

# Wide Bank 28 Product Guide

Wide Bank 28 - DS3

M1-3 multiplexer that delivers asynchronous DS1/E1 service connections from a DS3 signal interface.

Wide Bank 28 - STS-1

M1-3 multiplexer that delivers DS1/E1 service connections from a SONET, STS-1 signal interface.

Wide Bank 28 - MSO Feature

Wide Bank 28 (DS3 and/or STS-1) with Maintenance Service Option (MSO), supports the ability to maintain service across four DSX-1/three E1 circuits, as the card electronics are replaced. The MSO Card is an added feature developed to automatically switch T1/E1 service to the spare card when the electronics are manually removed from a system in addition to the automatic back-up provided in standard systems. Service interruption time is less than 200 milliseconds.

Item	Part Number	Description
Configured Systems		
Wide Bank 28 DS3/DS1		
Wide Bank 28	930-0070	WB28 case, 1 DS3 controller, 7 WB DS1 Quad cards
Wide Bank 28 - Fully Redundant	930-0073	WB28 case, 2 DS3 controllers, 8 WB DS1 Quad cards
Wide Bank 28 - Fully Redundant, with FFO	930-0106	WB28 case, 2 DS3 controllers, 8 WB DS1 Quad cards, with FFO
Wide Bank 28 DS3/E1		
N	930-0330	WB28 case, 1 DS3 controller, 7 WB 3-port E1 cards
Wide Bank 28	930-0330	WBZO cace, i Bcc controller, i WB o port E i cardo
Wide Bank 28 Wide Bank 28 - Fully Redundant	930-0333	WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards
Wide Bank 28 - Fully Redundant Wide Bank 28 - Fully Redundant, with FFO  Wide Bank 28 DS3/DS1 Maintenance Service Option (MSO)	930-0333 930-0108	WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards, with FFO
Wide Bank 28 - Fully Redundant Wide Bank 28 - Fully Redundant, with FFO  Wide Bank 28 DS3/DS1 Maintenance Service Option (MSO) Wide Bank 28	930-0333 930-0108 930-0085	WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards, with FFO  WB28 case, 1 DS3 controller, 7 WB DS1 Quad MSO cards
Wide Bank 28 - Fully Redundant Wide Bank 28 - Fully Redundant, with FFO  Wide Bank 28 DS3/DS1 Maintenance Service Option (MSO)	930-0333 930-0108	WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards, with FFO
Wide Bank 28 - Fully Redundant Wide Bank 28 - Fully Redundant, with FFO  Wide Bank 28 DS3/DS1 Maintenance Service Option (MSO) Wide Bank 28 Wide Bank 28 MSO - Fully Redundant Wide Bank 28 MSO - Fully Redundant, with FFO	930-0333 930-0108 930-0085 930-0088	WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards, with FFO  WB28 case, 1 DS3 controller, 7 WB DS1 Quad MSO cards WB28 case, 2 DS3 controllers, 8 WB DS1 Quad MSO cards
Wide Bank 28 - Fully Redundant Wide Bank 28 - Fully Redundant, with FFO  Wide Bank 28 DS3/DS1 Maintenance Service Option (MSO) Wide Bank 28 Wide Bank 28 MSO - Fully Redundant	930-0333 930-0108 930-0085 930-0088	WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards, with FFO  WB28 case, 1 DS3 controller, 7 WB DS1 Quad MSO cards WB28 case, 2 DS3 controllers, 8 WB DS1 Quad MSO cards
Wide Bank 28 - Fully Redundant Wide Bank 28 - Fully Redundant, with FFO  Wide Bank 28 DS3/DS1 Maintenance Service Option (MSO) Wide Bank 28 Wide Bank 28 MSO - Fully Redundant Wide Bank 28 MSO - Fully Redundant, with FFO  Wide Bank 28 DS3/E1 Maintenance Service Option (MSO)	930-0333 930-0108 930-0085 930-0088 930-0107	WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards WB28 case, 2 DS3 controllers, 8 WB 3-port E1 cards, with FFO  WB28 case, 1 DS3 controller, 7 WB DS1 Quad MSO cards WB28 case, 2 DS3 controllers, 8 WB DS1 Quad MSO cards WB28 case, 2 DS3 controllers, 8 WB DS1 Quad MSO cards, with FFO

Wide Bank 28 STS-1	930-0093	WB28 case, 1 STS-1 controller, 7 DS1 Quad cards
Wide Bank 28 STS-1 - Fully Redundant	930-0096	WB28 case, 2 STS-1 controllers, 8 DS1 Quad cards
Wide Bank 28 STS-1 - Fully Redundant, with FFO	930-0112	WB28 case, 2 STS-1 controllers, 8 DS1 Quad cards, with FFO
Wide Bank 28 STS-1/DS1 Maintenance Service Option (MSO)		
Wide Bank 28 STS-1 MSO	930-0089	WB28 case, 1 STS-1 controller, 7 DS1 Quad MSO cards
Wide Bank 28 STS-1 MSO - Fully Redundant	930-0092	WB28 case, 2 STS-1 controllers, 8 DS1 Quad MSO cards
Wide Bank 28 STS-1 MSO - Fully Redundant, with FFO	930-0113	WB28 case, 2 STS-1 controllers, 8 DS1 Quad MSO cards, with FFO
Wide Bank 28 - Not FFO Compatible*		
Wide Bank 28 - Not FFO Compatible	930-0190	WB28 case, 1 DS3 controller, 7 WB Quad cards -NOT FFO COMPATIBLE
Wide Bank 28 - Fully Redundant - Not FFO Compatible	930-0191	WB28 case, 2 DS3 controllers, 8 WB Quad cards - NOT FFO COMPATIBLE
Wide Bank 28 MSO - Fully Redundant - Not FFO Compatible	930-0192	WB28 case, 2 DS3 controllers, 8 WB Quad MSO cards - NOT FFO COMPATIBLE
Wide Bank 28 STS-1 - Not FFO Compatible	930-0193	WB28 case, 1 STS-1 controller, 7 WB Quad cards - NOT FFO COMPATIBLE
Wide Bank 28 STS-1 - Fully Redundant - Not FFO Compatible	930-0194	WB28 case, 2 STS-1 controllers, 8 WB Quad cards - NOT FFO COMPATIBLE
Wide Bank 28 STS-1 MSO - Fully Redundant - Not FFO Compatible	930-0195	WB28 case, 2 STS-1 controllers, 8 WB Quad MSO cards - NOT FFO COMPATIBLE
		VVD20 cd3c, 2 010 1 controllers, 0 VVD Qddd WCC cdrds 1101111 C Cclvii 7111111
*Standard tier discounts do not apply to Non FFO compatible Wide Bank	ks	WEEG CLOSE, 2 GTG T CONTROLLES, G WEE QUAL INICO CLICA THE TT G CONTROLLES
	ks	WB20 case, 2 010 1 controllers, 0 WB Quad Mico cards TVOT 11 0 COMI //TIBEE
*Standard tier discounts do not apply to Non FFO compatible Wide Bank	930-0079	Wide Bank 28 DS3 case and backplane.
*Standard tier discounts do not apply to Non FFO compatible Wide Bank Components		
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case	930-0079	Wide Bank 28 DS3 case and backplane.
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case	930-0079 930-0097	Wide Bank 28 DS3 case and backplane. Wide Bank 28 STS-1 case and backplane.
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller	930-0079 930-0097 740-0029 740-0028	Wide Bank 28 DS3 case and backplane. Wide Bank 28 STS-1 case and backplane. Wide Bank 28 DS3 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller	930-0079 930-0097 740-0029	Wide Bank 28 DS3 case and backplane. Wide Bank 28 STS-1 case and backplane. Wide Bank 28 DS3 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller	930-0079 930-0097 740-0029 740-0028	Wide Bank 28 DS3 case and backplane. Wide Bank 28 STS-1 case and backplane. Wide Bank 28 DS3 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration. Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller	930-0079 930-0097 740-0029 740-0028	Wide Bank 28 DS3 case and backplane. Wide Bank 28 STS-1 case and backplane. Wide Bank 28 DS3 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration. Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller  Wide Bank Quad T1 Card	930-0079 930-0097 740-0029 740-0028 740-0172	Wide Bank 28 DS3 case and backplane. Wide Bank 28 DS3 controller card. Wide Bank 28 DS3 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller  Wide Bank Quad T1 Card  Wide Bank 28 MSO Quad T1, Electronics & Relay	930-0079 930-0097 740-0029 740-0028 740-0172 740-0023	Wide Bank 28 DS3 case and backplane. Wide Bank 28 STS-1 case and backplane. Wide Bank 28 DS3 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  MSO Quad T1 Electronics Card. This is the electronics portion of the MSO Quad T1
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller  Wide Bank Quad T1 Card	930-0079 930-0097 740-0029 740-0028 740-0172	Wide Bank 28 DS3 case and backplane. Wide Bank 28 STS-1 case and backplane. Wide Bank 28 DS3 controller card. Wide Bank 28 STS-1 controller card. Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  MSO Quad T1 Electronics Card. This is the electronics portion of the MSO Quad T1 Card (Part Number 740-0023). Available for spare purchase only, and requires the
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller  Wide Bank Quad T1 Card  Wide Bank 28 MSO Quad T1, Electronics & Relay	930-0079 930-0097 740-0029 740-0028 740-0172 740-0023	Wide Bank 28 DS3 case and backplane.  Wide Bank 28 STS-1 case and backplane.  Wide Bank 28 DS3 controller card.  Wide Bank 28 STS-1 controller card.  Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  MSO Quad T1 Electronics Card. This is the electronics portion of the MSO Quad T1 Card (Part Number 740-0023). Available for spare purchase only, and requires the MSO Quad T1 Relay Card for operation.
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller  Wide Bank Quad T1 Card  Wide Bank 28 MSO Quad T1, Electronics & Relay  Wide Bank 28 MSO Quad T1 Electronics Card	930-0079 930-0097 740-0029 740-0028 740-0172 740-0023	Wide Bank 28 DS3 case and backplane.  Wide Bank 28 STS-1 case and backplane.  Wide Bank 28 DS3 controller card.  Wide Bank 28 STS-1 controller card.  Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  MSO Quad T1 Electronics Card. This is the electronics portion of the MSO Quad T1 Card (Part Number 740-0023). Available for spare purchase only, and requires the MSO Quad T1 Relay Card for operation.  Wide Bank 28 3-port E1card. Up to eight may be equipped per chassis for a 3:21
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller  Wide Bank Quad T1 Card  Wide Bank 28 MSO Quad T1, Electronics & Relay	930-0079 930-0097 740-0029 740-0028 740-0172 740-0023	Wide Bank 28 DS3 case and backplane.  Wide Bank 28 STS-1 case and backplane.  Wide Bank 28 DS3 controller card.  Wide Bank 28 STS-1 controller card.  Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  MSO Quad T1 Electronics Card. This is the electronics portion of the MSO Quad T1 Card (Part Number 740-0023). Available for spare purchase only, and requires the MSO Quad T1 Relay Card for operation.  Wide Bank 28 3-port E1card. Up to eight may be equipped per chassis for a 3:21 redundant DSX-1 configuration.
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller  Wide Bank Quad T1 Card  Wide Bank 28 MSO Quad T1, Electronics & Relay  Wide Bank 28 MSO Quad T1 Electronics Card  Wide Bank 28 3-port E1 Card	930-0079 930-0097 740-0029 740-0028 740-0172 740-0023	Wide Bank 28 DS3 case and backplane.  Wide Bank 28 STS-1 case and backplane.  Wide Bank 28 DS3 controller card.  Wide Bank 28 STS-1 controller card.  Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  MSO Quad T1 Electronics Card. This is the electronics portion of the MSO Quad T1 Card (Part Number 740-0023). Available for spare purchase only, and requires the MSO Quad T1 Relay Card for operation.  Wide Bank 28 3-port E1card. Up to eight may be equipped per chassis for a 3:21 redundant DSX-1 configuration.  Maintenance Service Option (MSO) 3-port E1 Card includes both the 3-port E1 Relay
*Standard tier discounts do not apply to Non FFO compatible Wide Bank  Components  Wide Bank DS3 Case  Wide Bank 28 STS-1 Case  Wide Bank 28 DS3 Controller  Wide Bank 28 STS-1 Controller  Wide Bank Quad T1 Card  Wide Bank 28 MSO Quad T1, Electronics & Relay  Wide Bank 28 MSO Quad T1 Electronics Card	930-0079 930-0097 740-0029 740-0028 740-0172 740-0023	Wide Bank 28 DS3 case and backplane.  Wide Bank 28 STS-1 case and backplane.  Wide Bank 28 DS3 controller card.  Wide Bank 28 STS-1 controller card.  Wide Bank 28 Quad T1 card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  Maintenance Service Option (MSO) Quad T1 Card includes both the Quad T1 Relay Card and the Quad T1 Electronics Card. Up to eight may be equipped per chassis for a 4:28 redundant DSX-1 configuration.  MSO Quad T1 Electronics Card. This is the electronics portion of the MSO Quad T1 Card (Part Number 740-0023). Available for spare purchase only, and requires the MSO Quad T1 Relay Card for operation.  Wide Bank 28 3-port E1card. Up to eight may be equipped per chassis for a 3:21 redundant DSX-1 configuration.

740-0053

750-0010

Wide Bank 28 MSO E1 Electronics Card

Wide Bank 28 MSO and TL1 CD Software

for a 3:21 redundant DSX-1 configuration.

image and manual on CD for FLASH capable units.

Relay Card for operation.

MSO E1 Electronics Card. This is the electronics portion of the MSO E1 Card (Part Number 740-0057). Available for spare purchase only, and requires the MSO E1

FLASH Software for upgrade or field installation, CD version. Contains latest control

Wide Bank 28 Accessories		
Wide Bank 28 Fan Faceplate	790-0003	Fan Faceplate for high-density applications. Allows additional cooling capabilities for up to 40 systems, rack-mounted. Requires revision 2.0 (DS3) and 1.5 (STS-1) or higher controllers.
Shielded DSX-1 Cable 10' - (STS-1 & MSO)	005-0054	64 pin DSX-1 cable, 10 feet, Male/Male, shielded hoods for use with the Wide Bank 28 STS-1 & MSO featured products. (For use with STS PWA # 003-0236 all versions, and MSO electronics PWA # 003-0208 versions lower than 2.00.)
Shielded DSX-1 Cable 25' - (STS-1 & MSO)	005-0055	64 pin DSX-1 cable, 25 feet, Male/Male, shielded hoods for use with Wide Bank 28 STS-1 & MSO featured products. (For use with STS PWA # 003-0236 all versions, and MSO electronics PWA # 003-0208 versions lower than 2.00.)
Wide Bank 28 Accessory Kit	790-0002	Contains power connectors, alarm connectors and ferrite chokes for cables.
Wide Bank 28 DS3 Manual - CD ROM	770-0114	CD ROM with Wide Bank 28 DS3 manual.
Wide Bank 28 STS-1 Manual - CD ROM	770-0108	CD ROM with Wide Bank 28 STS-1 manual.
Universal Accessories		
DSX-1 Cable	005-0025	64 pin DSX-1 cable, 10 feet, Male/Male.
DSX-1 Cable	005-0030	64 pin DSX-1 cable, 25 feet, Male/Male.
Battery Unit	730-0114	Battery unit for combination with battery charger 730-0116.
Power Converter/Battery Charger	730-0116	115VAC to -48VDC power converter and battery charger for combination with battery unit 730-0114.
19" Vertical Mount Crossbar	710-0003	Two (2) heavy duty 19" horizontal crossbars for vertical installation in equipment racks and cabinets.
23" Vertical Mount Crossbar	710-0004	Two (2) heavy duty 23" horizontal crossbars for vertical installation in equipment racks and cabinets.
19" Power Supply Shelf	710-0005	Shelf mounts up to 3 AC power cubes/battery chargers in a 2-Rack Unit (2RU) space
19"/23" Rack Mounting Brackets	710-0153	Universal 19" or 23" heavy duty rack mounting brackets with mounting screws.

### **Included Items**

#### PORTS

- Two independent -48 VDC power input connectors
- Four BNC Coax Connectors
- Two 64-pin female champ connectors
- One BNC Coax 44.768 MHz external clock input
- One 4-pin major/minor alarm connector
- One 9-pin female RS-232 management port
- One 25-pin female RS-232 TL-1 automatic outbound alarm
- One RJ45 10BaseT SNMP/Ethernet management port

#### **ACCESSORIES**

- User manual
- 19"/23" rack mounting brackets
- Two power cord connectors
- One major/minor alarm cable connector

Connector release tool

## **SOFTWARE**

- SNMP, TL1 and Telnet Agent embedded software
   Command Line Interface embedded software

# **POWER OPTIONS**

• -48 VDC

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