

Engineered Bus Door Systems

CLASS Diagnostic Software User Manual Revision 3.30 B

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CLASS Diagnostic Software

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I

Table of Contents

Part I	Definitions	1
Part II	Product ID	2
Part III	Toolbar Buttons	4
Part IV	Controls Window	5
Part V	Voice Annunciator	5
1	VA - Setup for CLASS	7
2	VA - Setup for Stand-Alone	9
3	VA - Setup for PLC Encoding	
4	VA - Message Play & Download	
5	VA - Wiring	14
Part VI	Reference - CLASS Wiring	15
1	Sensor Wiring	
2	CLASS 2 Main Connector (P1)	
3	CLASS 3 Main Connector (P1)	
	CLASS 3 Input Wiring	
4	Switch Connections	19
	Туре 14	19
	Туре 22	19
_	Туре СZ	
5	RJ45 to DB9F Adapter Wiring	
Part VII	Revisions	22

1 Definitions

- **DFO** (Door Fully Open) is determined by activation of a switch or sensor when the door reaches the fully open position.
- The Drunk Alarm mode is activated by a specific input (IN2 or /IN2).

When activated, if the door is both fully closed and is not enabled, the appropriate sensors will be activated for short bursts at recurring intervals.

Any targets seen at those times will be annunciated by means of a specific output (*OUT2 MSU* for CLASS 2, */DA-O* for CLASS 3)

The **Drunk Alarm** Mode activation will be temporarily ignored any time the door is not fully closed or is enabled - during that time normal operation of the sensors will take place.

- The *MSU* is the Middle Sensor Unit.
- **TARGET:** An object detected by CLASS' sensing system.

Fixed Target: a Target that is part of CLASS' "fixed" environment, i.e., always present. Fixed Targets may be permanently programmed by the installer or may be automatically determined by CLASS at turn-on

Acquired Target: a Target that is not "fixed"; typically a passenger.

TTO (Touch To Open) is an operational state of the CLASS controller. In the TTO state, the door has been unlocked or authorized (typically the Green Light is on) and CLASS is waiting for a target detection (or a signal from 5 degree switch that the door has been pushed open beyond its activation point). Upon either of those events, CLASS will issue a Door Open Request.

See No 5° Open for an exception to the above.

Normally, Panel Sensors are active in the TTO state; the MSU may also be activated depending on MSU TTO Mode

• The *Status Light* will be turned on when CLASS detects an error condition. (Note CLASS will continue to function.)

2 Product ID

Connected to CLASS 2 Controller:

CLASS 3 Mode	Voice Annunciator Mode

To initiate communication: Press the CLASS 2 Mode Button

Connected to CLASS 3 Controller:

CLASS Firmware Versio	on P3.29 50320052 07/21/06
CLASS 3 Mode	Voice Annunciator Mode
CLASS 2 Mode	OK

To initiate communication: If the Cancel/OK button says "OK", press it to continue. Otherwise, press the *CLASS 3 Mode* Button

3

Product ID	
Voice Board Firmware Ver	sion 0.32 50720091 07/20/0
CLASS 3 Mode CLASS 2 Mode	Voice Annunciator Mode

Connected to Voice Annunciator:

To initiate communication: If the Cancel/OK button says "OK", press it to continue. Otherwise, press the *Voice Annunciator Mode* Button



If, instead of connecting, the warning message is seen, it indicates that there is something in the computer running the CLASS Diagnostic that is preventing access to the COM (serial) port. This is usually caused by some other software program (such as a PDA or Blackberry interface) having "grabbed" the COM port. It is NOT a problem with the CLASS Diagnostic, and must be rectified by the user before the CLASS Diagnostic program can be used. Typically this is solved by closing the program using the port and restarting the CLASS Diagnostic.

4

3 **Toolbar Buttons**

OCLASS	Diagnostic Software	
Eile Edit		
		_
	New: Open a new window (use a new control)	
ID	ID: Get Product ID (CLASS 3 and Voice Annunciator)	
8	Help: Opens this help file	
10	Data Monitor: View periodic reports	
O	Text & Target Log: View target reports	
C2	CLASS 2 (50130193) Interface	
0101 0101	Serial Port Setup	
IO	Inputs & Outputs: View current states	
	Parameters: Set operating modes and parameters	
AP	Advanced Parameters: Set advanced modes and parameters	
8	Test Door Operation: Set inputs and outputs	
2	Scope Setup: Set test mode & control sensors	
	BIT: See results of Built-In-Test	
ES	ES (EEPROM Status): Verifies if parameters are within range	
SOL	Controller Programming: Firmware updates and program reset	
SP	Self-Profiling Mode	
	Voice Annunciator User Interface	
<u>u</u> P	Voice Annunciator - CLASS Parameters	
Ready		1

4 Controls Window

5

The diagnostic's various "windows", such as *Parameters*, *Scope Setup*, etc., are known as controls

To select any control, use the Menu Bar to select either:



12 (14) (14) (14) (14) (14) (14) (14) (14)	
File Edit View	Window Help
	New Window
	Cascade Tile
	1 Data Monitor

Window→New Window

Then double-click on the desired control.



5 Voice Annunciator

The Voice Annunciator User Interface is composed of two major sections: a *Setup* section at the top, and a *Message Play & Download* section at the bottom.

Sol Voice Annunciator User Interface						<u> </u>
Playlists - CLASS Mode						
Drunk Alarm PLZ_Don't_Stand Door TTO Tour	ch_Yellow 💽 About to Open	Warning	Doors Opening	Doors_Opening	Doors Closing	Doors_Closing
		Doors_Opening		End	-	
Normal End Normal End	Normal	End		End 💌	1	End
Continuous End Continuous End	Continuous	End 🗾	Continuous	End 🚬	Continuous	End 🗾
Play Playlist 1 Play	Playlist 2	Play Playlist 3		Play Playlist 4		Play Playlist 5
Stop all Playlists Save All F	laylist Settings Del	fault Playlist Settings				
Input Mode - CLASS Mode	CLASS Detect	Double Chime 🔻	EMG Buzzer	Warning 💌	Input Four	Warning 💌
Volume		End 🔻		End	İ	End
Min Gain 0		End T		End 🔻	Normal	End
7 , 1477.00	C	End T		End 🔻		End
	Continuous					
Save Volume		Play Playlist 6		Play Playlist 7		Play Playlist 8
Play Samples	Voice Devel Cheby			Т		
Play PLZ_Don't_Stand 💌	Voice Board Status			1		
Delete Top User Sample						
Delete All User Samples						
	Clea	ar Status List				
Wave File to Download to Voice Annunciator						
	Browse					
View News	Desman					
Wave Name To Characters Max	Frogress					
	Download to Annu	nciator				

- For Voice Annunciator setup with CLASS, see VA Setup for CLASS
- For Voice Annunciator Stand-Alone operation, see <u>VA Setup for Stand-</u> Alone
- For Voice Annunciator setup with a PLC, see VA Setup for PLC Encoding
- For playing and saving messages, see VA Message Play & Download
- For Wiring, see VA Wiring 14

5.1 VA - Setup for CLASS

🛄 Voice Annunciator User Interface	Displicat 2			_ 🗆 ×
Playlists - CLASS Mode	Input 2 PlayIIst 2			
Drunk Alarm PLZ_Don't_Stand Door TTO	Touch_Yellow About to Open	Warning 🔽 D	oors Opening Doors_Opening	Doors Closing Doors_Closing 💌
End	End	Doors_Opening 💌	End	End
Normal End 💌 Normal	End	End 💌	Normal End 💌	End
Continuous End Continuou	us End 🔽 Continuous	End 💌	Continuous End 💌	Continuous End
Play Playlist Mode Selecto	I Play Playlist 2	Play Playlist 3	Play Playlist 4	Play Playlist 5
Stop all Playlist	Save All Playlist Settings De	ault Playlist Settings	Playlist 4 and	
Input Mode - CLASS Mode 💌 Mediu	um Gain 2 🔄 🕥 🔘 CLASS Detect	Double_Chime	associated input & 🖃	Input Four Warning 💌
Volume	Gain Set	End 🔽	buttons 🔽	End
[24000.00 Load Co	Infig from File Button	End 💌	End	Normal End 💌
Save C	Config to File Continuous	End 🗾	Continuous End 💌	Continuous End 💌
Save Volume		Play Playlist 6	Play Playlist 7	Play Playlist 8

To configure the Voice Annunciator for operation with a CLASS[™] controller:

1. Select *CLASS Mode* from the Mode Selector drop-down list as shown:

Input Mode - Individual
Input Mode - Encoded I1 I2
Input Mode - CLASS Mode

- When CLASS Mode is selected, eight playlists will be available. Each playlist allows the selection of up to four messages.
- Each playlist will have an associated CLASS controller input (shown at the upper left of the playlist), an associated *Once/Continuous* button, and may have an associated *Normal/Invert* button.

2. For each playlist, when the associated CLASS controller input activates, the messages shown in the playlist will be played in sequence (top to bottom). Each message will be played in turn until the first "End" is reached. Any message listed after an "End" will be ignored.

Note: Input 4 (Playlist 8) is not controlled by CLASS. It is an independent input and can be connected to non-CLASS systems. Typical usage is to connect it to the door Emergency. See VA - Wiring [14] for I4 (Input 4) connection details.

- If the associated Once/Continuous button is set to Continuous, the message sequence will play continuously as long as the associated input is active. Otherwise the sequence will play once per input activation. Click the button to change it.
- The *Normal/Invert* button sets the desired activation state: Normal means that the associated playist is played when the input becomes active, Invert means that the playlist will be played when the input deactivates. (A typical Invert usage is for an Emergency input switch which in normal operation is held closed; when an

7

Emergency handle is pulled the switch opens. In that case, opening the switch would de-activate the input and thus play the playlist.)

3. Playlists may be changed by clicking the desired playlist message drop-down and choosing from the available messages:



Note: Messages ending in "ESP" are in Spanish.

4. Playlists may be played by clicking the associated button, such as

Play Playlist 1

5. Adjust the volume by setting the Volume Slider and using the Gain Set Button. The Gain Set Button allows gain values of 0 (Min) to 3(Max). For each Gain setting, the Volume slider will control the level within the minimum and maximum values of the selected Gain value.

Suggested setting: Volume = 24000, Medium Gain 2

6. Click Save All Playlist Settings or Save Volume when settings are complete, or changes will be lost.

7. Clicking Save Config to File allows the user to create and/or select a file in which current parameter values will be saved.

8. Clicking Load Config from File allows the user to select a file whose values will be loaded as parameter values in the laptop diagnostic for editing and/or saving to the Voice Annunciator.

Voice Annunciator User Interface Playlists - Individual Mode Playlist 2	
Input Dne PLZ_Dont_Stand Input Two Touch_Yellow Input Three Warning Input Four Doors_Opening End End End Doors_Opening End End Normal End Mormal End End End	
Continuous End Continuous End Continuous End Play Playlist 1 Mode Play Playlist 2 Play Playlist 3 Play Playlist 4	
Stop all Playlists Settings Default Playlist Settings Playlist 4 and associated input Mode - Individual Medium Gain 2 @ @	&
Volume Load Config from File Save Volume Save Volume Save Volume	

To configure the Voice Annunciator for Stand-Alone operation:

- 1. Select *Individual* from the Mode Selector drop-down list as shown:
- When Individual Mode is selected, four playlists will be available. Each playlist allows the selection of up to four messages.
- Each playlist will have an associated input (shown at the upper left of the playlist), an associated *Once/Continuous* button, and may have an associated *Normal/Invert* button.

2. For each playlist, when the associated input activates, the messages shown in the playlist will be played in sequence (top to bottom). Each message will be played in turn until the first "End" is reached. Any message listed after an "End" will be ignored.

- If the associated **Once/Continuous** button is set to Continuous, the message sequence will play continuously as long as the associated input is active. Otherwise the sequence will play once per input activation. Click the button to change it.
- The *Normal/Invert* button sets the desired activation state: Normal means that the associated playist is played when the input becomes active, Invert means that the playlist will be played when the input deactivates. (A typical Invert usage is for an Emergency input switch which in normal operation is held closed; when an Emergency handle is pulled the switch opens. In that case, opening the switch would de-activate the input and thus play the playlist.)
- 3. Playlists may be changed by clicking the desired playlist message drop-down and

choosing from the available messages:



Note: Messages ending in "ESP" are in Spanish.

4. Playlists may be played by clicking the associated button, such as
Play Playlist 1

5. Adjust the volume by setting the Volume Slider and using the Gain Set Button. The Gain Set Button allows gain values of 0 to 3. For each Gain setting, the Volume slider will control the level within the minimum and maximum values of the selected Gain value.

Suggested setting: Volume = 24000, Medium Gain 2

6. Click Save All Playlist Settings or Save Volume when settings are complete, or changes will be lost.

7. Clicking Save Config to File allows the user to create and/or select a file in which current parameter values will be saved.

8. Clicking Load Config from File allows the user to select a file whose values will be loaded as parameter values in the laptop diagnostic for editing and/or saving to the Voice Annunciator.

5.3 VA - Setup for PLC Encoding

Encoded I1 PLZ_Don's_Stand ▼ Encoded I2 Touch_Yellow ▼ Encoded I1 Warning ▼ Input Three Doors_Opening ▼ Input Four Doors_Closing ▼ Encd ▼ End ▼ End ▼ End ▼ Normal End ▼ End ▼ End ▼ End ▼ Continuous End ▼ Continuous End ▼ End ▼ Play Playlist 1 Mode Play Playlist 2 Play Playlist 3 Play Playlist 4 Play Playlist 5 Stop all Playlists Save All Playlist Settings Default Playlist Settings Default Playlist Settings	nciator User Interface Playlist 2 Playlist 2
Continuous End Continuous End	PLZ_Dont_Stand Encoded 12 Touch_Yellow Encoded 11 Warning Input Three Doors_Opening Input Four Doors_Closing End End End End End End End End Variance End End End End End End
Stop all Playlists Selector Save All Playlist Settings Default Playlist Settings	End Continuous End Continuous End Continuous End Play Playlist 1 Play Playlist 2 Play Playlist 3 Play Playlist 4 Play Playlist 5
Input Mode - Encoded II I2 Medium Gain 2 Gain Set Volume Load Config from File Save Config to File	Stop all Playlists Selector Save All Playlist Settings Encoded 11 12 Medium Gain 2 Image: Selector Setting 2 24000.00 Load Config from File Gain Set Save Config to File Button

To configure the Voice Annunciator for PLC Encoded operation:

1. Select *Encoded I1 I2* from the Mode Selector drop-down list as shown: Input Mode - Input Mode - Input Mode -

Input Mode - Individual
Input Mode - Encoded I1 I2
Input Mode - CLASS Mode

- When Individual Mode is selected, five playlists will be available. Each playlist allows the selection of up to four messages.
- Each playlist will have an associated input (shown at the upper left of the playlist), an associated *Once/Continuous* button, and may have an associated *Normal/Invert* button. For the PLC Encoded case, the first three playlists' associated inputs are binary-encoded results of two physical inputs (I1 and I2). Playlists 4 and 5 are associated with physical inputs 3 and 4 (I3 & I4).

2. For each playlist, when the associated input activates, the messages shown in the playlist will be played in sequence (top to bottom). Each message will be played in turn until the first "End" is reached. Any message listed after an "End" will be ignored.

- If the associated Once/Continuous button is set to Continuous, the message sequence will play continuously as long as the associated input is active. Otherwise the sequence will play once per input activation. Click the button to change it.
- The *Normal/Invert* button sets the desired activation state: Normal means that the associated playist is played when the input becomes active, Invert means that the playlist will be played when the input deactivates. (A typical Invert usage is for an Emergency input switch which in normal operation is held closed; when an Emergency handle is pulled the switch opens. In that case, opening the switch would de-activate the input and thus play the playlist.)

3. Playlists may be changed by clicking the desired playlist message drop-down and choosing from the available messages:



Note: Messages ending in "ESP" are in Spanish.

4. Playlists may be played by clicking the associated button, such as
Play Playlist 1

5. Adjust the volume by setting the Volume Slider and using the Gain Set Button. The Gain Set Button allows gain values of 0 to 3. For each Gain setting, the Volume slider will control the level within the minimum and maximum values of the selected Gain value.

Suggested setting: Volume = 24000, Medium Gain 2

6. Click Save All Playlist Settings or Save Volume when settings are complete, or changes will be lost.

7. Clicking Save Config to File allows the user to create and/or select a file in which current parameter values will be saved.

8. Clicking Load Config from File allows the user to select a file whose values will be loaded as parameter values in the laptop diagnostic for editing and/or saving to the Voice Annunciator.

13

5.4 VA - Message Play & Download

Play Messages Voice Board Status	
Delete Messages Delete All User Messages Delete All User Messages Delete All User Messages	< Clear Status List
Wave File to Download to Voice Annunciator Browse Gradel	
Wave Name 16 Characters Max Download Progress	

Playing Messages:

Select the Message to be played in the *Play Messages* drop-down selector. The message will play when selected.

Saving Custom Messages:

Custom messages must be externally created; allowable file formats are as follows:

- Audio Sample Rates (KHz): 8.000, 11.025, 22.050, 44.100
- Audio Sample Sizes: 8 bit, 16 bit
- Channels: 1 (Mono)
- Audio Format: PCM
- File type: RIFF WAV
- Maximum file size: <1MB
- Maximum custom message storage space (total for all custom messages): 1MB

Messages initially provided are 11.025KHz, 16 bit, and do not subtract from custom message storage space.

To save a custom message:

- 1. Either type the file name in the *Wave File to Download...* box or Click the *Browse* button and select the wav file you wish to upload.
- 2. Adjust the *Wave Name* as desired (maximum sixteen characters)
- 3. Click Download to Annunciator.
- 4. Wait for the *Download Finished* notification. The custom message is now saved.

Deleting Custom Messages:

- Click *Delete Top User Sample* and select **Yes** on the *Proceed* pop-up to delete the last sample saved. If there are no user samples, nothing will be deleted.
- Click *Delete All User Samples* and select **Yes** on the *Proceed* pop-up to delete all user-saved samples. If there are no user samples, nothing will be deleted.

5.5 VA - Wiring



6 Reference - CLASS Wiring

6.1 Sensor Wiring

15

Panel Sensors (P4 & P6):

Pin #	Wire Colors	Signal
1	Red	POWER
2	Green or Orange*	SEND
3	Black	GROUND
4	White or Brown*	ECHO
5	Shield	SHIELD

Center Sensor (P5):

Pin #	Wire Colors	Signal
6	Red	POWER
5	Green or Orange*	SEND
4	Black	GROUND
3	White or Brown*	ECHO
2	Shield	SHIELD

* Sensor Cable may be Red, Black, Orange, Brown, Shield or Red, Black, Green, White, Shield



Pin insertion view shown above. Top right is #1, top left is #3 Bottom right is #4, bottom left is #6

6.2 CLASS 2 Main Connector (P1)





WIRE INSERTION VIEW

6.3 CLASS 3 Main Connector (P1)

P1	_	
	1	DFO
	2	/DFO
	3	DAJ
	4	/DAI
	5	DNC
	6	/DNC
	7	ENA
	8	/ENA
	9	/STA
	10	/DAO
	11	/RCY
	12	/OPN
	13	OPN
	14	RCY
	15	K2C
	16	K2NC
	17	/TGT
	18	PWR
	19	K1C
	20	K1-0
	21	SWPW
	22	On12
	23	On24
	24	GND



Pin Insertion View

Refer to TB08-03-192 (CLASS[™] Installation and Setup User Manual) for signal details.

17

6.3.1 CLASS 3 Input Wiring

Inputs to CLASS 3 are treated differently than inputs to CLASS 2. Inputs to CLASS 3 have more flexibility and require no special firmware settings (such as NPN mode).

Where CLASS 2 had 4 individual inputs, CLASS 3 has 4 <u>pairs</u> of inputs. Each pair has one of the pair designed for a signal switched to +V; the other is designed for a signal switched to GND. (Note that +V can be 12V or 24V nominal.)

Inputs to CLASS 3 are named functionally, and in each pair include a "/" as the first character of the name for the input designed for a signal switched to GND.

The names are:

DFO	&	/ DFO	(IN1 & /IN1)
DAI	&	/ DAI	(IN2 & /IN2)
DNC	&	/DNC	(IN3 & /IN3)
ENA	&	/ ENA	(IN4 & /IN4)

There are four possible variations of input connection types. The following table shows the four types and how inputs to CLASS 3 are to be connected for various input types. Note that unlike CLASS 2, each input is unique, that is, any input can be utilized with any of the four possible connection types.

In the table, the input designed for a signal switched to +V is designated as *INx*, where *x* represents 1 to 4.

The input designed for a signal switched to GND is designated as /INx.

Actuation Type	Connect Switch to:	Also Connect:	Safe End:
Switch closes to +V when active	INx	-	/INx
Switch closes to GND when active	/INx	-	INx
Switch opens from +V when active	INx	/INx to GND	-
Switch opens from GND when	/INx	INx to +V	-
active			

Examples:

- 1. Enable provides +24V when green light is on: connect Enable to **ENA**
- 2. DNC switch closes to GND when door is fully closed: connect DNC-N.O to **/DNC**
- 3. DFO switch opens from +24V when door is fully open: conect DFO-N.O. to **DFO**; connect GND to **/DFO**

6.4 Switch Connections

6.4.1 Type 14

Type 14 Double-Break Snap-Action Switch

Operation:

When the plunger is released, the shorting bar connects NC1 to NC2. When the plunger is pressed, the shorting bar moves, disconnecting NC1 from NC2, and connects NO3 to NO4.





6.4.2 Type 22

Type 22 Snap-Action Switch (with or without roller follower)



6.4.3 Type CZ

S.P.D.T Limit Switch Type CZ (may also be configured with roller follower)



6.5 **RJ45 to DB9F Adapter Wiring**

Typical DB9 Female to RJ45 Female Modular Adapter:



Wiring for CLASS[™] Interface:



Vapor Part Number: 50520029-01

21

7 Revisions

Version A

-Initial Release

Version **B**

- Added Load/Save Config to VA Setup Screens