Video Mask Interdiction

VMI

❍ Features & Benefits

- Extended Bandwidth: 5-40 MHz Return Path, 54-860 MHz Forward Path
- Flexible Jamming Capability
- Longer Feeder Line Reach- Unity Gain Device Provides 7 dB Gain Compared to 4-way Tap
- Like All Interdiction Products- Addressable Tap Plus Individual Channel Control

The VMIU PLUS is ideal for high churn, high density applications in areas like MDU's. The VMIU PLUS has a modular design based upon jammer modules. The jamming oscillators may be optimized by selecting jammer modules to match desired channel ranges (or frequencies) to control.

The VMIU can secure channels over bandwidths within 54 to 650 MHz and jam up to 72 channels simultaneously to protect extended basic or premium channels. Different jamming levels may be selected for different types of programming.

The units have a forward path bandwidth of 54-860 MHZ and 5-40 MHZ return path. Each unit consists of a die cast housing equipped with a power supply, seizure board and motherboard/combiner. The seizure board accepts plug-in circuitry based on system design criteria: Directional Coupler (VMI-DC), Equalizer (VMI-CEQ7V), and Attenuator (VMI-AT). The following modules plug into the motherboard: RF Distribution Module (1), Control Module (1), and Jammer Modules (1 to 4).

❍ Specifications

VMIU Thru Line

Bandwidth: 5 to 860 MHz
Loss at 5 MHz: 1.3 dB
Tilt: -1.6 dB
Flatness (ref. to Tilt): 0.25 dBpv
Input Return Loss: 16 dB
Output Return Loss: 16 dB
Current Passing (max): 8 Amp

Subscriber Output Port

Bandwidth: 54 to 860 MHz
Nominal Gain: -0.5 dB
Flatness: ±1.5 dB
Return Loss: 10 dB
Jammer Off Isolation: 60 dB
Subscriber Disconnect Isolation
54-600 MHz: 58 dB
600-750 MHz: 54 dB
750-860 MHz: 45 dB
Rated Conditions
Channel Loading: 77 channels
Min. Output Level (54 MHz): 10 dBmV
Min. Output Level (550/600 MHz): 15 dBmV
Min. Output Level (860 MHz): 17 dBmV
Distortions (@ Rated Conditions)
CTB: -62 dBc
CSO: -61 dBc
XMOD: -58 dBc
Spurious: -63 dBc
C/N Ratio: 60 dB

Return Path

Bandwidth: 5 to 40 MHz
Loss: 10 dB
Flatness: 2 dBpv
Input Return Loss (Subscriber Port): 14 dB
Output Return Loss (Input Port): 17 dB

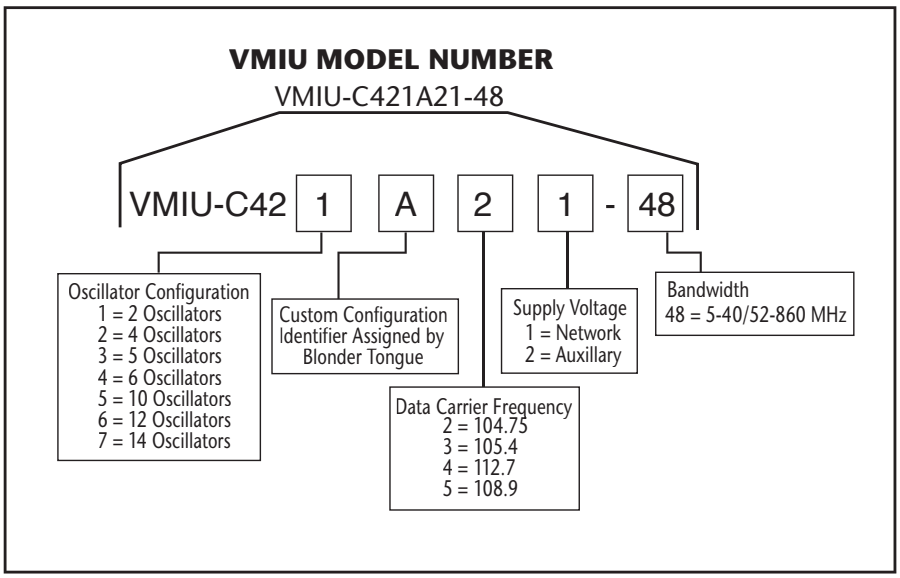
RF Distribution Modules

Input Level (Relative to Video): -10 ±5 dB
Carrier Frequencies: 104.75 MHz
105.40 MHz
108.90 MHz
112.70 MHz
Carrier Guard Band: ±300 KHz
FM Deviation: ±60 KHz

❍ Ordering Information

Field Units

Model	Stock No.	Description
VMIU-C425B51-48	9495B5148	VMIU PLUS 4 Port Complete Unit, 10 oscs (9461-2,9463,9465) 54-860MHz Fwd Path,5-40 MHz Return, 112.7 MHz Data Carrier
VMIU-C425B21-48	9495B2148	VMIU PLUS 4 Port Complete Unit, 10 Oscs (9461-2,9463,9465) 54-860MHz Fwd Path,5-40MHz Return Path, 104.75MHz Data Carrier
VMIU-C425ABC-48	9495ABC48	VMIU PLUS 4 Port Complete Unit, 10 Oscillators 54-860MHz Forward Path,5-40MHz Return,xxx.x MHz Data Carrier
VMIU-C425A52-48	9495A5248	VMIU PLUS 4 Port Complete Unit, 10 Oscs (9471+9472+9473-2JM) 54-860MHz Fwd Path, 5-40MHz Return Path, xxx.x Data Carrier
VMIU-C425A22-48	9495A2248	VMIU PLUS 4 Port Complete Unit, 10 Oscs (9471+9472+9473-2 JM 54-860MHz Forward Path,5-40MHz Return,104.75MHz Data Carrier
VMIU-C424ABC-48	9494ABC48	VMIU PLUS 4 Port Complete Unit, 8 Oscillators 54-860MHz Forward Path,5-40MHz Return,xxx.x MHz Data Carrier
VMIU-C424A52-48	9494A5248	VMIU PLUS 4 Port Complete Unit, 8 Oscs (9471+ 9472 JM) 54-860MHz Forward Path,5-40MHz Return,112.7 MHz Data Carrier
VMIU-C424A22-48	9494A2248	VMIU PLUS 4 Port Complete Unit, 8 Oscs (9471+ 9472 JM) 54-860MHz Forward Path,5-40MHz Return,104.75MHz Data Carrier
VMIU-C423V51-48	9493V48	VMIU Complete Unit, 6 Osc (9465C2V,9468 JM) 54-860MHz Forward Path,5-40MHz Return,112.7 MHz Data Carrier
VMIU-C423ABC-48	9493ABC48	VMIU PLUS 4 Port Complete Unit, 6 Oscillators 54-860MHz Forward Path,5-40MHz Return,xxx.x MHz Data Carrier
VMIU-C422Q51-48	9492Q5148	VMIU PLUS Complete Unit, 4 Osc (9465 JM) 54-860MHz Forward Path,5-40MHz Return,112.7 MHz Data Carrier
VMIU-C422B21-48	9492B21-48	VMIU PLUS Complete Unit, 4 Osc (9465 JM) 54-860MHz Forward Path,5-40MHz Return,104.75MHz Data Carrier
VMIU-C422ABC-48	9492ABC48	VMIU PLUS 4 Port Complete Unit, 4 Oscillators 54-860MHz Forward Path,5-40MHz Return,xxx.x MHz Data Carrier
VMIU-C425B51-48	9495C5148	VMIU PLUS 4 Port Complete Unit, 2 Oscillators 54-860 MHz Forward Path, 5-40 MHz Ret, xxx.x MHz Data Carrier
VMIU-C421ABC-48	9491ABC48	VMIU PLUS 4 Port Complete Unit, 10 Oscillators (9461-2+9465+9468JM)54-860 MHz Forward Path, 5-40 MHz Ret, xxx.x MHz Data Carrier
VMIU-C424V21-48	9494V2148	VMIU 4 Port Complete Unit, 8 Oscillators (9463+9465JM) Forward Path, 5-40 MHz Ret,104.75 MHz Data Carrier
VMIU-C424V51-48	9494V148	VMIU 4 Port Complete Unit, 8 Oscillators (9463+9465JM) Forward Path, 54-860 MHz, 5-40 MHz Ret,112.7 MHz Data Carrier



❍ VMI Modules

The VMI Unit is a modular unit as previously described. Below are the modules that plug into the motherboard/combiner. These modules can be used to match the VMIU capability based upon system needs:

RF Distribution Module - contains the data receiver to demodulate the FSK data from the ITX and provides signal splitting and amplification for the four individual subscriber ports.

Control Module - contains the microcontroller that accepts the control data from the RF Distribution Module and commands and controls the jamming oscillators and subscriber services.

Jamming Module(s) - contains the frequency agile oscillators that jam the unauthorized channels as controlled by the control module. Each jammer module has specified bandwidths.

❍ Ordering Information

Model	Stock No.	Description
VMI-CM4-G	9460 G	VMI Control Module, 4 Port, NOTE:Supports 2 Osc Jammer in Slot 1 - Up to 14 Oscs
VMI-JM421217	9461 2	VMI Jammer Module, 4 Port, 2 Oscillators, 120 to 170 MHz (Channels 14-22)
VMI-JM424351	9465C2V	VMI Jammer Module, 4 Port, 2 Oscillators, 432 to 512 MHz (Channels 59-72)
VMI-JM424959	9473 2	VMI Jammer Module, 4 Port, 2 Oscillators, 496 to 596 MHz (Channels 70-86)
VMI-JM442135	9463A	VMI Jammer Module, 4 Port, 4 Oscillators, 216 to 350 MHz (Channels 23-45)
VMI-JM440532	9471	VMI Combination Jammer Module, 4 Port, 4 Oscillators, 54 to 321 MHz (Channels 2-40)
VMI-JM443051	9472	VMI Jammer Module, 4 Port, 4 Oscillators, 306 to 513 MHz (Channels 38-72)
VMI-JM443551	9465C	VMI Jammer Module, 4 Port, 4 Oscillators, 354 to 512 MHz (Channels 46-72)
VMI-JM444965	9468	VMI Jammer Module, 4 Port, 4 Oscillators, 496 to 650 MHz (Channels 70-94)
VMIU-RD423-48	9432 48	VMIU RF Distribution Module, 4 Port, 2 Way, 54-860 MHz Forward, 5-42 MHz Return
VMIU-RD424-48	9442 48	VMIU RF Distribution Module, 4 Port, 2 Way, 54-860 MHz Forward, 5-42 MHz Return
VMIU-RD425-48	9452 48	VMIU RF Distribution Module, 4 Port, 2 Way, 54-860 MHz Forward, 5-42 MHz Return

Stock #	Frequency Range (MHz)	OSC1	OSC2	OSC3	OSC4
9461-2	120 - 170	14 – 22 Ch 120 – 170 MHz	14 – 22 Ch 120 – 170 MHz	N/A	N/A
9463	216 – 350	23 – 33 Ch 216 – 278 MHz	27 – 37 Ch 240 – 302 MHz	31 – 41 Ch 264 – 326 MHz	35 – 45 Ch 288 – 350 MHz
9465	354 – 512	46 – 56 Ch 354-416 MHz	52 – 62 Ch 390 – 452 MHz	59 – 69 Ch 432 – 494 MHz	62 – 72 Ch 450 – 512 MHz
9468	498 - 650	70 – 80 Ch 498 – 560 MHz	75 – 85 Ch 528 – 590 MHz	80 – 90 Ch 558 – 620 MHz	85 – 94 & 100 Ch 588 – 650 MHz
9471	54 - 321	2-6 Ch 54 –85 MHz	14 – 22 99, 7 Ch 114 – 177 MHz	8 – 13 & 23 – 28 Ch 179 – 249 MHz	29 – 40 Ch 252 – 321 MHz
9472	324 – 513	38 – 49 Ch 306 – 375 MHz	46 – 56 Ch 354 –417 MHz	52 – 62 Ch 390 – 453 MHz	62 – 72 Ch 450 – 513 MHz
9473-2	498 – 596	70 – 80 Ch 498 – 561 MHz	75 – 86 Ch 528 – 597 MHz	N/A	N/A

Video Mask Interdiction - Accessories

VMI

❍ VMI Plug-Ins

The VMI Unit seizure board accepts plug-in circuitry based on system design criteria:

Seizure Board - taps RF and power from the feeder cable.

Directional Coupler - directs a portion of the RF signal to the RF distribution module and VideoMask's other components.

Equalizer - controls tilt of the subscriber output signal. Does not affect the feeder cable or reverse path.

Attenuator - works with the directional coupler to lower the signal reaching the subscriber output ports.

Trim Network - may be used instead of a forward path attenuator to compensate for non-linear system response and allow for forward path balancing.

The TVCB accepts many of the same plug-in circuitry, specifically the Equalizer, Attenuator, and Trim Network.

❍ Ordering Information

Model	Stock No.	Description
VMI-CEQ7	9370	VMI Equalizer, Plug-In, Horizontal Profile 750 MHz
VMI-CEQ7V	9375	VMI Equalizer, Plug-In, Vertical Profile 750 MHz
VMI-DC	9310	VMI Directional Coupler, Plug-In 750 MHz
VMI-IEQ5	9351 4	VMI Inverse Equalizer, Plug-In, Horizontal Profile 550 MHz
VMI-IEQ7	9371 4	VMI Inverse Equalizer, Plug-In, Horizontal Profile 750 MHz
VMI-CEQ8V	9377A	VMI Equalizer, Plug-In, Vertical Profile 860 MHz
VMI-IEQ8V	9378A	VMI Inverse Equalizer, Plug-In, Vertical Profile 860 MHz
VMI-IEQ7	9378A	VMI Inverse Equalizer, Plug-In, Vertical Profile 750 MHz
VMI-DC-860	9311	VMI Directional Coupler, Plug-In 860 MHz
VMI-AT	9320	VMI Attenuator, Plug-In 1000 MHz

❍ VMI Plug-In Tables

VMI-CEQ7V 750 MHz Equalizers

EQ Value	Tilt Comp @ 550 MHz	Tilt Comp @ 750 MHz	Loss @ 50 MHz	Loss @ 550 MHz	Loss @ 750 MHz
-4	-1.6	-3.0	1.0	2.6	4.0
-3	-1.3	-2.2	0.8	2.1	3.0
-2	-0.9	-1.4	0.6	1.5	2.0
-1	-0.5	-1.0	0.0	0.5	1.0
0	0.0	0.0	0.0	0.0	0.0
1	0.6	0.9	1.5	0.9	0.6
2	1.3	1.7	2.3	1.0	0.6
3	1.6	2.0	2.6	1.0	0.6
4	2.3	2.7	3.3	1.0	0.6
5	2.9	3.4	4.0	1.1	0.6
6	3.4	4.2	4.8	1.4	0.6
7	3.8	4.9	5.5	1.7	0.6
8	4.7	6.2	6.8	2.1	0.6
9	5.1	7.1	7.7	2.6	0.6
10	5.6	7.7	8.3	2.7	0.6
11	6.5	8.7	9.3	2.8	0.6
12	6.5	8.9	9.5	3.0	0.6
13	6.9	9.4	10.0	3.1	0.6
14	7.8	10.4	11.0	3.2	0.6
15	8.4	11.1	11.7	3.3	0.6
16	8.9	11.7	12.3	3.4	0.6
17	9.4	12.4	13.0	3.6	0.6
18	10.0	13.2	13.8	3.8	0.6
19	10.6	13.8	14.4	3.8	0.6
20	11.5	14.7	15.3	3.8	0.6

Video Mask Interdiction - Accessories

VMI

VMI-CEQ8V 860 MHz Equalizers					
EQ Value	Tilt Comp @ 860 MHz	Loss @ 54 MHz	Loss @ 550 MHz	Loss @ 750 MHz	Loss @ 860 MHz
-4	-2.56	-1.12	-2.37	-3.19	-3.68
-3	-1.87	-0.97	-1.96	-2.50	-2.84
-2	-1.23	-0.65	-1.15	-1.54	-1.88
-1	-0.87	-0.03	-0.31	-0.67	-0.90
0	0.00	0.00	0.00	0.00	0.00
1	1.07	-1.52	-1.23	-0.60	-0.46
2	1.89	-2.23	-1.24	-0.16	-0.35
3	2.88	-3.05	-1.38	-0.10	-0.17
4	3.47	-3.81	-2.01	-0.79	-0.35
5	3.86	-4.35	-2.13	-0.94	-0.49
6	4.45	-4.85	-2.32	-0.80	-0.40
7	5.42	-5.67	-2.42	-0.62	-0.25
8	5.99	-6.37	-2.00	-0.79	-0.38
9	7.08	-7.21	-2.68	-0.68	-0.13
10	7.47	-7.89	-2.94	-0.90	-0.43
11	8.21	-8.55	-3.24	-0.96	-0.34
12	9.01	-9.25	-1.60	-0.51	-0.24
13	9.85	-10.27	-4.00	-1.32	-0.42
14	10.76	-10.89	-1.37	-0.36	-0.14
15	11.18	-11.30	-1.40	-0.36	-0.13
16	12.04	-12.29	-1.63	-0.55	-0.25
17	12.69	-12.87	-1.50	-0.48	-0.18
18	13.64	-13.84	-1.86	-0.56	-0.20
19	14.36	-14.52	-1.75	-0.50	-0.16
20	14.94	-15.15	-1.92	-0.58	-0.21

VMI Directional Coupler (DC) Table								
Insertion Loss	0	4	6	8	11	14	17	
5 MHz:	NA	4.0	3.0	2.1	1.3	1.7	1.1	dB
54 MHz:	NA	3.3	2.9	1.2	0.8	.08	.06	dB
550 MHz:	NA	4.3	4.2	2.3	1.4	1.3	1.0	dB
750 MHz:	NA	4.8	4.5	2.7	1.7	1.7	1.1	dB
860 MHz:	NA	4.7	4.5	2.9	2.0	1.8	1.4	dB

Attenuator Values in dB
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

❍ Mounting

VMI's can be mounted several ways: on the strand, in a pedestal, and on a wall. Mounting brackets and enclosures supporting these various mounting schemes can be purchased directly from Blonder Tongue.

Shrouds and brackets are available for mounting up to 5 VMIU's (20 ports) in a wall mount enclosure, suitable for both indoor and outdoor use. They come in either a Vertical or Horizontal configuration. Bracket kits are available for 4, 8, 12, 16, and 20 port configurations. In addition, a wall mounting bracket is available to mount a single VMIU (VMIU-WB4).

❍ Ordering Information

Model	Stock No.	Description
VMIU-WB4	9381	VMIU Wall Mounting Bracket
VMIU-SBV16-4	9366 4V	VMIU Shroud Bracket 16 Port, Vertical (Holds 3 or 4 VMIU's)
VMIU-SBV08-2	9368 2V	VMIU Shroud Bracket 8 Port (Holds 1 or 2 VMIU's)
VMIU-SBH20-5	9362 5H	VMIU Shroud Bracket 20 Port, Horizontal (Holds 4 or 5 VMIU's)
VMIU-SBH16-4	9366 4H	VMIU Shroud Bracket 16 Port, Horizontal (Holds 3 or 4 VMIU's)