

3.18 Sedecal.SHFR

This section explains about the integration between **VXvue** and the **Sedecal.SHFR** generator model.

Interlock Condition

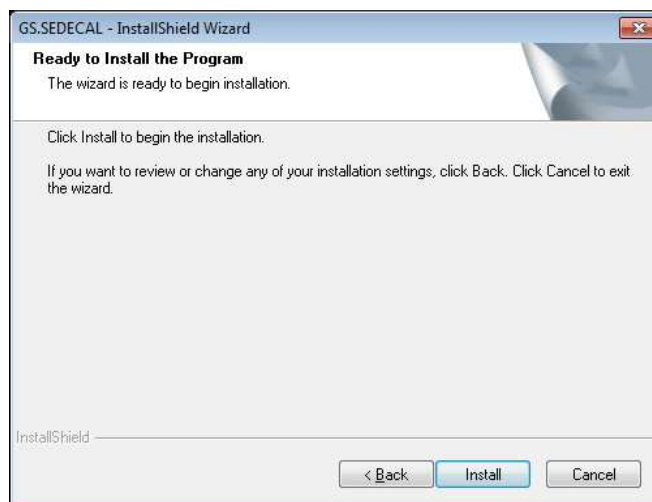
Complies with the communication standard of RS-232.

3.18.1 How to Install GS

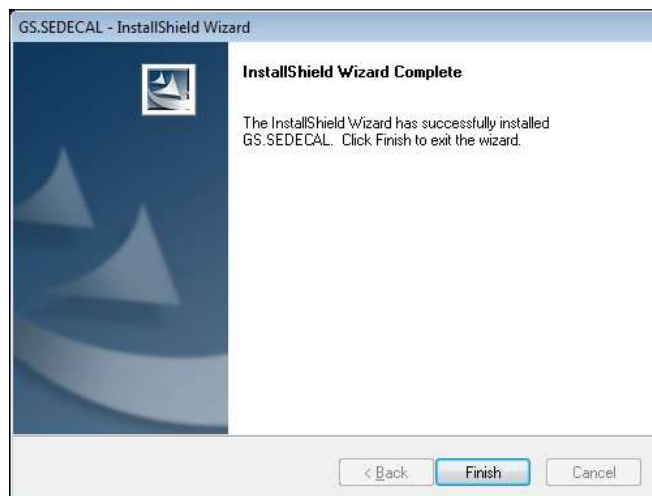


- To use **Sedecal.SHFR** generator, you must install **GS.SEDECAL.Setup.exe** separately. If you need the installation file, please contact a person in charge in Vieworks.

- 1 Install VXvue.
- 2 Run the GS.SEDECAL.Setup.exe file in administrator mode.
- 3 Click the Install button to start installation.



- 4 When the installation is complete, click the **Finish** button.

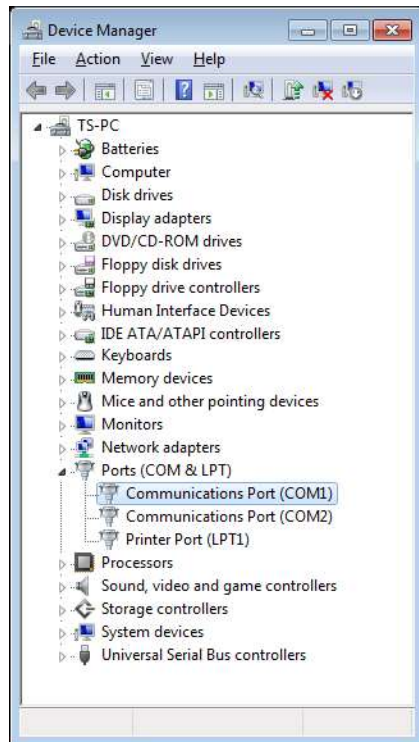


- 5 After the installation is complete, check that the GS.SEDECAL folder and sub files are installed normally in the following path.

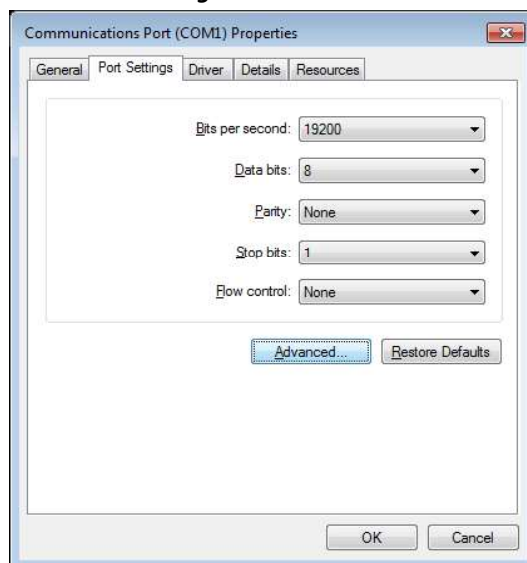
- C:\Program files\VXvue\GENERATOR\Protocol\GS.SEDECAL\

3.18.2 How to Set Port from PC

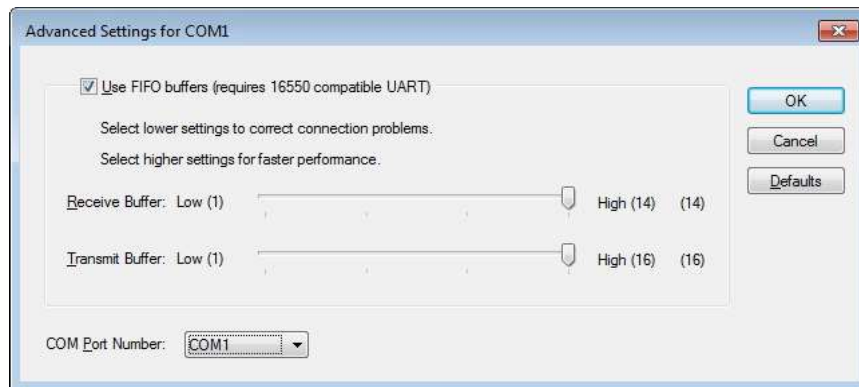
- 1 Run **Device Manager** by selecting one of the two steps as follows.
 - Control Panel → System and Security → Select System → Device Manager
 - Start → Input Device Manager to Windows Search
- 2 Select **Ports (COM & LPT)** and right-Click the **Communications Port** menu. Then choose **Properties**.



- 3 Click the **Port Settings** tab and set each menu as follows. Then click the **Advanced** tab.




- 4 Click the **OK** button after appointing **COM Port Number** to be used.



- Input or choose the configured COM port number when making settings about the generator in VXSetup.

3.18.3 How to Set Sedecal.SHFR Generator in VXSetup and VXvue

VXSetup

- 1 Run **VXSetup** and click the **Individual Setting** button.
- 2 Set each item of the Generator menu as follows.
 - Product: VGI
 - Port: COM port number configured from PC. (Refer to <3.18.2 How to Set Port from PC>)
- 3 Click  button and enter the path of GS.SEDECAL.exe (Generator Service) prepared in <3.18.1 How to Install GS>.
 - Ex.) C:\Program files\WVXvue\GENERATOR\Protocol\GS.SEDECAL\GS.SEDECAL.exe

- 4 Click the **Echo** button to check the connecting status.

VXSetup

☒ Individual Setting ☐ Total Setting

Detector
Setting

Equipment
Product : None

Battery
Product : None

Exposure Control
Product : None

Generator
Product : VGI
Generator Service Path : C:\Project\Wxvue\WCOMM
Port : 1
Echo

DAP
Product : None

Collimator
Product : None

Ok Cancel

- 5 Click the **OK** button to save the settings.



- Before you set items of generator in VXSetup, check if the generator is connected to the generator module box with a cable (RS-232c) normally.

VXvue



- The Sedecal.SHFR generator is integrated with VXvue via VGI.
- Refer to <3.1.1 Generator Interlock setting> for details on the generator's Integration method and Configuration file (xml).

- You can **substitute Receptor(Bucky) icon for** the Detector icon shown in the Exposure tab from **VXvue** to install Detector.



- For more detail on replacing the Receptor icon, refer to <3.1.2 How to Use Generator in VXvue>.

- **VXvue** has a feature that automatically selects the device mapped with the selected device by mapping Receptor(Bucky) and Detector installed in the Receptor.



- For more information on mapping Receptor and Detector, refer to <3.1.2 How to Use Generator in VXvue>.

3.18.4 How to Set Generator in Procedure Manager in VXvue

- Click the **Procedure Manager** button from Setting mode → Procedure → Procedure Manager panel in **VXvue**.
 ◻ Or, execute **Procedure Manager** located in the installation folder of **VXvue** directly.
- Choose Dose Mode / kVp / mAs / mA / ms / Density / AEC_L, AEC_R, AEC_C columns of items to be edited from the **Step** tab. Click the columns and choose the setting value related to the generator, which will be input automatically when you select a step from the **Exposure** mode of **VXvue**.

Name	Patient	Dose Mode	kVp	mAs	mA	ms	AEC Left	AEC Center	AEC Right	AEC Density
Abdomen Erect	Large	Current	50	1	100	10	N	N	N	0
Abdomen Erect	Medium	Current	50	1	100	10	N	N	N	0
Abdomen Erect	Small	Current	50	1	100	10	N	N	N	0
Abdomen Erect	Pediatric	Current	50	1	100	10	N	N	N	0
Abdomen KUB	Large	Current	50	1	100	10	N	N	N	0
Abdomen KUB	Medium	Current	50	1	100	10	N	N	N	0
Abdomen KUB	Small	Current	50	1	100	10	N	N	N	0
Abdomen KUB	Pediatric	Current	50	1	100	10	N	N	N	0
Abdomen Supine	Large	Current	50	1	100	10	N	N	N	0
Abdomen Supine	Medium	Current	50	1	100	10	N	N	N	0
Abdomen Supine	Small	Current	50	1	100	10	N	N	N	0
Abdomen Supine	Pediatric	Current	50	1	100	10	N	N	N	0



- If 'Generator' is selected among the buttons at the top of the Step tab, only the generator-related settings are displayed.
- You cannot set the value of a function which the generator is not supported.
- If you select a value other than Current in Dose Mode, it automatically switches to the Dose Mode that was set when Step was selected.

3.18.5 How to Use Sedecal.SHFR Generator in VXvue

The following UIs (User Interface) are displayed on the **Exposure** mode of **VXvue** after setting **VXSetup**. Click ▲ or ▼ button to adjust the X-ray condition.



- Check the following status if generator control UI is not indicated.
 - Check if the power of generator is turned on.
 - Check if the cable between the generator and PC is connected normally.
 - Check if the generator and PC are connected normally. (port, etc.)










- You can use the following functions:
 - Using AEC
 - Adjusting kVp and mAs
 - Switching to adjust mA and ms, instead of mAs.

Item	Image							
2 points	70	kVp	▲	▼	20	mAs	▲	▼
	200	mA	▲	▼	100	ms	▲	▼
3 points	70	kVp	▲	▼	20	mAs	▲	▼
	200	mA	▲	▼	100	ms	▲	▼
AEC	70	kVp	▲	▼	20	mAs	▲	▼
	200	mA	▲	▼	100	ms	▲	▼

Icons

The inactive icons are not supported when the viewer program is integrated with the **Sedecal.SHFR** generator.

Icon	Name	Description
	mAs	Enable to use 2 points mode to adjust kVp and mAs .
	mA/ms	Enable to use 3 points mode to adjust kVp , mA , ms .


	AEC	Enable to use AEC functions.
	AEC Field (Left / Center / Right)	<p>Select an AEC field to use.</p> <ul style="list-style-type: none"> • Default setting: Center • Enable to select multiple AEC fields.
	Density	Enable to adjust the density of AEC.
	Film / Screen	<p>Enable to set film and screen (sensitivity) of AEC.</p> <ul style="list-style-type: none"> • Slow, Normal, Fast
	Focal Spot Size (Small / Large)	Focal Spot Size is changed automatically depending on the mA setting of generator, or the user can change it manually.
	Heat Units (Anode)	<p>The color of icon changes according to the heat units.</p> <ul style="list-style-type: none"> • $0 < HU \leq 50$: Green • $50 < HU \leq 80$: Yellow • $80 < HU$: Red
	Reset	<p>The Reset icon is activated and an error message is indicated when a soluble error occurs by resetting the system. Click the icon at this time to start reset.</p>
	X-ray Status	<p>The icons and their color are changed depending on the status of generator.</p> <ul style="list-style-type: none"> • Ready (White) - Standby • Ready (Green) – Completing preparation of X-ray exposure after pressing the 1st level switch (Ready) of the generator. • Shot (Yellow) – Exposing X-ray by pressing the 2nd level switch (Exposure) of the generator.
	<ul style="list-style-type: none"> • Refer to VXvue Operation Manual and VXvue Service Manual for the detailed information about using VXvue. 	

Error Message

The general error and warning messages are indicated as slides.

- Red color : error / Yellow color : warning

3.18.6 Error and Warning Messages of Sedecal.SHFR Generator

	<ul style="list-style-type: none"> • Contact the manufacturer of generator if error or warning messages keep displaying even though you click the Reset button or reboot the generator.
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- Recoverable Error: The Reset button becomes activated. Click the button for troubleshooting.
- Unrecoverable Error: Shut down VXvue, fix the generator issue and reboot.

Error Message

Code	Error Message
1	BACKUP TIMER - I2C ERROR
2	WRONG WS CONFIGURATION ERROR
3	WS CONFIGURED ERROR
4	FLUORO ORDER ERROR
5	EXP ORDER ERROR
6	PREP ORDER ERROR
7	TUBE2 MODEL ERROR
8	TUBE1 MODEL ERROR
9	INVERTER ERROR (IGBT FAULT)
10	EEPROM CHECK ERROR
11	LOAD CAPACITOR ERROR
12	MA RANGE ERROR
13	KVP RANGE ERROR
14	KVP RAMP ERROR
15	LARGE FIL CURRENT RANGE ERROR
16	SMALL FIL CURRENT RANGE ERROR
18	ROTOR ERROR
19	MA WITHOUT EXP ERROR
20	KVP WITHOUT EXP ERROR
23	EEPROM ERROR
24	BUCKY / DIGITAL PANEL ERROR
25	LARGE FIL DEMAND ERROR
26	SMALL FIL DEMAND ERROR
27	KVP POTENTIOMETER - I2C ERROR
28	ABC POTENTIOMETER - I2C ERROR
30	CORRUPT RTC ERROR
31	TIME STAMP CHECK ERROR
32	RTC - I2C ERROR
33	COMMUNICATIONS ERROR (Comms lost at the Console)
34	TANK PRESOSTAT ERROR
35	BUCKY MOTION (XRAY ACK) ERROR
38	+5V POWER SUPPLY FAILURE
39	+15V POWER SUPPLY FAILURE
40	IMBALANCED KVP ERROR
41	IMBALANCED MA ERROR
42	CORRUPT COUNTERS ERROR

43	CORRUPT ERROR LOG ERROR
44	CORRUPT COUNTERS ERROR
45	CORRUPT TUBE DATA ERROR
46	BUSY BUS - I2C ERROR
47	LICENCE - I2C ERROR
48	DOOR ABORTED EXPOSURE
49	COMMUNICATIONS ERROR (Comms lost at the generator)
50	ABORTED EXPOSURE ERROR
51	WRONG EXPOSURE TIME ERROR
53	FLUORO SYNC ERROR
54	DIGITAL SYNC ERROR
55	NOT ENOUGH DOSE ERROR
56	NOT ENOUGH BACKUP TIME ERROR
57	DUAL ENERGY ERROR
58	TUBE1 DATA ERROR
59	TUBE2 DATA ERROR
60	AUTOCAL ERROR
61	LICENCE ERROR
62	AEC ERROR
63	ROTOR READY ERROR
64	TANK FEEDBACK ERROR
65	+24V DELAYED POWER SUPPLY FAILURE
66	+24V (UNR) POWER SUPPLY FAILURE
67	-15V POWER SUPPLY FAILURE
68	+3.3V POWER SUPPLY FAILURE
69	+24 PERMANENT (UNR) POWER SUPPLY FAILURE
70	AEC RAPID TERMINATION
71	INTERLOCK ERROR
72	POSITIONER OK ERROR
73	XON FEEDBACK ERROR
74	COP GENERATOR RESET ERROR
75	CLK GENERATOR RESET ERROR
76	TRAP GENERATOR RESET ERROR
77	SOFTWARE INTERRUPT GENERATOR RESET ERROR
78	MEMORY OVERFLOW INTERRUPT GENERATOR RESET ERROR
79	REQUIRED MA STATIONS CAL ERROR
91	HEARTBEAT ERROR (R2CP Protocol)
99	INCORRECT MESSAGE
101	NONE SPEED AVAILABLE
102	LOW SPEED UNAVAILABLE
103	HIGH SPEED UNAVAILABLE

104	DOSIMETER TUBE 1 NO ANSWER ERROR
105	DOSIMETER TUBE 1 TEST ERROR
106	DOSIMETER TUBE 1 STATUS ERROR
107	DOSIMETER TUBE 2 NO ANSWER ERROR
108	DOSIMETER TUBE 2 TEST ERROR
109	DOSIMETER TUBE 2 STATUS ERROR
125	ROM Test Error
126	Instructions Test Error
127	Internal RAM Test
128	External RAM Test
129	Initialization Error
130	CAN WATCHDOG
131	ADC TEST
132	BOOSTER CURRENT TEST
133	CAN CONTROLLER INITIALIZATION
134	MICROCONTROLLER POWER SUPPLY
136	+15V POWER SUPPLY
137	BOOSTER ERROR
138	Starter Inverter Error
139	Inverter Failure
140	Output Voltage
141	uController Watchdog
142	Input Current
143	Input Voltage
144	MAIN Current
145	AUX Current
146	Tube Code or Number
147	TUBE CONNECTION
148	TUBE DEFINITION
149	Booster disabled
150	Master Synchronism
151	Initial Test
152	Starter Test
153	Booster Overvoltage
154	Booster Overcurrent
155	Booster Shortcut
156	Rotor Between Measure
157	Timeout during Brake
158	Timeout Stop to HS
159	Timeout LS to HS
160	Timeout HS to LS

161	Timeout Stop to LS
162	Timeout HS to Stop
163	Timeout LS to Stop
164	Starter Test
165	-5V Power Supply
166	Booster Demand
168	1st Pulse PWM Warning
169	Linear PWM Warning
170	Command Rejected
171	Resources Error
172	Software Error
173	CAN Initialization
174	CAN STUFF (Wiring)
175	CAN FORM
176	CAN ACK
177	CAN BIT1
178	CAN BIT0
179	CAN CRC
180	CAN INIT ID
181	CAN BUS OFF
182	CAN EWARN
183	CAN Object out of range
184	CAN Object not used
185	CAN Object mismatch
186	CAN Buffer full
187	CAN Slave out of range
188	CAN Config Param
189	CAN FORM message
190	CAN Config Modif Obj 1
191	CAN Config Modif Obj 2
192	CAN Config Modif Obj 3
193	CAN Config Modif Obj 4
194	CAN Config Modif Obj 5
195	CAN Config Modif Obj 6
196	CAN Config Modif Obj 7
197	CAN Config Modif Obj 8
198	CAN Config Modif Obj 9
199	CAN Config Modif Obj 10
200	CAN Config Modif Obj 11
201	CAN Config Modif Obj 12
202	CAN Config Modif Obj 13

203	CAN Config Modif Obj 14
204	CAN Config Modif Obj 15
205	Timer: Null Function
206	Timers Errors : Timer 0
207	Timers Errors : Timer 1
209	Timers Errors : Timer 2
213	Timers Errors : PCA
221	Timer: SLY Functions
222	Timer: SLY Functions
238	STARTER NOT RESPONDING ERROR
239	STARTER OVERLOAD ERROR
240	STARTER TUBE INDEX ERROR

Warning Message

Code	Warning Message
1	Generator power limit
2	Tube power limit
3	Space charge limit
4	kVp range limit
5	mAs range limit
6	mA range limit
7	ms range limit
8	Focus change inhibit
9	Wrong APR Technique
10	Inverter load limit
12	Wrong APR workstation
13	PPS range limit
29	GENERATOR OVERHEAT ERROR
36	TUBE THERMOSTAT ERROR;
37	TUBE OVERLOAD ERROR