

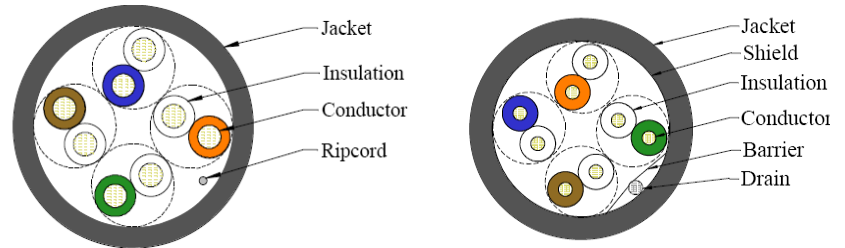
# VersaLAN<sup>®</sup> CMR/CMX

4 Pair #24 AWG UTP and F/UTP  
Category 5e



**F/UTP PART # M58932**

**UTP PART # M58926**



## DESCRIPTION

UNSHIELDED (UTP) or SHIELDED (F/UTP) TWISTED PAIR VERSALAN CMR/CMX CABLE IS SUITABLE FOR USE IN BUILDINGS IN WET LOCATIONS AND SUITABLE FOR USE OUTDOOR IN DUCT AND FOR AERIAL LASHING. IT HAS A BLACK SUNLIGHT RESISTANT JACKET. IT IS NOT SUITABLE FOR DIRECT BURIAL.

THE CABLE IS RISER (NON-PLENUM) RATED FOR USE AS A VERTICAL RUN IN A SHAFT AND FOR GENERAL PURPOSE COMMUNICATIONS USE IN ACCORDANCE WITH ARTICLE 800 OF THE NATIONAL ELECTRICAL CODE (NEC). THE CABLE IS ALSO RATED FOR OUTDOOR CMX LIMITED USE SUITABLE FOR USE IN DWELLINGS AND IN RACEWAYS. THE CABLE IS UL (USA) & cUL (CANADA) LISTED FOR THIS APPLICATION BY PASSING UL 1666 VERTICAL TRAY & 1581 VERTICAL WIRE FLAME TESTS.

## SUPPORTED APPLICATIONS

IEEE 802.3 10BASE-T (ETHERNET), 100BASE-T (FAST ETHERNET), AND 1000BASE-T (GIGABIT ETHERNET), ANSI.X3.263 FDDI TP-PMD, IEEE 802.5 4 AND 16 Mbps TOKEN RING, ATM UP TO 155 Mbps, 550 MHz BROADBAND VIDEO AND STANDARDS UNDER DEVELOPMENT SUCH AS ATM AT 622 Mbps & 1.2 Gbps.

## CONSTRUCTION of UTP and F/UTP\*

PRIMARIES: CONDUCTOR: 24 AWG (.5 mm) SOLID BARE COPPER  
INSULATION: THERMOPLASTIC POLYOLEFIN

PAIR ASSEMBLY: 2 PRIMARIES TWISTED IN VARIED LAYS

COLOR CODE: SEE TABLE 1

CABLE ASSEMBLY: 4 PAIRS CABLED TOGETHER

BARRIER\*: OVERALL POLYESTER TAPE, 25% OVERLAP

DRAIN\*: #24 AWG SOLID TINNED COPPER

SCREEN\* (SHIELD): OVERALL ALUMINUM/POLYESTER TAPE, ALUM SIDE FACING IN, 25% OVERLAP, 100% COVERAGE

JACKET: MATERIAL: UV-RESISTANT OUTDOOR GRADE PVC  
NOMINAL WALL: .030" (.76 MM)  
NOMINAL DIAMETER: .230" (5.84 mm) UTP  
.265" (6.7 mm) F/UTP\*

COLOR: BLACK

LISTINGS: UL TYPE CMR/CMX

TABLE 1

PAIR NUMBER	PAIR COLOR CODE	
1	WHITE-BLUE	BLUE
2	WHITE-ORANGE	ORANGE
3	WHITE-GREEN	GREEN
4	WHITE-BROWN	BROWN

## PHYSICAL CHARACTERISTICS of UTP and F/UTP\*

BEND RADIUS: 2.3" (58mm) MIN (10 X CABLE OD)  
2.6" (66mm) MIN (10 X CABLE OD)\*

PULLING TENSION: 25 lbf (110 N) MAX

CABLE WEIGHT: 28 lbs/1000ft (42 kg/km)  
35 lbs/1000ft (52 kg/km)\*

OPERATING TEMP.: -40°C to +75°C (-40°F to +167°F)

STORAGE TEMP.: -20°C to +75°C (-4°F to +167°F)

INSTALLATION TEMP.\*\*: -20°C to +75°C (-4°F to +167°F)

\*\*THE INSTALLATION TEMPERATURE REFERS TO THE TEMPERATURE OF THE CABLE WHILE BEING INSTALLED OR PULLED.

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### ELECTRICAL CHARACTERISTICS (REF TABLE 2)

CONDUCTOR DCR:	9.38 Ω/100m (28.6 Ω/Mft) MAX	NEAR END CROSSTALK (NEXT):	35.3 - 15 log <sub>10</sub> (f /100) dB/100m MIN
DCR UNBALANCE:	5% MAX	POWER SUM NEAR END CROSSTALK (PS- NEXT):	32.3 - 15 log <sub>10</sub> (f /100) dB/100m MIN
MUTUAL CAPACITANCE:	49 pF/m (15 pF/ft) NOM	EQUAL LEVEL FAR END CROSSTALK (ELFEXT):	23.8 - 20 log <sub>10</sub> (f /100) dB/100m MIN
CAPACITANCE UNBALANCE PAIR/GROUND:	108 pF/100m (330 pF/Mft) MAX	POWER SUM EQUAL LEVEL FAR END CROSSTALK (PS-ELFEXT):	20.8 - 20 log <sub>10</sub> (f /100) dB/100 MIN
CHARACTERISTIC IMPEDANCE:	100 Ω ± 15% (1-100 MHz)	PROPAGATION DELAY:	534 + 36 / √f ns/100m MAX
RETURN LOSS (RL):	20 + 5 log <sub>10</sub> (f) dB MIN (1-10 MHz) 25 dB MIN (>10-20 MHz) 25 - 7 log <sub>10</sub> (f /20) dB MIN (>20 MHz)	DELTA DELAY (SKEW):	45 ns/100m MAX
INSERTION LOSS:	1.967√f + .023f + .050/√f dB/100m MAX	NOMINAL VELOCITY OF PROPAGATION (NVP):	68%

WHERE f = FREQUENCY IN MHz from .772 to 100 MHz.

**TABLE 2**  
**REFERENCE ELECTRICAL CHARACTERISTICS**

FREQ (MHz)	INSERTION LOSS (dB/100m)			NEXT (dB/100m)		ACR (dB/100m)	PS-NEXT (dB/100m)		PS-ACR (dB/100m)	ELFEXT (dB/100m)	PS-ELFEXT (dB/100m)	RL (dB)
	avg	max	max	avg	min	min	avg	min	min	min	min	min
1.0	1.8	2.0	6.3	77	65.3	63.0	68	62.3	60.0	63.8	60.8	20.0
4.0	3.8	4.1	13	68	56.3	51.0	57	53.3	49.0	51.7	48.7	23.0
8.0	5.4	5.8	18	64	51.8	46.0	54	48.8	43.0	45.7	42.7	24.5
10.0	6.0	6.5	20	62	50.3	43.0	52	47.3	41.0	43.8	40.8	25.0
16.0	7.6	8.2	25	60	47.3	39.0	50	44.3	36.0	39.7	36.7	25.0
20.0	8.6	9.3	28	58	45.8	36.5	48	42.8	33.5	37.7	34.7	25.0
25.0	9.7	10.4	32	57	44.3	33.9	47	41.3	30.9	35.8	32.8	24.3
31.25	10.9	11.7	36	56	42.9	31.0	46	39.9	28.0	33.9	30.9	23.6
62.5	15.8	17.0	52	52	38.4	22.0	42	35.4	19.0	27.8	24.8	21.5
100.0	20.5	22.0	67	48	35.3	14.0	38	32.3	11.0	23.8	20.8	20.1
155.0	26.2	28.1	86	45	32.5	4.4	35	29.5	1.4	19.9	16.9	15.8
200.0	30.2	32.0	99	43	30.8	4.0	33	27.8	1.0	17.7	14.7	15.0

VALUES ABOVE 100 MHz ARE FOR ENGINEERING INFORMATION ONLY.

Mohawk reserves the right to change any specification in the interest of product enhancement.