

# Subscriber Module Interdiction

SMI



## ○ Features & Benefits

- Like All Interdiction Products- Addressable Tap Plus Individual Channel Control
- Subscriber Modules Jamming Dedicated to Each Subscriber (120 - 550 MHz)- Flexible Population of Subscriber Ports.
- Independent Forward and Return Path Control to Manage Ingress
- Bandwidth: 5-40 MHz Return, 51-750 MHz Forward Path
- 37-90 VAC powering, Optional power passing capability to subscriber port for customer premise equipment

The SMIU design is based upon a subscriber module that contains the oscillators that are dedicated to a specific subscriber. It is ideal for lower density, suburban applications.

The SMIU subscriber module contains 5 oscillators that can secure channels over bandwidths within 120 to 550 MHz and jam up to 80 channels simultaneously to protect extended basic or premium channels. It also has the capability to individually control forward and return paths for subscriber connect/disconnect as well as ingress control.

The units are available in 4 or 8 port configurations either in strand or pedestal mount. They have a forward path bandwidth of 51-750 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 (SMI-DCx) and Equalizer (SMI-CEQx). The subscriber modules plug into the motherboard.

# Subscriber Module Interdiction

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## ○ Specifications

### General

Frequency Range  
 Forward Path: 51 to 750 MHz  
 Reverse Path: 5 to 40 MHz  
 Insertion Loss: See Tables Below  
 Transient Protection: Argon Gas Discharge Tubes  
 Regulatory:  
 Complies with FCC  
 Rules & Regulations, Part 76

### Electrical

#### Minimum Feeder Input Levels

	51 MHz	550 MHz	750 MHz
4-Port	17.0 dBmV	23.0 dBmV	25.0 dBmV
8-Port	20.5 dBmV	26.5 dBmV	28.5 dBmV

#### Motherboard Input Levels

Optimal	51 MHz	550 MHz	750 MHz
4-Port	15.5 dBmV	21.5 dBmV	23.5 dBmV
8-Port	19.0 dBmV	25.0 dBmV	27.0 dBmV

#### Minimal

4-Port	11.0 dBmV	17.0 dBmV	19.0 dBmV
8-Port	14.5 dBmV	20.5 dBmV	22.5 dBmV

#### Forward Path Tap Loss

4-Port (Full AGC):  
 5.5 dB + DC Port Loss + EQ Loss  
 8-Port (Full AGC):  
 9.0 dB + DC Port Loss + EQ Loss  
 4-Port (No AGC):  
 1.0 dB + DC Port Loss + EQ Loss  
 8-Port (No AGC):  
 4.5 dB + DC Port Loss + EQ Loss

#### Reverse Path Tap Loss

4-Port: 10.5 dB + DC Port Loss  
 8-Port: 14.0 dB + DC Port Loss

#### Subscriber Port Output Level

@ 750 MHz: 18.0 dBmV ±0.5 dB  
 @ 550 MHz: 16.0 dBmV ±0.5 dB  
 @ 51 MHz: 10.0 dBmV ±0.5 dB

#### Feeder Input and Output Return Loss

5 to 7 MHz: > 9 dB  
 7 to 40 MHz: > 13 dB  
 51 to 550 MHz: > 16 dB  
 550 to 750 MHz: > 14 dB

#### Spurious Output:

-60 with Respect dB to  
 Nominal Video Level

#### Port-to-Port Isolation

51 to 550 MHz: > 60 dB  
 550 to 750 MHz: > 40 dB

#### Carrier-To-Noise: 55 dB

Hum Modulation  
 5 to 450 MHz: -65 dBc  
 450 to 750 MHz: -61 dBc

#### Subscriber Disconnect: Static or Dynamic

	550 MHz (77 Channels)	750 MHz (110 Channels)
CTB	< -75 dBc	< -68 dBc
XMOD	< -66 dBc	< -59 dBc
CSO	< -58 dBc	< -55 dBc

### Jamming

#### Voltage Controlled Oscillator

Frequency Range  
 VCO 1: 120.0 - 169.5 MHz (ch. 14-22)  
 VCO 2: 210.0 - 283.5 MHz (ch. 13, 23-34)  
 VCO 3: 288.0 - 365.5 MHz (ch. 35-47)  
 VCO 4: 366.0 - 457.5 MHz (ch. 48-63)  
 VCO 5: 458.0 - 547.5 MHz (ch. 64-78)

#### Slots

Per VCO: 16  
 Per Module: 80

### Power

#### Cable Power Input Voltage:

37 to 90 VAC

#### Maximum Feeder Current: 15 A

#### Power Passing to Port (Optional): 250 mA

#### Power Passing to Unused Feeder Port:

4-port: 1 A  
 8-port: 2 A

#### Power Consumption:

See 4-port & 8-port  
 Power Consumption Tables

### Mechanical

Housing: Die-cast Aluminum (alloy 360)

#### Dimensions

4-port: 15.0 L x 7.5 W x 7.75 H in.  
 8-port: 15.5 L x 12.25 W x 7.75 H in.

#### 4-Port Weight

Housing Only: 8.5 lbs  
 Subscriber Module: 1.0 lb.  
 Fully Loaded: 12.5 lbs

#### 8-Port Weight

Housing Only: 14.0 lbs  
 Subscriber Module: 1.0 lb.  
 Fully Loaded: 22.0 lbs

#### Strand Clamp:

Accepts 1/4 in. to 5/16 in.  
 Diameter Cable

### Addressable Receiver

Carrier Frequency: 108.2 MHz Standard

### Environmental

Ambient Temperature Range: -40 to 60 °C

Humidity: 5 to 100 %

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# Subscriber Module Interdiction - Accessories

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Each SMIU consists of a die cast housing equipped with a power supply, seizure board, motherboard and combiner. The directional coupler and equalizer plug into the seizure board:

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

**Directional Coupler** - directs a portion of the RF signal to the SMI motherboard and other components.

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

**Motherboard** - provides the AGC and interface for the subscriber modules and data receiver. It also contains a microprocessor that stores the subscriber port addresses and service levels in non-volatile memory. This allows a subscriber module to be moved from one slot or housing to another without any database change.

**Subscriber Modules** - dedicated on a per-subscriber basis that contain the jamming electronics and the forward and reverse connect/disconnect circuitry. Additionally, each module has a power passing jumper slot. When installed in a power passing housing with an optional jumper, the subscriber module passes power to the home.

### 750 MHz DC Insertion Loss and DC Coupled Port Loss Tables

Tap Loss DC Value	Stock #	DC Feeder (through) Insertion Loss					Tap Loss DC Value	Stock #	DC Coupled Port Loss*				
		Reverse Path		Forward Path					Reverse Path		Forward Path		
		5 MHz	40 MHz	51 MHz	550 MHz	750 MHz			5 MHz	40 MHz	51 MHz	550 MHz	750 MHz
0.0	291659	Terminating		Terminating			0.0	291659	0.3	0.8	0.7	0.7	0.7
1.0	291611	Terminating		Terminating			1.0	291611	0.8	1.3	1.7	1.7	1.7
2.0	378224	Terminating		Terminating			2.0	378224	1.8	2.3	2.7	2.7	2.7
3.0	378225	Terminating		Terminating			3.0	378225	2.8	3.3	3.7	3.7	3.7
4.0	562958	2.5	2.5	3.5	3.9	4.2	4.0	562958	8.2	6.1	5.4	5.2	5.3
5.0	562959	2.4	2.4	3.5	3.9	4.2	5.0	562959	8.8	7.0	6.3	6.4	6.7
6.0	562960	2.3	1.8	2.1	2.4	2.7	6.0	562960	6.7	7.5	7.0	7.4	9.8
7.5	562961	2.3	1.8	2.1	2.5	2.7	7.5	562961	7.7	8.4	8.0	8.3	10.6
9.0	562962	2.1	1.4	1.4	2.1	2.4	9.0	562962	9.5	10.5	10.2	9.3	9.4
10.5	562963	2.1	1.4	1.4	2.1	2.4	10.5	562963	0.4	11.3	11.1	10.0	9.9
12.0	562964	1.4	1.0	0.8	1.3	1.7	12.0	562964	12.0	12.8	12.7	11.1	11.6
13.5	562965	1.4	1.0	0.8	1.3	1.7	13.5	562965	13.5	14.3	14.2	12.3	12.2
15.0	562966	1.2	0.8	0.8	1.3	1.7	15.0	562966	15.0	15.7	15.6	13.3	13.4
16.5	562967	1.2	0.8	0.7	1.1	1.4	16.5	562967	16.4	17.1	17.0	14.8	14.6
18.0	562968	1.3	0.8	0.7	1.1	1.4	18.0	562968	17.8	18.4	18.4	15.1	14.3
19.5	562969	1.3	0.8	0.7	1.1	1.4	19.5	562969	19.6	20.2	20.2	16.4	15.6
21.0	562970	1.3	0.8	0.7	1.1	1.4	21.0	562970	20.9	21.4	21.4	17.1	15.9
22.5	562971	1.3	0.8	0.7	1.1	1.4	22.5	562971	22.3	22.9	22.9	18.3	16.9
24.0	562972	1.3	0.8	0.7	1.1	1.4	24.0	562972	23.9	24.5	24.5	19.5	17.8
25.5	562973	1.3	0.8	0.7	1.1	1.4	25.5	562973	25.5	26.1	26.2	21.5	20.3
27.0	562974	1.3	0.8	0.7	1.1	1.4	27.0	562974	26.8	27.4	27.4	22.1	20.5
28.5	562975	1.3	0.8	0.7	1.1	1.4	28.5	562975	28.3	28.8	29.0	22.8	20.4
30.0	562976	1.3	0.8	0.7	1.1	1.4	30.0	562976	29.8	30.3	30.5	23.4	20.5
31.5	562977	1.3	0.8	0.7	1.1	1.4	31.5	562977	30.9	31.3	31.6	23.7	20.4

\* All forward and reverse DC coupled port losses include the additional loss of the diplex filter.

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# Subscriber Module Interdiction

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**750 MHz EQ Insertion Loss Table**

EQ Value	Stock #	51 MHz	550 MHz	750 MHz
-9.0	562996	2.7	9.1	10.4
-7.5	562995	1.9	7.5	8.5
-6.0	562994	1.4	5.9	6.2
-4.5	562993	1.6	4.4	4.8
-3.0	562992	0.1	2.7	3.0
-1.5	562991	0.1	1.3	1.5
0.0	566057	0.1	0.1	0.2
1.5	562978	1.9	1.2	0.9
3.0	562979	2.9	1.3	0.8
4.5	562980	4.1	1.5	0.8
6.0	562981	5.4	1.8	0.9
7.5	562982	6.5	1.9	0.7
9.0	562983	7.5	2.1	0.7
10.5	562984	8.8	2.5	0.9
12.0	562985	10.0	2.9	1.0
13.5	562986	11.4	3.4	1.3
15.0	562987	12.2	3.3	0.9
16.5	562988	13.6	3.8	1.0
18.0	562989	14.7	3.8	0.8
19.5	562990	15.6	4.0	0.9

**4-Port Power Consumption**

Volts	Housing Only		w/2 Module		w/4 Modules	
	Current	Watts	Current	Watts	Current	Watts
35.00	0.09	2.35	0.26	7.74	0.50	14.74
40.00	0.08	2.45	0.23	7.85	0.43	14.25
45.00	0.08	2.56	0.20	7.95	0.37	13.76
50.00	0.07	2.64	0.19	7.99	0.33	13.60
55.00	0.07	2.73	0.18	8.02	0.30	13.44
60.00	0.07	2.88	0.17	8.04	0.28	13.30
65.00	0.06	3.04	0.16	8.06	0.26	13.17
70.00	0.06	3.04	0.15	8.25	0.24	13.43
75.00	0.06	3.04	0.15	8.44	0.23	13.69
80.00	0.07	3.15	0.14	8.52	0.22	13.81
85.00	0.07	3.25	0.14	8.61	0.21	13.94
90.00	0.07	3.36	0.13	8.69	0.21	14.07

**4-Port Power Consumption**

Volts	Housing Only		w/2 Module		w/4 Modules	
	Current	Watts	Current	Watts	Current	Watts
35.00	0.18	5.25	0.36	10.33	0.57	16.74
40.00	0.17	5.20	0.32	10.36	0.50	16.24
45.00	0.15	5.15	0.28	10.40	0.43	15.75
50.00	0.14	5.27	0.26	10.50	0.50	18.80
55.00	0.13	5.40	0.25	10.61	0.36	15.65
60.00	0.13	5.48	0.23	10.71	0.34	15.77
65.00	0.13	5.57	0.22	10.82	0.32	15.90
70.00	0.13	5.85	0.22	11.08	0.30	16.03
75.00	0.13	6.13	0.21	11.34	0.29	16.17
80.00	0.13	6.44	0.21	11.66	0.28	16.31
85.00	0.13	6.76	0.21	11.98	0.26	16.45
90.00	0.13	7.08	0.20	12.31	0.25	16.59

Volts	w/6 Modules		w/8 Modules	
	Current	Watts	Current	Watts
35.00	0.80	22.58	0.97	28.81
40.00	0.71	22.39	0.84	27.96
45.00	0.62	22.20	0.71	27.11
50.00	0.57	22.02	0.65	26.84
55.00	0.52	21.84	0.59	26.57
60.00	0.48	21.68	0.55	26.81
65.00	0.45	21.53	0.51	27.05
70.00	0.44	21.70	0.49	27.02
75.00	0.43	21.88	0.47	26.99
80.00	0.41	22.09	0.45	27.21
85.00	0.39	22.30	0.44	27.43
90.00	0.37	22.51	0.43	27.66

\*Measurements are adjusted to compensate for changes over temperature.

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# Subscriber Module Interdiction - Accessories

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## Ordering Information

### Housings

Model	Stock No.	Description
SMI-H4BP2-75	565378	SMI 4 Port Housing Bottom, Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H4PN2-75	565339	SMI 4 Port Pedestal Mounted Housing, No Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H4PP2-75	564783	SMI 4 Port Pedestal Mounted Housing, Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H4PTO-70	565371	SMI 4 Port Pedestal Mounted Housing Top w/Empty Bottom Passes 750 MHz
SMI-H4PTU-70	565361	SMI 4 Port Pedestal Mounted Top for Upgrading Passes 750 MHz
SMI-H4SN2-75	565340	SMI 4 Port Strand Mounted Housing, No Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H4SP2-75	564785	SMI 4 Port Strand Mounted Housing, Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H4STO-70	565372	SMI 4 Port Strand Mounted Housing Top w/ Empty Bottom Passes 750 MHz
SMI-H4STU-70	565362	SMI 4 Port Strand Mounted Top for Upgrading Passes 750 MHz
SMI-H8BP2-75	565379	SMI 8 Port Housing Bottom, Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H8PN2-75	565337	SMI 8 Port Pedestal Mounted Housing, No Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H8PP2-75	564769	SMI 8 Port Pedestal Mounted Housing, Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H8PTO-70	565373	SMI 8 Port Pedestal Mounted Housing Top w/ Empty Bottom Passes 750 MHz
SMI-H8PTU-70	565363	SMI 8 Port Pedestal Mounted Top for Upgrading Passes 750 MHz
SMI-H8SN2-75	565338	SMI 8 Port Strand Mounted Housing, No Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H8SP2-75	564771	SMI 8 Port Strand Mounted Housing, Power Passing Passes 750 MHz, Jams 550 MHz, 108.2 MHz Data Carrier Freq
SMI-H8STO-70	565374	SMI 8 Port Strand Mounted Housing Top w/ Empty Bottom Passes 750 MHz
SMI-H8STU-70	565364	SMI 8 Port Strand Mounted Top for Upgrading Passes 750 MHz

### Subscriber Module

Model	Stock No.	Description
SMI-SM4OP-75	564265	Subscriber Module750P/550J, 5-40 MHz Reverse, Opt. Power Pass

### Accessories

Equalizer - See Accessories Page  
 SMI-CEQX-XX  
 SMI-IEQX-XX  
 Directional Coupler- See Accessories Page  
 SMI-DCX-XX

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