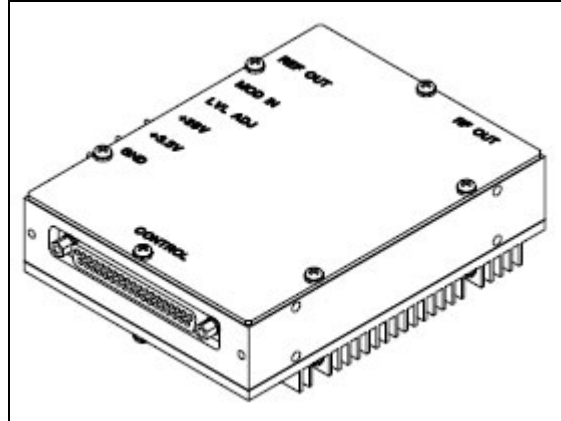# Sintec Optronics

AOM Driver (RF Driver) 64020-250-1ADMDFS-A

A digital frequency synthesizer OEM module with analog and digital modulation input and a 1 Watt RF output. The unit can be used to generate a frequency chirp. When specified as R64020-250-1ADMDFS-A, the unit delivered will be manufactured to be compliant with EU Directive 2002/95/EC for reduction of hazardous substance.

PARAMETER	SPECIFICATION
Bandwidth:	20 – 250 MHz typical
Clock Frequency:	1000 MHz
Step Size:	< 1 Hz with 30 Bits input
Frequency Settling Time:	310 ns Maximum
Power Out:	1 watts typical
Harmonic Distortion:	2nd:-20 dBc Maximum; 3rd: -15 dBc Maximum
Analog Modulation:	0 to +1 volt Analog into 50 ohm, +1volt = Full RF power output.
Digital Modulation:	1) TTL levels; 2) TTL Active High = Full RF output power; 3) TTL Active Low = Minimum RF output power; 4) No Signal = Full RF output power (pulled high internally)
Rise and Fall Time:	20 ns
Extinction Ratio: Digital:	30 dB Minimum
Analog:	40 dB Minimum
Reference Out:	A reference signal from the un-modulated output of the synthesizer. +0 dBm nominal
Applied Power:	+ 28 volts DC @ 1 amp Maximum + 3.3 volts DC @ 1 amp Maximum
MAXIMUM RATINGS:	
Ambient Temperature:	400 C
RF Output:	No DC Feedback
INPUT / OUTPUT CONNECTIONS:	
+28v, +3.3V, and Gnd	Filtered Feedthru
Mod In	SMC Male
Reference Out	SMC Male
RF Output	SMA Female
"FREQUENCY SELECT" Control	TTL 30 bit binary word, Digital Modulation Input, Reset, and a Latch control input through the 37 pin D sub connector.
Dimension	140x109x40.6mm
Outline Drawing	53D3887

CONTROL WORD CALCULATIONS

The output frequency and step size is a function of the clock rate and the FREQUENCY SELECT (FS) data. The output frequency can be calculated from the formula:

$FS_{[29:0]} = F_{out} (2^{31}) / 1000$ MHz

Where F_{out} is output frequency in MHz

The LATCH function (pin 16) is a TTL compatible input which is used to load new frequency information into the driver. Frequency data is loaded into the driver when the signal on the LATCH pin goes from HIGH to LOW (falling edge).
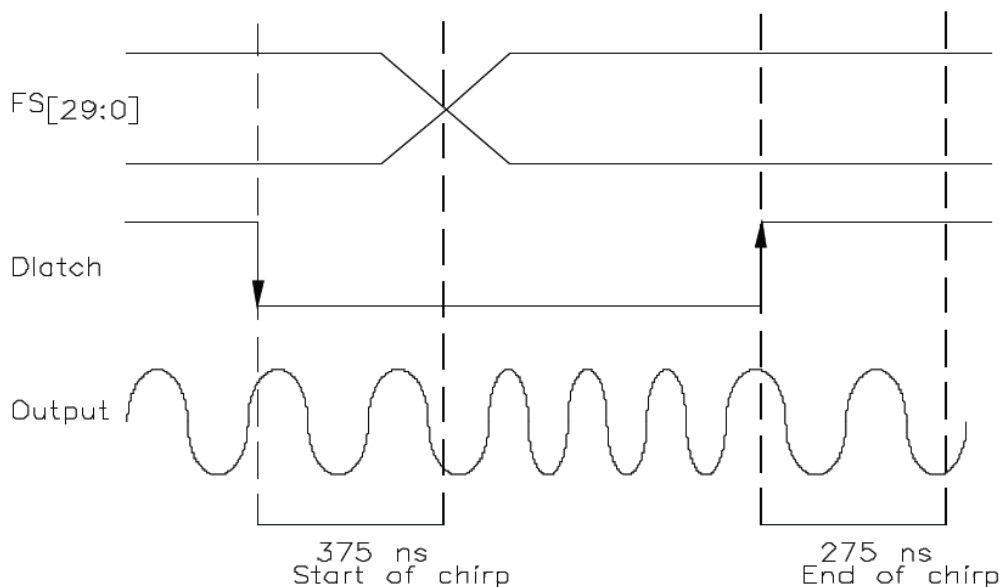
The DELTA FREQUENCY LATCH function (pin 36) is a TTL compatible input which is used to load new data frequency information into the driver. For Delta frequency word, the same calculation is used as the output frequency with negative values being entered in twos complement data is loaded on the falling edge.

Master RESET is a TTL active HIGH and resets the accumulator to zero, ie, no frequency output, when a TTL HIGH is applied to pin 17. This is pulled LOW via. a 1 K resistor.
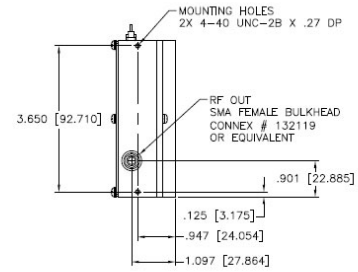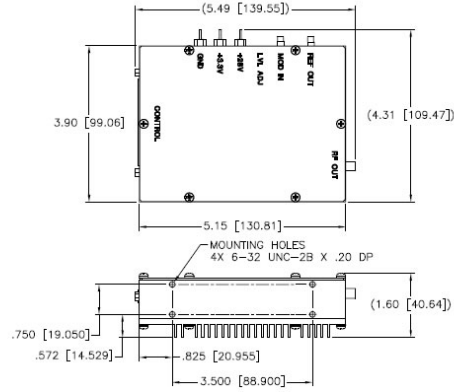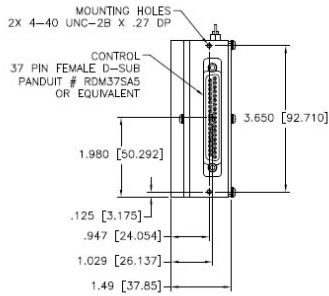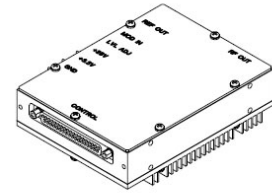
To generate a single frequency, apply the binary frequency word to the FS input,
A falling edge on the LATCH input will then load the data and change the frequency.

FS[29:0]

Latch

Output

310 ns
Frequency stable
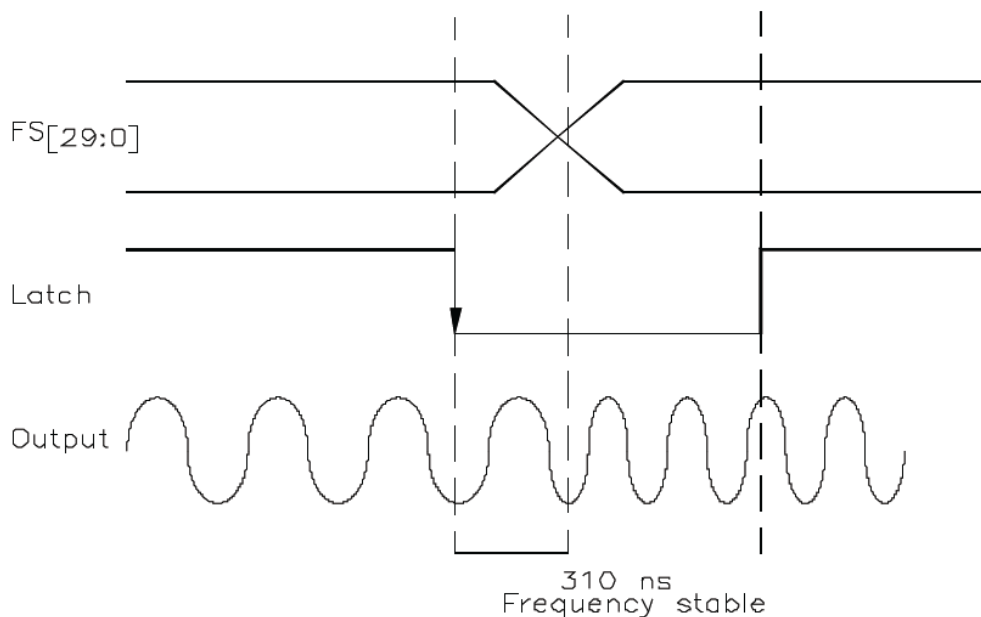
To generate a ferquency chirp, set the starting frequency as above and then apply the delta word to the FS input. A falling edge on DLATCH will then load the delta frequency word and initiate the chrip. The chirp will stop and output will return to to starting value or a rising edge.

FS[29:0]

Dlatch

Output

375 ns   275 ns
Start of chirp   End of chirp

Sintec Optronics

4.277 [108.636]
3.524 [89.510]
3.024 [76.810]
2.524 [64.110]
2.024 [51.410]
1.524 [38.710]
1.110 [28.194]
1.000 [25.400]

GND FEEDTHRU
+3.3V FEEDTHRU
+28V FEEDTHRU
LEVEL ADJUST POT

REF OUT
SMC MALE BULKHEAD
AEP # 1003-1551-003
OR EQUIVALENT

MOD IN
SMC MALE BULKHEAD
M/A-COM # 5056-0000-09
OR EQUIVALENT

MOUNTING HOLES
2X 4-40 UNC-2B X .27 DP

CONTROL
37 PIN FEMALE D-SUB
PANDUIT # RDM37SA5
OR EQUIVALENT

3.650 [92.710]
1.980 [50.292]
.125 [3.175]
.947 [24.054]
1.029 [26.137]
1.49 [37.85]

(5.49 [139.55])
GND +3.3V +28V LVL ADJ MOD IN REF OUT
CONTROL
3.90 [99.06]
(4.31 [109.47])
RF OUT
5.15 [130.81]

MOUNTING HOLES
4X 6-32 UNC-2B X .20 DP

(1.60 [40.64])
.750 [19.050]
.572 [14.529]
.825 [20.955]
3.500 [88.900]

MOUNTING HOLES
2X 4-40 UNC-2B X .27 DP

RF OUT
SMA FEMALE BULKHEAD
CONNEX # 132119
OR EQUIVALENT

3.650 [92.710]
.901 [22.885]
.125 [3.175]
.947 [24.054]
1.097 [27.864]