

AHM730-P-RIS Process Signal Transmitter/Isolator

- Non Smart / Non-uProcessor based, Type A instrument
- Supply voltage 21-30Vdc
- AMELEC Standard 10 year warranty
- Suitable for SIL 1, 2 & 3 rated (EN 61508) safety instrumented system (SIS) loop applications
- RIS SC8302 / 8302E / 8356 / 8358 Series Replacement Card

TECHNICAL SPECIFICATION

FUNCTION

Process input signal Converter / Isolator

INPUT

Any DC Current / Voltage can be specified in the range of:

Current up to 100mA max (Passive port)

Voltage up to 100V max (impedance 1Mohms)

Typical Input: 4 - 20nA (Passive port, impedance 10ohms)

OUTPUT

DC current or voltage specified in the range of:

Current up to 100mA max in Sink configuration (externally powered)

Current up 22mA max Source configuration (Internally powered)

Voltage any up to 20V max @ up to 20mA.

Typical output range: 4 - 20mA (Active port, 800ohms max load)

Optional 24Vdc @ 22mA two-wire loop excitation (RIS 'E' option)

CONTROLS

Zero / Span: 15-turn blindest potentiometers to calibrate Output.

SUPPLY VOLTAGE

Nom 24Vdc, Buss line within RIS Rack Backplane.

TEST POINTS

I/P + O/P Test Points on Front Fascia, allows for monitoring or simulation of the input signal & monitoring of the output signal; 0-2V = 0-100% span.

(supplied with Test Plugs on flying leads)

INDICATOR

Amber Led: power **ON** indicator

PERFORMANCE

Response time: < 100mS (0-100% input step change)

Accuracy/Linearity : <±0.1% span

Input open circuit response - Downscale Drive as standard

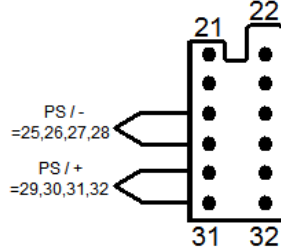
PROTECTION

Isolation 1000V RMS Input/Output/Supply
Internal Fuse.

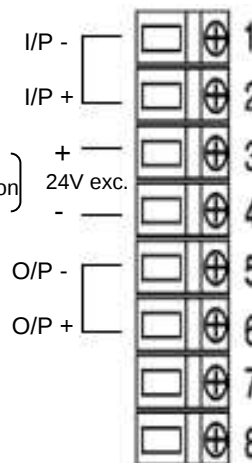
Input over range typically at 300%

Output saturation 125%

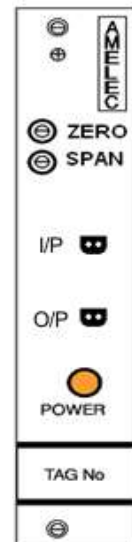
Internal 24Vdc SUPPLY BUSS



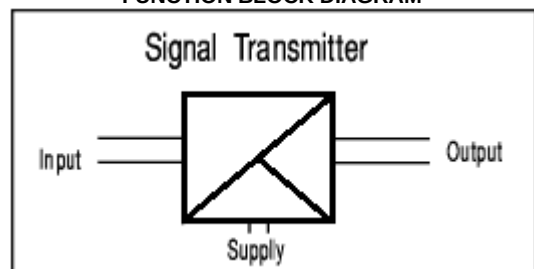
RIS Back Plate TERMINATION



FRONT VIEW



FUNCTION BLOCK DIAGRAM



ENVIRONMENTAL CONDITIONS

Storage temperature: -40 to +70 °C

Operating Ambient: -15 to +55 °C

Relative Humidity: 5 to 95% RH (Non-Condensing)

EMC: 2014/30/EU , EN 61326-1:2013 (controlled EM)

MOUNTING / DIMENSIONS

Card with 3U high 4E wide front plate

Mounting 19" rack / 84E wide (3U High RIS 19" rack)

Card weight < 200g

ADDITIONAL OPTIONS

J: Input injection Jack, for testing purposes

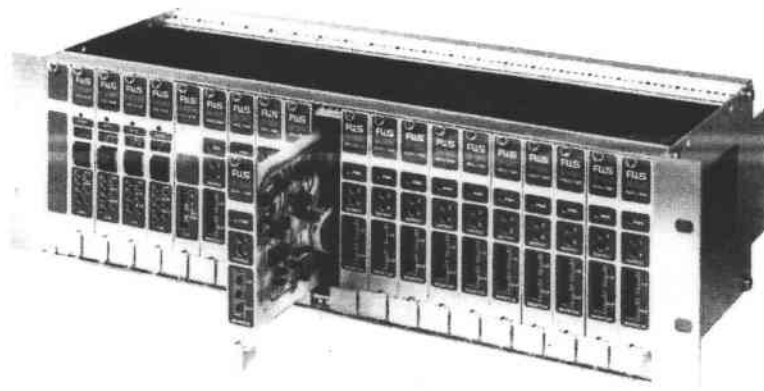
M: 24Vdc 2-wire loop excitation (original RIS 'E' option)

X: Open circuit response Upscale drive

RIS - ROCHESTER INSTRUMENTS

8200/8300 SERIES (19" RACKS)

Other DIN
Instrumentation



- **Single & Dual Alarms:** T/C, mV, Current/Voltage & RTD
- **Transmitters:** Slidewire, High-Level, mV, T/C, T/C Linearizer, Square Root, Frequency, RTD and Strain Gauge
- **DIN 41494 & "Euro Card" Dimension**
- **High Density Packaging with Single Channel Integrity**
- **3, 8, or 20 Card Racks Available**
- **Optional 3 Digit LED Display on Alarms Indicates Input Value & Set Points**
- **Input/Output/Power Isolation**

RIS Series 8200/8300 electronic alarms and transmitters are designed for high input/output versatility, as well as international mechanical standards (specifically DIN 41494 and "Euro Card" dimensions). High density packaging, single channel integrity and flexible system configuration are just a few of the reasons why the 8200/8300 is one of the world's premier instrument lines.

Easy to Read, Easy to Calibrate

Series 8200/8300 alarms and transmitters have independent, multiturn controls for easy adjustment of zero and span. Independent test points allow calibration checks with modules still in the electrical loop. An optional three-digit LED display on 8200 alarms indicates input value and set points (up to two) as a percent of span (00.0% to 99.9%). Parameters to be displayed are selected by a front-mounted pushbutton, allowing calibration and set point adjustment without module removal. Over-range signals, including upscale burnout, are also front LED indicated.

Request Publication 1319.

8200/8300
Plug-In Alarms
& Transmitters

Sales@amelec-uk.com
www.amelec-uk.com

Series ET-8200 Alarms

General Specifications

Power Requirements: 24 Vdc, -15% to +10%

Isolation: input/output/power, 600 Vac, 1000 Vdc

LED Display Option: three digit LED for percentage of span of input and set points

Contact Rating: 3 amps, 240 Vac/28 Vdc (resistive)

Contact Outputs:

- a. single trip—1 relay with DPDT contacts
- b. dual trip—2 relays with SPDT contacts

Common Mode Rejection:—120 dB @ 60 Hz

Repeatability: $\pm 0.05\%$ of span

Burnout: upscale or downscale (upscale standard)

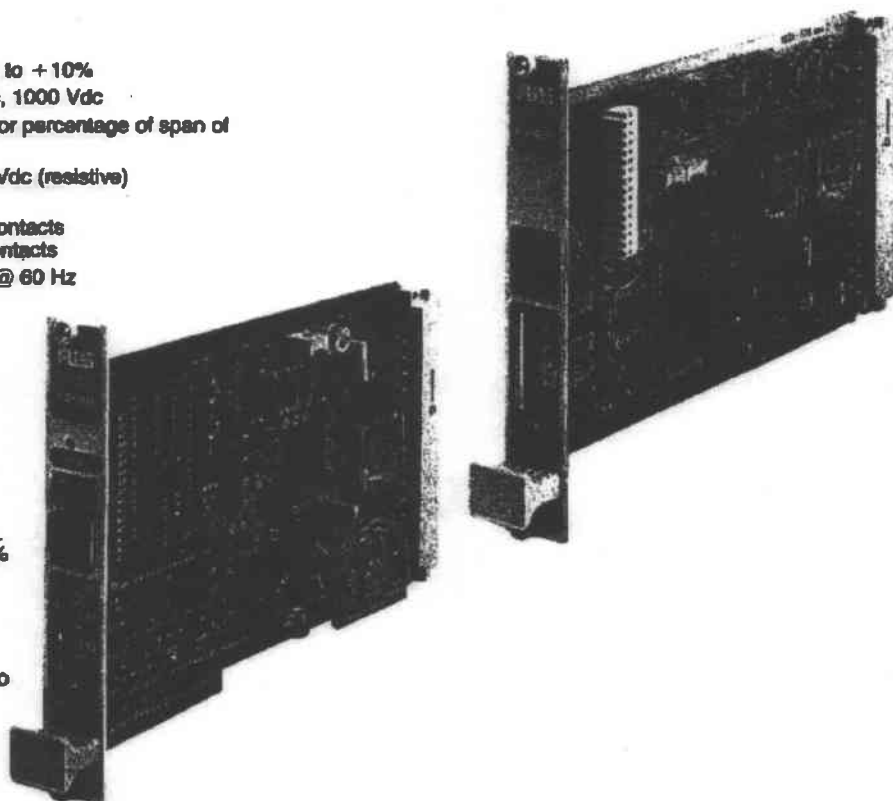
Power Consumption: nominally 200 mA @ 24 Vdc with failsafe relay configuration

Response Time: 100 ms (other response times available as a special option)

Deadband: factory set at 0.5% (independently variable deadband from 0.5% to 16% for each circuit available as an option)

Stability and Drift: $\pm 0.033\%/^{\circ}\text{C}$ maximum

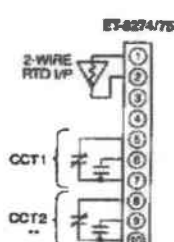
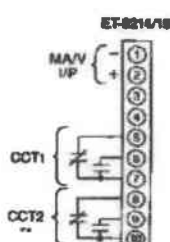
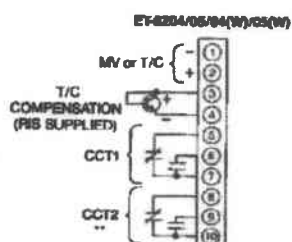
Ambient Temperature Range: -16° to 60°C (0° to 140°F)



Model Number	Function	Input Signals	Output Signals																								
ET-8204(W) ET-8204A(W)	Thermocouple(W)/millivolt alarm, single trip	a. T/C types E, J, K, R, S, T, B (ISA and DIN), with integral cold-junction compensation b. Any mV input, 10-160 mV spans, 5 M Ω minimum impedance c. Spans as low as 5 mV (special order) d. Zero offset -10 to +49 mV	One DPDT contact, 3 amp rating																								
ET-8205(W) ET-8205A(W)	Thermocouple(W)/millivolt alarm, dual trip		Two SPDT contacts, 3 amp rating																								
ET-8214 ET-8214A	Current/voltage alarm, single trip	<table border="1"> <thead> <tr> <th>Input</th><th>Impedance</th><th>Input</th><th>Impedance</th></tr> </thead> <tbody> <tr> <td>0-1 mA</td><td>1 KΩ</td><td>0-1 V</td><td>5 MΩ</td></tr> <tr> <td>0-5 mA</td><td>200Ω</td><td>0-5 V</td><td>500 KΩ</td></tr> <tr> <td>0-10 mA</td><td>100Ω</td><td>0-10 V</td><td>1 MΩ</td></tr> <tr> <td>0-20 mA</td><td>50Ω</td><td>1-5 V</td><td>400 KΩ</td></tr> <tr> <td>4-20 mA</td><td>50Ω</td><td></td><td></td></tr> </tbody> </table>	Input	Impedance	Input	Impedance	0-1 mA	1 K Ω	0-1 V	5 M Ω	0-5 mA	200 Ω	0-5 V	500 K Ω	0-10 mA	100 Ω	0-10 V	1 M Ω	0-20 mA	50 Ω	1-5 V	400 K Ω	4-20 mA	50 Ω			One DPDT contact, 3 amp rating
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0-20 mA	50 Ω	1-5 V	400 K Ω																								
4-20 mA	50 Ω																										
ET-8215 ET-8215A	Current/voltage alarm, dual trip		Two SPDT contacts, 3 amp rating																								
ET-8274 ET-8274A	RTD alarm, single trip	Any 2, 3, 4-wire RTD span: 10 to 1000 ohm, Standard curve DIN 43760 unless otherwise specified	One DPDT contact, 3 amp rating																								
ET-8275 ET-8275A	RTD alarm, dual trip		Two SPDT contacts, 3 amp rating																								

*A indicates no LED display option.

Input/Output & Wiring Data



**Extra set of contacts for single trip units.

Series SC-8300 Transmitters

General Specifications

Power Requirements: 24 Vdc, -15% to +10%

Isolation: input/output/power, 800 Vac, 1000 Vdc (input/output not applicable to Models SC-8300R, SC-8374)

Linearity: $\pm 0.1\%$ of span (referenced to the mV value on Model SC-8326W and to the resistance value on Models SC-8372, SC-8374)

Controls: zero and span multiturn potentiometers

Test Points: input and output test jacks on front panels

Common Mode Rejection: -120 dB at 60 Hz

Repeatability: $\pm 0.05\%$ of span (except SC-8326W, $\pm 0.1\%$ maximum)

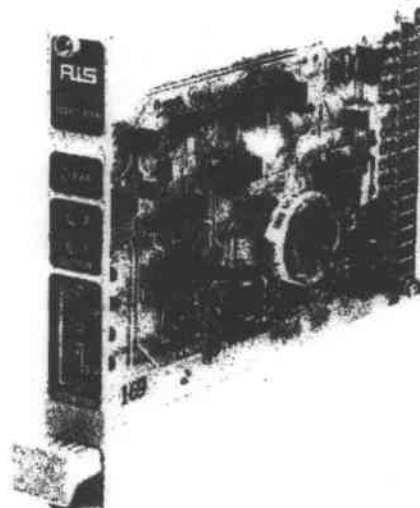
Power Consumption (Average): 100 mA maximum @ 24 Vdc

Outputs (into Output Drives):

- a. 0-1 mA dc (into 0-1600 Ω load)
- b. 0-5 mA dc (into 0-3200 Ω load)
- c. 0-10 mA dc (into 0-1600 Ω load)
- d. 0-20 mA dc (into 0-800 Ω load)
- e. 4-20 mA dc (into 0-800 Ω load)
- f. 0-1 Vdc
- g. 0-5 Vdc
- h. 0-10 Vdc
- i. 1-5 Vdc

Stability and Drift: $\pm 0.033\%/^{\circ}\text{C}$ maximum; $\pm 0.015\%/^{\circ}\text{C}$ typical

Ambient Temperature Range: -18 $^{\circ}$ to 60 $^{\circ}\text{C}$ (0 $^{\circ}$ to 140 $^{\circ}\text{F}$)

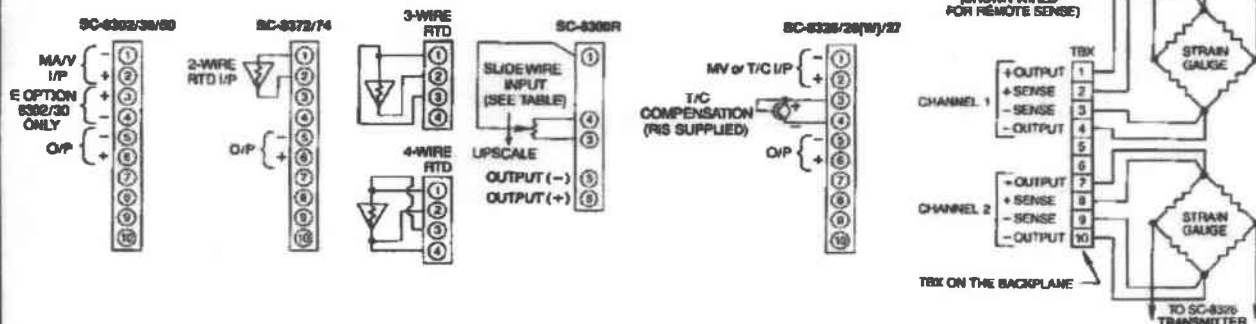


Model Number	Function	Input Signals	Output Signals																								
SC-8300R	Slidewire transmitter	From 100Ω to 20,000Ω spans	0-10, 0-20, 1-5, 4-20 mA dc; 0-5, 0-10, 1-5 Vdc																								
SC-8302	Isolated transmitter, high level	<table><tr><th>Input</th><th>Impedance</th><th>Input</th><th>Impedance</th></tr><tr><td>0-1 mA</td><td>1 KΩ</td><td>4-20 mA</td><td>50Ω</td></tr><tr><td>0-5 mA</td><td>200Ω</td><td>0-5 V</td><td>500 KΩ</td></tr><tr><td>0-10 mA</td><td>100Ω</td><td>0-10 V</td><td>1 MΩ</td></tr><tr><td>0-20 mA</td><td>50Ω</td><td>1-5 V</td><td>400 KΩ</td></tr><tr><td>1-5 mA</td><td>200Ω</td><td></td><td></td></tr></table>		Input	Impedance	Input	Impedance	0-1 mA	1 KΩ	4-20 mA	50Ω	0-5 mA	200Ω	0-5 V	500 KΩ	0-10 mA	100Ω	0-10 V	1 MΩ	0-20 mA	50Ω	1-5 V	400 KΩ	1-5 mA	200Ω		
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1-5 mA	200Ω																										
SC-8302E*																											
SC-8326	Isolated millivolt transmitter	10-100 mV spans with live zero of -10 to +80 mV; 5MΩ minimum impedance																									
SC-8326W	Isolated thermocouple transmitter	T/C types E, J, K, R, S, T, B, with integral cold-junction compensation; 10-100 mV spans with live zero of -10 to +80 mV																									
SC-8327	Isolated thermocouple linearizer transmitter (linearized to temperature)																										
SC-8330	Square root transmitter	Same as Model SC-8302; zero dropout adjustment is 0.25% to +10% of input span																									
SC-8330E*																											
SC-8350	Frequency transmitter	Frequency input spans from 5.0 Hz to 24,000 Hz (see notes)																									
SC-8372	Isolated RTD transmitter	Any RTD: 10-1000 ohm span; 2, 3, 4-wire configurations; platinum and nickel RTD linearization available																									
SC-8374	Non-isolated RTD transmitter																										
SC-8381	Strain gauge power supply (for use with SC-8326)	24 Vdc prime power	2 each, 0-10 Vdc adjustable excitation voltage for 2 separate strain gauges																								

*Option "E"—24 Vdc @ 20 mA capability supplied for 2-wire transmitter.

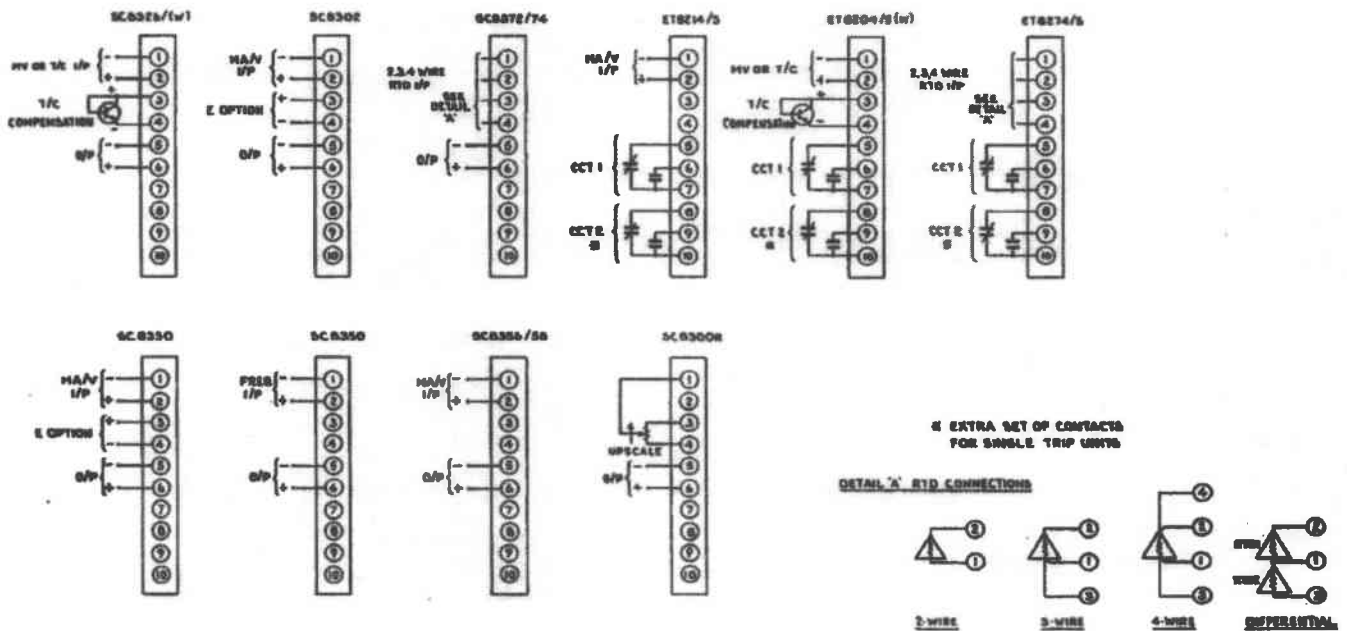
NOTES: 1. Input impedance = 100 K Ω minimum for input amplitude greater than 800 mV peak or 60 K Ω minimum for input amplitude less than 800 mV peak. 2. Maximum allowable input amplitude is 26 V RMS; minimum required input amplitude is 25 mV RMS in the frequency range 5 Hz-1 kHz and 100 mV RMS in the frequency range 1 kHz-24 kHz. 3. All spans are zero based. Linearity specification is degraded if: input frequency <10% of span for spans of 60 Hz or less or input frequency <1% of span for spans over 60 Hz.

Input/Output & Wiring Data



RIS 8200/8300

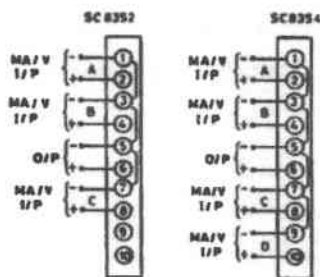
CONNECTION DETAILS.



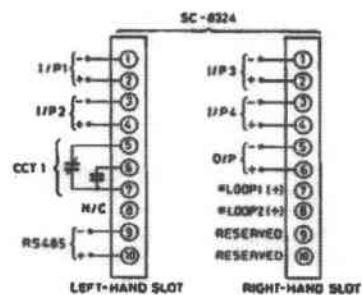
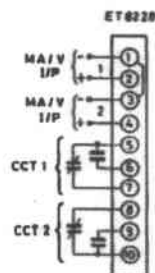
REV. 0.	REV. 1.	REV. 2.	REV. 3.	REV. 4.
SC6300-REVISION	DETAIL A R.T.D. CONNECTIONS	SC6300-REVISION	SC6300-REVISION	SC6300-REVISION
17.4.82. A.J.B.	17.4.82. A.J.B.	17.4.82. A.J.B.	17.4.82. A.J.B.	17.4.82. A.J.B.

DIN 8000 SERIES CUSTOMER CONNECTION DIAGRAM.

DATE	50-3-82	F.U.C.M.				A3
DRN.	VRH.	DRG. No.	SHT. 1 OF 2	REV.	PART No.	
CHKD.	ET	B.1036-533.		4		
D/APP	ET					
SCALE						



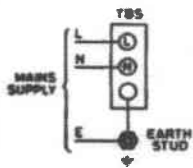
NOTE: ON SC8352, SC8354 & ET 8228
ALL INPUT -VE'S ARE COMMON.
ON SC8352 & SC8354 INPUT -VE'S
ARE COMMON WITH OUTPUT -VE.



NOTE: MODULE OCCUPIES TWO
SLOT LOCATION.
R LOOP PWR: +24V @ 50mA
FOR TWO-WIRE TRANSMITTER
REFERENCED TO INPUT (-).

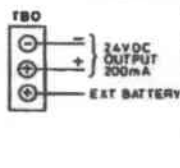
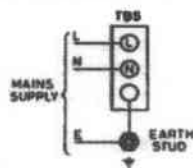
RACK POWER SUPPLY CONNECTIONS

MODELS 8010, 8011, 8012, 8013

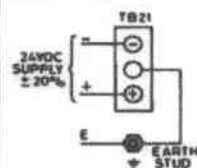


FOR DC POWER OPTION
ON THESE MODELS,
INTERNAL FUSE IS
REPLACED WITH LINK.
FEED SUPPLY THROUGH
TBO.
SEE ALSO MODEL
BACKPLANE DIAGRAM.

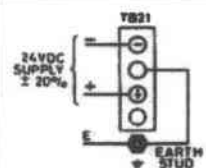
MODELS 8015, 8030



MODEL 8031



MODEL 8020R



REV'D	REV1	REV2	REV3	REV4
DCO: 83/1230	DCO: SC1378	DCO: ON0104	SHT 2: ADDED	CONNE: D/P WITH
8/5	VH	FG	VH & ET103	ET103
8-4-82	8-4-82	8-5-85	22-6-89	15-5-91

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DIN 8000 SERIES
CUSTOMER CONNECTION DIAGRAM

DATE	20-3-82	F.M.C.M.			A3
DRN.	VH	DRG. No.	SHT 2 OF 2	REV.	PART No.
CHKD.	ST	B 1038-533			
D/APP	ST				
SCALE					