








QuFast SHDSL Product Reference Guide

	QF/ML620i	QF/ML620/630	QF/ML640	QF/ML650	QF/ML680	QF/ML700	QF/ML530
							
Description	<ul style="list-style-type: none"> Ethernet Access Device for symmetrical, high-speed Ethernet over bonded copper Optimized for CPE applications 	<ul style="list-style-type: none"> Ethernet Access Device for symmetrical, high-speed Ethernet over bonded-copper or fiber 	<ul style="list-style-type: none"> Advanced Ethernet Access Device for symmetrical, high-speed Ethernet over bonded-copper or fiber 	<ul style="list-style-type: none"> Integrated TDM & Ethernet Access Device for seamless migration from all-TDM to combined TDM and Ethernet Backhaul/Service Hybrid TDM/Copper/Fiber 	<ul style="list-style-type: none"> Ethernet Access Device for symmetrical, high-speed Ethernet over bonded-copper 	<ul style="list-style-type: none"> Advanced Ethernet Access Device for asymmetrical, high-speed Ethernet over bonded-copper or fiber 	<ul style="list-style-type: none"> Ethernet Access Device for symmetrical, high-speed Ethernet over fiber
Applications	<p>Ethernet Services:</p> <ul style="list-style-type: none"> T1/E1 Line Replacement Transparent LAN Service Fast Ethernet Access Metro Ethernet Extension <p>Private Campus Networks Intelligent Transportation Systems</p>	<p>Backhaul:</p> <ul style="list-style-type: none"> DSLAM MTU/MDU <p>Ethernet Services:</p> <ul style="list-style-type: none"> T1/E1 Line Replacement Transparent LAN Service Fast Ethernet Access Metro Ethernet Extension <p>Private Campus Networks Intelligent Transportation Systems</p>	<p>Backhaul:</p> <ul style="list-style-type: none"> DSLAM MTU/MDU <p>Ethernet Services:</p> <ul style="list-style-type: none"> T1/E1 Line Replacement Transparent LAN Service Fast Ethernet Access Metro Ethernet Extension <p>Private Campus Networks Intelligent Transportation Systems</p>	<p>Backhaul:</p> <ul style="list-style-type: none"> Mobile/Cell Site DSLAM & PBX MTU/MDU <p>Ethernet Services:</p> <ul style="list-style-type: none"> Transparent LAN Service Fast Ethernet Access Metro Ethernet Extension <p>Private Campus Networks Intelligent Transportation Systems</p>	<p>Copper ADM Backhaul:</p> <ul style="list-style-type: none"> DSLAM Backhaul <p>Private Campus Networks Intelligent Transportation Systems</p>	<p>Backhaul:</p> <ul style="list-style-type: none"> DSLAM MTU/MDU <p>Ethernet Services:</p> <ul style="list-style-type: none"> T1/E1 Line Replacement Transparent LAN Service Fast Ethernet Access Metro Ethernet Extension <p>Private Campus Networks Intelligent Transportation Systems</p>	<p>Backhaul:</p> <ul style="list-style-type: none"> Mobile/Cell Site DSLAM MTU/MDU <p>Ethernet Services:</p> <ul style="list-style-type: none"> T1/E1 Line Replacement Transparent LAN Service Fast Ethernet Access Metro Ethernet Extension <p>Private Campus Networks Intelligent Transportation Systems</p>
Network Service I/F	<ul style="list-style-type: none"> 4x10/100 Base-T 	<ul style="list-style-type: none"> 4x10/100 Base-T 1x100/1000 Base-FX (ML630) 1x100 Base-FX (ML620) 	<ul style="list-style-type: none"> 4x10/100 Base-T 2x100/1000 Base-FX 	<ul style="list-style-type: none"> 4xE1/T1/CLK 4x10/100 Base-T/CLK 2x100/1000 Base-FX/CLK 	<ul style="list-style-type: none"> 4x10/100 Base-T 2x100/1000 Base-FX 	<ul style="list-style-type: none"> 4x10/100 Base-T 2x100/1000 Base-FX 	<ul style="list-style-type: none"> 4x10/100 Base-T 2x100/1000 Base-FX
Copper I/Fs	<ul style="list-style-type: none"> 2 or 4 copper pairs; 2Base-TL (IEEE 802.3ah /ITU-T G.998.2 over Extended G.SHDSL) 	<ul style="list-style-type: none"> 8 copper pairs (ML630), 2, 4 or 8 copper pairs (ML620); 2Base-TL (IEEE 802.3ah /ITU-T G.998.2 over Extended G.SHDSL) 	<ul style="list-style-type: none"> 4 or 8 copper pairs; 2Base-TL (IEEE 802.3ah /ITU-T G.998.2 over Extended G.SHDSL) 	<ul style="list-style-type: none"> 4 or 8 copper pairs; 2Base-TL (IEEE 802.3ah /ITU-T G.998.2 over Extended G.SHDSL) 	<ul style="list-style-type: none"> 4 or 8 copper pairs; 2Base-TL (IEEE 802.3ah /ITU-T G.998.2 over Extended G.SHDSL) 	<ul style="list-style-type: none"> 4 or 8 copper pairs; 10BaseTS (IEEE 802.3ah /ITU-T G.998.2 over DSL/DMT) 	<ul style="list-style-type: none"> None
Topologies	<ul style="list-style-type: none"> Point-to-point (CO/RT) Point-to-multipoint (RT/CPE) 	<ul style="list-style-type: none"> Point-to-point (CO/RT) Point-to-multipoint (RT/CPE) 	<ul style="list-style-type: none"> Point-to-point (CO/RT) Point-to-multipoint (RT/CPE) Fiber Ring 	<ul style="list-style-type: none"> Point-to-point (CO/RT) Point-to-multipoint (RT/CPE) Fiber Ring 	<ul style="list-style-type: none"> Linear add/drop Point-to-point (CO/RT) Point-to-multipoint (RT/CPE) 	<ul style="list-style-type: none"> Point-to-point (CO/RT) Point-to-multipoint (RT/CPE) with 3rd party DSLAM Fiber Ring 	<ul style="list-style-type: none"> Point-to-point (CO/RT) Point-to-multipoint (RT/CPE) Fiber Ring
Main Features	<ul style="list-style-type: none"> IEEE 802.3ah Actelis EFMplus, DRB and DRB friendly Up to 1Gbps over Fiber ML600 - Up to 15Mbps/pair, Up to 100Mbps over 8 pairs ML700 - UP to 260Mbps DS and up to 160Mbps US Wire speed switching L2 & L3 Classification MEF 10 compliant, flexible service configuration capabilities Advanced OAM capabilities with ML640/ML650 						
Standards Compliance	<ul style="list-style-type: none"> MEF 9, 10 (ML640, ML650, ML740), 14, 18 (ML650) IEEE 802.3ah, ITU-T G.998.2 ITU-T G.991.2, ETSI TS 101 524 						
Spectral Compliance	<ul style="list-style-type: none"> ITU-T G.991.2 (Annex A, B, F, G) ETSI TS 101 524 (Annex E) 						







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QFRefGuide 2012-07



QuFast SHDSL Product Reference Guide

	QF/ML2300	QF/ML230	QF/ML690	XR239 Repeater
				
Description	<ul style="list-style-type: none"> Ethernet Aggregation Switch for symmetrical, high-speed Ethernet over bonded copper or fiber 	<ul style="list-style-type: none"> Ethernet Aggregation Switch for symmetrical, high-speed Ethernet over bonded copper or fiber 	<ul style="list-style-type: none"> Ethernet Access Device for symmetrical, high-speed Ethernet over bonded copper or fiber 	<ul style="list-style-type: none"> Industry's first EFM Repeater Extend reach of high-bandwidth Ethernet services, covering 98% of all loops
Applications	<ul style="list-style-type: none"> Carrier-class, high availability applications Optimized for high-density, medium-to-large COs Intelligent Transportation Systems Backhaul 	<ul style="list-style-type: none"> Carrier-class, high availability applications Compact and optimized for high-density, medium-to-large COs or RTs Intelligent Transportation Systems Backhaul 	<ul style="list-style-type: none"> Carrier-class, high availability applications Compact and optimized for small COs or RTs Intelligent Transportation Systems Backhaul 	<ul style="list-style-type: none"> Extending the reach and coverage of Ethernet over bonded-copper services for backhauling applications, and bushiness services
Network Service I/F	<ul style="list-style-type: none"> 10/100/1000 Base-T 100/1000/2500 Base-FX 	<ul style="list-style-type: none"> 10/100/1000 Base-T 100/1000/2500 Base-FX 	<ul style="list-style-type: none"> 10/100 Base-T 100/1000 Base-FX 	<ul style="list-style-type: none"> N/A
Copper I/Fs	<ul style="list-style-type: none"> Up to 256 copper pairs per shelf 2Base-TL (IEEE 802.3ah /ITU-T G.998.2 over Extended G.SHDSL) 	<ul style="list-style-type: none"> Up to 128 copper pairs per shelf 2Base-TL (IEEE 802.3ah /ITU-T G.998.2 over Extended G.SHDSL) 	<ul style="list-style-type: none"> Up to 8 copper pairs per unit 2Base-TL (IEEE 802.3ah /ITU-T G.998.2 over Extended G.SHDSL) 	<ul style="list-style-type: none"> 2 copper pairs per repeater 2Base-TL (IEEE 802.3ah / ITU-T G.998.2 over Extended G.SHDSL)
Topologies	<ul style="list-style-type: none"> Point-to-multipoint (CO) Stack Ring 	<ul style="list-style-type: none"> Point-to-multipoint (CO) Point-to-point (CO/RT) Stack Ring Linear Add/Drop 	<ul style="list-style-type: none"> Point-to-multipoint (CO) Point-to-point (CO/RT) Point-to-multipoint (RT/CPE) Stack Linear Add/Drop 	<ul style="list-style-type: none"> Up to 8 repeaters (9 hops per link) Up to 4 repeaters line powered with one Remote Power Feeding Unit (PFU) dual-side feeding, No re-wiring same repeater unit Power feeding in both point-to-point and point-to-multipoint topologies
Main Features	<ul style="list-style-type: none"> High-density solution offering 64ports/RU up to 128 high-speed Ethernet over bonded-copper pair links Bonding up to 32 pairs In excess of 400Mbps per link Ethernet L2 network processor Hybrid copper and fiber interfaces Multiline card configuration Fully redundant configuration Carrier Grade 		<ul style="list-style-type: none"> Compact point-to-multipoint Up to 15 Mbps/pair, Up to 100Mbps per link Hybrid copper and fiber interfaces 	<ul style="list-style-type: none"> Above 10Mbps per pair (Dependent on repeater spacing and/or copper quality) DRB-friendly support fully managed Outdoor hardened Compliant to 239-based field enclosures and compatible with other customer-specific enclosures
Shared Features	<ul style="list-style-type: none"> IEEE 802.3ah EFM, Actelis EFMplus, DRB and DRB friendly Up to 1Gbps over Fiber, Multiple fiber interfaces Wire speed switching L2 & L3 Classification IEEE 802.1Q VLAN and VLAN stacking 			
Standards Compliance	<ul style="list-style-type: none"> MEF 9, 10, 14 IEEE 802.3ah, ITU-T G.998.2 ITU-T G.991.2 ETSI TS 101 524 FCC, UL, CE, ITU-T NEBS 3 			<ul style="list-style-type: none"> ANSI T1.417-2003 IEEE 802.3ah, ITU-T G.998.2 ITU-T G.991.2, ETSI TS 101 524 FCC, UL, CE NEBS 1
Spectral Compliance	<ul style="list-style-type: none"> ITU-T G.991.2 (Annex A, B, F, G) ETSI TS 101 524 (Annex E) ANSI T1.417, T1.426 Per country regulatory compliant spectral modes 			<ul style="list-style-type: none"> Fully standards and spectrally compliant, including ANSI T1.417



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QFRefGuide 2012-07

