MODEL 356i ATC TRAFFIC CONTROLLER CABINET OPERATIONS MANUAL



USER MANUAL

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1 GLOSSARY

Wherever the following terms or abbreviations are used, the intent and meaning are interpreted as follows:

3A SB	3Ampere Slow Blow
AC	Alternating Current
AC-	120 Volts AC. 60 Hertz grounded return to the power source
AC+	120 Volts AC. 60 Hertz ungrounded power source
ADC	Address Connector
ADU	Auxiliary Display Unit
ADV	Advance
Amp	Ampere
ASTM	American Society for Testing and Materials
ATC	Advanced Transportation Controller
	American Wire Gage
BBS	Battery Back-up System
C	Coloius
\mathcal{C}^{2}	C2 Connector
BL K	Block
Caltrans	California Dopartment of Transportation
	Circuit Brooker
	Cubic Fact per Minute
	Cable
CH	Channel
Channel	An information path from a discrete input to a discrete output
CMU	Cabinet Monitor Unit
CR	Controller Receptacles
D	Diode
DAT Program	The AGENCY's Diagnostic and Acceptance Test Program
DC	Direct Current
DCP	Direct Current Power
DIN	Deutsche Industrial Norms
DOT	Department of Transportation
EA	Each piece
EQ	Equipment
EG	Equipment Ground
EIA	Electronic Industries Association
EMI	Electro Magnetic Interference
EN	Enable
ETL	Electrical Testing Laboratories, Inc
EV	Emergency Vehicle
EX	External
F1	Fuse 1
FDS	Front Door Switch
FHWA	Federal Highway Administration
FL	Flasher
FOTA	Field Output Termination Assembly
FT	Field Terminal
FTR	Flash Transfer Relay
FU1-1	Flasher Unit output 1-1
FU2-1	Flasher Unit output 2-1
G	Green
GFCI	Ground Fault Circuit Interrupter
GND	Ground
GRN	Green
HDFTR	High Density Flash Transfer Relay
HDFU	High Density Flasher Unit
HDSP	High Density Switch Pack
HJ	Harness Jack
HZ	Hertz
IA	Input Assembly
IA	Interval Advance



I.D. IEEE ISO	Identification Institute of Electrical and Electronics Engineers International Standards Organization
K2 Relay	24 VDC Control Relay
	Lower Bound Mossuro Woight Lipit
	Light Emitting Diode
IF	Local Flash
LFSA	Latched Failed State Action
LOG	Logic
LOGIC	Negative Logic Convention (Ground True) State
OTPT	Output
MC	Main Contactor
MCB	Main Circuit Breaker
MCE	Manual Control Enable
MOV	Motel Oxide Verister
MS	Military Standards
NC	Normally closed contact
N.O.	Normally open contact
NA	Not Assigned.
NC	Not Connected
NEMA	National Electrical Manufacturer's Association
NETA	National Electrical Testing Association, Inc
OA	Output assembly
OL	Overlap
P	Pedestrian
PCB	Printed Circuit Board
PK	Раскаде
PRGM	Program Dowor Supply
R	Power Suppry Rod
R	Recentacle
RDS	Rear Door Switch
RR	Rail Road
RST	Reset
S1	Switch One
SA	Service Assembly
SB1/SB2	Serial Bus 1/ Serial Bus 2
SCB	Signal circuit breaker
SIU	Serial Interface Unit
SP SD4	Switch Pack
SPA SSD	Service Panel Assembly
SSR SW/	Suite Relay
T1	Terminal Block One
TBS	Terminal Block Service
TEES	Transportation Electrical Equipment Specifications
ТВ	Terminal Block
U	Upper
U	Unit
UL	Underwriters Laboratories, Inc
VAC	Voltage Alternating Current
VDC	Voltage Direct Current
Y VEI	Yellow
	I GIIOW



2 GENERAL DESCRIPTION

2.1 OVERVIEW

The Model 356i ATCC is a double door Cabinet (front and rear) and it is designed to complement the operational capabilities of ATC controllers. The Model 356i ATCC is engineered to facilitate independent assembly and designed to house high-density components that dramatically reduce assembly space requirements. The unit easily handles up to 48 detector inputs and 32 channel outputs. The advanced safety features of the 356i ATCC include load current monitoring, no exposed high-voltage per NEC, and the ability to keep the intersection in flash while replacing the output assemblies. The cabinet architecture supports 120 VAC while also providing a migration path to low-voltage 48 VDC environments.

2.2 MAJOR ASSEMBLIES

The Model 356i ATC Cabinet is made up of the following major assemblies:

- Housing
- Fan Panel Assembly
- LED lamp Assembly
- Rack Assembly:
 - Mounting Cage
 - CMU Auxiliary Display Unit
 - Drawer shelf
 - Input Assembly 24 channels (48 channels optional)
 - Output Assembly 16 channels (32 channels optional)
 - Service Assembly
 - PS-2216-24 EDI Power Supply
 - SB1/SB2 & DC power bus
 - AC clean Bus
 - Field Output Termination Assembly
 - Field Input Termination Assembly

The cabinet can accept the following plug-in units:

- Model 2202-HV High Density Universal Switch Pack / Flasher, 120 VAC
- CMUip-2212 Cabinet Monitor Unit
- SIU-2218 Serial Interface Unit
- 21XBXHL-48VDC High-Density Flash Transfer Relay
- Model 222 Loop Sensor Unit
- Model 224 Loop Sensor Unit
- Model 242 DC Isolator
- Model 252/5 AC Isolator

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2.3 SPECIFICATIONS

Temperature Range Relative Humidity Power Conductors Materials Conformance

Finishes Dimensions Mounting

Access Ventilation

Lock System Handles Door Stops Rack Assembly Shipping Weight -37 degrees C to +74 Degrees C 0 to 95% (Non-Condensing) 90 to 135 VAC MIL-W-16878D Type B or better Aluminum, 5052-H32, 0.125" thick Enclosure complies with NEMA 3R requirements per NEMA 250 Standard. Natural, painted, anodized, power coat anti-graffiti 46" H X 24" W X 20" D Base mounted, bolt pattern 15" X 6" (4) ³/₄" X 16" anchor bolts (optional) and plates for pedestal mounting Full size doors, front and rear. 100 CFM Fan with Thermostat Control Filtered air intake in front door 3 point, choice of Corbin or Best Locks Stainless steel with padlock features 90° and 180° (± 10°) each door, top Removable 19" EIA racks 204 lbs. without plug-ins or controller

3 GENERAL CHARACTERISTICS

3.1 CABINET WIRING

The wiring for the Model 356i ATCC-HV consists of fan panel / police panel harness, HP1-CC harness, and loop wires.

All AC+, AC- and EG conductors are identified by a solid black, solid white and solid green color respectively. The 48VDC, 24VDC, 12VDC and DC- wires are identified by solid yellow, red, orange and white with red stripe respectively, and are physically separated from the AC wires.

3.2 FAN PANEL ASSEMBLY

The Fan Panel Assembly is attached to the cabinet top, and is wired to the rack through one 9 positions connector HP1. The Fan Panel Assembly includes two fans with easy mount brackets, such brackets don't require any tool to be removed.

The two fans are part of the cabinet exhaust system and have a capacity of 200 CFM.

The Thermostat Assembly is placed on the top of the rear side of the cabinet and it includes one fuse for the fans, one fuse for the lamp, one adjustable thermostat, one on/off switch to power the lamp and one bypass test switch with two poles to verify if the fans are working properly.

3.3 POLICE PANEL AND DOOR SWITCH ASSEMBLY

The Police Panel compartment is designed to give limited access to emergency staff. The Police Panel contains AUTO/FLASH, SIGNAL, Manual Control Enable and Interval Advance switches which are wired through the CC connector. These switches are located behind the Police Panel Door.

3.4 SERVICE ASSEMBLY

The Service Assembly is located in the lower left side of the cabinet mounted to the side panel and the EIA rail. The Service Assembly contains five circuit breakers for power protection, one high-density flasher unit (HDFU), four fuses for flasher outputs protection, one GFCI, one HE1750 ATC surge protector or equal, two copper bus bars for EQ ground and Neutral, and AC outlets for general purpose use. The five position terminal block on the Service Assembly is for connecting the AC power input as well as BBS. When a BBS is being used, the BBS jumper #10 AWG will be removed from the terminal block.

3.5 INPUT ASSEMBLY

The Input Assembly contains twelve slots to operate twelve 2-channel detection modules or six 4-channel detection modules. The Input Assembly accommodates one Serial Interface Unit (SIU) with capacity to operate 24 input channels. The SIU communicates to the Controller unit via SB1/SB2 ports using a receptacle DB25 connector placed in the back. The model 356i ATCC-HV has capacity to accommodate up to five 24 channel Input Assemblies, each Input Assembly is addressed using an ADC Phoenix Block placed in the back.

The Input assembly also includes on the back side, one DCP connector for DC power, one P1 connector for AC clean power and two IDC connector FITA J1 and FITA J2 for loop wires interconnection.

3.6 RACK ASSEMBLY

The Rack assembly is designed to be modular, compact and easy to interchange assemblies. The rack assembly contains a EIA rail where all the assemblies are mounted, one Drawer shelf, one Input Assembly 24 channel (48 channel optional), one Output assembly 16 channel (32 channels optional), one Service Assembly, one EDI DC power supply, one Communication and DC power bus, one AC clean bus and one Field Output Termination Assembly 16 channel. A CMU Auxiliary Display Unit is optional included.

3.7 PS-2216-24 POWER SUPPLY

The PS-2216-2412 EDI Power Supply is 1U high and a high efficiency switching power supply. It provides a regulated 48VDC output, a 24VDC output and 12VDC output.

A green LED indicator is provided to display AC Line input status and fuse integrity. Separate green LED indicators are provided to display outputs status and fuse integrity for each DC output.

The output connector is a Phoenix Contact. Pin #1 is the right most pin when viewed from the rear of the supply.

Pin	Function	
1	+48VDC	
2	48VDC GROUND	
3	+24VDC	
4	+12VDC	
5	24/12 VDC GROUND	
6	EQ GROUND	

3.8 OUTPUT ASSEMBLY (16 channel)

The Output Assembly is 3U high and provides 16 output channels. The Output Assembly 16 channel contains eight slots to operate eight 2-channels High Density Switch Packs and one Cabinet Monitor Unit. Each of the 16 channels are connected to the Serial Interface Unit by means of a printed circuit mother board. The Output Assembly contains four circuit breakers for signal head power protection, each circuit breaker provides power to two High Density Switch packs.

A stop time switch, an AUTO/FLASH switch, and a bypass 24VDC switch are placed in the front panel of the Output Assembly.

Eight white connectors are placed on the back side to interconnect to the Filed Output Termination Assembly, each connector connects two phases (red, yellow and green) and their respective HDSP output sense signals.

3.9 BUS ASSEMBLY

The Bus Assembly provides serial communication and DC power to the entire 356i ATCC-HV. The Bus Assembly is placed in the back of the 356i ATCC-HV below the Cabinet Power Supply behind the Controller area. The Bus Assembly contains a mechanism to fold the assembly down in case access to the back side of the Controller is required. The panel is tied to the EIA rail with fixed 10-32 screws and two thumbscrews on the top side for easy access.

Below the Bus Assembly a conduit protects the connected harnesses and allows for easy wiring. The Bus Assembly also provides eight receptacles with clean AC power to the entire 356i ATCC-HV.

3.10 FIELD OUTPUT TERMINATION ASSEMBLY

The Field Output Termination Assembly (FOTA) provides 16 field output channels and it is mounted on the EIA rail in the back of the Rack assembly. The FOTA includes sixteen Phoenix blocks for the output channels, sixteen flasher blocks for red, yellow or non-flashing configuration, eight High Density Flash Transfer Relays and eight Phoenix blocks on the back for the optional surge protection.

3.11 FIELD INPUT TERMINATION ASSEMBLY

The Field Input Termination Assembly (FITA) provides 24 field input channels and it is mounted on the side input panel of the Rack Assembly. The FITA includes four fifteen-positions terminal blocks for the input channels and twelve headers for suppressor option.

4 INSTALLATION

4.1 INSTALLATION

This section contains information on the installation of the 356i ATCC and its accessories by qualified personnel. On-site installation will include connection of service power, signal wires, loop detector, etc. Refer to the cabinet print furnished with the cabinet. Be sure to provide adequate safety at the intersection during installation. Follow your D.O.T. guidelines.

The 356i ATCC has base mounting and pedestal mounting options. (4) ³/₄" X 16" anchor bolts are used for base mounting installation, bolt pattern is 15" X 6". Two lifting eyes are provided for installing the cabinet on its foundation. Brackets for side of pole mounting are used and plates for pedestal mounting.

4.2 PS-2216-24 POWER SUPPLY

The model PS-2216-24 Power Supply is EIA rail mounted type and it is installed in the back, top of the rack assembly and it is secured with four 10-32 x $\frac{1}{2}$ screws, for more details see cabinet print.

4.3 OTHER RACK ASSEMBLY INSTALLATION

Installation consists of placing each assembly in the correct position within the cabinet mounting cage and fastening it in place with 10-32 x $\frac{1}{2}$ inch truss screws. Make the appropriate harness connections to terminals according to the cabinet print.

5 ADJUSTMENT

5.1 MECHANICAL ADJUSTMENT

No mechanical alignment is required on.

5.2 ELECTRICAL ADJUSTMENT

Power Supply Adjustment. Refer to the PS-2216-2412 Power Supply adjustment.

5.3 FIELD ADJUSTMENT

Thermostat is set at turn-on as per end-user discretion.

6 THEORY OF OPERATION

6.1 ONE-LINE DIAGRAM AND THEORY OF OPERATION

The 356i ATCC-HV is a serially interconnected cabinet. The ATC controller is connected to the 356i ATCC-HV via two serial ports SB1/SB2 using a DB25 cable, these ports are located in the "Bus assembly" in the back of the cabinet, and the Input and Output Assemblies are connected to the above mentioned bus using a DB25 cable.

The CMU located in the Output Assembly communicates with the High-Density Switch Packs, High-Density Flasher Unit and CMU Auxiliary Display via SB3 port. The SB3 port is interconnected between the assemblies using a RJ45 cable.

Signal Mode (Normal Operation):

In this mode, the ATC controller is responsible for the intersection signal indicator changes and timing. The HDFTR's and Main Contactor coils are energized during Signal Mode. The following switch states are required to keep the HDFTR's and MC coils energized:

- 1. Police Panel Signal On/Off should be in On position.
- 2. Police Panel Signal Auto/Flash should be in the Auto position.
- 3. CB1 through CB4 should be all in the On position.
- 4. Output Assembly Auto/Flash switch should be in the Auto position.
- 5. CMU with Datakey should be plugged in and the CMU fault relay should be in normal position when the cabinet door is closed.

Flash Mode:

In this mode, the flashers will be responsible for the signal indicator to flash Red/Yellow. Lack of any of the above conditions 1-5 will result in the removal of AC+ to the Main Contactor control input and HDFTR's coils. When the Cabinet Monitor Unit senses fault (i.e., conflicting field output circuits, or improper DC voltage), the 48VDC will be removed from the Main Contactor control circuit and HDFTR coils. In the Flash Mode the Cabinet Monitor Unit reports the status to the Controller unit via serial communication.

Dark Mode:

When the Police Panel Signal On/Off switch is placed in Off position, the HDFTR coil is energized keeping the transfer relays in signal mode and at the same time the Main Contactor coil is de-energized removing the power to the Switch Packs causing the intersection signal indicators go to dark mode.

6.2 INPUT ASSEMBLY THEORY OF OPERATION

The Input Assembly accommodates twelve slots for detection modules, and each detection module includes 2 channels, with a total of 24 channels, Each detection module output is connected to the 96-Pin connector of the Serial Interface Unit (SIU) by means of a printed circuit mother board, the SIU unit senses all the detection module outputs and provides the status to the Controller Unit by Serial communication. Serial communication is established using a 25-pin D socket placed on the rear. This socket shall mate with a DB25 cable which is connected to the SB1/SB2 & DC Power Bus. The Inputs from the field are brought into a FT terminal block or into an IDC-26 connector and are connected to the slots of the detector cards. Each FT terminal block provides two positions for each loop detector input and two equipment ground positions for shield grounding of the loop cable.

The Input Assembly provides four bits for assembly addressing placed in an 8-positions terminal block. The terminal block also provides four DC ground pins placed between the address pins to generate a Ground True logic "1" with a wire jumper.

The Input Assembly provides an optional CDC connector for special function inputs. The connector is a D type socket placed in the back. The inputs are electrically isolated and are driven by 48VDC and referenced by an isolated ground. Those isolated inputs are terminated in four OPTO switches for general purpose use. The switches are placed in a small front panel in the left side of the Input Assembly.

6.3 OUTPUT ASSEMBLY THEORY OF OPERATION

The Output Assembly provides 120VAC to the intersection signal heads. The operation of the Output Assembly is as follows: the High-Density Switch Packs AC power supply enters at connector P6.

P6-4 (CB1) provides power to the HDSP1 and HDSP2, channels 1, 2, 3 and 4.

P6-3 (CB2) provides power to the HDSP3 and HDSP4, channels 5, 6, 7 and 8.

P6-2 (CB3) provides power to the HDSP5 and HDSP6, channels 9, 10, 11 and 12.

P6-1 (CB4) provides power to the HDSP7 and HDSP8, channels 13, 14, 15 and 16.

Each of these power inputs is attached to a Signal Circuit Breaker in the Output Assembly front panel. Each Circuit Breaker independently provides 5 Amps of service power to two High-Density Switch Packs in the Output Assembly.

The input (Logic 0) for the High-Density Switch Packs is generated by the Auxiliary Device model SIU-2218. The ATC Controller communicates with the SIU-2218 via SB1/SB2 ports to change the inputs on the High-Density Switch Packs. The High-Density Switch Pack input pins are A2, C2, E2, A4, C4 and E4:

Pin	A (Bottom Row)	C (Middle Row)	E (Top Row)
2	Ch 1 Red In	Ch 1 Yellow In	Ch 1 Green In
4	Ch 2 Red In	Ch 2 Yellow In	Ch 2 Green In

The presence of any input and the presence of 24 VDC at pin A6 will cause the activation of a Switch Pack input circuit. The Cabinet Monitor Unit located in the Output Assembly configures the channel enable for each High-Density Switch Pack by means of the CMU Datakey. Once the channel enable configuration is assigned to the CMU Datakey, the CMU communicates to the High-Density Switch Packs by SB3 port to turn on the AC outputs.

The High-Density Switch Pack outputs are routed to the R connector to interconnect to the Field Output Termination Assembly (FOTA).

6.4 FIELD OUTPUT TERMINATION ASSEMBLY THEORY OF OPERATION

The Field Output Termination Assembly is placed in the back of the rack assembly and it can be moved up or down if required. The main function of the FOTA is to provide Field connections for the Intersection Signal heads and to transfer the intersection signal heads to flashing mode.

The High-Density Flasher Unit (HDFU) outputs come from the Service Assembly and go to the normally close, secondary sides of four of the eight High-Density Flash Transfer Relays (HDFTR):

HDFU 1-1	HDFTR1, CH1	HDFTR2, CH2	HDFTR5, CH9	HDFTR6, CH10
HDFU 1-2	HDFTR3, CH5	HDFTR4, CH6	HDFTR7, CH13	HDFTR8, CH14
HDFU 2-1	HDFTR1, CH3	HDFTR2, CH4	HDFTR5, CH11	HDFTR6, CH12
HDFU 2-2	HDFTR3, CH7	HDFTR4, CH8	HDFTR7, CH15	HDFTR8, CH16

The Field Output Termination Assembly provides sixteen Flash Programming Blocks for red or yellow flashing operation.

Red flash programming:

The program block FPB1 ties pin-3 to pin-2 which connects to the normally open contact of HDFTR1 pin-2. The HDFTR routes the Red signal trough the common contact pin-3 back to the program block pin-5. The program block ties the pin-5 and pin-6 and route the Red signal to the FT1 pin-1/2 of the field terminal block. Since the Yellow signal is not required to flash in this instance, the Yellow signal is routed through pin-1 and pin-4 directly to the field terminal block FT1 pin-3/4.

Yellow flash programming:

The program block FPB1 ties pin-1 to pin-2 which connects to the normally open contact of HDFTR1 pin-2. The HDFTR routes the yellow signal trough the common contact pin-3 back to the program block pin-5. The program block ties the pin-4 and pin-5 and route the Yellow signal to the FT1 pin-3/4 of the field terminal block. Since the Red signal is not required to flash in this instance, the Red signal is routed through pin-3 and pin-6 directly to the field terminal block FT1 pin 1/2. In the drawing, the HDFTR relay is shown in the flash state (non-energized).

Note that the Yellow and Green signals are dark during Flash Mode due to the loss of AC power to the High-Density Switch Pack pin A30, C30 & E30. The green signal does not flash, therefore, High-Density Switch Pack 1 Green output connects directly to the output terminal block FT1 pin-5/6.

If Yellow flash is required, the Red flash program block is removed from its receptacle and interchanged with the Yellow flash program block.

A third type of program block is available using white wires which routes all three High-Density Switch Packs outputs directly to the field terminal blocks that causes all flashing outputs to be off for Pedestrian channels or other special operations.

6.5 FAN AND THERMOSTAT ASSEMBLY THEORY OF OPERATION

The Fan and Thermostat Assemblies are part of the 356i ATCC-HV ventilation system. The DC power for the Fan Assembly is provided by the SB1/SB2 and DC Power Bus Assembly placed in the back of the Rack Assembly and is wired through a Phoenix Block connector to the Thermostat Assembly. The DC power routes to the thermostat panel through a harness and it is connected to the in-line fuse and thermostat. A bypass push switch is connected in parallel to the thermostat terminals to verify the properly fan operation. Once the DC power is protected by a fuse and connected to the thermostat, it is connected to the fan assembly through a two-position connector.

6.6 POLICE PANEL AND DOOR SWITCH ASSEMBLY THEORY OF OPERATION

The Police Panel can be accessed by means of a master police key. The Police Panel contains the Signals ON/OFF, AUTO/FLASH, Manual Control Enable and Interval Advance switches which are designed to give limited access to emergency staff.

The Signal ON/OFF switch powers the field signal indication. When it is in the ON position, the switch transfers the voltage output of the Circuit Breaker auxiliary switches to the Main Contactor coil and to the HDFTR coils. When the Signal ON/OFF switch is in the OFF position the switch removes the voltage to the Main Contactor coil and energizes the HDFTR coils, the ATCC will be in the Dark mode. The AUTO/FLASH switch drives 48VDC to be monitored by the CMU (pin A21/B21), when the AUTO/FLASH switch is in AUTO position the CMU output relay (pin A22/B22) is energized providing 48VDC to the Main Contactor and HDFTR to work in normal mode. When the AUTO/FLASH switch is in the FLASH position the CMU output relay is de-energized removing the 48VDC to the Main Contactor and HDFTR coils, the ATCC will be in the FLASH position the CMU output relay is de-energized removing the 48VDC to the Main Contactor and HDFTR coils, the ATCC will be in the flash mode.

The Front and Rear Door Switches are part of the 356i ATCC-HV interlock circuit. The purpose of these switches is to ensure the Conflict Monitor Unit is installed and the CMU Datakey is inserted properly when the door is closed. If a service technician closes the door without the Conflict Monitor Unit being installed and the CMU Datakey inserted properly, the Door Switch forces the 356i ATCC-HV to go to the flash mode.

6.7 BUS ASSEMBLY THEORY OF OPERATION

The Bus Assembly provides eight female DB25 connectors for serial communications, one male Phoenix Block for DC power input and seven female Phoenix Blocks for DC power output. The pins of the eight female DB25 connectors are daisy chained by means of a printed circuit board. The pins of the male and female Phoenix Blocks are daisy chained by means of the same printed circuit board but in an isolated electrical circuit.

The Bus Assembly provides +12VDC, +24VDC and +48VDC to the entire 356i ATCC-HV cabinet. The DC voltages come from the DC power supply by means of a DC harness.

The Bus Assembly provides eight NEMA 5-15 Receptacles to provide clean power to the ATC Controller, DC Power Supply and Input Assembly. The terminals of the NEMA 5-15 receptacles are daisy chained by means of color-coded wires, 18AWG black wire for AC+, 18AWG white wire for AC- and 18AWG green wire for Equipment Ground.

The AC Clean power input enters by mean of a NEMA 6-15 plug cord that it's connected to the Service Assembly where the Surge Protector is installed.

6.8 SERVICE ASSEMBLY THEORY OF OPERATION

The Service Assembly provides AC power to the 356i ATCC-HV and is installed on the lower side of the cabinet. The Service Assembly contains the main and secondary Circuit Breakers, cabinet voltage surge protector, one High-Density Flasher unit with fuses, AC- and EQ Ground copper bars and some outlets for general purpose.

TBS is a five-position terminal block and it is the entry point for AC power. TBS has two terminals for BBS connection option, if a BBS is installed, the jumper placed on the lower side of the terminal block shall be removed. The TBS terminal block provides AC power to the Main Circuit Breaker which is the main protection for the entire cabinet. The main Circuit Breaker feeds the Secondary Circuit Breakers (Clean and Raw Power Circuit Breakers, HDFU Circuit Breaker and Output Assembly circuit breaker). The Model HE1750 ATC is a Surge Protector installed in the Service Assembly to provide surge protection to the ATC Controller, Input Assembly and DC Power Supply.

The Service Assembly also contains one High-Density Flasher Unit (HDFU) which provide flashing voltage to the intersection signal heads when the 356i ATCC-HV is in the flash mode. The HDFU provides four flashing outputs protected by four fuses. The flashing outputs are wired to the Field Output Termination Assembly through an eight position Tyco connector placed on the right side of the Service Assembly. The HDFU also provides four sense inputs to monitor the four flashing outputs. The sense inputs are wired to the Field Output Termination Assembly through the eight position Tyco connector placed on the right side of the Service Assembly.

One of the maintenance benefits of having the HDFU located in the Service Assembly is the Output Assembly can be replaced while keeping the Intersection Signal Heads in Flash.

6.9 FIELD INPUT TERMINATION ASSEMBLY THEORY OF OPERATION

The Field Input Termination Assembly (FITA) is made with a printed circuit board where the inputs from the field are connected to four fifteen-positions terminal blocks. Each FITA PCB has a capacity of 24 input channels. The field inputs are wired to the Input Assembly through two IDC-26 female connectors placed on the top side of the FITA PCB. The FITA PCB has one Equipment ground terminal for every two channels to terminate the shield of the field loop wires.

The Field Input Termination Assembly is located on side input panel of the Rack Assembly of the 356i ATCC-HV. The FITA PCB has connectors for twelve optional surge protectors model EDCO MRA-6LC-6 or equal. Each surge protector includes two channels.

7 MAINTENANCE

7.1 OVERVIEW

Preventive maintenance should be done on a regular basis. Only trained individuals should perform the maintenance. Follow all safety rules and your local traffic codes.

7.2 MAINTENANCE GUIDELINES

- 7.2.1 Replacement
- Replace cabinet air filter if dirty.

7.2.2 Cleaning

- Vacuum the cabinet.
- Remove graffiti if any.

7.2.3 Mechanical Inspection

- Check cabinet doors, locks, and foundation.
- Test cabinet fan, thermostat, GFCI and light.
- Inspect the cabinet for external damage.

7.2.4 Operation Inspection

• Follow your DOT guidelines.

7.2.5 Electrical Inspection

- Follow your DOT guidelines.
- Check that wiring from service to the cabinet is tight and secure.

7.2.6 Check log

• Fill out the check log. Write arrival, departure time, date, summary of what you did and follow up action.

7.3 TROUBLESHOOTING GUIDELINES

7.3.1 Input Assembly

SYMPTOMS	POSSIBLE CAUSE	CORRECTIVE ACTION
Detector cards do not power		Check PS-2216-2412 power
on.	Absence of +24VDC	supply.
Detector cards do not place	Controller	Check controller
calls into the controller.	programming.	programming.
Detector cards do not place		
calls into the controller.	Controller.	Replace controller.
A Detector card does not work		Check the detector card
in any slot.	Detector card.	switch setting.
A Detector card does not work		
in any slot. Switch setting is	Detectory	
OK.	Detector card.	Replace the detector card.
Detector card places		
permanent calls into the		Perform loop continuity
controller.	Loop cable (DLC).	test.

SYMPTOMS	POSSIBLE CAUSE	CORRECTIVE ACTION
AC Line indicator OFF	AC Line Fuse.	Check AC Line Fuse.
	Service Assembly, Clean	
AC Line indicator OFF.	PWR Bus Circuit Breaker	Check circuit breaker.
24 VDC indicator OFF.	24 VDC Fuse.	Check 24 VDC Fuse.
48 VDC indicator OFF.	48 VDC Fuse.	Check 48 VDC Fuse.
24 VDC fuse keeps blowing.	Short.	Identify and remove Short.
No 24 VDC. Fuses are OK. AC	PS-2216-24 power	Replace PS-2216-24 power
Line indicator ON	Supply.	Supply.

7.3.2 PS-2216-24 Power Supply



7.3.3 Fan Panel Assembly

SYMPTOMS	POSSIBLE CAUSE	CORRECTIVE ACTION
		Check fuse. Replace if
Fan does not turn on.	Fuse.	defective.
		Check your thermostat
Fan does not turn on.	Thermostat.	setting.
		Check fan. Replace if
Fan does not turn on.	Fan.	defective.



7.3.4 356i ATC Cabinet

SYMPTOMS	POSSIBLE CAUSE	CORRECTIVE ACTION
Cabinet is in FLASH. No AC+ out		
on the Suppressor of the Service	HE1750 ATC	Verify the HE1750 ATC.
Assembly HE1750 ATC pin-5.	suppressor.	Replace if defective.
		Check your HDFU circuit
When cabinet is placed on flash,		breaker if it is in the ON
the intersection goes Dark.	HDFU circuit breaker.	position.
When cabinet is place on flash,	High-Density Flasher	Check High-Density Flasher
the intersection goes Dark.	Unit.	Unit. Replace if defective.

7.3.5 Cabinet Lights



7.3.6 Cabinet GFCI



7.3.7 Cabinet Controller



9 Electrical Interconnection details & Drawings

- 9.1 Cabinet Layout
- 9.2 Output Assembly
- 9.3 Input assembly
- 9.4 Field Output Termination Assembly
- 9.5 Service Assembly
- 9.6 Bus Assembly
- 9.7 Field Input Termination Assembly



		OUTPU	L ASSEN	1BLY					
	CMU-HV	CH1/2	CH3/4	CH5/6	CH7/8	CH9/10	CH11/12	CH13/14	CH15/16
		CH1R	CH3R	CH5R	CH7R	CH9R	CH11R	CH13R	CH15R
	F	SIU pln: 2A	SIU pln: 5A	SIU pln: 8A	SIU pln: 11A	SIU pln: 14A	SIU pln: 17A	SIU pln: 20A	SIU pln: 23A
	TOP 2212 CMU	Phase:	Phase:	Phase:	Phase:	Phase;	Phase:	Phase:	Phase;
	ME	CH1Y	CH3Y	CH5Y	CH7Y	CH9Y	CH11Y	CH13Y	CH15Y
	\cap	SIU pln: 2B	SIU pln: 5B	SIU pln: 8B	SIU pln: 11B	SIU pln: 14B	SIU pln: 17B	SIU pln: 20B	SIU pln: 23B
	N	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:
BYPASS		CH1G	CH3G	CH5G	CH7G	CH9G	CH11G	CH13G	CH15G
		SIU pin: 3A	SIU pin: 6A	SIU pin: 9A	SIU pin: 12A	SIU pin: 15A	SIU pin: 18A	SIU pin: 21A	SIU pin: 24A
		Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:
		CH2R	CH4R	CH6R	CH8R	CH10R	CH12R	CH14R	CH16R
24VDC		SIU pln: 3B	SIU pln: 6B	SIU pln: 9B	SIU pln: 12B	SIU pln: 15B	SIU pln: 18B	SIU pln: 21B	SIU pln: 24B
		Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:
	ЛОТО	CH2Y	CH4Y	CH6Y	CH8Y	CH10Y	CH12Y	CH14Y	CH16Y
		SIU pin: 4A	SIU pin: 7A	SIU pin: 10A	SIU pin: 13A	SIU pin: 16A	SIU pin: 19A	SIU pin: 22A	SIU pin: 25A
		Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:
	ASH	CH2G	CH4G	CH6G	CH8G	CH10G	CH12G	CH14G	CH16G
	0	SIU pln: 4B	SIU pln: 7B	SIU pln: 10B	SIU pln: 13B	SIU pln: 16B	SIU pln: 19B	SIU pln: 22B	SIU pln: 25B
		Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase;	Phase:
	2								
SIU1	R1 R	2	R3		R4		HDSP.	ADDRESSI	NG

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION			FUNCTION		PIN	FUNCTION
1A	+24vdc	1B	+24vdc	1C	CH16R			CH1R out		1	CH3R out
2A	CH1R	2B	CH1Y	2C	CH16Y			CH1Y out		2	CH3Y out
ЗA	CH1G	3B	CH2R	3C	CH16G			CH1G out		3	CH3G out
4A	CH2Y	4B	CH2G	4C				CH1R sen		4	CH3R sen
5A	CH3R	5B	CH3Y	5C				CH1Y sen		5	CH3Y sen
6A	CH3G	6B	CH4R	6C				CH1G sen		6	CH3G sen
7A	CH4Y	7B	CH4G	7C				CH2R out		7	CH4R out
8A	CH5R	8B	CH5Y	8C	SB1 TXD+			CH2Y out		8	CH4Y out
9A	CH5G	9B	CH6R	9C	SB1 TXD-			CH2G out		9	CH4G out
10A	CH6Y	10B	CH6G	10C	SB1 RXD+			CH2R sen		10	CH4R sen
11A	CH7R	11B	CH7Y	11C	SB1 RXD-			CH2Y sen		11	CH4Y sen
12A	CH7G	12B	CH8R	12C	SB1 TXC+			CH2G sen		12	CH4G sen
13A	CH8Y	13B	CH8G	13C	SB1 TXC-						
14A	CH9R	14B	CH9Y	14C	SB1 RXC+			R5			R6
15A	CH9G	15B	CH10R	15C	SB1 RXC-			FUNCTION	1	DIN	FUNCTION
16A	CH10Y	16B	CH10G	16C	LineSync+			FUNCTION		PIN	FUNCTION
17A	CH11R	17B	CH11Y	17C	LineSync-			CH9H out		1	CH11R out
18A	CH11G	18B	CH12R	18C	NReset+			CH9Y out		2	CH11Y out
19A	CH12Y	19B	CH12G	19C	NReset-			CH9G out		3	CH11G out
20A	CH13R	20B	CH13Y	20C				CH9R sen		4	CH11R sen
21A	CH13G	21B	CH14R	21C				CH9Y sen		5	CH11Y sen
22A	CH14Y	22B	CH14G	22C				CH9G sen		6	CH11G sen
23A	CH15R	23B	CH15Y	23C				CH10R out		/	CH12R out
24A	CH15G	24B		24C				CH10Y out		8	CH12Y out
25A	Reset	25B	MCE	25C				CH10G out		9	CH12G out
26A	IntAdv	26B	StopTime	26C				CH10R sen		10	CH12R sen
27A	LF status	27B	AC- raw	27C			10	CH10Y sen		11	CH12Y sen
28A	DC gnd	28B		28C			12	CH10G sen	l	12	CH12G sen
29A		29B		29C		\langle					
30A		30B		30C				R1-R8,	to F	PCB FIE	ELD OUTPUT 1
31A	EQ gnd	31B		31C							
32A	DC gnd	32B	DC gnd	32C	DC gnd						

ΝI	FUNCTION		FUNCTION		PIN	FUNCTION		PIN	FUNCTION	PIN	FUNCTION			A4	A3	A2	A1	A0	Н	DSP		P
IC	CH16R		CH1R out		1	CH3R out	1	1	CH5R out	1	CH7R out		<u>></u>	0	0	0	0	0		1		-
2C	CH16Y		CH1Y out		2	CH3Y out	1	2	CH5Y out	2	CH7Y out		e) aft	0	0	0	0	1		2		2
3C	CH16G		CH1G out		3	CH3G out		3	CH5G out	3	CH7G out		Asse	0	0	0	1	0	_	3		3
1C			CH1R sen		4	CH3R sen		4	CH5R sen	4	CH7R sen		G f	0	0	0	1	1	_	4		4
БC			CH1Y sen		5	CH3Y sen	1	5	CH5Y sen	5	CH7Y sen		(16 (16	0	0	1	0	0	_	5		ţ
SC			CH1G sen		6	CH3G sen	1	6	CH5G sen	6	CH7G sen		0	0	0	1	1	0	-	7		(
7C			CH2R out		7	CH4R out	1	7	CH6R out	7	CH8R out			0	0	1	1	1	+	8		1
3C	SB1 TXD+		CH2Y out		8	CH4Y out	1	8	CH6Y out	8	CH8Y out			Ū					-			8
ЭС	SB1 TXD-		CH2G out		9	CH4G out	1	9	CH6G out	9	CH8G out	1	= pir	is are con	nected	to add	iress con	mon	DC g	nd)		-
0C	SB1 RXD+		CH2R sen		10	CH4R sen	1	10	CH6R sen	10	CH8R sen	U	= pii	s are jeit	open							
1C	SB1 RXD-		CH2Y sen		11	CH4Y sen	1	11	CH6Y sen	11	CH8Y sen			SE	31/SB	2			S	IU AD	DR	Ε
2C	SB1 TXC+		CH2G sen		12	CH4G sen	1	12	CH6G sen	12	CH8G sen	Грі				EU			3	Δ2	Δ1	1
3C	SB1 TXC-										·					001		+ +	0	0	0	<u> </u>
4C	SB1 RXC+		R5			R6			R7		R8				14		TYD	┥┝─	0	0	1	_
5C	SB1 RXC-			r			1								10	200	TXD-	┥└──	-	-		_
6C	LineSync+		FUNCTION		PIN	FUNCTION		PIN	FUNCTION	PIN	FUNCTION	3	SE	ST RXC+	16	SB1	RXC-	1 =	= plns	are co	nnec	te
7C	LineSvnc-		CH9R out		1	CH11R out		1	CH13R out	1	CH15R out	4	SE	B1 TXC+	17	SB1	TXC-	-	com	nmon (D)C gr	١d
80	NBeset+		CH9Y out		2	CH11Y out		2	CH13Y out	2	CH15Y out	5			18			0 =	plns	are left	oper	n
9C	NReset-		CH9G out		3	CH11G out		3	CH13G out	3	CH15G out	6	; 		19			4		DC	Р	
00			CH9R sen		4	CH11R sen		4	CH13B sen	4	CH15B sen	7			20			Г		00	1	_

CH13R sen

CH13Y sen

CH13G sen

CH14R out

CH14Y out

CH14G out

CH14R sen

CH14Y sen

CH14G sen

4

5

6

7

8

9

10

11

12

CH15R sen

CH15Y sen

CH15G sen

CH16R out

CH16Y out

CH16G out

CH16R sen

CH16Y sen

CH16G sen

8

12

9 LineSync+

10 NReset+

11 PwrDwn+

13 DC gnd

21

22 LineSync-

23 NReset-

24 PwrDwn-

25 EQ gnd

D OUTPUT TERMINATION ASSEMBLY 16 CHANNEL

4

5

6

7

8

9

10

11

12



SB3

ΡIN	FUNCTION
1	
2	
3	AC- raw
4	SB3 TX+
5	SB3 TX-
6	AC- raw
7	SB3 RX+
8	SB3 RX-

SIU ADDRESSING

6 EQ gnd

A2	A1	A0	SIU
0	0	1	1
0	1	1	2

PIN FUNCTION PIN FUNCTION 1A +24vdc 1B 2A 2B ExtReset in 3A DC gnd ЗB 4B 4A 5B 5A 6B 6A 7B SB1 TXD-7A SB1 TXD+ 8B SB1 RXD-8A SB1 RXD+ 9A SB1 TXC+ 9B SB1 TXC-10A SB1 RXC+ 10B SB1 RXC-1**1**B 11A 12A 12B 13A 13B 14B 14A 15A LineSync+ 15B LineSync-16B NReset-16A NReset+ 17B PwrDwn-17A PwrDwn-18B SB3 TX-18A SB3 TX+ 19A SB3 RX+ 19B SB3 RX-20B 20A 21B LF status 21A LF status 22A LF status out22B LF status out 23B 23A signals ON 24A MC coil 24B 25B 25A MC sec 26A FTR coil 26B 27B 27A FDS 28A RDS 28B 29B 29A 30A 30B AC+ raw 31A EQ gnd 31B

32B AC- raw

Ins are connected to address common (DC gnd)

P6

	DCP
PIN	FUNCTION
1	+48Vdc
2	AC- raw
3	+24VDC
4	
5	DC gnd
6	EQ and

PIN	FUNCTION
1	AC+ CB4
2	AC+ CB3
з	AC+ CB2
4	AC+ CB1
4	AC+ CB1

NOTE:

INSTALL P6 FOR ATCC-HV. P7 NOT USED IN THIS CABINET.

32A



CMU

INPUT (FRON	ASSEME	BLY SLOT 1	SLOT 2	SLOT 3	SLOTA	SLOT 5	SLOT 6	SLOT 7	SLOT 8	SLOTA	SLOT 10	SLOT 11	SI OT 12					INPUT	ASSEMBLY	SIU9 PIN AS	SIGNMENTS	
		CHANNEL 1			CHANNEL 7		CHANNEL 11	CHANNEL 13	CHANNEL 1	SULDID: 13A	CHANNEL 19	CHANNEL 2	1 CHANNEL 23	SIU9		Pl	SIU ROW A	SLOT1-12 PINS	SIU ROW B	SLOT1-12 PINS	SIU ROW C	SLOT1-12 PINS
	2.													2218		-	1 +24 IN	DCP-3	+24 IN	+24 IN	I/O 47	SLOT 9-20
		510 1/0: 6	SIU 1/0; 8	510 1/0:10	510 1/0. 12	5101/0:14		510 1/0: 18	5101/0:20	510 70:22	510 70:24	15101/0:26	510 1/0:28	911		1	2 1/00	SLOT 1-2C	I/O 1	SLOT 3-4C	I/O 48	SLOT 10-7
	6	PITA: TB1=1,2	FITA: TB1-6,7	PITA: 181-11,12	FITA: TB2-1,2 Detector	FITA: TB2-6,7 Detector	PITA: TB2-11,12	PITA: 183-1,2 Detector	FITA: TB3-6,7 Detector	PITA: 183-11,12	FITA: TB4-1,2 Detector	FITA: TB4-6,7	PITA: TB4-11,12 Detector	510		3	3 I/O 2	SLOT 5-6C	/O 3	SLOT 7-8C	I/O 49	SLOT 10-20
	8	Number:	Number:	Number	Number:	Number:	Number:	Number:	Number	Number:	Number	Number:	Number			4	4 I/O 4	SLOT 9-10C	I/O 5	SLOT 11/12C	I/O 50	SLOT 11-7
			<u>Б</u>	<u> </u>		<u> </u>	P		[<u> </u>	<u>ال</u>	<u>الــــــــــــــــــــــــــــــــــــ</u>			Ę	5 I/O 6	SLOT 1F	I/O 7	SLOT 1W	I/O 51	SLOT 11-20
		Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:			6	6 I/O 8	SLOT 2F	I/O 9	SLOT 2W	I/O 52	SLOT 12-7
				Þ			p			p	1						7 I/O 10	SLOT 3F	I/O 11	SLOT 3W	I/O 53	SLOT 12-20
		SILL plp: 5B	SILL plp: 6B	SILL plp: 7B	SILL pln: 8B	SILL plp: 9B	SILLpin: 10B	SILLolo: 11B	SILL plp: 12B	SILLolo: 13B	SILLolo 14B	SILL plp: 15B	SILLpin 16B			8	B I/O 12	SLOT 4F	/O 13	SLOT 4W	SB1 TXD+	COM 2 RXD+
		2 310 pin. 35	SIO PIN OB		510 pm. 66	100 pm. 96	510 pm. 105	SIO PIL LIB	510 pm, 126		310 pm. 148	1010 pm. 106	SIO pin. IOB			9	9 I/O 14	SLOT 5F	/O 15	SLOT 5W	SB1 TXD-	COM 15 RXD-
		SIU 1/0: 7	SIU I/O: 9	SIU I/O: 11	SIU I/O: 13	SIU I/O: 15	SIU I/O: 17	SIU I/O: 19	SIU I/O: 21	SIU (/O: 23	SIU I/O: 25	SIU 1/0: 27	SIU I/O: 29			1	0 1/0 16	SLOT 6F	1/0 17	SLOT 6W	SB1 RXD+	COM 1 TXD+
	୲୲୰ୖ୰	FITA: TB1-4,5	FITA: TB1-9,10	FITA: TB1-14,15.	FITA: TB2-4,5	FITA: TB2-9,10	FITA: TB2-14,15	FITA; TB3-4,5	FITA: TB3-9,10	FITA: TB3-14,15	FITA: TB4-4,5	FITA: TB4-9,10	FITA: TB4-14,15			1	1 1/0 18	SLOT 7F	1/0 19	SLOT 7W	SB1 RXD-	COM 14 TXD-
		Detector Number:	Number:	Number:	Number:	Number:	Number:	Number:	Number:	Number:	Number:	Number:	Number:			1	2 1/0 20	SLOT 8F	1/0 21	SLOT 8W	SB1 TXC+	COM 4 RXC+
			[F		[P			<u>[</u>		<u>[</u>			1	1	3 1/0 22	SLOT 10F	1/0 23	SLOT 10W	SBITAC-	COM 17 HXC-
		Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:	Phase:			1	4 I/O 24	SLOT 11F	1/0 25	SLOT 10W	SDI RAC+	
		H	þ	þ	Н	þ	d I	d I	þ	t i	þ	Ħ	þi l	U		1	<u>5 1/0 20</u>	SLOT 12E	1/0 27	SLOT 12W	JDT RAC-	COMMOLS/root
		CHANNEL 2				CHANNEL 10	CHANNEL 12									1	7 1/0 20	SLOT 1 7	1/0 29	SLOT 1 20	LINE STINC+	COMM22 LSync+
Ł		17 1/0 30 SLOT 1-7 1/0 31 SLOT 1-20 LINE STNC- COMM22 LSylc- 18 1/0 32 SLOT 2-7 1/0 33 SLOT 2-20 N RESET+ COMM10 NRESET+																				
		Image: Normal State Image: Normal State																				
	1															2	0 1/0.36	SLOT 4-7	1/0.37	SLOT 4-20	ASSY ADDR	SLOT 1-12(1)
- L - F	SB1/SB2	SB2 MOUNTED ON EBONT VIEW) 21 1/O 38 SLOT 4-20 ASST ADDIT SLOT 1-12(1)																				
	001/002	INPUT ASSEMBLY																				
	8	(REAR VIEW)																				
	[[88]]															2	24 1/0 44	SLOT 8-7	I/O 45	SLOT 8-20	SB2 RXD+	COM 5 TXD+
	88												P# 8			2	25 I/O 46	SLOT 9-7	40.0	0101010	SB2 RXD-	COM 18 TXD-
	188													•		2	26				SB2 TXC+	COM 8 RXC+
	l															2	27				SB2 TXC-	COM 21 RXC-
	88															2	8 ADDRESS-0	ADC -7	ADDRESS-1	ADC -5	SB2 RXC+	COM 7 TXC+
														100000		2	9 ADDRESS-2	ADC -3	ADDRESS-3	ADC -1	SB2 RXC-	COM 20 TXC-
	8												-	ADDRESS		3	0 INBUS TXD	SLOTS1-12(21)	INBUS RXD	SLOTS1-12(19)	SB2 INBUS TXC	NA
													Ø	<u>rê hêrê di ka</u>		3	EQ GND	,,	AC LINE REF		SB2 INBUS RXC	NA
													C- CLEAN	DCP		3	2 DC GND	DCP-5	DC GND	DCP-5	SIU ENABLE	SIU 24VDCGND
					000000000000000000000000000000000000000	◎ FITA	J2			000000000000000000000000000000000000000	i ITA	∐000 E0 P1 ↓ J1	GND									
						—																

PIN#	IA J1	FITA J1	PIN#	IA J1	FITA J1
1	IN 1+	IN 1+	14	IN 1-	IN 1-
2	IN 2+	IN 2+	15	N 2-	IN 2-
3	IN 3+	IN 3+	16	IN 3-	IN 3-
4	IN 4+	IN 4+	17	IN 4-	IN 4-
5	IN 5+	IN 5+	18	IN 5-	IN 5-
6	IN 6+	IN 6+	19	IN 6-	IN 6-
7	IN 7+	IN 7+	20	IN 7-	IN 7-
8	IN 8+	IN 8+	21	IN 8-	IN 8-
9	IN 9+	IN 9+	22	IN 9-	IN 9-
10	IN 10+	IN 10+	23	IN 10-	IN 10-
11	IN 11+	IN 11+	24	IN 11-	IN 11-
12	IN 12+	IN 12+	25	IN 12-	IN 12-
13	EQ GND	EQ GND	26	EQ GND	EQ GND

IA-J1 TO FITA-J1 CABLE CONNECTIONS IA-J2 TO FITA-J2 CABLE CONNECTIONS

PIN#	IA J2	FITA J2	PIN#	IA J2	FITA J2
1	IN 13+	IN 13+	14	IN 13-	IN 13-
2	IN 14+	IN 14+	15	IN 14-	IN 14-
3	IN 15+	IN 15+	16	IN 15-	IN 15-
4	IN 16+	IN 16+	17	IN 16-	IN 16-
5	IN 17+	IN 17+	18	IN 18-	IN 18-
6	IN 18+	IN 18+	19	IN 18-	IN 18-
7	IN 19+	IN 19+	20	IN 19-	IN 19-
8	IN 20+	IN 20+	21	IN 20-	IN 20-
9	IN 21+	IN 21+	22	IN 21-	IN 21-
10	IN 22+	N 22+	23	IN 22-	IN 22-
11	IN 23+	IN 23+	24	IN 23-	IN 23-
12	IN 24+	IN 24+	25	IN 24-	IN 24-
13	EQ GND	EQ GND	26	EQ GND	EQ GND

COMM SB1/SB2 CONNECTOR

PIN#	AT THE CONTROLLER	AT THE SIU	PIN#	AT THE CONTROLLER	AT THE SIU
1	SB1 TXD+	SB1 RXD+	14	SB1 TXD-	SB1 RXD-
2	SB1 RXD+	SB1 TXD+	15	SB1 RXD-	SB1 TXD-
3	SB1 TXC+	SB1 RXC+	16	SB1 TXC-	SB1 RXC-
4	SB1 RXC+	SB1 TXC+	17	SB1 RXC-	SB1 TXC-
5	SB2 TXD+	SB2 RXD+	18	SB2 TXD-	SB2 RXD-
6	SB2 RXD+	SB2 TXD+	19	SB2 RXD-	SB2 TXD-
7	SB2 TXC+	SB2 RXC+	20	SB2 TXC-	SB2 RXC-
8	SB2 RXC+	SB2 TXC+	21	SB2 RXC-	SB2 TXC-
9	LINE SYNC+	LINE SYNC+	22	LINE SYNC-	LINE SYNC+
10	NRESET+	NRESET+	23	NRESET-	NRESET-
11	PWR DWN+		24	PWR DWN-	
12	+5VDC ISO		25	EQ GND	
13	ISO GND	DC GND			

	SIU INPUT ASSY		ADDR	ESS		ADDR PLUG BINARY
*	Input Assembly 1	1-2			7-8	1001
	Input Assembly 2	1-2		5-6		1010
	Input Assembly 3	1-2		5-6	7-8	1011
	Input Assembly 4	1-2	3-4			1100
	Input Assembly 5	1-2	3-4		7-8	1101

Jumper settings are ground true. Install jumper for logic 1

 \star = Used configurations in this cabinet.

ADC DETAIL

	PIN #	FUNCTION	PIN #	FUNCTION
*	1	ADDRESS 3	2	DC GROUND
	3	ADDRESS 2	4	DC GROUND
	5	ADDRESS 1	6	DC GROUND
*	7	ADDRESS 0	8	DC GROUND

DCP

PIN	FUNCTION
1	+48Vdc
2	AC- raw
3	+24VDC
4	
5	DC gnd
6	EQ gnd





FIELD OUTPUT TERMINATION ASSEMBLY 16 CHANNEL SCHEMATIC (PCB INTERNAL CONNECTIONS)

HDFU

CH1R fleld

CH1Y fleld

FTR coll

CH3R fleld

CH3Y field

2-1









PIN	FUNCTION	PIN	FUNCTION
1	2-2 sen	1	
2	2-1 sen	2	
3	1-2 sen	3	AC- raw
4	1-1 sen	4	SB3 TX+
5	1-1 fused	5	SB3 TX-
6	1-2 fused	6	AC- raw
7	2-1 fused	7	SB3 RX+
8	2-2 fused	8	SB3 RX-
			-

raw		6A		6C	
TX+		8A	EQ GND	8C	AC- raw
TX-		10A	SB3 TX+	10C	SB3 RX+
raw		12A	SB3 TX-	12C	SB3 RX-
RX+		14A	ADDRS	14C	
RX-		16A	1-1 sen	16C	1-1 out
	-	18A	1-2 sen	18C	1-2 out
		20A		20C	
	1	22A		22C	
ICTION		24A	2-1 sen	24C	2-1 out
used		26A	2-2 sen	26C	2-2 out
used		28A		28C	
used		30A	Flasher CB	30C	Flasher CB
					1.0

A4	A3	A2	A1	A0	HDFU
1	1	1	0	1	1

	Ρ	1	

			12
PIN	FUNCTION	PIN	FUNCTION
1	FLASHER CB	1	1-1 fused
2	AC- raw	2	1-2 fused
3	EQ gnd	3	2-1 fused
		4	2-2 fused
		5	1-1 out
		6	1-2 out



PIN#	CONTROLLER	SIU	PIN#	CONTROLLER	SIU
1	SB1 TXD+	SB1 RXD+	14	SB1 TXD-	SB1 RXD-
2	SB1 RXD+	SB1 TXD+	15	SB1 RXD-	SB1 TXD-
3	SB1 TXC+	SB1 RXC+	16	SB1 TXC-	SB1 RXC-
4	SB1 RXC+	SB1 TXC+	17	SB1 RXC-	SB1 TXC-
5	SB2 TXD+	SB2 RXD+	18	SB2 TXD-	SB2 RXD-
6	SB2 RXD+	SB2 TXD+	19	SB2 RXD-	SB2 TXD-
7	SB2 TXC+	SB2 RXC+	20	SB2 TXC-	SB2 RXC-
8	SB2 RXC+	SB2 TXC+	21	SB2 RXC-	SB2 TXC-
9	LINE SYNC+	LINE SYNC+	22	LINE SYNC-	LINE SYNC+
10	NRESET+	NRESET+	23	NRESET-	NRESET-
11	PWR DWN+		24	PWR DWN-	
12	+5VDC ISO		25	EQ GND	
13	ISO GND	DC GND			



IA-J1 TO FITA-J1 CABLE CONNECTIONS

PIN#	IA J1	FITA J1	PIN#	IA J1	FITA J1
1	IN 1+	IN 1+	14	IN 1-	IN 1-
2	IN 2+	IN 2+	15	IN 2-	IN 2-
3	IN 3+	N 3+	16	IN 3-	IN 3-
4	IN 4+	IN 4+	17	IN 4-	IN 4-
5	IN 5+	IN 5+	18	IN 5-	IN 5-
6	IN 6+	N 6+	19	IN 6-	N 6-
7	IN 7+	IN 7+	20	IN 7-	IN 7-
8	IN 8+	IN 8+	21	IN 8-	IN 8-
9	IN 9+	N 9+	22	IN 9-	N 9-
10	IN 10+	IN 10+	23	IN 10-	IN 10-
11	IN 11+	IN 11+	24	IN 11-	IN 11-
12	IN 12+	IN 12+	25	IN 12-	IN 12-
13	EQ GND	EQ GND	26	EQ GND	EQ GNE

IA-J2 TO FITA-J2 CABLE CONNECTIONS

PIN#	IA J2	FITA J2	PIN#	IA J2	FITA J2
1	IN 13+	IN 13+	14	IN 13-	IN 13-
2	IN 14+	IN 14+	15	IN 14-	IN 14-
3	IN 15+	IN 15+	16	IN 15-	N 15-
4	IN 16+	IN 16+	17	IN 16-	IN 16-
5	IN 17+	IN 17+	18	IN 18-	IN 18-
6	IN 18+	N 18+	19	IN 18-	N 18-
7	IN 19+	IN 19+	20	IN 19-	IN 19-
8	IN 20+	IN 20+	21	IN 20-	IN 20-
9	IN 21+	N 21+	22	IN 21-	N 21-
10	IN 22+	N 22+	23	IN 22-	N 22-
11	IN 23+	IN 23+	24	IN 23-	IN 23-
12	IN 24+	IN 24+	25	IN 24-	IN 24-
13	EQ GND	EQ GND	26	EQ GND	EQ GND

PIN#	FUNCTION
1	IN 1+
2	IN 1-
3	EQ GND
4	IN 2+
5	IN 2-
6	IN 3+
7	IN 3-
8	EQ GND
9	IN 4+
10	IN 4-
11	IN 5+
12	IN 5-
13	EQ GND
14	IN 6+
15	IN 6-

PIN#	FUNCTION
1	IN 7+
2	IN 7-
3	EQ GND
4	IN 8+
5	IN 8-
6	IN 9+
7	IN 9-
8	EQ GND
9	IN 10+
10	IN 10-
11	IN 11+
12	IN 11-
13	EQ GND
14	IN 12+
15	IN 12-

TB2

IN#	FUNCTION	
1	IN 13+	
2	IN 13-	
3	EQ GND	
4	IN 14+	
5	IN 14-	
6	IN 15+	
7	IN 15-	
8	EQ GND	
9	IN 16+	
10	IN 16-	
11	IN 17+	
12	IN 17-	
13	EQ GND	
14	IN 18+	
15	IN 18-	

TB3

TB4					
PIN#	FUNCTION				
1	IN 19+				
2	IN 19-				
3	EQ GND				
4	IN 20+				
5	IN 20-				
6	IN 21+				
7	IN 21-				
8	EQ GND				
9	IN 22+				
10	IN 22-				
11	IN 23+				
12	IN 23-				
13	EQ GND				
14	IN 24+				
15	IN 24-				

	TB1
#	FUNCTIC
	IN 1 +

	1	IN 7
	2	IN 7
	3	EQ (
	4	IN 8
	5	IN 8
	6	IN 9
	7	IN 9
	8	EQ (
	9	IN ⁻
	10	IN ⁻
	11	IN ⁻
	12	IN ⁻
	13	EQ (
	11	INL -

N	Ρ



10 Schematic and Logic Diagram

- 10.1 One-Line Diagram
- 10.2 Output Assembly
- 10.3 Input Assembly
- 10.4 Field Output Termination Assembly
- 10.5 Field Input Termination Assembly
- 10.6 Service Assembly
- 10.7 Fan, Lamp and Police Assemblies





ASY ADDR 1 A 23 DC GND ASY AD INBUS RTS 2 B 24 + 12VDC INBUS I IN1+ 4 D 26 IN 1+ IN3+ IN1+ 5 E 28 OUT IN 3+ IN1+ 6 F 28 OUT IN 3+ IN 1+ 7 H 28 OUT IN 3+ IN 2+ 8 J 29 DC GND Restart IN 2+ 8 J 30 IN 2+ IN 4+ IN 2- 9 K J 22 EQ GND Restart AC- 11 M 33 AC- AC- AC- AC- 11 M 33 AC- AC- AC- ISot 1-13 13 P 36 slot 1-14 IN 1- IN 1+ Slot 1-17 17 T U 40 slot 1-17 IN 2+ INBUS RXD 19 19 W 42 DC GND Restart INBUS TXD 21 22 Z Z <t< th=""><th>$\begin{array}{c c c c c c c c c c c c c c c c c c c$</th><th>A 23 DC GND ASY ADDR 1 1 A 23 DC GND A 24 + 12VDC INBUS RTS 2 2 B 24 + 12VDC 25 Reset 3-4 IN 7+ 4 4 D 25 Reset 3-4 D 26 IN 5+ IN 7+ 4 4 D 27 IN 5- IN 7- 5 5 E 28 OUT 5 DC GND 6 F 29 DC GND 7 H 30 IN 6+ IN 8+ 8 31 IN 8- 31 IN 6- IN 8+ 9 K 32 EQ GND 10 L 33 AC- M 34 AC+ AC+ 12 N 35 IN 5+ 36 IN 5- 14 14 R 8 37 OUT 3 15 15 S 38 DC GND Restart 5 16 15 S 38 DC GND 100 L 40 IN 6- 139 IN 6+ V 41 OUT 6 INBUS RXD19 19 W 41 OUT 6 100 L 30 IN 6+ 130 IN 6+ 14 14 16 17 19 IN 6+ 17 100 L 100 L 100 L 100 L 100 L<th>ASY ADDR 1 A 23 DC GN 1 1 A 2 B 1 1 2 B 24 120 1 1 4 0 25 Restart 26 1 10 1 7 7 H 30 100 1 1 10 10 1 32 EQ GND 33 AC 10 10 1 11 M 32 EQ GN 33 AC 11 10 1 12 N 33 AC 10 1 11 M 32 EQ GN 33 AC 10 10 1 11 M 33 AC 33 AC</th><th>D ASY ADDR 1 A 23 DC INBUS RTS 2 B 24 56 IN 11+ 4 D 25 56 IN 11+ 4 D 27 II DC GND 6 F 29 II 29 II DC GND 6 F 29 II 30 II II DC GND 6 F 29 II 30 II II IN 12- 9 9 K 32 II II II M 34 II II II M 34 II II M 35 II II II M 35 II II II M 35 II II II M 34 II II II M 35 II II II III III<</th></th></t<>	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	A 23 DC GND ASY ADDR 1 1 A 23 DC GND A 24 + 12VDC INBUS RTS 2 2 B 24 + 12VDC 25 Reset 3-4 IN 7+ 4 4 D 25 Reset 3-4 D 26 IN 5+ IN 7+ 4 4 D 27 IN 5- IN 7- 5 5 E 28 OUT 5 DC GND 6 F 29 DC GND 7 H 30 IN 6+ IN 8+ 8 31 IN 8- 31 IN 6- IN 8+ 9 K 32 EQ GND 10 L 33 AC- M 34 AC+ AC+ 12 N 35 IN 5+ 36 IN 5- 14 14 R 8 37 OUT 3 15 15 S 38 DC GND Restart 5 16 15 S 38 DC GND 100 L 40 IN 6- 139 IN 6+ V 41 OUT 6 INBUS RXD19 19 W 41 OUT 6 100 L 30 IN 6+ 130 IN 6+ 14 14 16 17 19 IN 6+ 17 100 L 100 L 100 L 100 L 100 L <th>ASY ADDR 1 A 23 DC GN 1 1 A 2 B 1 1 2 B 24 120 1 1 4 0 25 Restart 26 1 10 1 7 7 H 30 100 1 1 10 10 1 32 EQ GND 33 AC 10 10 1 11 M 32 EQ GN 33 AC 11 10 1 12 N 33 AC 10 1 11 M 32 EQ GN 33 AC 10 10 1 11 M 33 AC 33 AC</th> <th>D ASY ADDR 1 A 23 DC INBUS RTS 2 B 24 56 IN 11+ 4 D 25 56 IN 11+ 4 D 27 II DC GND 6 F 29 II 29 II DC GND 6 F 29 II 30 II II DC GND 6 F 29 II 30 II II IN 12- 9 9 K 32 II II II M 34 II II II M 34 II II M 35 II II II M 35 II II II M 35 II II II M 34 II II II M 35 II II II III III<</th>	ASY ADDR 1 A 23 DC GN 1 1 A 2 B 1 1 2 B 24 120 1 1 4 0 25 Restart 26 1 10 1 7 7 H 30 100 1 1 10 10 1 32 EQ GND 33 AC 10 10 1 11 M 32 EQ GN 33 AC 11 10 1 12 N 33 AC 10 1 11 M 32 EQ GN 33 AC 10 10 1 11 M 33 AC 33 AC	D ASY ADDR 1 A 23 DC INBUS RTS 2 B 24 56 IN 11+ 4 D 25 56 IN 11+ 4 D 27 II DC GND 6 F 29 II 29 II DC GND 6 F 29 II 30 II II DC GND 6 F 29 II 30 II II IN 12- 9 9 K 32 II II II M 34 II II II M 34 II II M 35 II II II M 35 II II II M 35 II II II M 34 II II II M 35 II II II III III<
ASY ADDR 1 A 23 DC GND ASY AD INBUS RTS 2 B 24 + 12VDC INBUS II 1 A 2 B 24 + 12VDC INBUS II IN 13+ 4 D 25 Reset 7-8 IN 15- IN 13- 5 5 E 28 OUT 13 DC GND IN 14+ 8 J 30 IN 14+ IN 15- 28 OUT 13 DC GND IN 14+ 9 K 33 AC- AC- 11 IN AC- IN 14+ 9 K 131 IN 14- IN 16+ 33 AC- AC- AC+ 12 N 34 AC+ AC- AC- 34 AC+ AC- IN 11- 14 R 37 OUT 11 DC GND Bestart IN 12- IN 14+ IN 12+ 17 U 38 DC GND Restart AC+ IN 1+ IN 12+ 18 V 40 IN 12- IN 14+ IN 4+ IN 12+ 18 V	DR 1 A 23 DC GND ASY ADDR 1 1 RTS 2 B 24 + 12VDC INBUS RTS 2 2 3 C 25 Reset 7-8 DC GND 3 3 4 D 27 IN 15- IN 17+ 4 5 5 E 28 OUT 15 Restart 17 7 7 8 J 30 IN 16+ IN 18+ 8 9 9 K 32 EQ GND AC- 11 11 10 L 33 AC- AC- 11 12 11 11 M 34 AC+ AC+ 12 13 12 N 34 AC+ AC+ 12 13 13 14 12 N 34 AC+ AC+ 11 12 13 13 13 14 R 37 OUT 13 Restart 15 16 16 15 S 38 DC GND Restart 15 16	A 23 DC GND ASY ADDR 1 A 23 DC GND A 24 + 12VDC INBUS RTS 2 B 24 + 12VDC C 26 IN 17+ IN 19+ 4 D 25 Reset 9-10 DC GND 3 C D 26 IN 17+ IN 19+ 4 D 27 IN 19- 28 OUT 17 F 29 DC GND 6 F F 29 DC GND 8 J H 30 IN 18+ IN 20+ 8 8 J 9 K J 31 IN 18- IN 20- 9 9 K 32 EQ GND M 34 AC+ AC- 11 M 34 AC+ 35 IN 17+ N 35 IN 15+ IN 17+ 13 P 36 IN 17- T 38 DC GND Restart 17 16 T 7 39 IN 18+ V 40 IN 18- IN 18+ 18 V 40 IN 18- 40 IN 18- T 38 DC GND Restart 20 20 <t< td=""><td>ASY ADDR 1 A 23 DC GN 10 DC GND 3 C 24 + 12VI 10 DC GND 3 C 26 IN 21+ 10 DC GND 3 C 26 IN 21+ 10 N 21+ 4 D 25 Reset 10 N 21+ 4 D 29 DC GN 10 N 21+ 5 6 F 29 DC GN 10 N 22+ 8 J 31 IN 22- 9 11 N 22+ 8 J 31 IN 22- 32 EQ GN 10 L 33 AC- 33 AC- 33 AC- 11 M 33 AC- 33 BC GN 39 IN 20- 11 N 19+ 13 P 38 BC GN 39 IN 20- 11 N 20- 18 V 39 IN 20- 17 U 40 OL 20- 11 NBUS TXD 21 18 V 43 OUT 2 2 2 11 NBUS TXD 21 22 <t< td=""><td>ID ASY ADDR 1 A 23 [DC INBUS RTS 2 B 24 [24 [24 [24 [24 [24 [26 [] 11-12 IN 23+ 4 4 D 26 [] 11/12 IN 23+ 4 4 D 26 [] 27 [] 1 AC 26 [] 27 [] 1 1 0 26 [] 27 [] 1 1 26 [] 27 [] 1</td></t<></td></t<>	ASY ADDR 1 A 23 DC GN 10 DC GND 3 C 24 + 12VI 10 DC GND 3 C 26 IN 21+ 10 DC GND 3 C 26 IN 21+ 10 N 21+ 4 D 25 Reset 10 N 21+ 4 D 29 DC GN 10 N 21+ 5 6 F 29 DC GN 10 N 22+ 8 J 31 IN 22- 9 11 N 22+ 8 J 31 IN 22- 32 EQ GN 10 L 33 AC- 33 AC- 33 AC- 11 M 33 AC- 33 BC GN 39 IN 20- 11 N 19+ 13 P 38 BC GN 39 IN 20- 11 N 20- 18 V 39 IN 20- 17 U 40 OL 20- 11 NBUS TXD 21 18 V 43 OUT 2 2 2 11 NBUS TXD 21 22 <t< td=""><td>ID ASY ADDR 1 A 23 [DC INBUS RTS 2 B 24 [24 [24 [24 [24 [24 [26 [] 11-12 IN 23+ 4 4 D 26 [] 11/12 IN 23+ 4 4 D 26 [] 27 [] 1 AC 26 [] 27 [] 1 1 0 26 [] 27 [] 1 1 26 [] 27 [] 1</td></t<>	ID ASY ADDR 1 A 23 [DC INBUS RTS 2 B 24 [24 [24 [24 [24 [24 [26 [] 11-12 IN 23+ 4 4 D 26 [] 11/12 IN 23+ 4 4 D 26 [] 27 [] 1 AC 26 [] 27 [] 1 1 0 26 [] 27 [] 1 1 26 [] 27 [] 1
J13A J13B +24 VDC 1A Reset 1-2 2A Reset 5-6 3A OUT 1 5A OUT 3 6A OUT 6 7A OUT 1 5A OUT 1 6A OUT 1 10A OUT 10 9B OUT 11 10A OUT 12 10B OUT 13 11A OUT 14 10B OUT 15 12A OUT 16 12B OUT 17 13A OUT 18 13B OUT 12 15A OUT 14 10B OUT 22 14B OUT 24 16B Restart 1 17A Restart 5 19A Restart 6 19B Restart 7 20A Restart 10 21B	J13C Restart 19 Restart 20 3C Restart 21 4C Restart 22 5C Restart 23 6C Restart 24 7C SB1 TXD+ 8C SB1 TXD+ 9C SB1 TXD+ 9C SB1 TXD+ 9C SB1 TXC+ 10C SB1 TXC+ 12C SB1 RXC+ 13C SB1 RXC+ 13C SB1 RXC+ 13C SB2 TXD+ 22C SB2 TXD+ 23C SB2 TXC+ 26C SB2 RXD+ 24C SB2 RXC+ 28C SB2 RXC- 29C	N 1- IN 13+ 1 0 14 IN 13- N 2- IN 13+ 1 0 14 IN 13- N 3- IN 14+ 2 0 15 IN 14- N 3- IN 15+ 3 0 16 IN 15- N 4- IN 16+ 4 0 17 IN 16- N 5- IN 16+ 4 0 19 IN 18- N 6- IN 18+ 6 0 19 IN 18- N 7- IN 19+ 7 0 21 IN 20- N 8- IN 20+ 8 0 21 IN 20- N 10- IN 21+ 9 22 IN 21- IN 22+ 10 0 23 IN 22- IN 23+ 11 0 24 IN 23- IN 24+ 12 0 26 EQ GND Vertical IDC26 Header Vertical IDC26 Header Vertical	connection from AC CLEAN BUS P1	P6 EQ GND SB2 TXC- 21 22 SB2 TXC- 21 22 SB2 TXC- 12 22 SB1 TXC- 17 18 SB1 TXC- 17 18 DC GND 13 16 Ine sync+ 9 10 SB2 RXC+ 7 8 SB2 RXC+ 9 10 SB2 RXC+ 5 6 SB1 RXC+ 3 4 SB1 RXD+ 1 6 SB1 RXD+ 1 2 SB1 RXD+ 3 4 SB1 RXD+ 3 8 SB1 RXD+ 5 5 CDC GND 5 5 CDC GND 5



Field Output Termination Assembly Schematic

P3 AC-raw IR out O 2R O FTR coll IY out O 2G O FTR coll IR sen O 2R O 2G O 2C O	R2 Dut 3R out 0 4R out Dut 3Y out 0 44 out Dut 3G out 0 4G out Dut 3G out 0 4G out Dut 3G sen 0 4R sen en 3G sen 0 4G sen 0 4G sen	R3 5R out O O 6R out 5Y out O O 6G out 5G out O O 6G out 5R sen O O 6R ser 5Y sen O O 6G ser 5G sen O O 6G ser	R4 7R out 0 8R out 7Y out 0 88 out 7G out 0 88G out 7G sen 0 87 ser 7G sen 0 87 ser 8G ser	R5 OLAR out OLAY out OLAG out OLAR sen OLAR sen OLAR sen OLAR sen OLAG sen OLAG sen OLAG sen OLAG sen OLAG sen	R6 OLCR out OLCP OLCY out OOOD OLCR ser OOOD sen OLCY sen OOOD sen OLCY sen OOOD sen OLCG sen OOOD sen OLCG sen OOOD	R7 Rout 2PR out 0 0 4PR out 6PR out Cout 2PY out 0 0 4PY out 6PY out 3 out 2PG out 0 4PG out 6PG out 4PR sen 6PR set 6 o 4PY sen 6PY set 5 sen 2PG sen 0 4PG sen 6PG set 0 0 4PG sen 6PG set
1R out FPB1 1R fleld 2 1Y out 0 1Y fleld 2 1-1 NC 2-1 1 1-1 NC 2-1 1 1-1 NC 2-1 1 1-1 NC 2-1 1 1-1 NC 0 AC-raw FTR coil C AC-raw FTR1 3R out 0 3Y out 0 3Y fleld	R out FPB2 2R field	5R out FPB5 5Y out FTR coil FTR coil FTR3 FPB7 7Y out O O O O O O O O O O O O O	5R fleld 6R out FPB6 5Y fleld 6Y out Imp 1-2 Imp Imp AC-raw FTR coil FTR4 7R field 8R out Imp 7Y fleld 8Y out Imp	6R field 0LAR out 6Y field 0LAY out 2-2 1-1 10 AC-raw FTR coil 8R field 0LCR out 8Y field 0LCY out	FPB9 OLAR field OLBR O OLAY field OLBY or O OLAY field OLBY or O OLAY field OLBY or NC 2-1 1-1 Image: Constraint of the state of the s	Dut FPB10 OLBR field 2PR out OLBY field 2PY out OLBY field 2PY out OLBY field 2PY out OLBY field 6PR out FTR6 OLDR field 6PR out OLDY field 6PY out
FT1 FT2 FT3 P 1R field 1R sen 1Y field 1G out 1G sen P 2R field P 2R field P 2R sen P 2R field P 2R fiel	FT4 3R field 3R sen 3Y field 3Y field 3G out 3G sen 4G out 4G sen 4G sen 4G sen 4G sen	FT5 FT6	eld sen eld sen ut sen U TR field 7R sen 7R sen 77 field 77 field	8 FT9 BR field BR sen BY field BY sen BG out BG sen DLAG of OLAG OLAG OLAG OLAG OLAG OLAG OLAG OLAG	FT10 FT11	OLCR field Image: Constraint of the set of the
SUP1 IR field EQ GND IY field IG out EQ GND 2R field Q GND 2R field EQ GND 2R field Q GND 2R field Q GND 2R field Q GND 2R field Q GND 2R field Q GND 2R field Q GND Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q	SUP2 3R fleld EQ GND 3Y fleld 3G out EQ GND 5R fleld 5Y fleld EQ GND 5G out	SUP3 4R fleld EQ GND 4Y fleld 4G out EQ GND 6R fleld 6Y fleld EQ GND 6G out 1	SUP4 7R fleld EQ GND 7Y fleld 7G out EQ GND OLAR fleld OLAY fleld EQ GND OLAG out	SUP5 8R fleld EQ GND 8Y fleld 8G out EQ GND OLBR fleld OLBY fleld EQ GND OLBR fleld OLBY fleld EQ GND OLBG out	SUP6 OLCR fleld EQ GND OLCY fleld OLCG out EQ GND 2PR fleld EQ GND 2PR fleld EQ GND 2PG out 1	SUP7 SU OLDR fleld EQ GND OLDY fleld OLDG out EQ GND 4PR fleld 4PY fleld EQ GND 1 1 1 1 1 1 1 1 1 1



FIELD OUTPUT TERMINATION ASSEMBLY 356i ATC Cabinet

D SHEET 1 OF 1

10.4

rev. A





TB3	
15	CH13+
1/	CH13-
14	EGND
10	CH14+
12	CH14-
10	CH15+
10	CH15-
9	EGND
0	CH16+
6	CH16- 🔪
0	CH17+
C A	CH17-
4	EGND 🔪
3	CH18+
2	CH18-
I	
Barrier s	strip
TB4	
15	CH19+
10	CH19-
14	EGND
13	CH20+
12	CH20-
10	CH21+
10	CH21-
9	EGND
8	CH22+
(CH22-
6	CH23+
5	CH23-
4	EGND
3	CH24+
2	CH24-
1	
Barrier s	strip 1

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HDFU			SB3		
	PIN	FUNCTION	PIN	FUNCTION	
	1	2-2 sen	1		
	2	2-1 sen	2		
	3	1-2 sen	3	AC- raw	
	4	1-1 sen	4	SB3 TX+	
	5	1-1 fused	5	SB3 TX-	
	6	1-2 fused	6	AC- raw	
	7	2-1 fused	7	SB3 RX+	
	8	2-2 fused	8	SB3 RX-	
P1				P2	

P3						
PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	
2A		2C		2E		
4A		4C		4E		
6A		6C		6E	DC gnd	
8A	EQ GND	8C	AC- raw	8E	AC- raw	
10A	SB3 TX+	10C	SB3 RX+	10E	ADDRS	
12A	SB3 TX-	12C	SB3 RX-	12E	ADDRS	
14A	ADDRS	14C		14E	ADDRS	
16A	1-1 sen	16C	1-1 out	16E	1-1 out	
18A	1-2 sen	18C	1-2 out	18E	1-2 out	
20A		20C		20E		
22A		22C		22E		
24A	2-1 sen	24C	2-1 out	24E	2-1 out	
26A	2-2 sen	26C	2-2 out	26E	2-2 out	
28A		28C		28E		
30A	Flasher CB	30C	Flasher CB	30E	Flasher CB	
32A		32C	AC- raw	32E	Flasher CB	

	FUNCTION	FIN
1	FLASHER CB	1
2	AC- raw	2
3	EQ gnd	3
		4
		5

1	1-1 fused	Γ
2	1-2 fused	
3	2-1 fused	
4	2-2 fused	
5	1-1 out	
6	1-2 out	
7	2-1 out	
8	2-2 out	

FUNCTION

HDFU ADDRESSING

A4	A3	A2	A1	A0	HDFU
1	1	1	0	1	1



