ALLIED ELECTRONICS, INC

STATION SITE CONTROLLER (SSC)

Installation and Start Up Guide

ARCO / ANDI

to Schlumberger

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1. General Information

1.1. Installation Environment

1. The Allied Electronics Station Site Controller (SSC) operates on 115 VAC @60hz,36 watts. The SSC is supplied with approximately 8ft. of 115 VAC power cord, and should be connected to an approved isolated ground receptacle on its own dedicated circuit. The SSC must be installed in a temperature controlled environment (between 32^0 F and 100^0 F).

2. Allied Electronics recommends that the SSC be installed with a UL Listed Escort Power Conditioner to protect against power surges, low voltage (brown outs), and lightning.

3. The SSC must be installed in accordance with the National Electrical Code (NFPA 70), the Automotive and Marine Service Station Code (NFPA 30A), and all state and local electrical codes.

4. The SSC must be installed indoors, above the Class 1, Division 2 Hazardous location.

5. All field wiring (that is, all wiring connected directly to dispensing devices) should be oil and gas resistant, as required by Paragraph 501-13 of the NEC, and should be sealed in accordance with Article 500 of the NEC.

6. For use with peripheral devices which are UL Listed, have an EIA RS232C (or RS422A) communication protocol, and are installed over a hazardous location.

1.2. Warranty

The SSC has a one year parts warranty only, from date of installation, which can either be phoned in or submitted using the warranty/registration card enclosed in every SSC. If the start up information is not registered with our office within thirty (30) days of installation, warranty will begin from the date of shipment. Allied will warrant all parts against defects but not against physical damage or improper installation. All parts being returned "under warranty" must be accompanied with a Allied RMA number. When calling Allied for RMA numbers for SSC main boards, you will be asked for the main board serial number, located on the upper left hand corner inside box, and a description of the problem.

1.3. FCC Warning

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class "A" computing device pursuant to Subpart B of Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1.4. Overview

The SSC interfaces to the following devices:

See the "Technical Tips" section for dispenser models that are supported.

Schlumberger/Tokheim Dispensers and PIC (Payment Island Cashier)

1. Schlumberger Dispensers via a 6 Channel current loop board connected to the Distribution box.

2. Schlumberger PIC via a fully populated RS232 board connected to the SAM/SSM (Schlumberger Security Module).

Point - Of - Sale (POS)

ARCO PC Based Point -Of -Sale Computer via a fully populated RS-232 board.

Helix PIC (Payment Island Cashier)

Helix PIC via a 4-channel RS-485 interface board that is connected to the Allied Isolation box or can be hard wired directly to the individual CATs via a junction box.

Tank gauge

1. Veeder Root TLS 250, 350 & 350R or equivalent tank gauge system via a fully populated RS-232 board.

2. Any Tank Gauge system that uses the Veeder Root protocol.

2. Installation Information

2.1. Procedures

1. Hardware Installation

a. Mount SSC unit onto wall.
b. Route and connect all communication cables as labeled.
   Refer to *"Configuration Diagrams"* section.
c. Apply AC power to unit.

The SSC software will first initialize the hardware and then run some internal diagnostics before starting the application program. To indicate that the software is active, the SSC will display the following:

d. The prompt will display, ⇨ [SSC System Reset]
   [Initializing ...]

SSC will next show the following on the display for several seconds.

⇨ [Software Version]
[SSC Warm Start]

SSC will then show the following on the display when ready.

⇨ [Software Version]
[Date & Time]

If you have these prompts, then proceed to next step, if not refer to the *"Power-Up Diagnostics"* of the Technical Tips section.

2. Programming steps

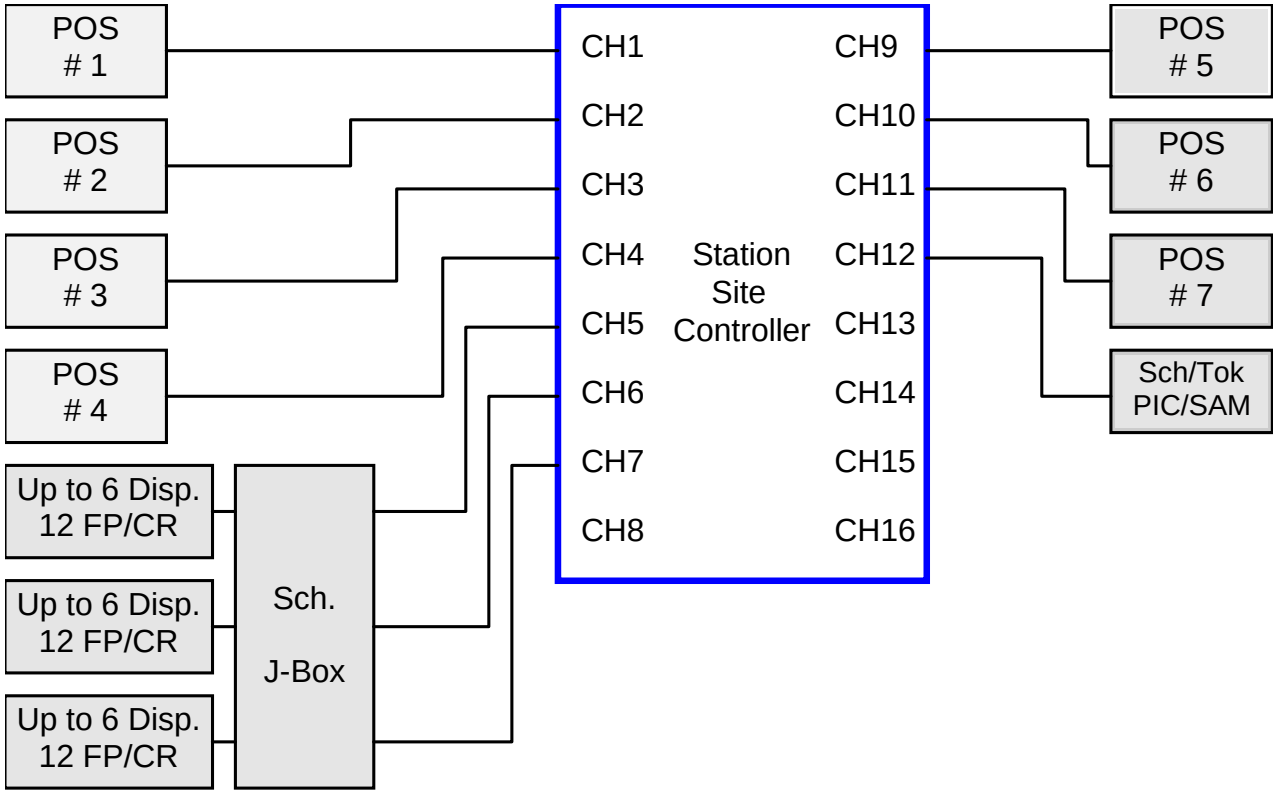
a. Program the dispensers*.
b. Program the SSC via the POS**.

Note* - Dispenser programming is not within the scope of this manual.

Note** - It is not within the scope of this manual to supply complete step-by-step programming of the POS.

2.2. Configuration Diagrams

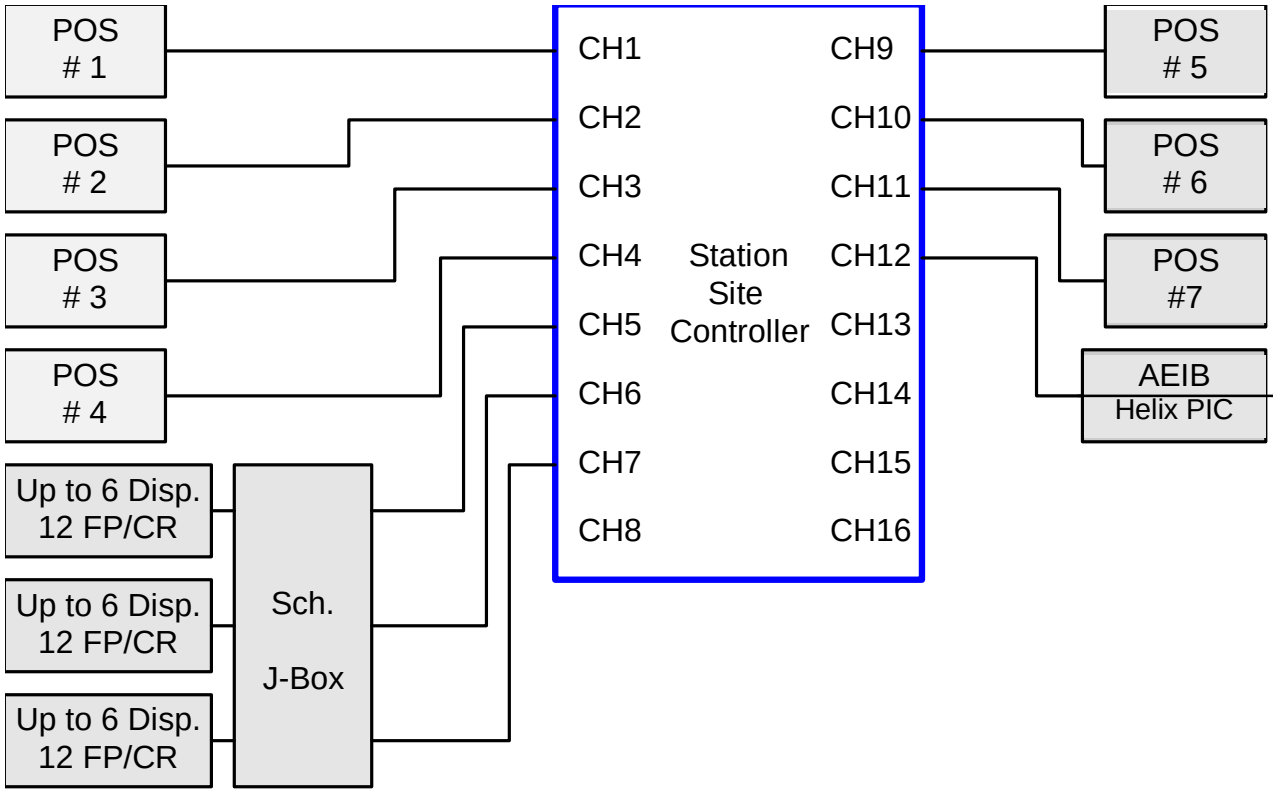
2.2.1. SSC to Schlumberger with the Schlumberger/Tokheim PIC



Communication Boards

CH1 (POS) .....399-1610-F (RS-232 Fully Populated board)
CH2 (POS) “Optional”.....399-1610-F (RS-232 Fully Populated board)
CH3 (POS) “Optional”.....399-1610-F (RS-232 Fully Populated board)
CH4 (POS) “Optional”.....399-1610-F (RS-232 Fully Populated board)
CH5 (Dispenser)..... .....399-2110 (6 channel current loop board)
CH6 (Dispenser) “Optional”..... .....399-2110 (6 channel current loop board)
CH7 (Dispenser) “Optional”..... .....399-2110 (6 channel current loop board)
CH9 (POS) “Optional”.....399-1610-F (RS-232 Fully Populated board)
CH10 (POS) “Optional”.....399-1610-F (RS-232 Fully Populated board)
CH11 (POS) “Optional”.....399-1610-F (RS-232 Fully Populated board)
CH12 (Sch/Tokheim PIC) ……..399-1610-F (RS-232 Fully Populated board)

2.2.2. SSC to Schlumberger with the Helix PIC



Communication Boards

CH1 (POS) .....399-1610-F (RS-232 Fully Populated board)
CH2 (POS) “Optional” .....399-1610-F (RS-232 Fully Populated board)
CH3 (POS) “Optional” .....399-1610-F (RS-232 Fully Populated board)
CH4 (POS) “Optional” .....399-1610-F (RS-232 Fully Populated board)
CH5 (Dispenser) .....399-2110 (6 channel current loop board)
CH6 (Dispenser) “Optional”.....399-2110 (6 channel current loop board)
CH7 (Dispenser) “Optional”.....399-2110 (6 channel current loop board)
CH9 (POS) “Optional” .....399-1610-F (RS-232 Fully Populated board)
CH10 (POS) “Optional” .....399-1610-F (RS-232 Fully Populated board)
CH11 (POS) “Optional” .....399-1610-F (RS-232 Fully Populated board)
CH12 (Allied Isolation Box/Helix PIC).....499-4710 (4 channel RS485 board)

2.3. Cable Pin Assignments

2.3.1. POS Communication Cables

The SSC supports up to 7 POSs. The POS is a PC Based computer, which runs the Point-Of-Sale software. The serial port on the POS can be either a DB-25 or a DB-9 connector.

Note: *The following cable configuration is being provided as an installation guide. Allied does not supply the POS cables with the ARCO ANDI/POS box.*

SSC (CH1 - CH4 & CH9 - CH12) To POS (Serial Port) DB-25 Cable

SSC DB25 Female Pins				POS DB25 Female Pins	
TXD	2	Black		3	RXD
RXD	3	White		2	TXD
RTS	4	Green		5	CTS
CTS	5	Red		4	RTS
GND	7	Blue		7	GND
DSR	6	Brown		11	N/C
				20	DTR
DTR	11	Orange		6	DSR
N/C	20				

SSC (CH1 - CH4 & CH9 - CH12) To POS (Serial Port) DB-9 Cable

SSC DB25 Female Pins			POS DB9 Female Pins	
TXD	2	Black	2	RXD
RXD	3	White	3	TXD
RTS	4	Red	8	CTS
CTS	5	Green	7	RTS
DSR	6	Brown	4	DTR
GND	7	Blue	5	GND
DTR	11	Orange	6	DSR

2.3.2. Schlumberger Pump Control Cables

Each communications Channel (CH5 - CH7) supports 1-6 dispensers (1-12 fueling positions with a maximum of 32). There is a unique wire pair for each dispenser. For example, the wire pair on pins 1 and 2 are for dispenser 0, the wire pair on pins 3 and 4 are for dispenser 1, and so forth.

A cable is provided for the connection between the SSC and the Schlumberger distribution box. One cable is required for each SSC communications Channel. The cable terminates in a male DB-25, and is defined as follows:

SSC (CH5 - CH7) To the Schlumberger Cable

SSC DB25 Female Pins				Schlumberger DB25 Male Pins
1	----------	White/Blue	----------	15
2	----------	Blue/White	----------	2
3	----------	White/Orange	----------	14
4	----------	Orange/White	----------	1
5	----------	White/Green	----------	17
6	----------	Green/White	----------	4
7	----------	White/Brown	----------	16
8	----------	Brown/White	----------	3
9	----------	White/Gray	----------	19
10	----------	Gray/White	----------	6
11	----------	Red/Blue	----------	18
12	----------	Blue/Red	----------	5
		Drain	----------	9

2.3.3. Schlumberger/Tokheim PIC via the (SAM/SSM)

The SSC uses channel 12 to interface to the SAM/SSM.

The SSM (Schlumberger Security Module) is required for the Payment Island Cashier (PIC) systems with debit and cash acceptor support.

Port 2 on the SAM/SSM has a Female DB-9 connector, which is to be connected to Channel 12 of the SSC. The cable pinouts are as follows:

SSC (CH12) To the SAM/SSM (Port 2)

SSC DB25 Female Pins				SAM/SSM DB-9 Male Pins	
Drain	1	Shield		N/C	
TXD	2	White		3	RXD
RXD	3	Red		2	TXD
GND	7	Black		7	GND
	4				
	5				
	6				
	11				

2.3.4. Helix PIC via the Allied Isolation Box

The SSC uses a 4-channel RS485 board to communicate to the Helix Pics. Up to 8 PICS **(see note below)** may be connected to channel 12 of the SSC. Channel 12 must be connected to J1 of the Allied Isolation box.

Note: Up to 8 PICs may be connected to the SSC at channel 12

SSC (CH12) Helix RJ45 adapter set to the Allied Isolation box

SSC DB25 Female Pins		CAT 5 Cable (T568B Spec.)		J1Allied Isolation Box
2	----------	Wht/Org	----------	1 RT1 +
3	----------	Orange	----------	2 RT1 -
6	----------	Wht/Grn	----------	3 RT2 +
7	----------	Green	----------	6 RT2 -
8	----------	Wht/Blu	----------	5 RT3 +
9	----------	Blue	----------	4 RT3 -
10	----------	Wht/Brn	----------	7 RT4 +
11	----------	Brown	----------	8 RT4 -

2.3.4.1. SSC/Helix to the Allied Isolation Box

Up to 8 HELIX/PICS may be connected to the Allied Isolation Box

SSC/Helix (CH7) To Allied Isolation box

SSC/Helix DB25 Female Pins				Allied Isolation box
1	----------	Shield	----------	Drain
2	----------	Red	----------	Data wire +
3	----------	Black	----------	Data wire -

Note: The SSC/Helix can communicate with dual or single sided Helix PICS.

Caution: The Helix cable cannot be installed in the same conduit as the intercom cable or high voltage lines. Serious damage to the Helix and or the SSC may result if the cable is not installed properly.

2.3.5. Tank Gauge Cable

The SSC uses Channel 13 to interface to the Veeder-Root or Equivalent tank gauge systems. Configure the tank gauge communication parameters as follows:

Baud Rate: 9600 Parity: Odd Stop Bits: 1 Data Bits: 7

On a TLS-250, the communication parameters are set using a rotary switch and DIP switches, (please refer to the TLS 250 manual).

On a TLS-350, the communication parameters are programmed via the TLS keyboard (please refer to TLS 350/350R manual).

SSC (CH13) To the TLS Cable

SSC DB25 Female Pins				Tank gauge DB25 Male Pins
TXD 2	----------	Black	----------	3 RXD
RXD 3	----------	White	----------	2 TXD
RTS 4	┐			
CTS 5	┘			
GND 7	----------	Red	----------	7 GND
DSR 6	┐			
DTR 11	┘			

SSC (CH13) Cable to the Red Jacket “ST” tank gauge

SSC DB25 Female Pins				Red Jacket DB9 Female Pins
TXD 2	----------	Black	----------	2 RXD
RXD 3	----------	White	----------	3 TXD
CTS 5	----------	Green	----------	7 RTS
GND 7	----------	Red	----------	5 GND
DSR 6	┐			
DTR 11	┘			

3. Programming

3.1. Dispenser Addressing

3.1.1. Schlumberger Addressing

3.1.1.1. Schlumberger Dispensers and CARDSCAN

Three Channels (5, 6, and 7) have been designated to communicate with the Schlumberger Dispensers/CARDSCAN's. Each SSC Channel supports up to 6 dispensers, numbered 0-5. Each dispenser supports 1-2 fueling positions. On each Channel, the dispenser numbers must start at 0 and be numbered consecutively (to a maximum of 5). However, the fueling position number may be set to any value from 1 to 32.

Example:

Dispenser Number		Fueling Positions
Address	SSC Channel	Address
0	CH-5	1 & 2
1	CH-5	3 & 4
2	CH-5	5 & 6
3	CH-5	7 & 8
4	CH-5	9 & 10
5	CH-5	11 & 12
0	CH-6	13 & 14
1	CH-6	15 & 16
2	CH-6	17 & 18
3	CH-6	19 & 20
4	CH-6	21 & 22
5	CH-6	23 & 24
0	CH-7	25 & 26
1	CH-7	27 & 28
2	CH-7	29 & 30
3	CH-7	31 & 32

3.1.1.2. Schlumberger Blending Dispensers

Variable and Fixed Blenders

The ANDI interfaces to the Schlumberger Centurion & 4000 series Variable and fixed blenders.

Product to position Mapping

Schlumberger dispensers do not require special product to position mapping in the POS ***Fueling Point Configuration*** section. The products are set to positions 1 through 3 for a 3 product dispenser and positions 1 through 4 for a 4 product dispenser. The table below lists the proper product to position assignment for a four product dispenser.

The ***blender type*** setting is not used and should be set to zero (0).

Position	Product
1	**Low grade**
2	**Blended product**
3	**High grade**
4	Not assigned
5	Not assigned
6	Not assigned
7	Not assigned
8	Not assigned

**** The low grade and the high grade products may be switched depending on the position of the dispenser and the installation of the product lines.***

3.1.1.3. Schlumberger Access/Security Module (SAM/SSM) for Debit

The Schlumberger Access/Security Module (SAM/SSM) must be ordered from Schlumberger for a specific Network application. The following switches in the SAM/SSM and options in the *model #4000 series* dispenser must be set for proper operation.

SAM/SSM Switch #1	
Position	**Setting**
1	off
2	on - DUKPT off – MK/SK
3	off
4	off
5	on
6	off
7	off
8	on

SAM/SSM Switch #3	
Position	**Setting**
1	off
2	on
3	off
4	on
5	off
6	on

Dispenser Options (Model #4000)	
Option #	**Setting**
25	4
80	2
87	1

Note: The dispenser options that are listed above are for the model #4000 series only. These option settings are not necessary for the *Centurion* dispenser.

3.2. PIC Addressing (Payment Island Cashier)

3.2.1. Schlumberger/Tokheim PIC

Channel 12 of the ANDI box has been designated to communicate with the Schlumberger/Tokheim PICs (via the SAM). Each PIC can be configured (via the POS) to control any or all of the fueling positions. The PICs can be addressed from 1-8. (*See example)*

3.2.1.1. Schlum/Tok Access/Security Module (SAM/SSM) for Debit

The Schlumberger/Tokheim Access/Security Module (SAM/SSM) must be ordered from Schlumberger for a specific Network application. The following switches in the SAM/SSM must be set for proper operation.

SAM/SSM Switch #1		SAM/SSM Switch #3	
Position	**Setting**	**Position**	**Setting**
1	off	1	off
2	on - DUKPT off – MK/SK	2	on
3	off	3	off
4	off	4	on
5	on	5	off
6	off	6	on
7	off		
8	on		

Example:

PIC Address	SSC Channel
1	CH-12
2	CH-12
3	CH-12
4	CH-12
5	CH-12
6	CH-12
7	CH-12
8	CH-12

3.2.2. Helix PIC

Channel 12 of the ANDI box has been designated to communicate with the Helix PICs (Via the Allied Isolation box). Each PIC can be configured (via the POS) to control any or all of the fueling positions. The PICs can be addressed from 1-8. (*See example)*

Note: The Helix PIC IDs must also be setup thru the keypad on the PIC itself.

Example:

PIC Address	SSC Channel
1	CH-12
2	CH-12
3	CH-12
4	CH-12
5	CH-12
6	CH-12
7	CH-12
8	CH-12

3.3. SSC Parameters Values and Options

The SSC keypad is not used to configure the SSC. The SSC configuration is done by the POS. The POS has to download all required parameters to the SSC. The SSC will start polling the dispensers only after the POS has downloaded station configuration data.
If the SSC has not receive the download from the POS you will see [CHXX Await Cnfg.] This means the SSC is waiting to be configured before this Channel becomes active.

Parameters Downloaded from POS:

DPT and PIC Configuration
Fuel Information
Product Information
Cash / Credit Limits
Mode of Service
Default Price Level
Sale Stacking
Number of fueling positions

3.4. Keypads

3.4.1. Schlumberger CardScan and PIC

Enter	1	2	3
Receipt	4	5	6
English Espanol	7	8	9
Cancel	Clear	0	