows](#) • [Backup Software Errors](#)

Obtaining Drivers and Firmware Updates

To obtain the latest operating system drivers and firmware upgrades, please visit <http://support.dell.com>.

General Guidelines

If you experience problems when using the tape drive, you should isolate the cause of the problem. For example, if you have just installed a new SCSI host bus adapter and your system will not start, the cause of the problem is likely to be the adapter.

When installing multiple items of hardware and software, install one item at a time, restarting the system each time. Also, if you have installed multiple devices and software and then experience problems, remove or uninstall each in turn to establish which one is causing the problem.

Remember that the system recognizes devices during boot-up: if you swap or connect a product when your system is running, be sure to reboot the system. Rebooting the system resets devices and often resolves problems. It is good practice to reboot every time you add a driver or install firmware.

The first step in problem-solving is establishing whether the problem lies with the cartridge, the drive, the host system and its connections, or with the way the system is being operated. If none of the following advice helps you solve the problem, refer to the [Getting Help](#) section.

Problems with the Host System

Most modern SCSI host bus adapters (HBA) locate and display attached devices when the system is booting up. If the HBA does not detect the device at this stage, there is probably a problem with the physical hardware: cables, termination, connections, power, or the HBA itself.

If your drive is found on system boot up but cannot be found in the operating system, this more likely indicates a software problem.

If...	Then...	You should...
System does not recognize the tape system.	System may not recognize the SCSI ID.	Make sure the appropriate device drivers are loaded.
	SCSI ID may not be unique.	Change the SCSI ID of the device that is causing the SCSI ID conflict and reboot the system. The new ID becomes effective at the next power on or SCSI bus reset.
	SCSI adapter parameters may not be correct.	Check SCSI adapter documentation.
	SCSI signal cable may be loose.	Ensure SCSI cable is fully seated at each connector end.
	SCSI terminator may be loose or not present on the bus.	Ensure correct, secure termination of bus.
	SCSI bus may not be terminated correctly.	If tape system is last or only device on bus (except for adapter), make sure terminator is installed on tape system. If tape system is not the last or only device on the bus, check the cable connections and ensure that the bus is properly terminated at each end.
	SCSI terminator may not be at end of bus or more than two terminators may be present.	Ensure that a terminator is installed at each end of the bus. One terminator is usually installed at the host end of the bus.
	SCSI bus may be too long.	Limit bus length to ANSI SCSI standard for the SCSI interface being used.
	Too many devices on the bus.	Limit the number of devices on the bus (including the SCSI adapter) to match the limits of the interface being used.
	A device may not have been turned on and a valid SCSI ID may not have been configured prior to the system powering on and loading BIOS.	Turn drive power on first, and then turn on power to the system (for external tape drives only; internal drives do not have a power switch). Do this so that the drive is properly recognized by the system.
The tape system does not power up.	No power is reaching the tape system.	Check the tape system's power cable connection at the back of the system.
Nonfatal or fatal errors occur for which the cause cannot be determined.	SCSI bus termination or the SCSI bus cable connections may be incorrect. The ac power source grounding may be incorrect (tabletop drive version).	Ensure the SCSI bus is terminated and that all connections are secure. Use an ac outlet for the tabletop tape unit on the same ac line used by the host system.

Problems with the Drive and Cartridge

If you press the Eject button and the tape cartridge does not unload and eject from the tape drive, an error has occurred that requires servicing. Remove the tape drive from the system and return it to a service center. The tape cartridge will be removed and returned to you and the tape drive will be repaired.

Interpreting the LEDs

Refer to the [Usage: Front Panel LED/Control Functionality](#) section for details, including a figure that shows the location and color of the three front panel LEDs.

The Application Does Not Recognize the Tape Drive

Possible cause	Potential solution
The application does not support the tape drive.	Check the application's documentation for details of drives supported. Load any service packs as necessary.
Some applications require drivers to be loaded.	Check that the correct SCSI and tape drive drivers are installed. Consult the backup application's installation notes for details. See Obtaining Drivers and Firmware Updates .

Reinstalling the Backup Software

Refer to your tape backup software documentation for details about how to reinstall the software, if necessary.

Reinstalling the Drivers for Microsoft™ Windows®

Refer to the [Setup: Loading Device Drivers](#) section for details.

Backup Software Errors

Refer to the Operating Guide supplied with your backup software for details of how to troubleshoot backup software errors.

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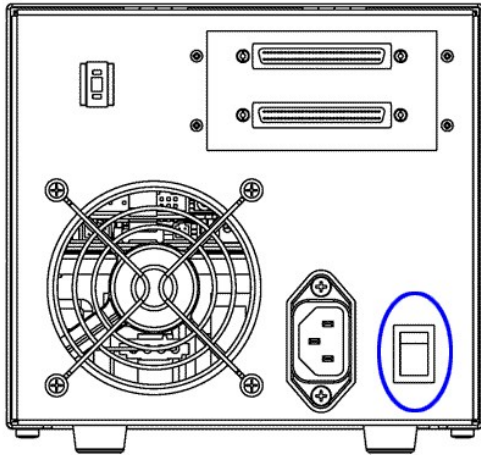
Using the Tape Drive: Dell™ PowerVault™ 110T SDLT 320 Tape Drive User's Guide

• [Switching on the Drive](#) • [Front Panel Functionality](#) • [Loading, Unloading, and Write-Protecting Cartridges](#)

Switching on the Drive

Switch on an external drive using the power switch on the rear panel ([Figure 1](#)), and then switch on the computer system. The tape drive will run its hardware self-test. This power-on self-test will complete in about 10 seconds. At the end of the hardware self-test, the Drive Status LED should be on.

Figure 1. Switching on the Drive

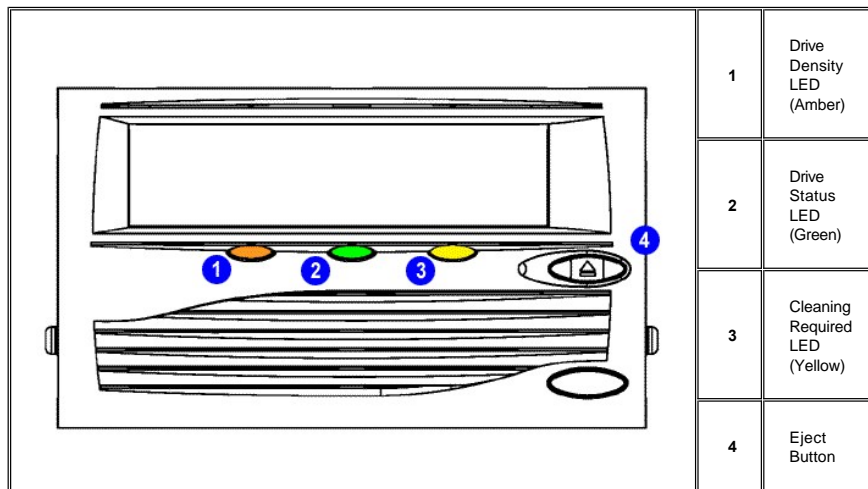


If You Have Problems During Self Test



If the drive fails to execute power-on self-test and the LEDs remain off, ensure that power is being supplied to the drive. You can use the power cable from your monitor or another device to check that the connection is working. For more information, refer to the [Troubleshooting](#) section.

Front Panel LED/Control Functionality

Figure 2. Front Panel LEDs



LED/Button	Symbol	LED Color	Description
Drive Density LED (Left)	220	Amber	On = The tape is 220-formatted Off = The tape is 320-formatted
Drive Status LED (Center)	○	Green	Blinking = The tape drive is in use. This includes functions such as:

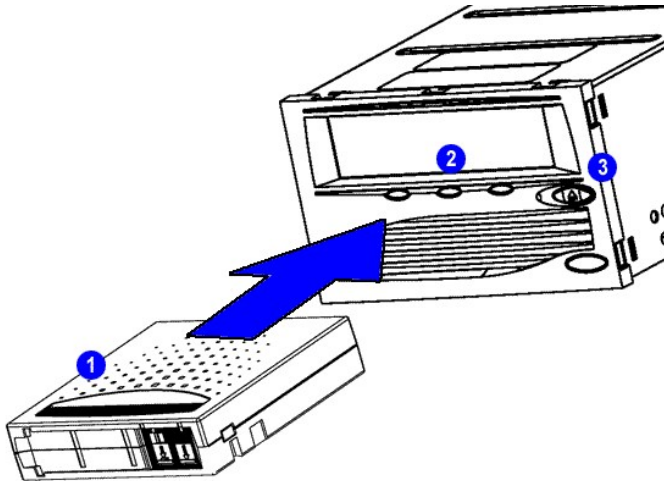
			<ul style="list-style-type: none"> The tape is moving The drive is calibrating, reading, writing, or rewinding the tape The tape is loading, unloading, or rewinding. <p>On = The drive is idle. There may or may not be a cartridge in the tape drive. Off = The tape drive has not been turned on or is not plugged into a power source.</p>
Cleaning Required LED (Right)		Yellow	<p>On = Cleaning required Off = Cleaning is not required</p>
Eject Button			Press the Eject button to eject the tape cartridge from the drive. When you press the button, the drive completes any active writing of data to the tape, then ejects the cartridge.

Loading, Unloading, and Write-Protecting Cartridges

Use Super DLTape I cartridges with your drive. (Note: The PowerVault 110T tape drive will read, but not write, DLTape IV cartridges.) Ensure that only one label is affixed to the label area of the cartridge. Never use non-standard labels, and never stick anything to the cartridge other than in the label area.

Loading a Tape Cartridge

Figure 3. Loading



To load a tape cartridge, follow these steps:

1. Insert the cartridge into the front of the drive as shown in [Figure 3](#).
2. Push the cartridge fully into the drive. The tape will load automatically. The Drive Status LED blinks to show that the tape is loading. When the LED lights steadily, the tape is ready for use.

Unloading a Tape Cartridge

To unload a tape cartridge, press the Eject button on the front panel (item 3 in [Figure 3](#)).

During the unload sequence, the Drive Status LED blinks. The drive completes any active writing of data to the tape, rewinds the tape to the beginning, and ejects the cartridge.

Remove the cartridge and store it in its plastic case in a cool, dry environment. For more information, refer to the [Cartridge Care and Cleaning](#) section.

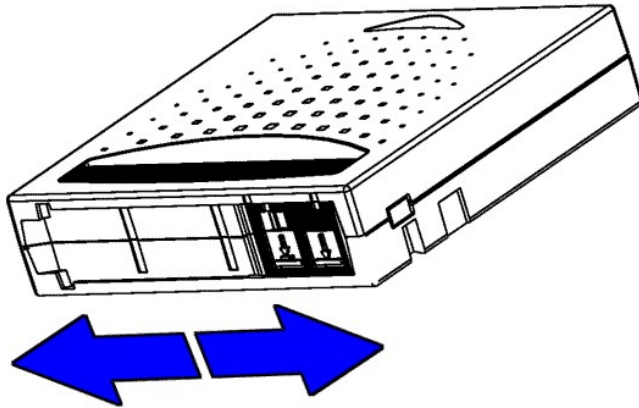
Setting the Write-Protect Switch on Tape Cartridges

Each tape cartridge has a write-protect switch that you can use to prevent accidental erasure of data. **Before** inserting the tape cartridge into the tape drive, position the write-protect switch on the front of the cartridge ([Figure 4](#)). You must do this before you insert the cartridge. If you slide the write-protect switch on the cartridge after the cartridge is inserted in the drive, the change will not take effect until you remove and reinsert the cartridge.



CAUTION: Setting the write-protect switch will not prevent a cartridge from being erased by bulk-erasure or degaussing.

Figure 4. Setting the Write-Protect Switch



Write-Protect Switch Position	Orange Write-Protect Indicator	Result
Before Loading the Cartridge		
Enabled (Slide switch to left as shown in Figure 4.)	Visible	Data cannot be written to the tape. Existing data on the tape cannot be overwritten. Additional data cannot be appended to the tape.
Disabled (Slide switch to right as shown in Figure 4.)	Not visible	Unless the cartridge is write-protected via software: - Data can be written to the tape. - Existing data on the tape can be overwritten. - Additional data can be appended to the tape.
After Loading the Cartridge and During Operation		
If the write-protect switch is moved from its right (disabled) position to its left (enabled) position.	Visible	If the drive is currently writing to tape, the write-protect feature does not take effect until after the current WRITE operation completes.
If the write-protect switch is moved from its left (enabled) to its right (disabled) position.	Not visible	The tape becomes write-enabled after a variable amount of seconds.