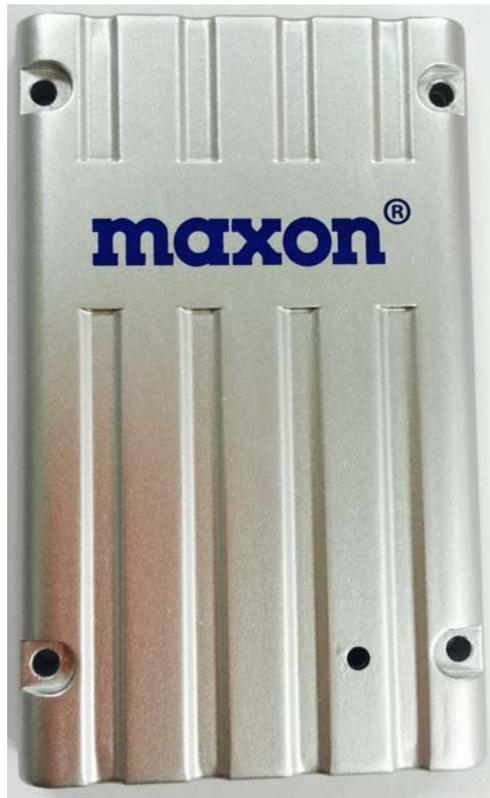




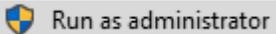
## SD-270 Series Programming Manual

### ACC-270N Programming Software



REV. 1

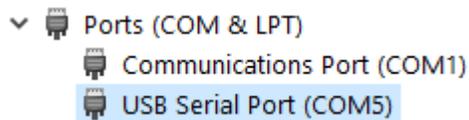
## 1-1 Program Installation

Insert the CD into the computer and run the  SD-270 Series Programmer Installer.exe by double clicking on the icon. Note: on some operating systems it may be necessary to run the program as Administrator. To do this right click on the Installer and select .

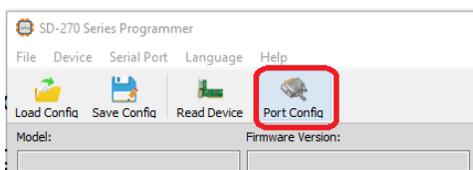
Follow the on-screen instructions to install the programmer. A shortcut icon will appear  on your desktop that can be cut and pasted into your programming software folder. Double-click the icon to run the program.

## 1-2 Selecting the Communication Port

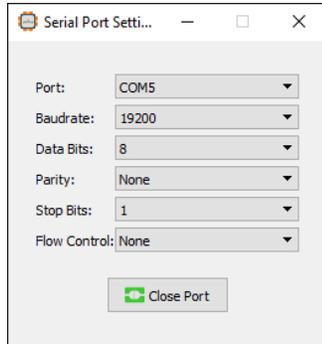
Plug the ACC-2016E programming cable into an available USB port. Go to the Device Manager on the computer and open Ports. In this example it is COM5.



On the programmer, open up the port by selecting the button shown.

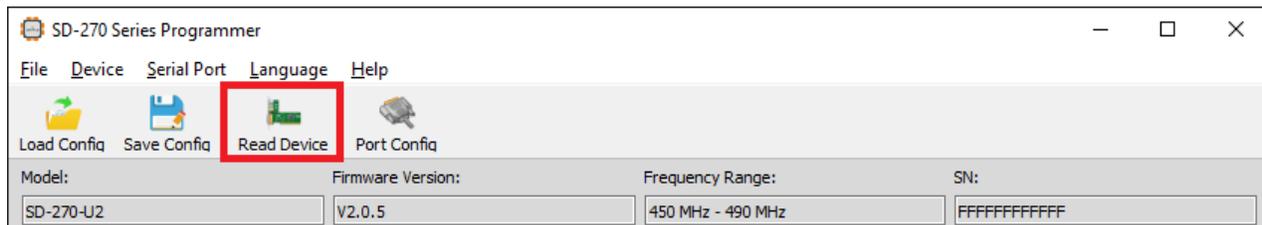


From the drop down menus select the correct port number (in this case it is COM5), the Baud Rate of 19,200, 8 Data Bits, no Parity, 1 Stop Bit and no Flow Control. Next click on Open Port. The button will turn green indicating the port is open and ready. Use the “X” to close the window.

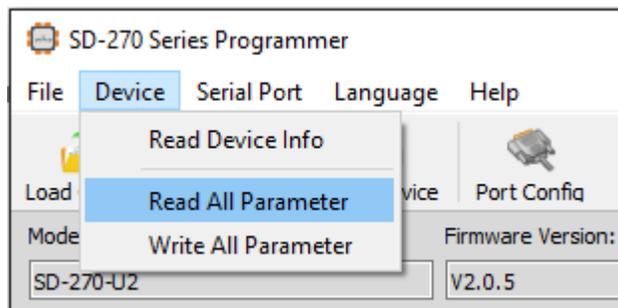


### Reading device information

Connect the radio to the DB15 side of the programming cable. To read information about the radio click on Read Device. It displays the model, firmware version, frequency range and the serial number of the radio.



To read the entire contents of the radio such as the frequencies and options, go to Device then Read All Parameter.



### Feature description

After reading all of the parameters, the following will be displayed.

SD-270 Series Programmer

File Device Serial Port Language Help

Load Config Save Config Read Device Port Config

Model: SD-270-U2 Firmware Version: V2.0.5 Frequency Range: 450 MHz - 490 MHz SN: FFFFFFFFFF

User Parameter SD-270 Adjustment

CH	RX(MHz)	TX(MHz)	Power(W)	Bandwidth	SQ Level	CTCSS/DCS	Scan
1	450.12500	450.12500	5	Narrow	L2	Disable	ON
2	470.12500	470.12500	5	Narrow	L2	Disable	ON
3	489.12500	489.12500	5	Narrow	L2	Disable	ON
4	450.12500	450.12500	1	Narrow	L2	Disable	ON
5	450.12500	450.12500	2	Narrow	L2	67.0Hz	ON
6	450.12500	450.12500	3	Narrow	L2	146.2Hz	ON
7	450.12500	450.12500	4	Narrow	L2	250.3Hz	ON
8	450.12500	450.12500	5	Narrow	L2	023	ON
9	000.00000	000.00000					
10	000.00000	000.00000					
11	000.00000	000.00000					
12	000.00000	000.00000					
13	000.00000	000.00000					
14	000.00000	000.00000					
15	000.00000	000.00000					
16	000.00000	000.00000					

Read Set

Channel Control Mode  
 by DIP Switch Read  
 by Program Set

Channel  
 Save Change Read  
 Channel: 1 Set

Tx Protect  
 Tx Timeout: 27 s  
 Stop When Timeout: 1 s  
 Read Set

AUDIO\_OUT Output  
 Squarewave  Sinewave  
 Read Set

Sidetone  
 Enable  Disable  
 Read Set

Volume  
 7 (0 - 9)  
 Read Set

Power Save Mode  
 Enable  Disable  
 Read Set

Power Saving Time  
 Sleep: 0 x20 ms  
 Standby: 0 x40 ms  
 Read Set

Channel Scan  
 Mode: Mode 3  
 Read Set

Others  
 Stop Virtual Serial Port

SD-270 v1.3 Tx: 782 Rx: 596

### 1. CH RX and TX

In these columns enter the receive and transmit frequencies in MHz. Frequencies are based on 5kHz and 6.25kHz channel spacing.

### 2. Power

There are 5 power levels per channel. The number shown indicates the power out in Watts.

### 3. Bandwidth

Narrow or Wide band can be selected. It is not recommended to use Wide band in the United States.

4. SQ level

There are 5 squelch levels.

Level 0 is for fully open squelch

Level 1 : 0.15uV

Level 2 : 0.25uV

Level 3 : 0.35uV

Level 4 : 0.45uV

Level 5 : 0.55uV

5. CTCSS/DCS

User can encode/decode tones with CTCSS and DCS according to Table 1. It is only available when the microphone (pin 7) and speaker (pin 9) are used.

CTCSS	Freq.								
0	67.0 HZ	10	94.8 HZ	20	131.8HZ	30	186.2HZ	40	64.7 HZ
1	69.3 HZ	11	97.4 HZ	21	136.5HZ	31	192.8HZ	41	159.8HZ
2	71.9 HZ	12	100.0HZ	22	141.3HZ	32	203.5HZ	42	183.5HZ
3	74.4 HZ	13	103.5HZ	23	146.2HZ	33	210.7HZ	43	189.9HZ
4	77.0 HZ	14	107.2HZ	24	151.4HZ	34	218.1HZ	44	196.6HZ
5	79.7 HZ	15	110.9HZ	25	156.7HZ	35	225.7HZ	45	199.5HZ
6	82.5 HZ	16	114.8HZ	26	162.2HZ	36	233.6HZ	46	206.5HZ
7	85.4 HZ	17	118.8HZ	27	167.9HZ	37	241.8HZ	47	229.1HZ
8	88.5 HZ	18	123.0HZ	28	173.8HZ	38	250.3HZ		
9	91.5 HZ	19	127.3HZ	29	179.9HZ	39	62.5 HZ		
DCS	Code								
128	023	150	152	172	343	194	606	216	225
129	025	151	155	173	346	195	612	217	246
130	026	152	156	174	351	196	624	218	252
131	031	153	162	175	364	197	627	219	255
132	032	154	165	176	365	198	631	220	266
133	043	155	172	177	371	199	632	221	274
134	047	156	174	178	411	200	654	222	325
135	051	157	205	179	412	201	662	223	332
136	054	158	223	180	413	202	664	224	356

137	065	159	226	181	423	203	703	225	446
138	071	160	243	182	431	204	712	226	452
139	072	161	244	183	432	205	723	227	454
140	073	162	245	184	445	206	731	228	445
141	074	163	251	185	464	207	732	229	462
142	114	164	261	186	465	208	734	230	523
143	115	165	263	187	466	209	743	231	526
144	116	166	265	188	503	210	754		
145	125	167	271	189	506	211	36		
146	131	168	306	190	516	212	53		
147	132	169	311	191	532	213	122		
148	134	170	315	192	546	214	145		
149	143	171	331	193	565	215	212		

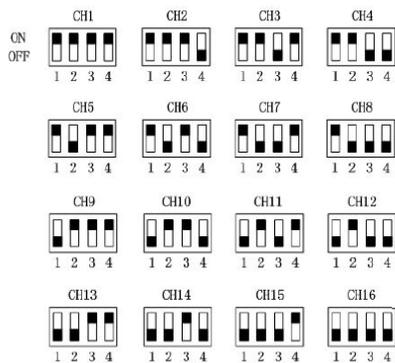
Table 1 CTCSS Frequency band and CDCSS code

6. Scan

Can add or remove the channel from the scan list.

7. Channel Control Mode

The channel can be changed by the internal DIP switches or by a serial command inputted from the computer. Below shows the DIP switch selection for channels 1 ~ 16. If controlled by software, select "by Program" and select the channel number on the right.



8. TX Protect

This feature when enabled limits the amount of time the user can continuously transmit. The time can be set from 1 second to 60 seconds. When timeout is reached, PTT can't be inia

ted until the wait timer expires.

#### 9. Carrier detect Busy signal

This feature is to set active level of BUSY Pin, high or low. The status is transferred to user for the connection with external devices.

#### 10. De-emphasis Volume

FC-302 radio output voice via SPK Pin with 9 levels volume. User are able to select appropriate volume for the connected external speaker in this feature.

#### 11. Channel scan

This feature allow user to decide scan mode and establish channel scan sequence. 4 scan modes are provided in "Option" and shown as below

- 0 -----normal scan with carry only
- 1 -----normal scan, carry with tone
- 2 -----priority scan, carry only
- 3 -----priority scan, carry with tone

The scan sequence is established by "CH". User decides initial scan channel in "CH" from CH1 to CH16. If normal scan is enabled, radio will scan from initial channel to channel 16 sequentially. If priority scan is enabled, radio will scan the prioritized channel every other time. Prioritized channel is the working channel before the scan. For example, if prioritized channel is CH10 and initial channel is CH8, then the scan sequence is CH8, CH10, CH9, CH10, CH10, CH10, CH11, CH10.....CH16, CH10.

**When user enable the channel scan by "SWITCH" function**, radio will start to detect channels and stay on each channel for at least 100ms according to the established scan sequence. If a signal or conversation is detected on any channels in scan list, the radio will stop on that channel and you will monitor the signal or hear the conversation. When the signal or conversation is ceased, the radio continues to scan.

#### 12. SWITCH

SWITCH PIN is reserved for our technician or dealer to configure functions according to user's requ

irements. Initial value is 0 and 1. 0 means “SWITCH” feature is disable and 1 means switch pin is configured as enable switch for Channel scan. 2~255 is reserved.

### 13. RSSI

Read frame:

To detect the air signal strength ;

Unit : dBuv ;

### 14. Bandwidth

User can decide the channel spacing in this feature with optional 12.5KHz (Narrow) or 25KHz(Wide) channel spacing.

### 15. Sidetone

When enabled, user can hear his own voice while transmitting voice. The sidetone volume is fixed at level 2 de-emphasis volume.

### 16. Audio-out

Output wave for Audio-out can be selected as square wave or sin wave..

### 17. Power Save Mode

Here, you can enable Power save mode or disable. When enabled, radio will automatically switch between Sleep and Standby to lower power consumption. The time of Sleep and Standby can be set in “Power save time”.

However, for supporting fast attack time between TX and RX, the radio will keep in RX mode and the PLL keep working even in power save mode. Only the intermediate frequency circuit is off. So power save is limited.

### 18. Power save time

When Power save is enable, sleep time can be programmed from 20 to 500 ms in 20ms increment with 1~25 optional values. That means 1 equals to 20 ms, 2 equals to 40ms ..... 25 equal to 500ms

Standby time can also be programmed from 40 to 600 ms in 40ms increment with 1~15 optional values. That means 1 equals to 40ms, 2 equals to 80, ..... 15 equals to 600ms.

#### 19. Volts protection

User can set low voltage and high voltage for enable voltage protection. If the power supply of the radio is lower than low volts, the radio will stop working and only monitor the power supply. Once the power supply become higher than High volts, the radio can start to work again. The recommended Low volts is lower than 9V. The recommended High volts is 13.8V.