

# Trig-Tek 251B INPUT CONNECTION DRAWINGS

## Gages Wires Outputs Summing Compensation Drawing

					Anderson loop equations
					Wheatstone bridge equations
1	2	1	No	No	1-Gage 2w 1o I (AC Output Only)
1	3	1	No	No	1-Gage 3w 1o I
1	4	1	No	No	1-Gage 4w 1o I
2	3	1	Yes	No	2-Gage 3w 1o B
2	5	1	Yes	No	2-Gage 5w 1o B
2	5	2	No	No	2-Gage 5w 2o I
2	5	3	Yes	No	2-Gage 5w 3o IB
2	6	1	Yes	No	2-Gage 6w 1o B
2	6	2	No	No	2-Gage 6w 2o I
2	6	3	Yes	No	2-Gage 6w 3o IB
3	6	1	Yes	Yes	3-Gage 6w 1o CB
3	6	2	No	Yes	3-Gage 6w 2o CI
3	6	3	Yes	Yes	3-Gage 6w 3o CIB
3	6	3	No	No	3-Gage 6w 3o I Rosette
3	7	3	No	Yes	3-Gage 7w 3o CI
3	8	3	Bridge	Yes	3-Gage 8w 3o CIB
4	3	1	Bridge	No	4-Gage 3w 1o B
4	5	1	Bridge	No	4-Gage 5w 1o B
4	7	3	No	Yes	4-Gage 7w 3o CI Rosette
4	7	4	No	No	4-Gage 7w 4o I
4	7	5	Bridge	No	4-Gage 7w 5o IB (Bridge testing)
4	8	3	No	Yes	4-Gage 8w 3o CI Rosette
5	8	5	Bridge	Yes	5-Gage 8w 5o CIB (Scale wiring)
5	8	5	No	No	5-Gage 8w 5o I
5	12	5	Bridge	Yes	5-Gage 12w 5o CIB
5	12	5	No	No	5-Gage 12w 5o I
4	6	1	Bridge	Yes	6-Wire Wheatstone bridge
4	4	1	Bridge	Yes	4-Wire Wheatstone bridge
0	0	0			Blank Wiring Form

C = Temperature compensating reference R  
 I = Individual outputs for each gage  
 B = "Bridge" style output available

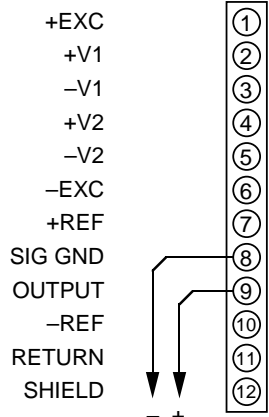
# 1-Gage, 2-Wire, 1-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.

**A one-gage loop with a precision internal resistor for Rref. Typically used only for dynamic measurements because the output zero will vary with wire temperature changes.**

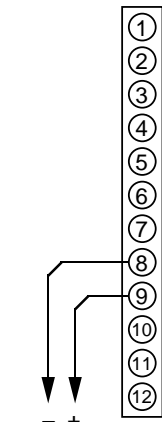
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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

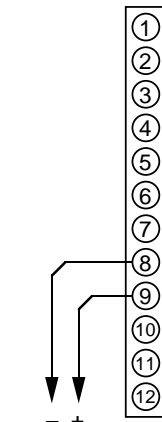
User connections



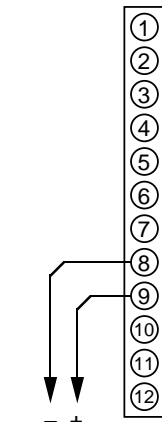
Channel 8 Output



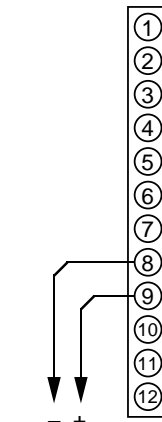
Channel 7 Output



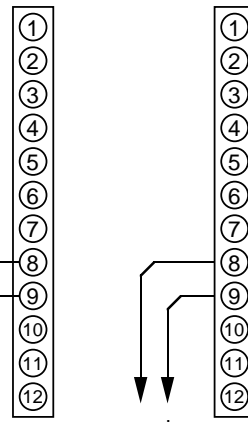
Channel 6 Output



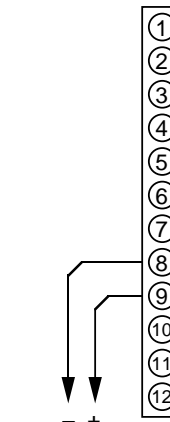
Channel 5 Output



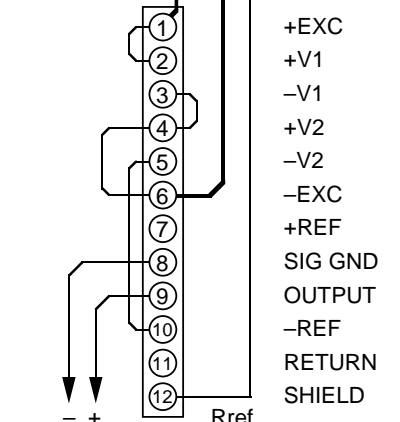
Channel 4 Output



Channel 3 Output  
 $V_{out} = AI(\Delta R1 - \Delta R2)$

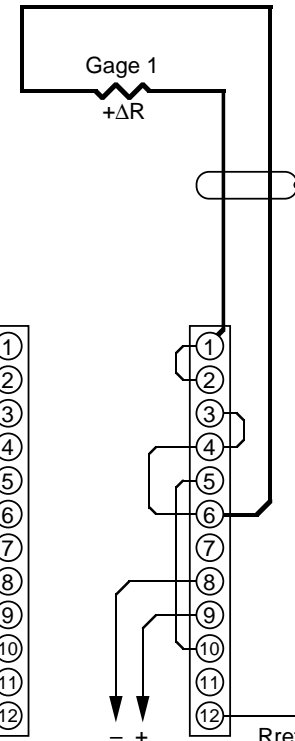


Channel 2 Output  
 $V_{out} = AI\Delta R2$

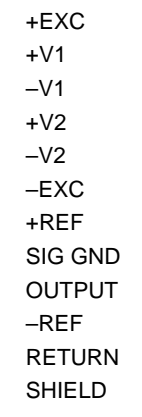


Channel 1 Output  
 $V_{out} = AI\Delta R1$   
is an internal precision resistor

REGULATING CHANNEL  
(contains Rref and regulates loop current)



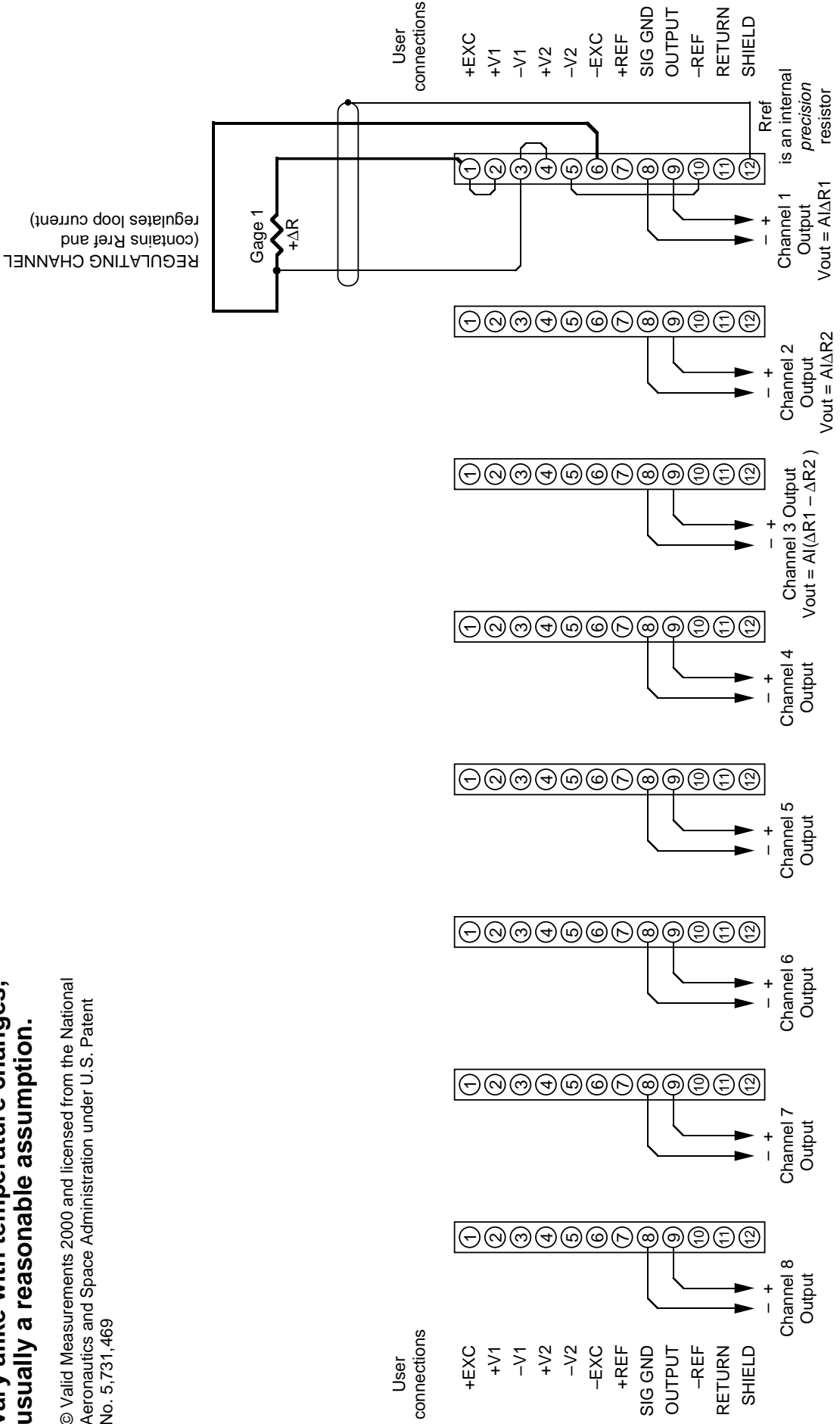
User connections



**1-Gage, 3-Wire, 1-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A one-gage loop with a precision internal resistor for Rref. Expects current-carrying wire resistances to vary alike with temperature changes, usually a reasonable assumption.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

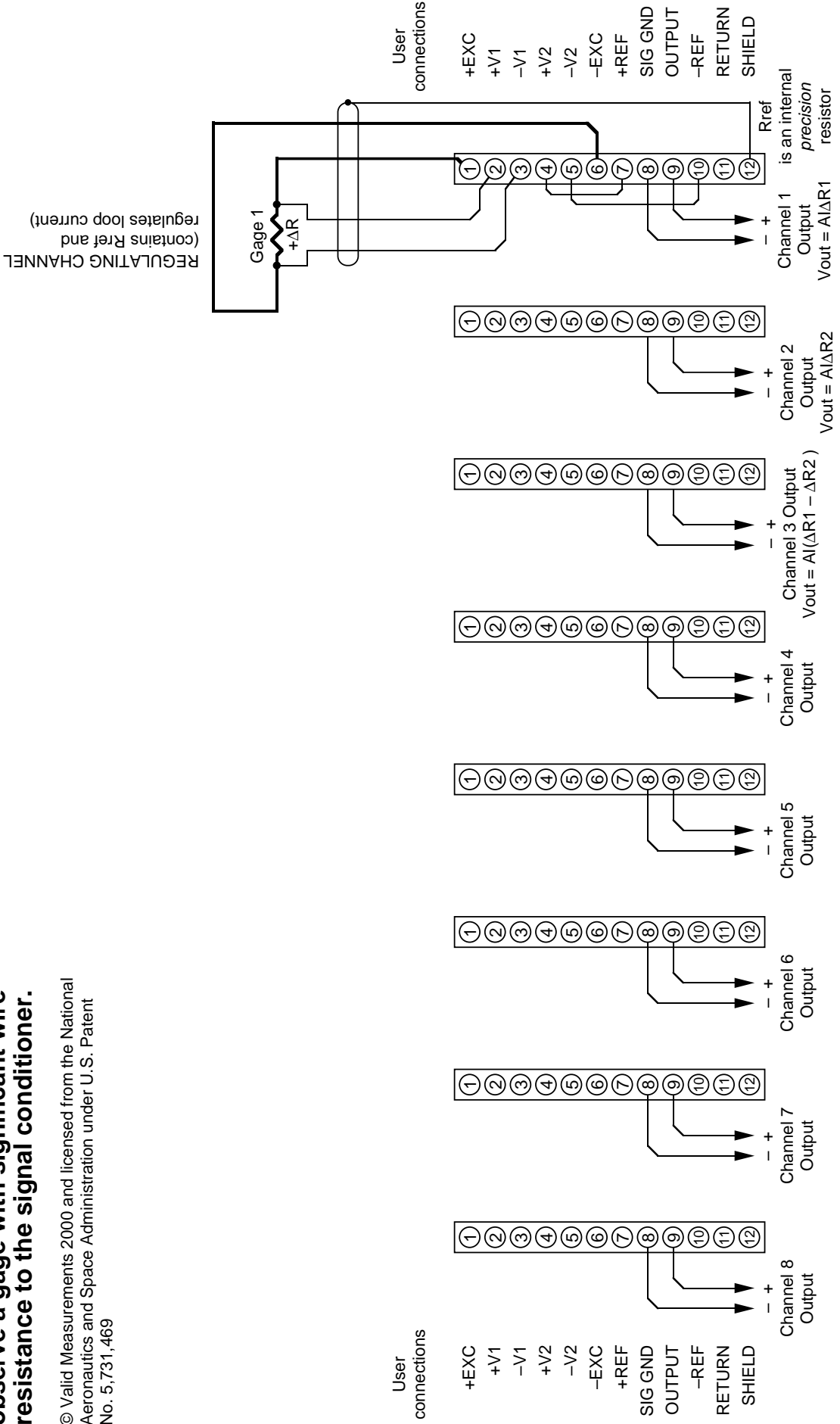


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**1-Gage, 4-Wire, 1-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A one-gage loop with a precision internal resistor for Rref. Remote sensing is the most accurate way to observe a gage with significant wire resistance to the signal conditioner.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



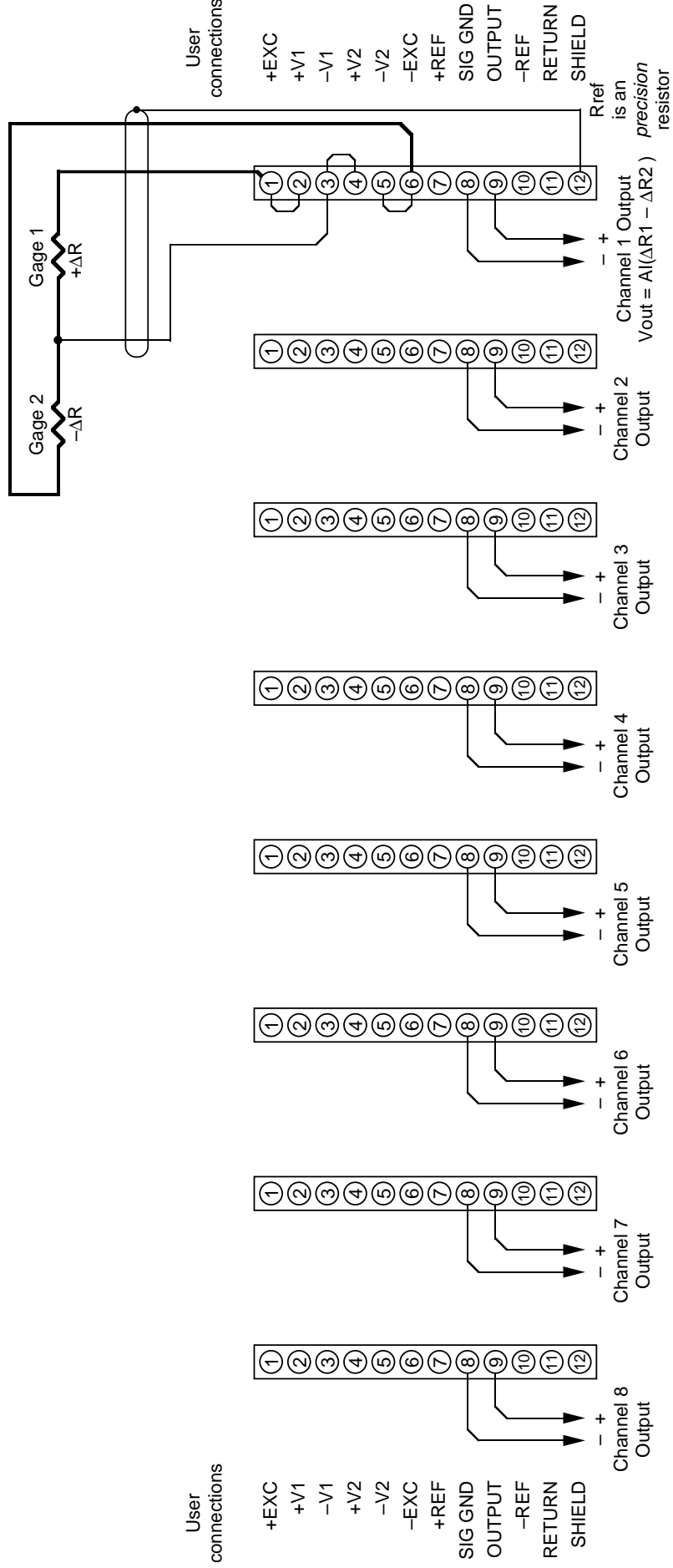
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**2-Gage, 3-Wire, 1-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A 2-gage loop with the sum of the outputs from each individual gage. The gages are treated as "adjacent" with only one wire from the interior loop node. Unequal variations in the resistance of the current-carrying wires can cause measurement uncertainties to arise.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

1st MONITOR CHANNEL (inputs Vref from excitation channel)  
 REGULATING CHANNEL (contains Rref and regulates loop current)



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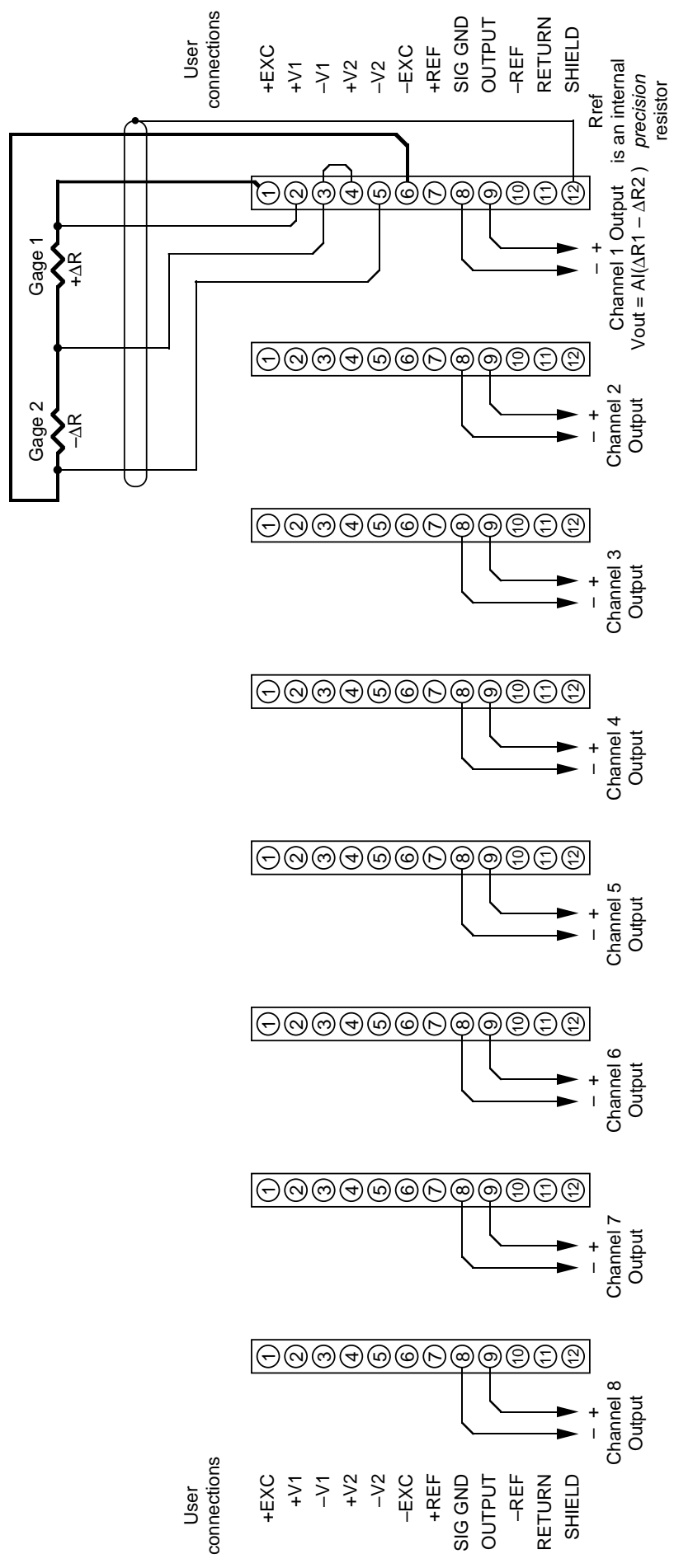
**2-Gage, 5-Wire, 1-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A 2-gage loop with the sum of the outputs from each individual gage. The gages are treated as "adjacent" with only one wire from the interior loop node.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

REGULATING CHANNEL  
(contains Rref and regulates loop current)

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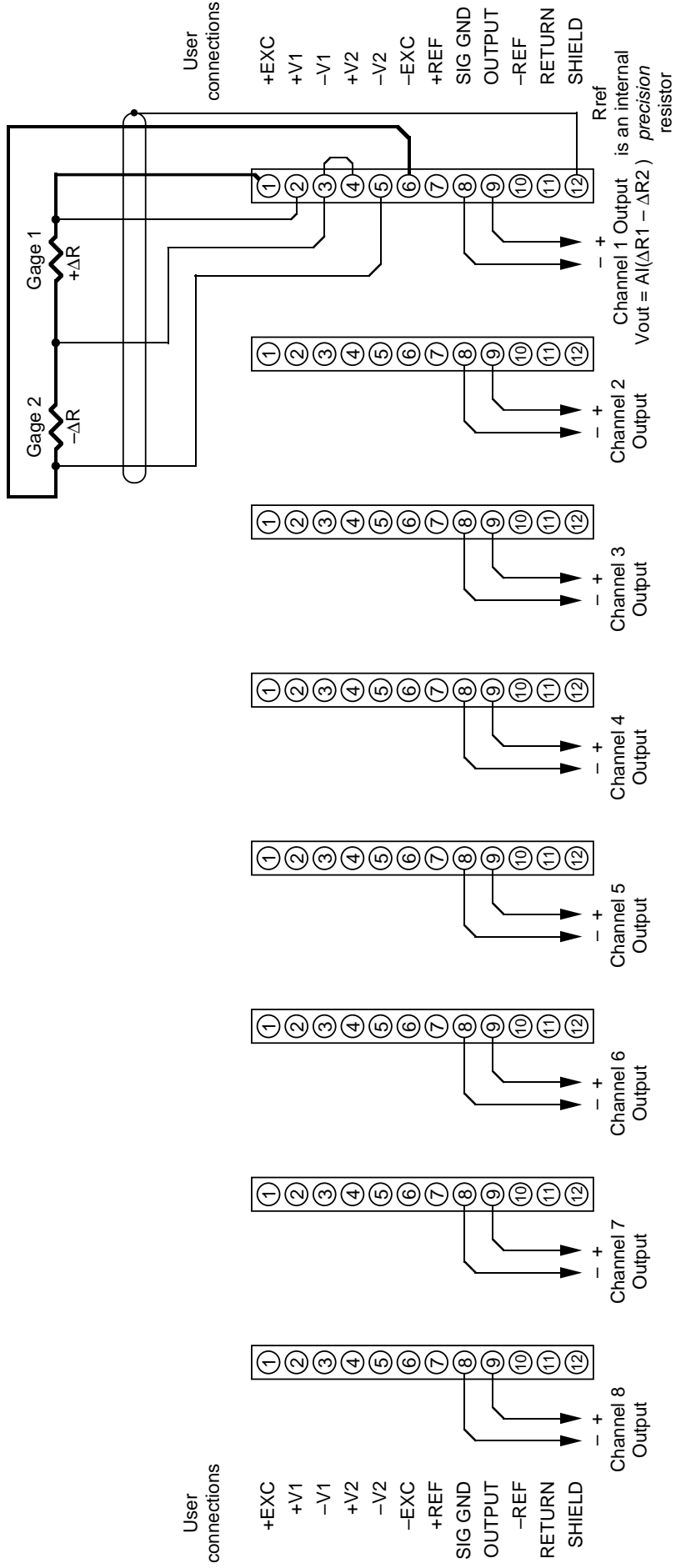
**2-Gage, 5-Wire, 1-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A 2-gage loop with the sum of the outputs from each individual gage. The gages are treated as "adjacent" with only one wire from the interior loop node.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

REGULATING CHANNEL  
(contains Rref and regulates loop current)

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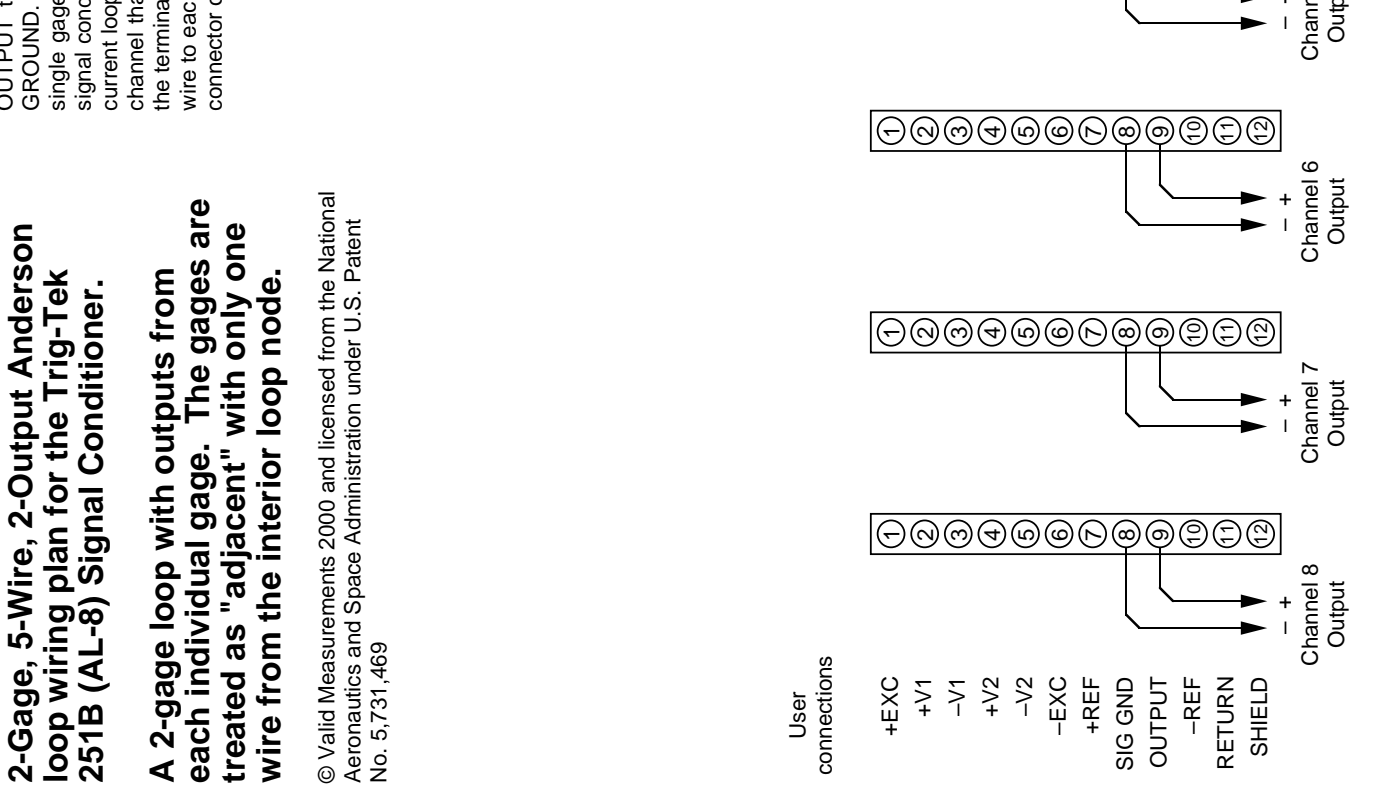
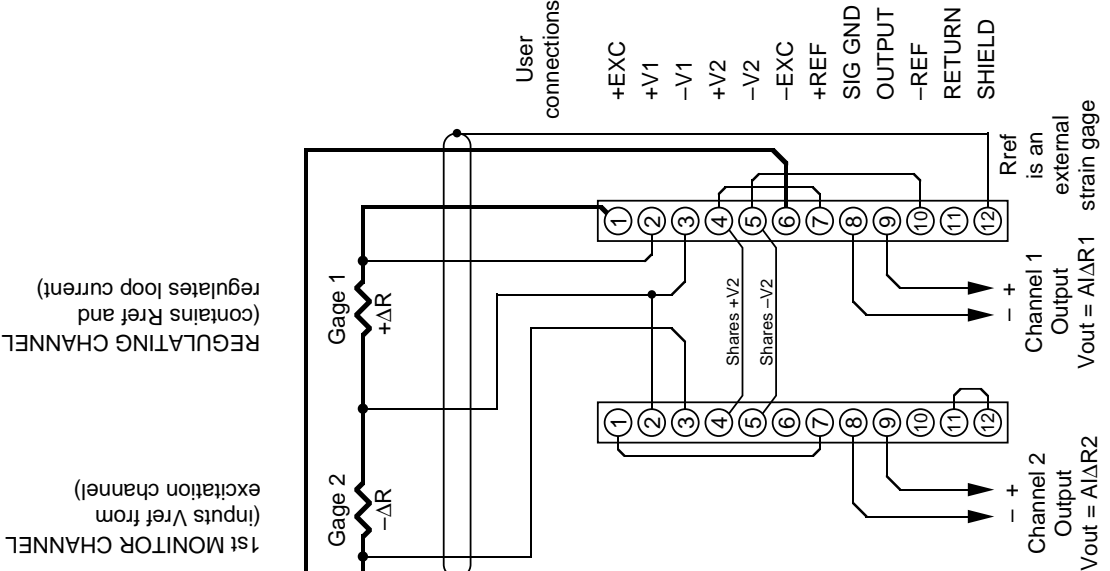


**2-Gage, 5-Wire, 2-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A 2-gage loop with outputs from each individual gage. The gages are treated as "adjacent" with only one wire from the interior loop node.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

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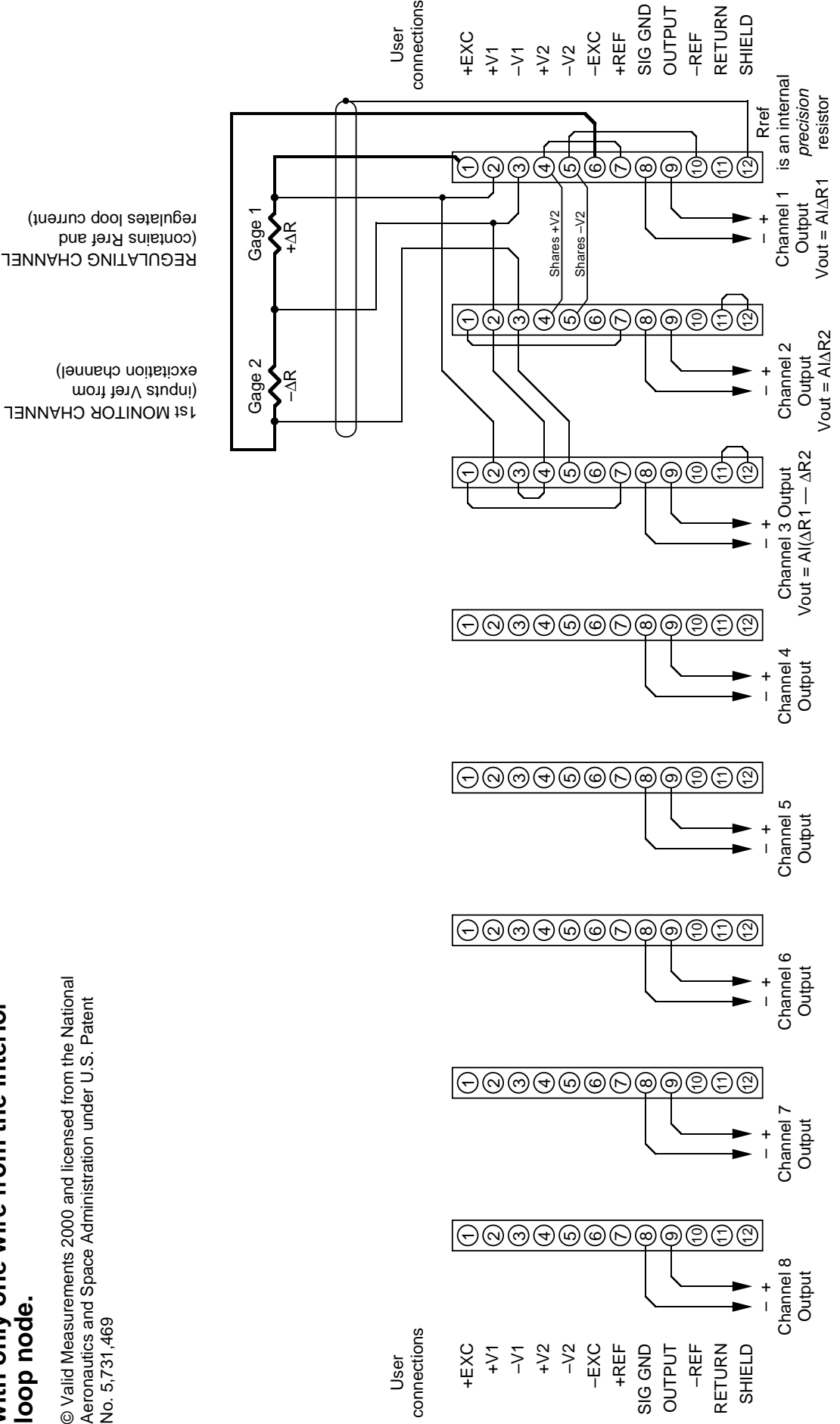
User connections

- +EXC
- +V1
- V1
- +V2
- V2
- EXC
- +REF
- SIG GND
- OUTPUT
- REF
- RETURN
- SHIELD

**2-Gage, 5-Wire, 3-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A 2-gage loop with summed and individual outputs from each gage. The gages are treated as "adjacent" with only one wire from the interior loop node.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



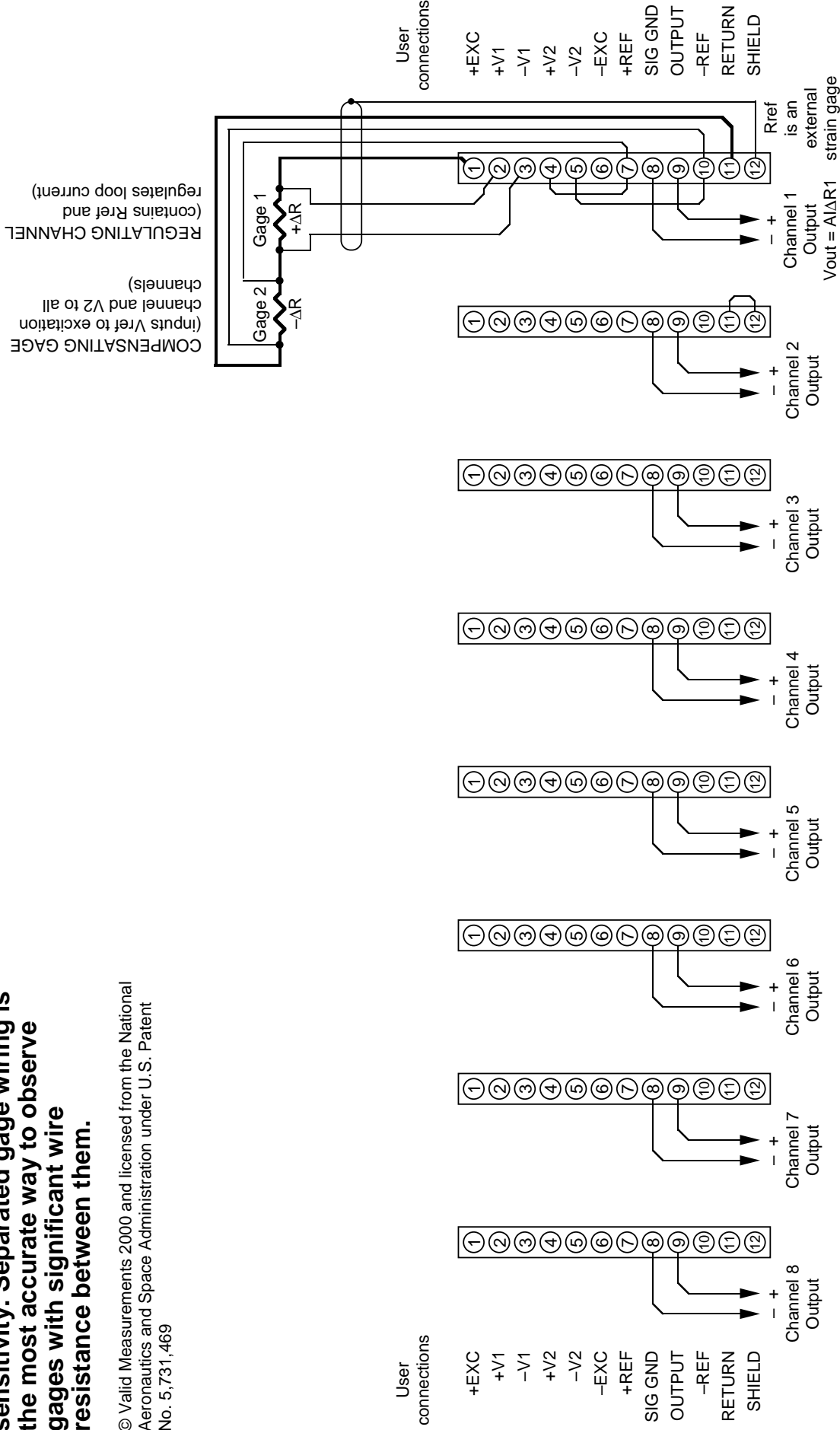
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**2-Gage, 6-Wire, 1-Output, Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

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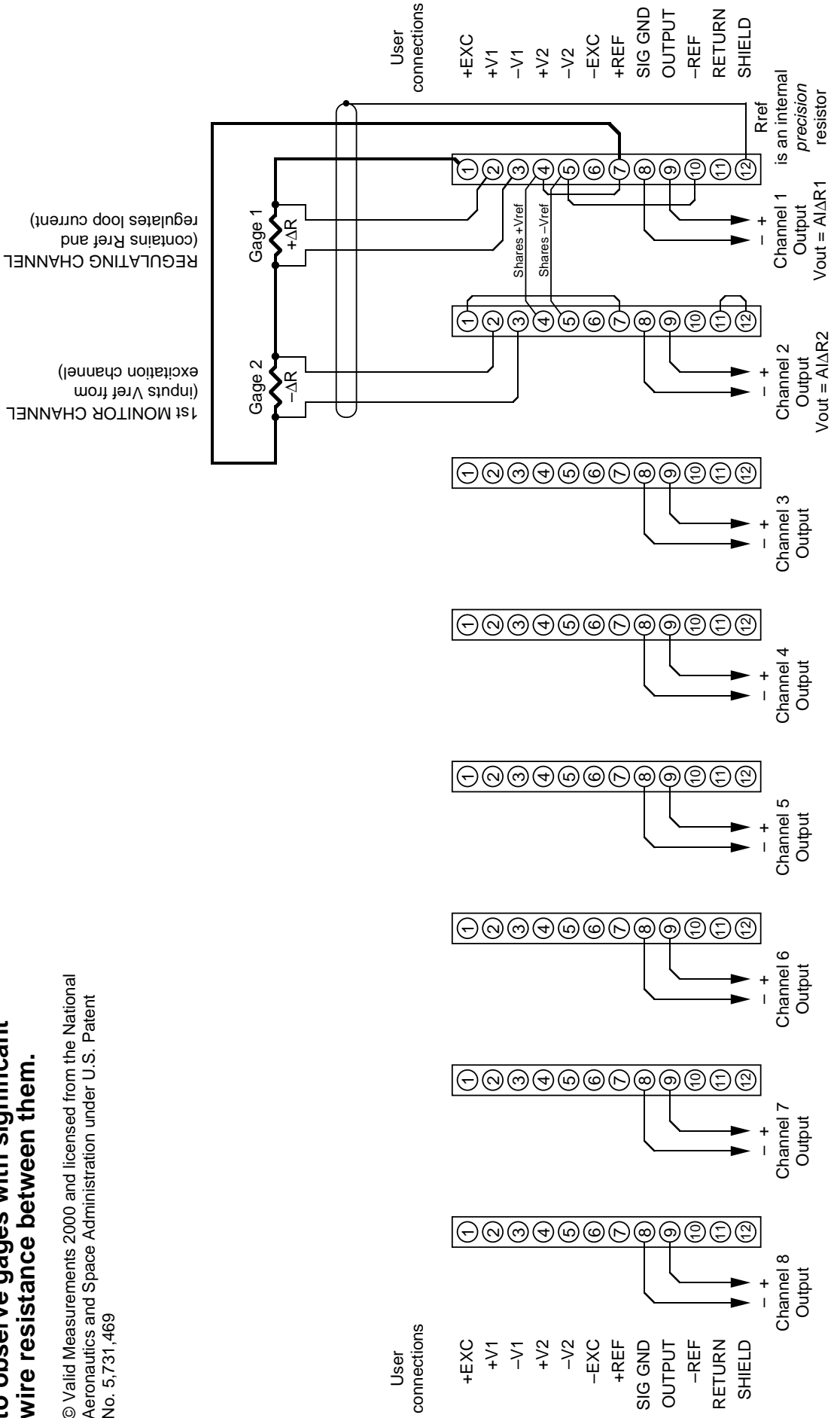
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**2-Gage, 6-Wire, 2-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A two-gage loop with a precision internal resistor for Rref. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

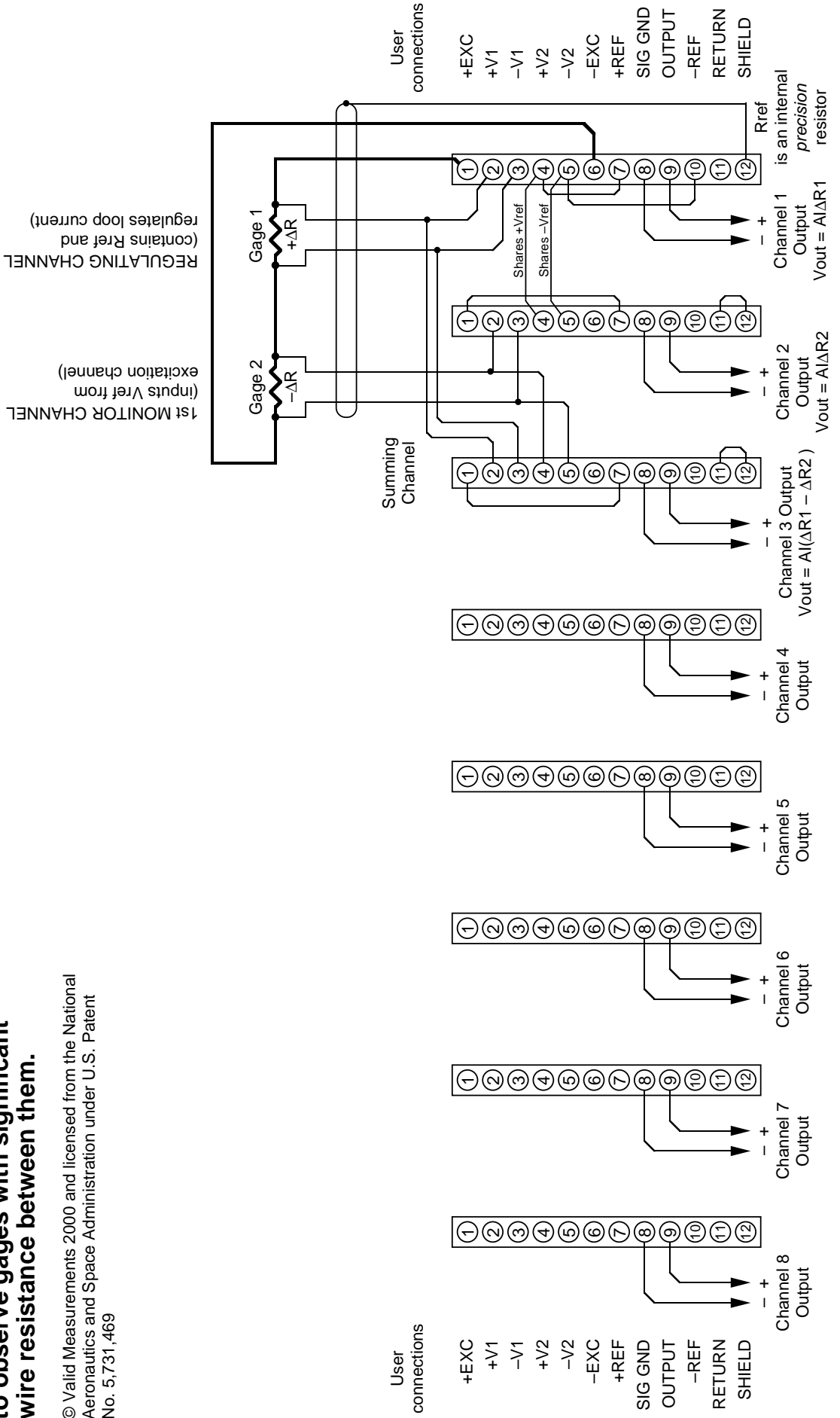


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**2-Gage, 6-Wire, 3-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A two-gage loop with a precision internal resistor for Rref. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



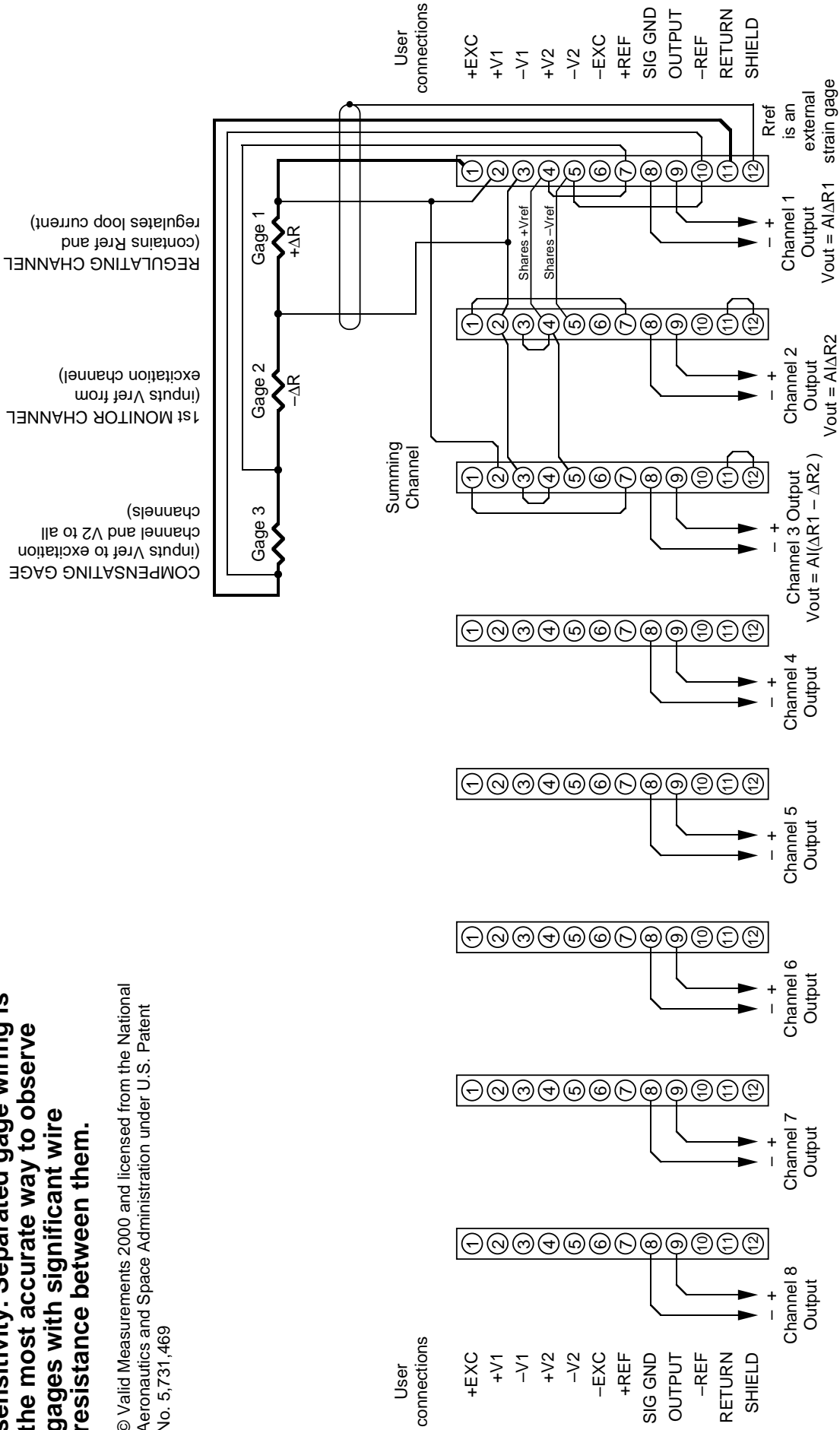
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**3-Gage, 6-Wire, 3-Output, Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

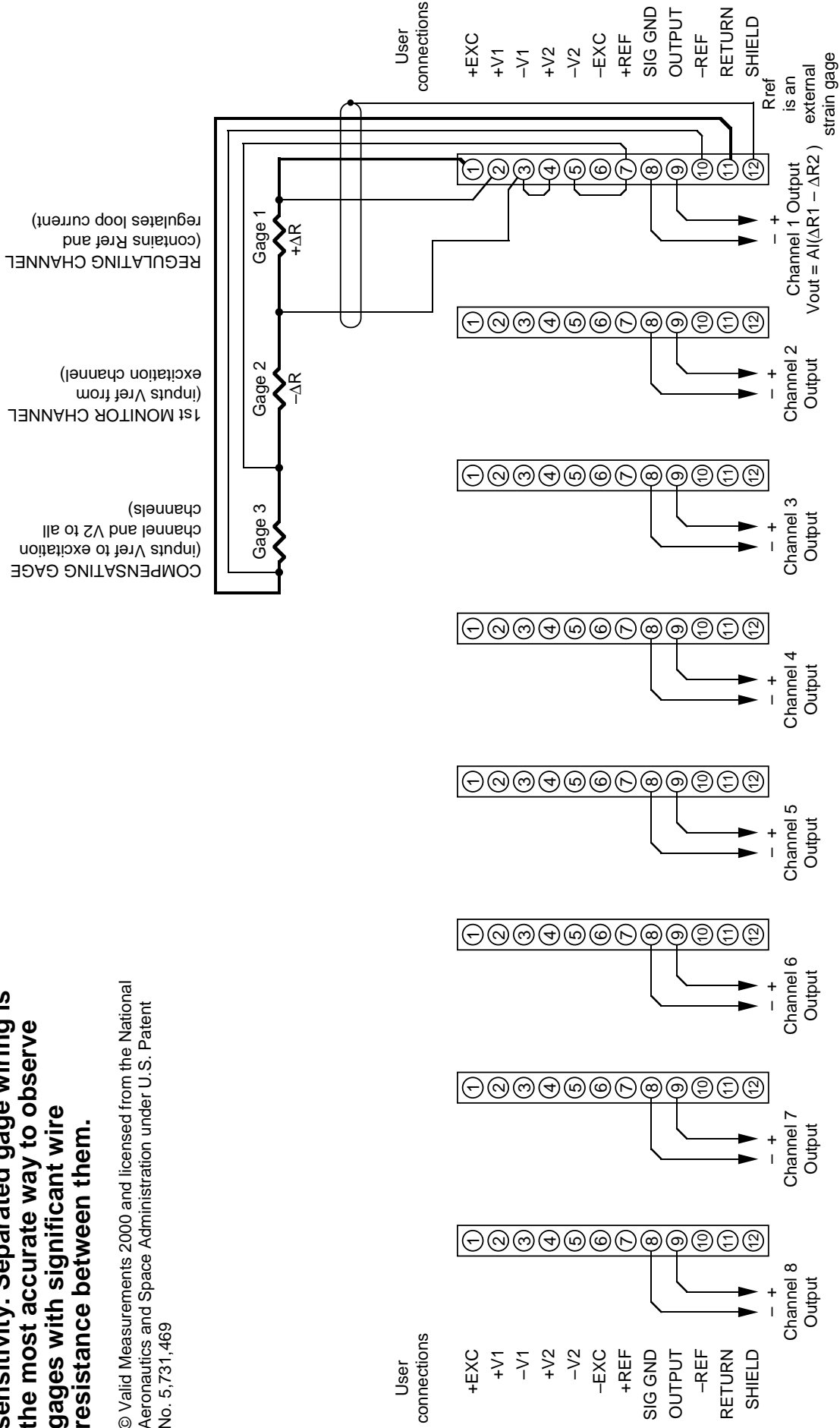


### 3-Gage, 6-Wire, 1-Output, Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

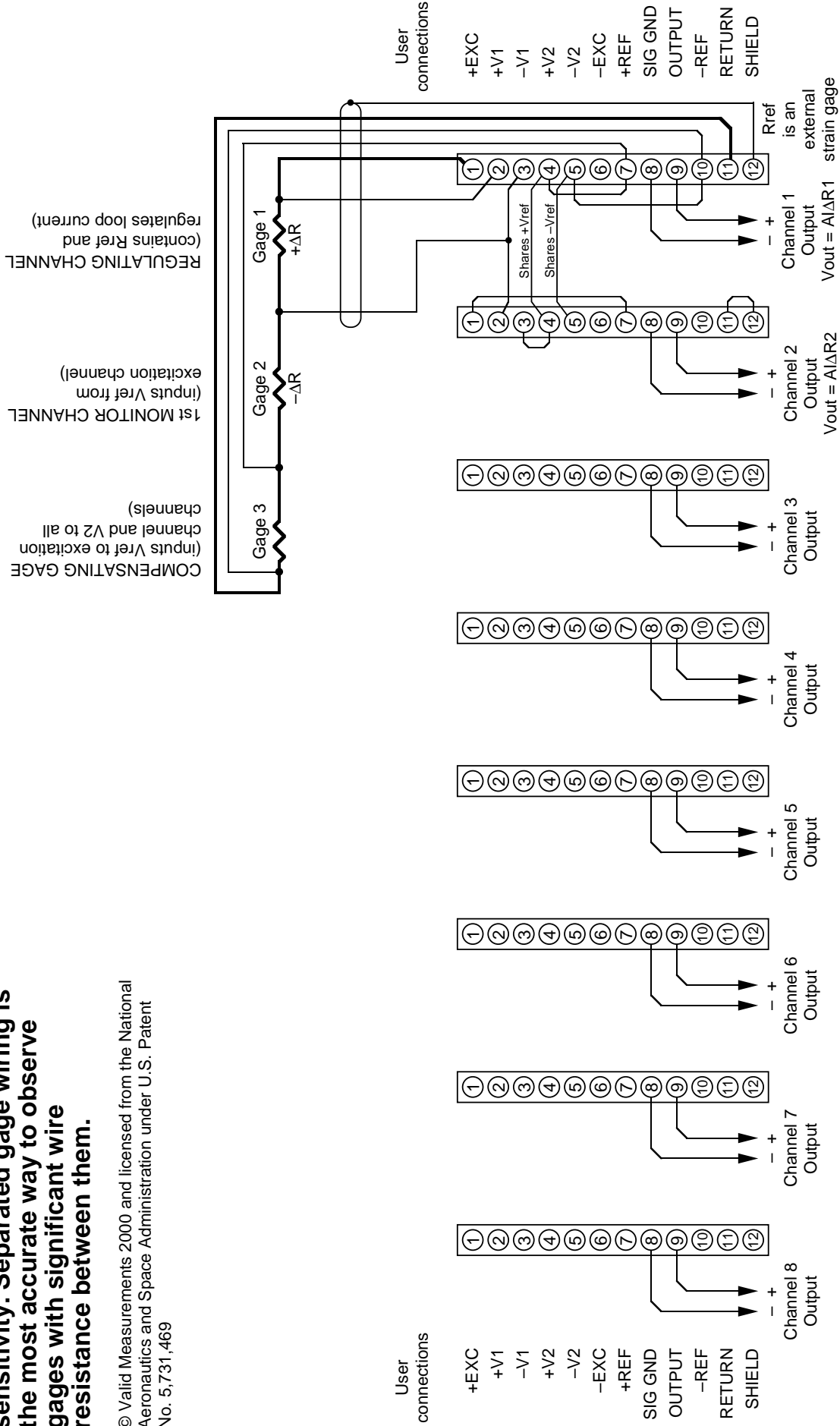


**3-Gage, 6-Wire, 2-Output, Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

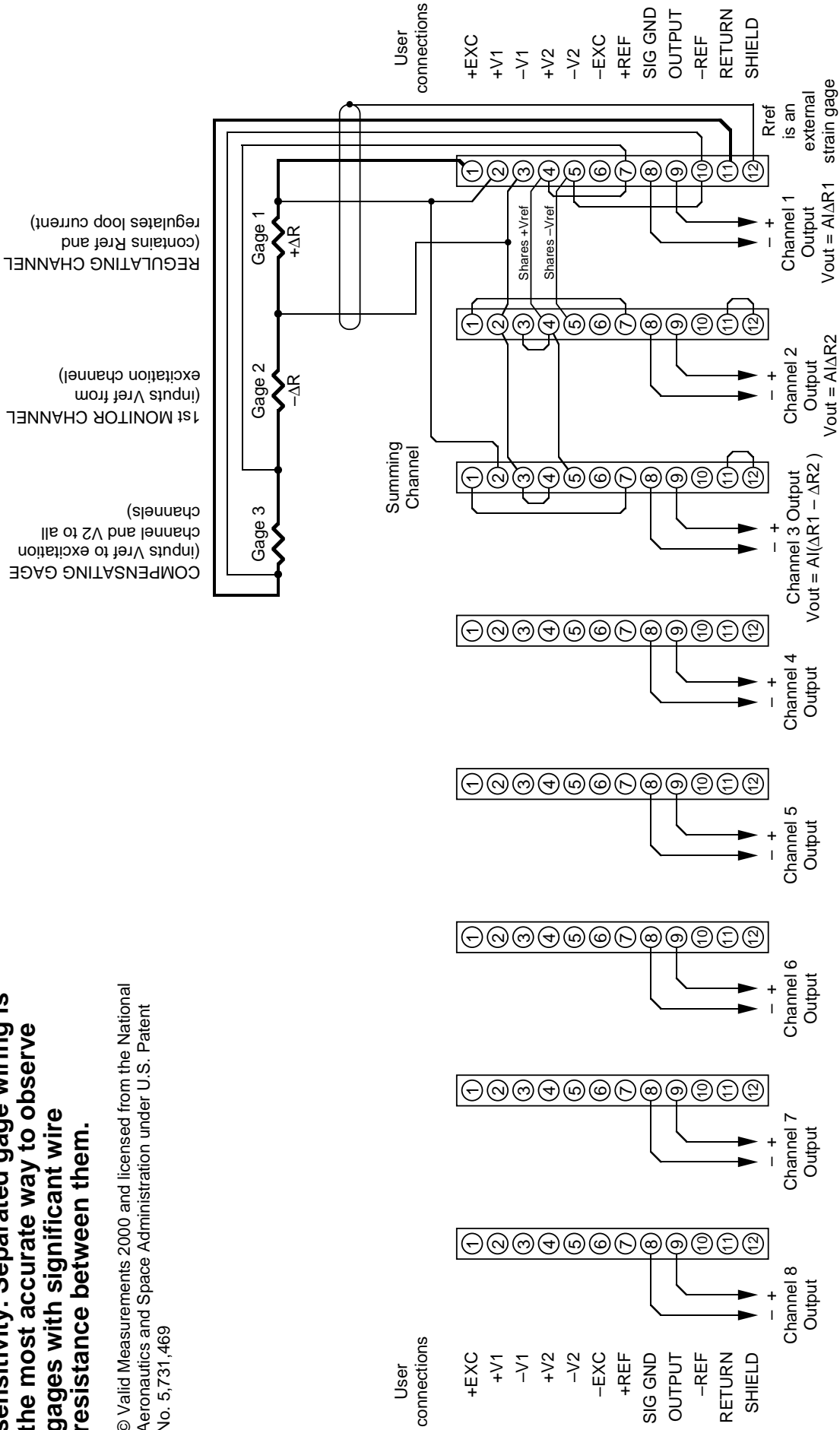


**3-Gage, 6-Wire, 3-Output, Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

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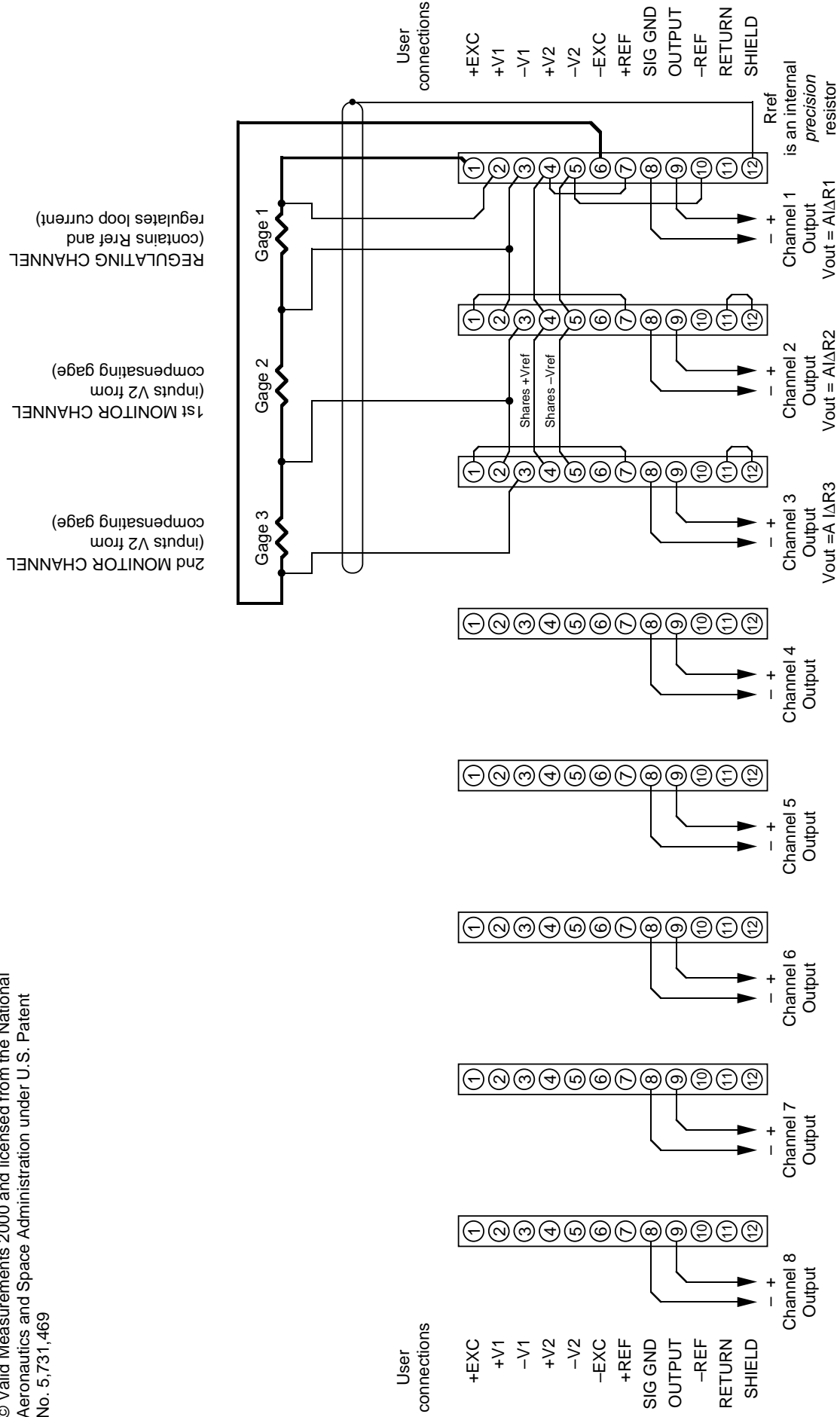
OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



**3-Gage, 6-Wire, 3-Output Strain Rosette Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner. All gages are treated as "adjacent" requiring only one wire from each interior loop node.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

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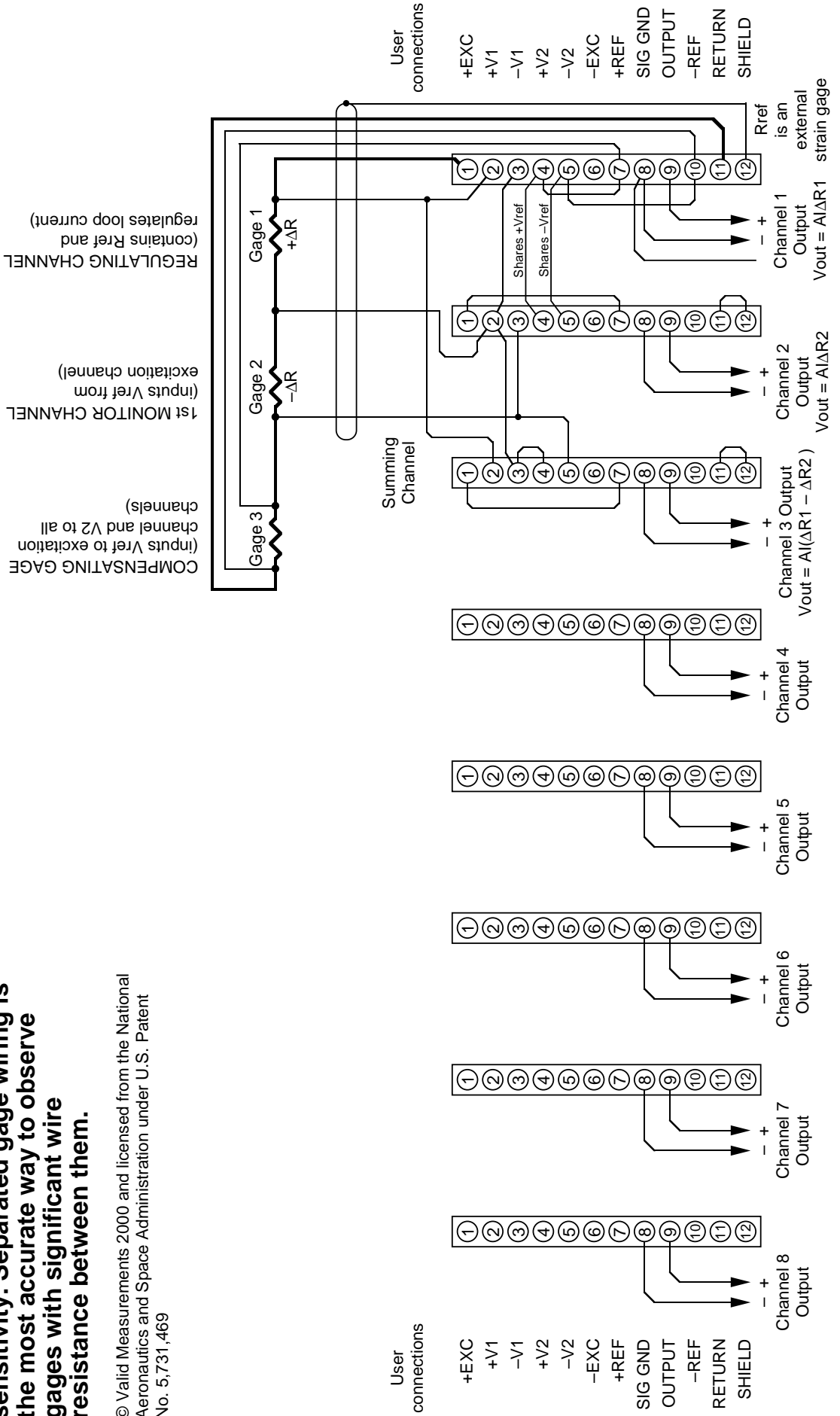


**3-Gage, 7-Wire, 3-Output, Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

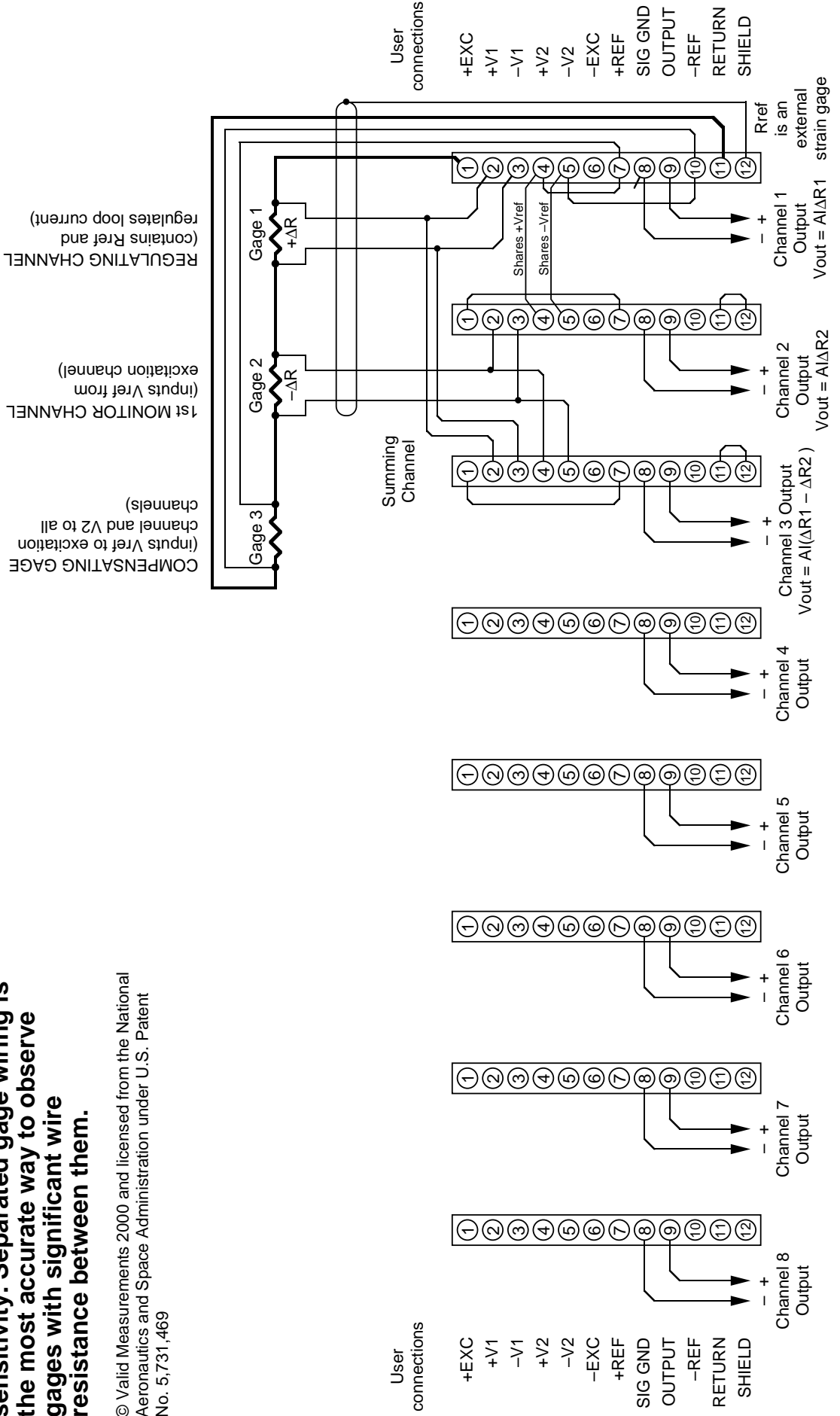


**3-Gage, 8-Wire, 3-Output, Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



**4-Gage, 3-Wire, 1-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

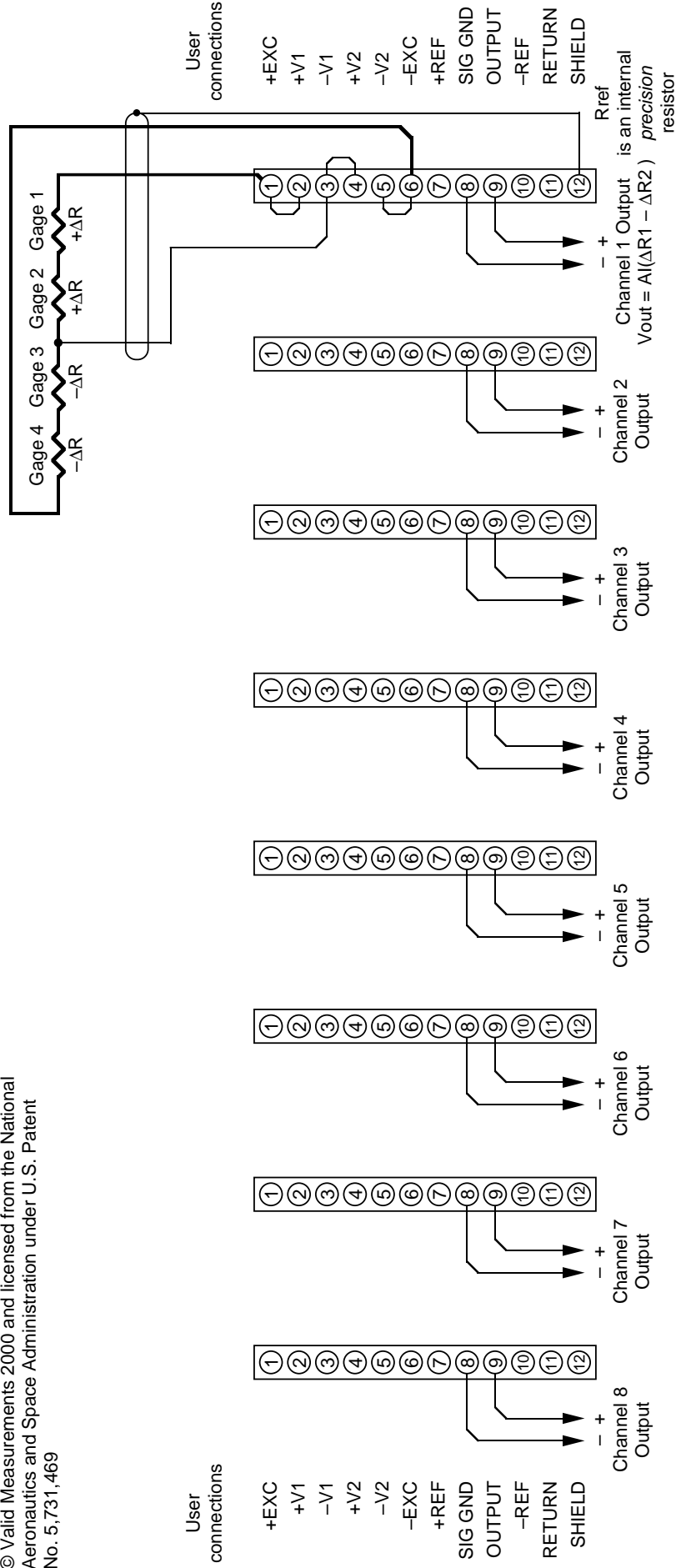
**A 4-gage loop with a bridge-like output. Additive gage pairs are treated as "single and adjacent" like a 2-gage loop. Note that additive gage pairs are *not adjacent* in a Wheatstone bridge.**

**Unequal variations in the resistance of the current-carrying wires can cause measurement uncertainties to arise.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

REGULATING CHANNEL  
(contains Rref and regulates loop current)

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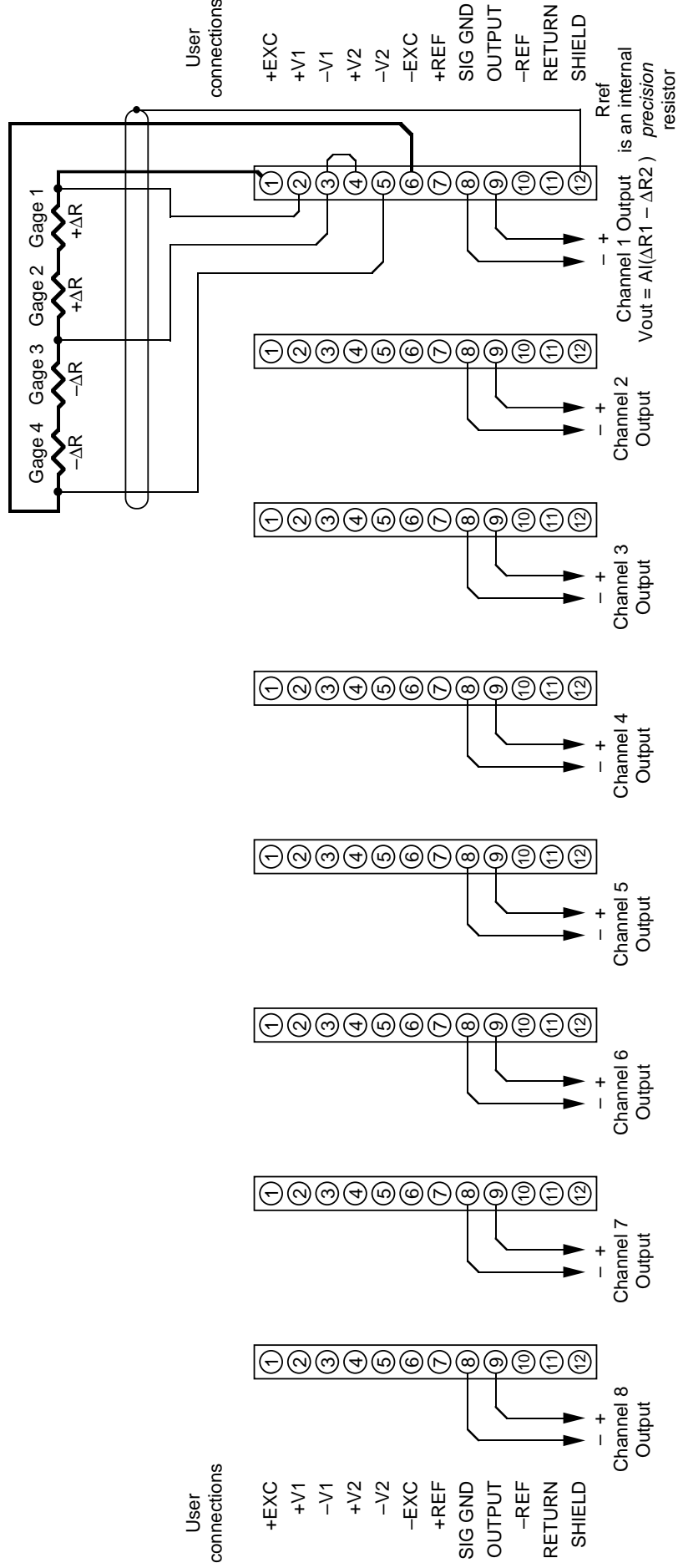


**4-Gage, 5-Wire, 1-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A 4-gage loop with a bridge-like output. Additive gage pairs are treated as "single and adjacent" like a 2-gage loop. Note that additive gage pairs are *not adjacent* in a Wheatstone bridge.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

REGULATING CHANNEL  
(contains Rref and regulates loop current)

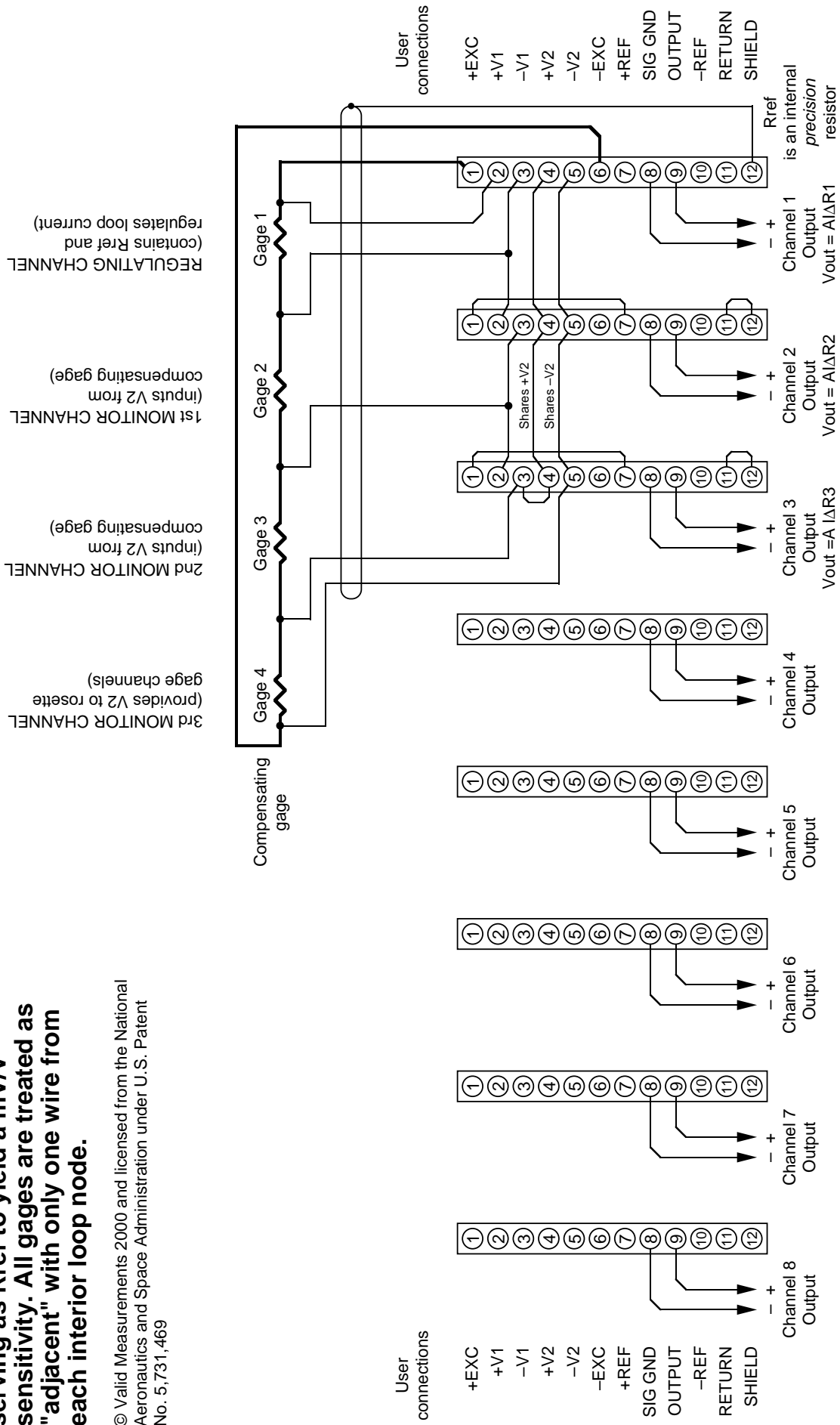


**4-Gage, 7-Wire, 3-Output, Excitation Compensated Strain Rosette Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. All gages are treated as "adjacent" with only one wire from each interior loop node.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

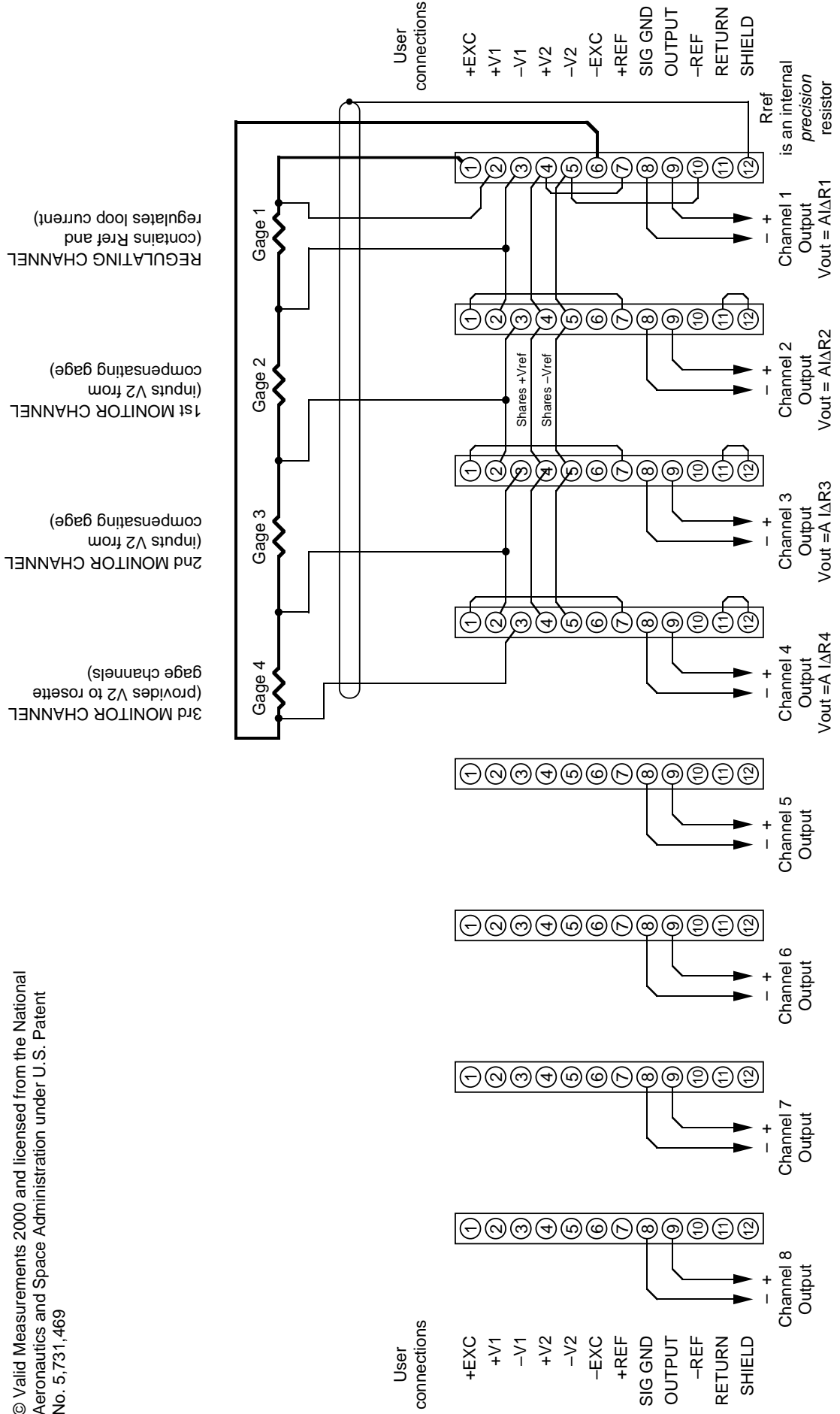


## 4-Gage, 7-Wire, 4-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.

**All gages treated as "adjacent" with only one wire from each interior loop node.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

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**4-Gage, 7-wire, 5-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with individual and summed outputs. All gages treated as "adjacent" with only one wire from each interior loop node.**

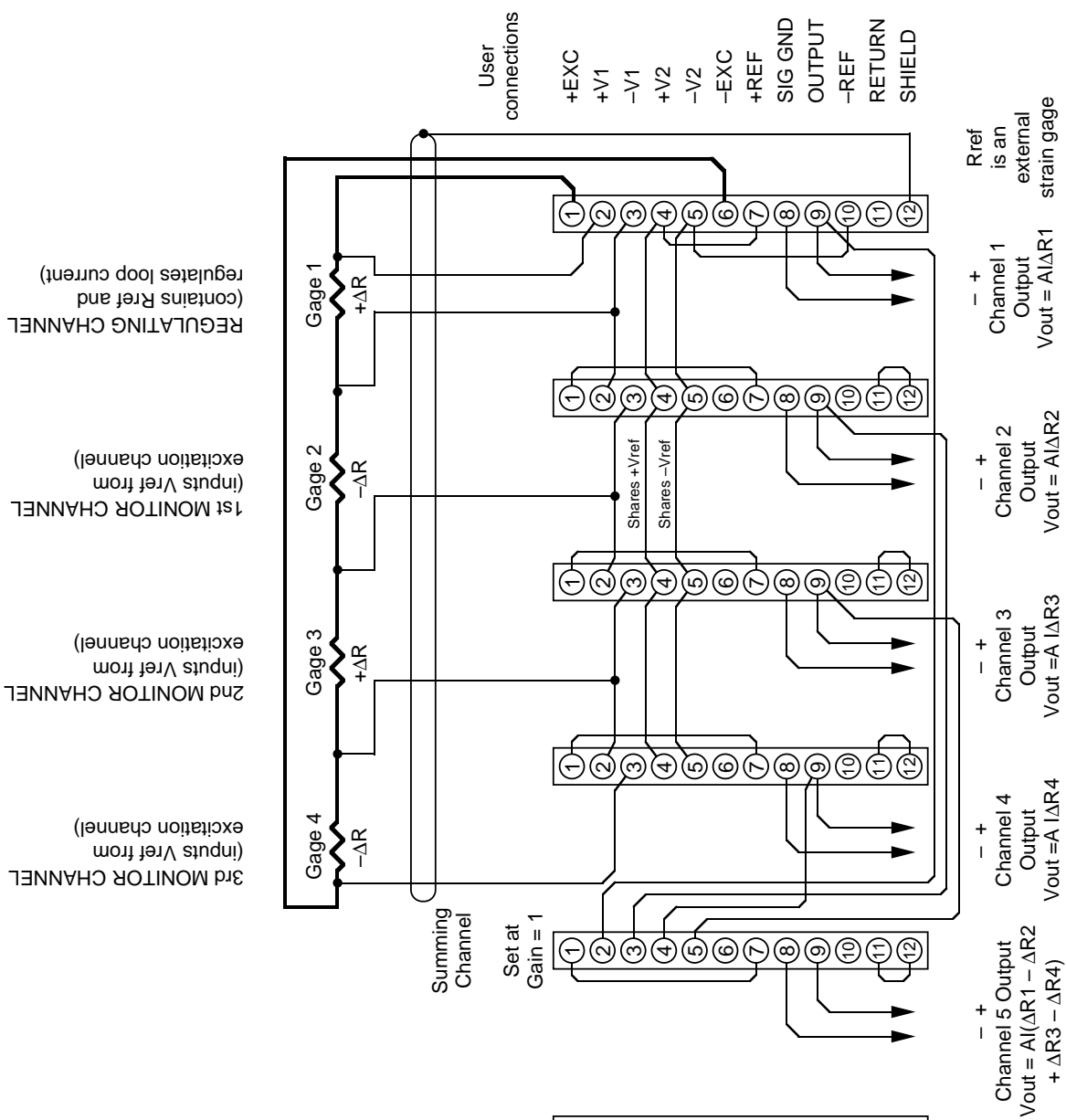
**This is the typical connection of evaluating the contribution of individual gages in a Wheatstone bridge transducer. One corner of the bridge is opened to accomplish the test.**

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**If Gage 1 is  $-\Delta R$  and a positive-going output is required, then connect:**

**5-2 (V1+) to 2-9, 5-3 (V1-) to 1-9, 5-4 (V2+) to 3-9, and 5-5 (V2-) to 4-9.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

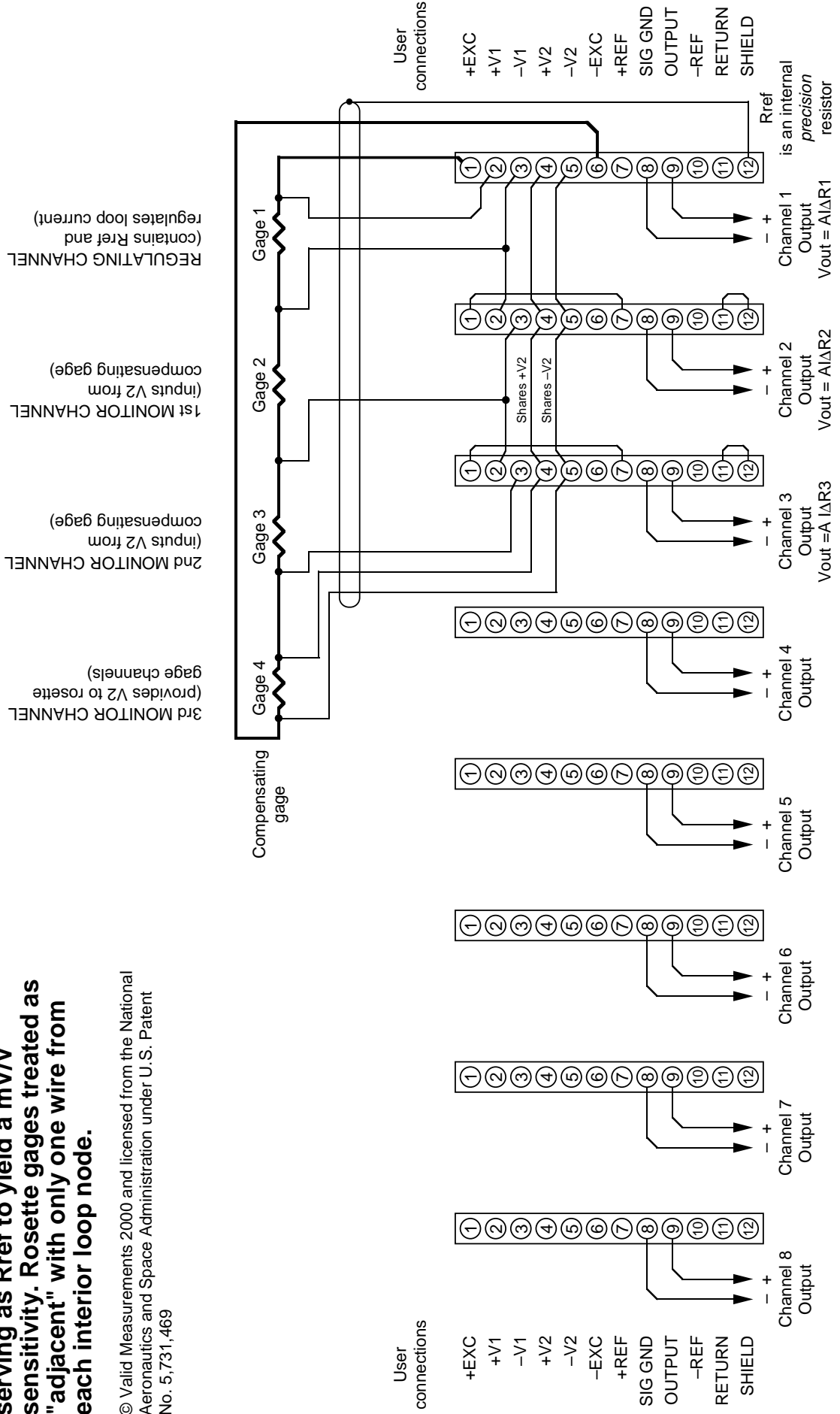


**4-Gage, 8-Wire, 3-Output, Temperature Compensated Strain Rosette Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Rosette gages treated as "adjacent" with only one wire from each interior loop node.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



**5-Gage, 8-Wire, 5-Output Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

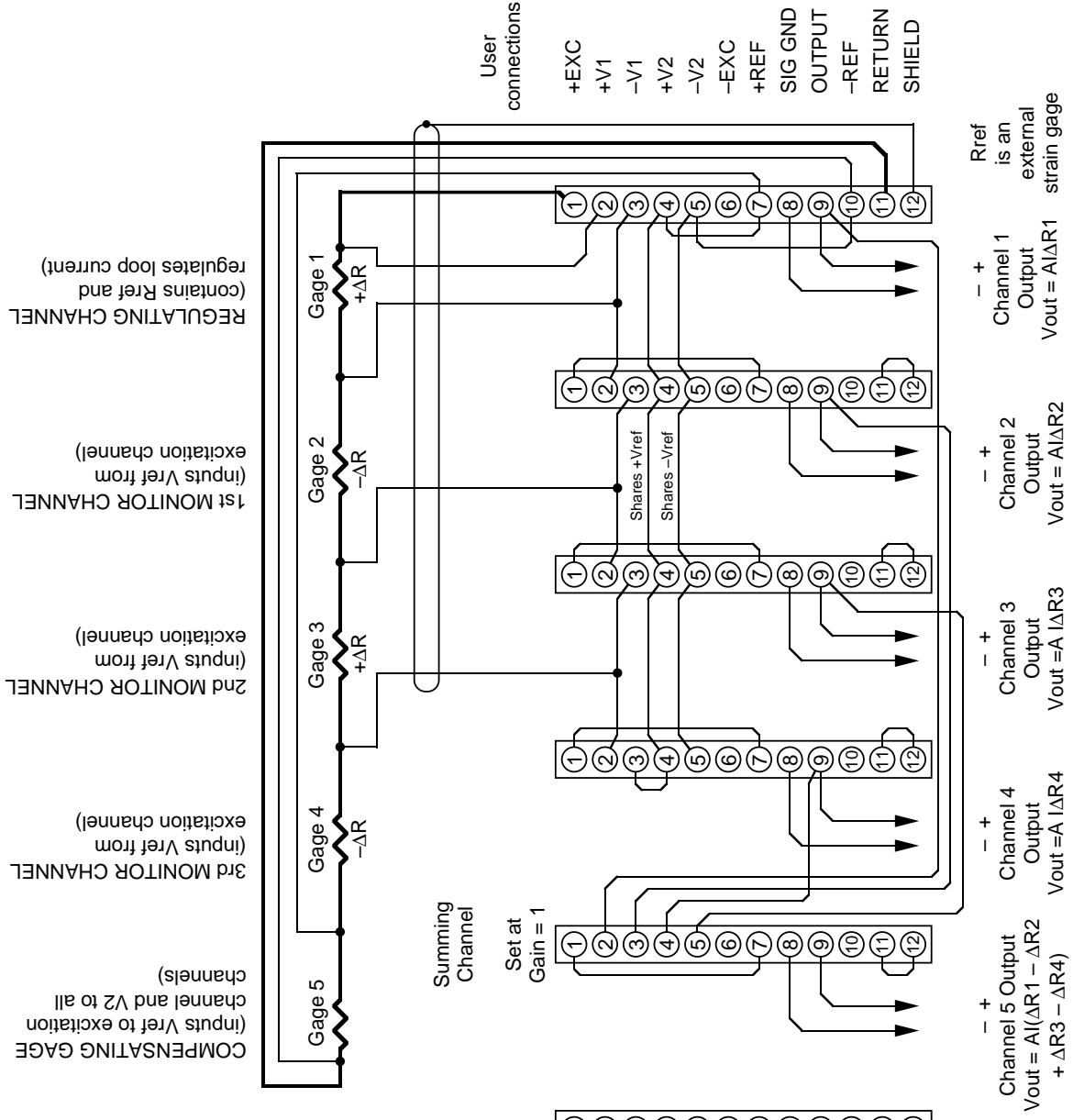
**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. All gages are treated as "adjacent" with only one wire from each interior loop node.**

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**If Gage 1 is  $-\Delta R$  and a positive-going output is required, then connect:**

**5-2 (V1+) to 2-9, 5-3 (V1-) to 1-9, 5-4 (V2+) to 3-9, and 5-5 (V2-) to 4-9.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

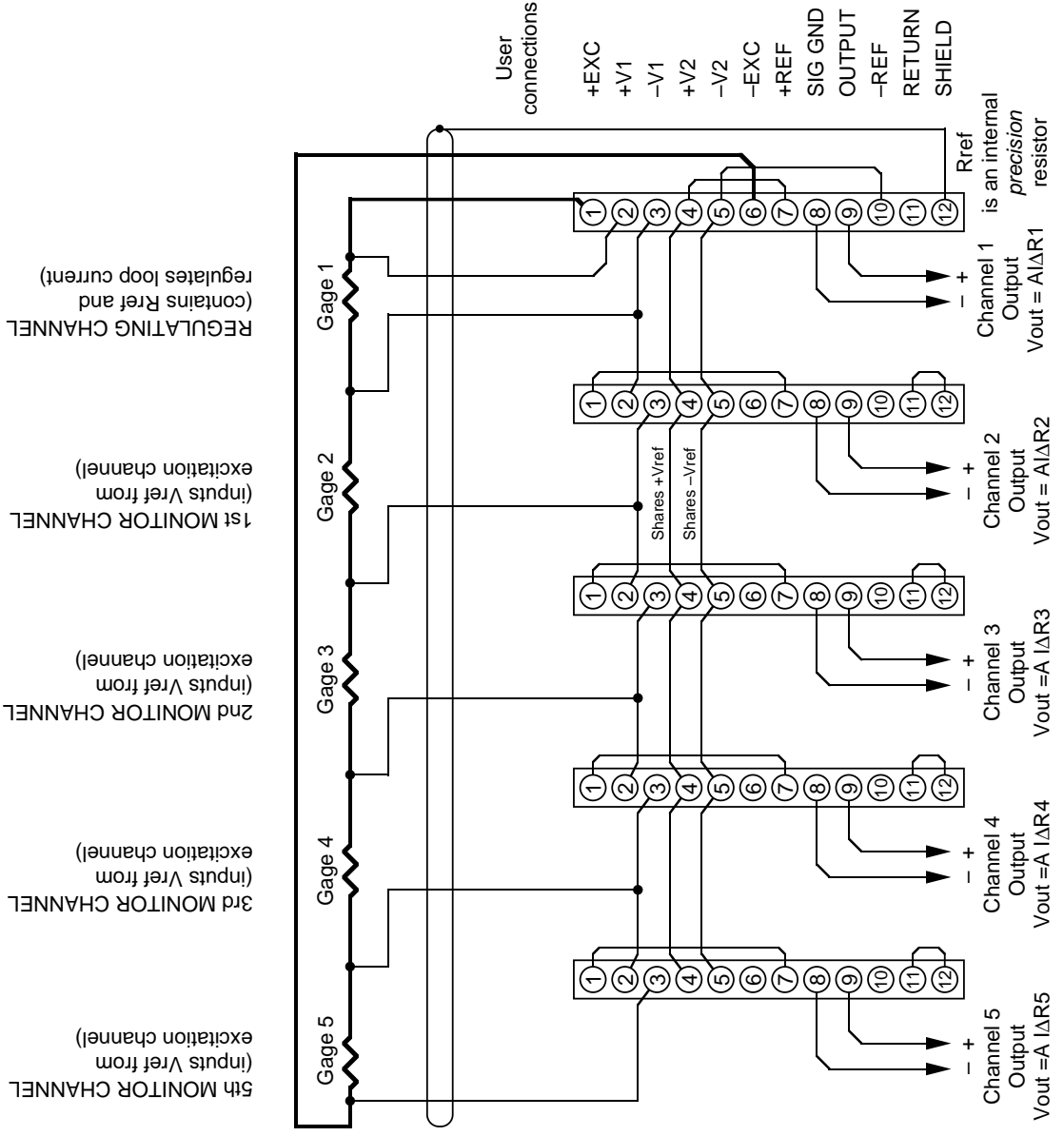


## 5-Gage, 8-Wire, 5-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.

**All gages treated as "adjacent" with only one wire from each interior loop node.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



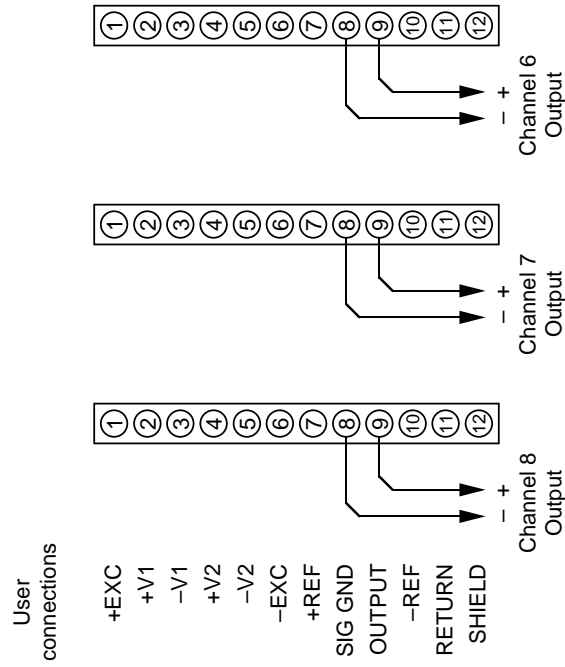
## 5-Gage, 12-Wire, 5-Output Excitation Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

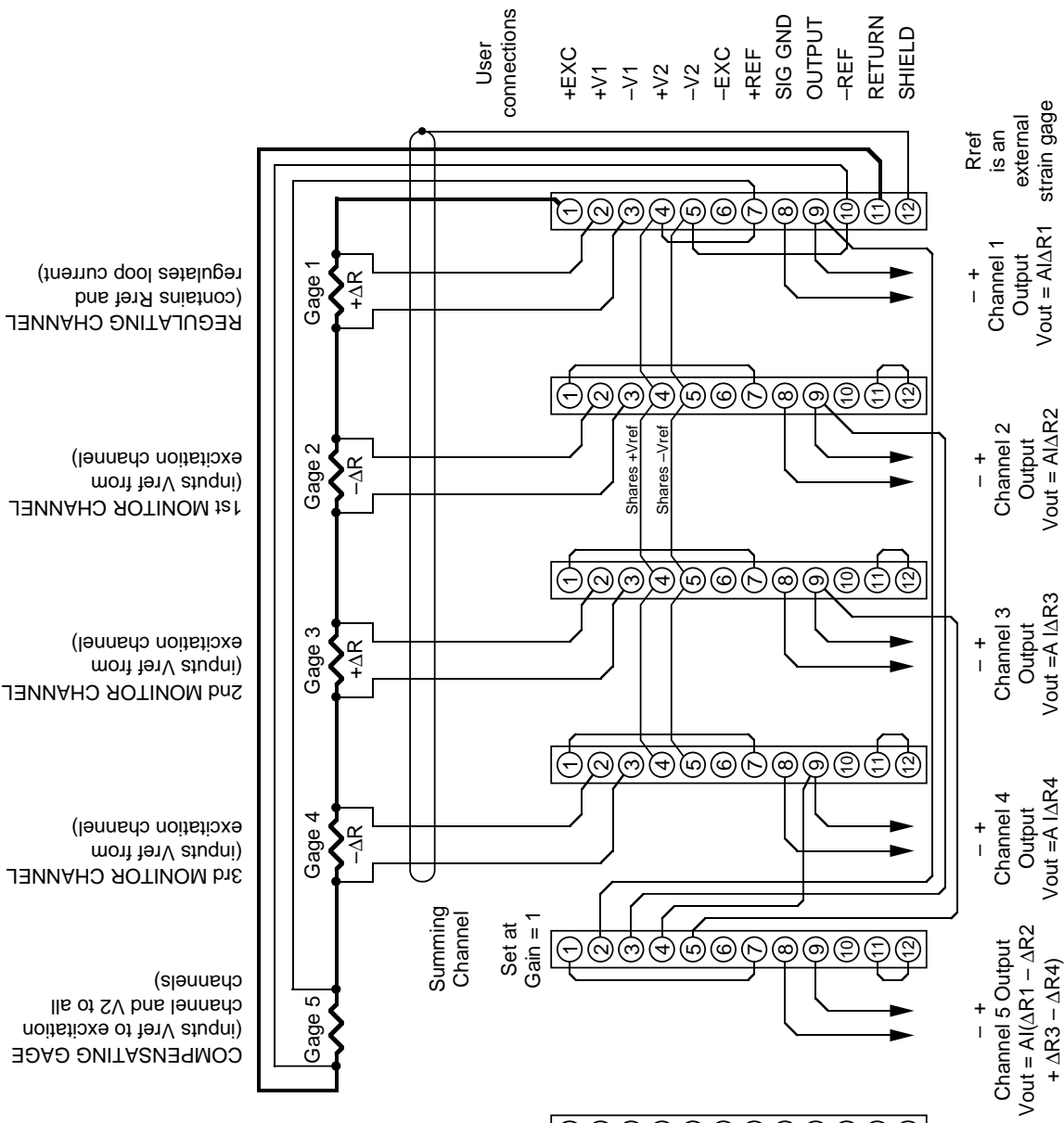
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**If Gage 1 is  $-\Delta R$  and a positive-going output is required, then connect:**

**5-2 (V1+) to 2-9, 5-3 (V1-) to 1-9,  
5-4 (V2+) to 3-9, and 5-5 (V2-) to 4-9.**



OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

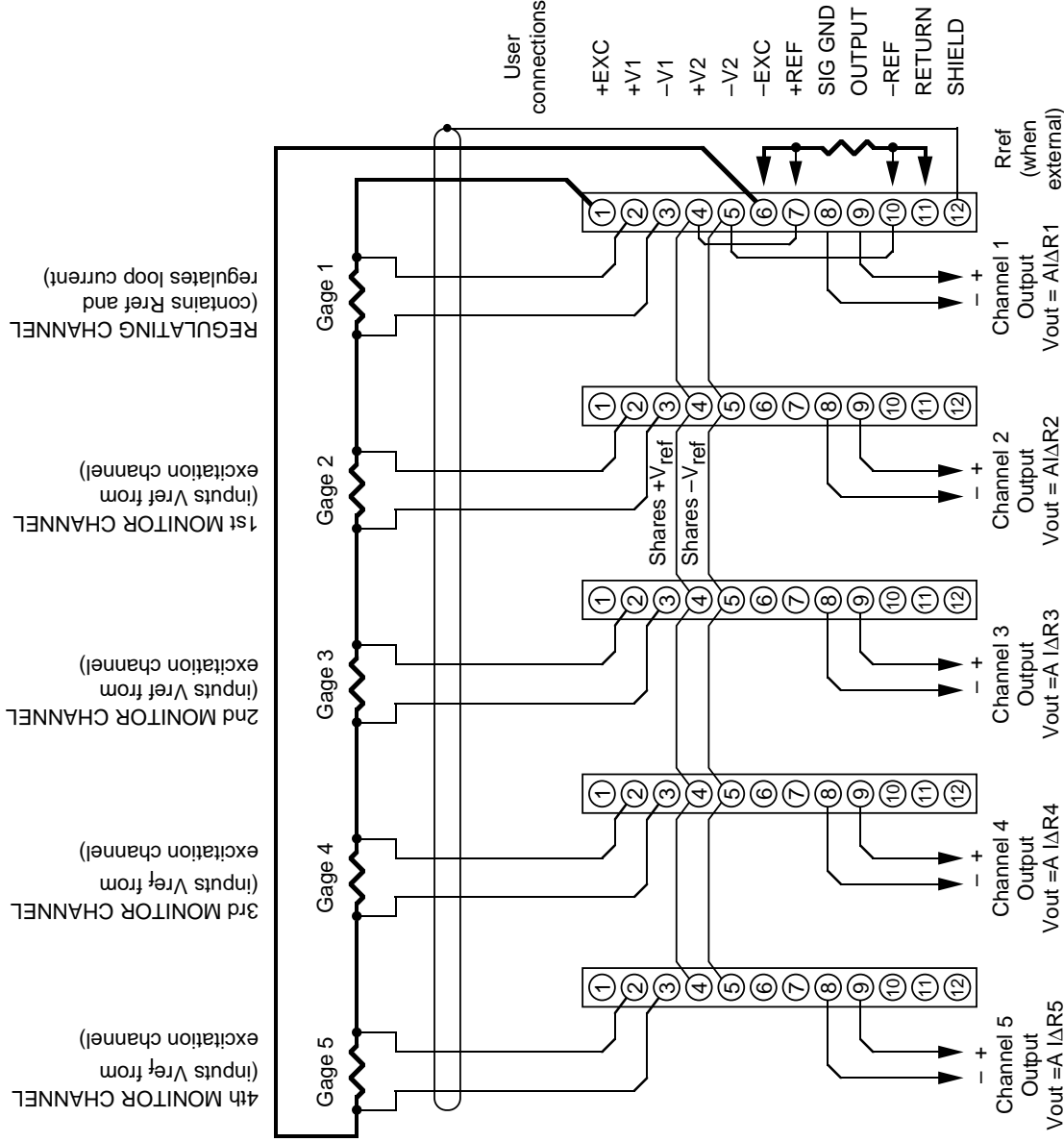


**5-Gage, 12-Wire 5-Output Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

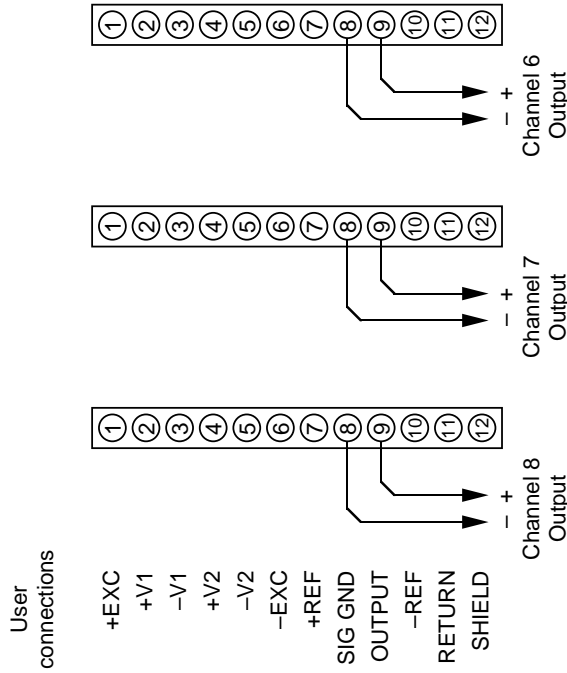
**A multi-gage loop with separated gage wiring. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



Replicate for as many gages as needed in a loop.

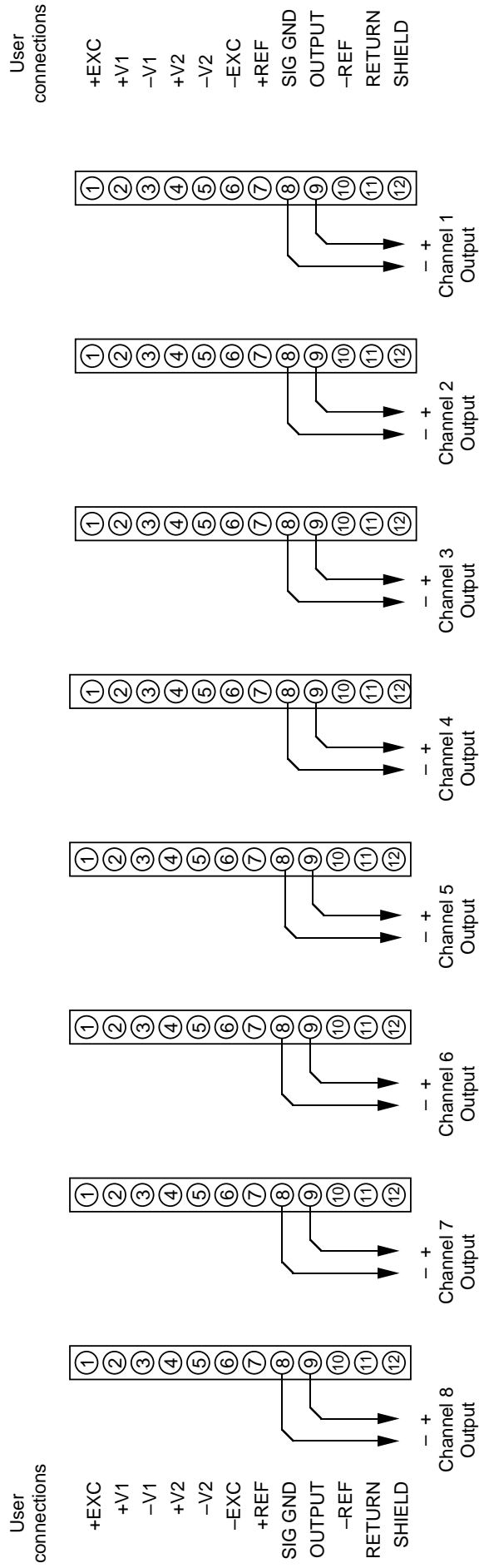


**X-Gage, Y-Wire, Z-Output, Excitation Temperature Compensated Anderson loop wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.**

**A multi-gage loop with one gage serving as Rref to yield a mV/V sensitivity. Separated gage wiring is the most accurate way to observe gages with significant wire resistance between them.**

OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

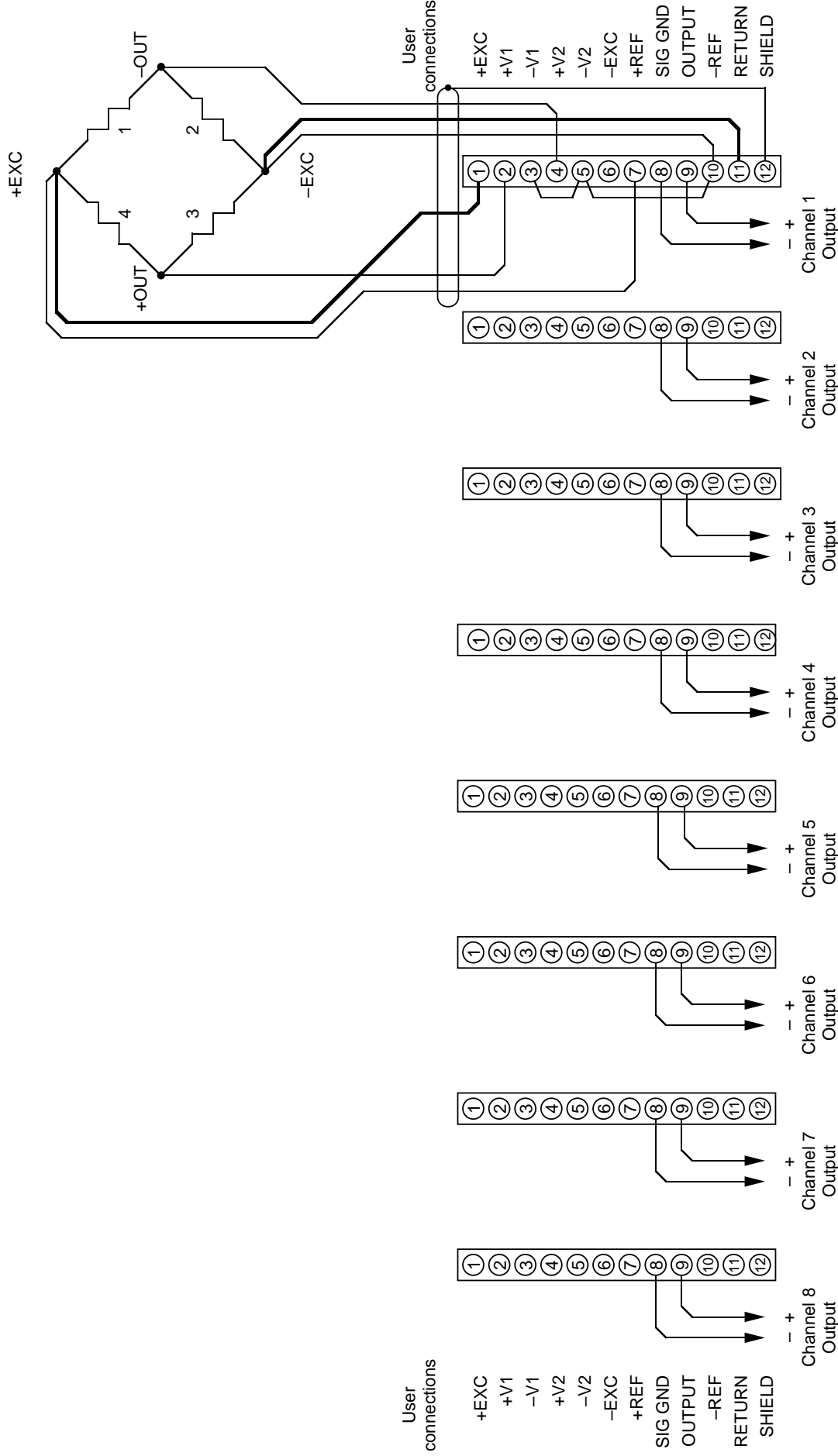
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## 6-Wire Wheatstone bridge wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.



## 4-Wire Wheatstone bridge wiring plan for the Trig-Tek 251B (AL-8) Signal Conditioner.

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OUTPUT terminals provide the difference between differential voltages V1 and V2, amplified with respect to SIG GROUND. SIG GROUND and SHIELD are both internally connected to Power Common. To observe the change in a single gage, + and - V2 are connected respectively to + and - REF. Using jumper connections at the inputs to the signal conditioner, one Reference Resistor or gage can participate in several difference measurements from the same current loop. The conditioner channel providing excitation regulation is called an Excitation Channel while a conditioner channel that does not supply excitation is called a Monitor Channel. For best performance, connect inputs directly to the terminals of the gage resistance whose voltage drop they are to monitor. For wiring economy, connect one sensing wire to each remote node to be sensed in the loop. Test points within a signal conditioner channel are available via the connector on the front of that channel. Many high-resistance gages in a loop may cause excitation regulator instability.

