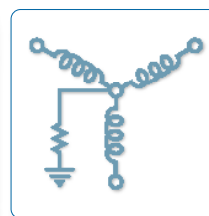
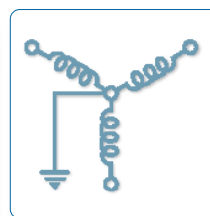
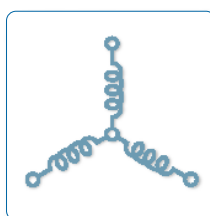
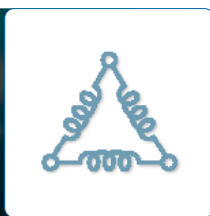




SLEUTH

HIGH RESISTANCE GROUNDING

Installation & Operation Manual



C-408EM Instruction Manual, June 2025

***Applicable for SIGMA 3-C Serial No. 2213 and above**

Note: The SIGMA3-C relay is the latest generation, fully compliant with CEC 2024, and includes the 48-hour delay feature.

ABOUT I-GARD

I-Gard's commitment to electrical safety provides both industrial and commercial customers with the products needed to protect their electrical equipment and the people that operate them.

As the only electrical-safety focused company whose product portfolio includes neutral grounding resistors, high-resistance grounding systems and optical arc mitigation, we take pride in our technologies that reduce the frequency and impact of electrical hazards, such as arc flash and ground faults.

For those customers who have purchased from us over the last 30 years, you know us for the quality and robustness of our products, our focus on customer service and technical leadership. We build on this foundation by investing in developing new products in electrical safety education by actively participating in the IEEE community programs on technical and electrical safety standard, and working with local universities at discovering new technologies. We remain unrelenting in our goal of improving electrical safety in the workplace.

Our commitment to excellence is validated by long-standing relationships with industry leaders in fields as diverse as petroleum and gas, hospitals, automotive, data centers, food processing, aerospace, water and waste water plants, and telecommunications. We provide our customers with the product and application support required to ensure that their electrical distribution system is safe and reliable.

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1. GENERAL DESCRIPTION

1.1 SLEUTH NEUTRAL GROUNDING SYSTEM – OVERVIEW

Sleuth is a robust, high-resistance grounding system designed to protect personnel and equipment by limiting ground fault current to safe, non-destructive levels. Connected to the wye point of a transformer or generator or through an artificial neutral in delta systems, Sleuth allows operations to continue during a single line-to-ground fault while providing immediate fault notification.

It integrates:

- Ground fault protection.
- Built-in resistor and ground fault relay.
- Optional pulsing feature for fault location assistance.

1.2 KEY FEATURES:

- **Integrity Monitoring:** Constant monitoring detects deviation in resistor values. An alarm is triggered if limits are exceeded.
- **Ground Fault Limiting:** Controls fault current to safe levels, preventing insulation damage.
- **Alarm & Indicator Lights:**
 - TRIP: Lights for any fault
 - GROUND FAULT / RESISTOR FAULT: Show specific issue
- **Form C Contacts:** Independent contacts for ground fault and resistor fault alarms.
- **TDM Touchscreen Interface:** Real-time monitoring and configuration of system parameters.

1.3 OPTIONAL PULSING FEATURE

- Pulses fault current between 100% and 50% to aid fault location.
- Pulse duration is user-adjustable.
- Used with a handheld sensor and single-line diagram for efficient fault tracing.

1.4 INSTALLATION & HANDLING

- Units are inspected and shipped in custom cartons. Inspect immediately upon receipt.
- Report shipping damage to the carrier. Contact I-Gard for replacement if needed.
- Store in original packaging in a dry, dust-free area if not installing immediately.

2. HIGH-RESISTANCE GROUNDING COMPLIANCE

The I-Gard Sleuth system complies with the 2024 editions of both the **Canadian Electrical Code (CEC C22.1:24)** and the **National Electrical Code (NFPA 70)**, which permit High Resistance Grounding (HRG) systems at voltages up to 1000 V AC provided the ground fault current does not exceed 10 A.

By limiting fault current to safe, non-destructive levels, the Sleuth enables continued operation during a single line-to-ground fault. This minimizes downtime, protects critical equipment, and allows fault location and repair to be scheduled without disrupting operations.

The benefits of high-resistance grounding include:

- Reduced damage to electrical equipment during faults.
- Lower risk of arc flash and shock hazards.
- Improved personnel safety.
- Minimized voltage dips and transient overvoltages.
- Compliance with modern safety and operational standards.

The Sleuth system provides a standards-compliant, reliable grounding solution for industrial and commercial applications.

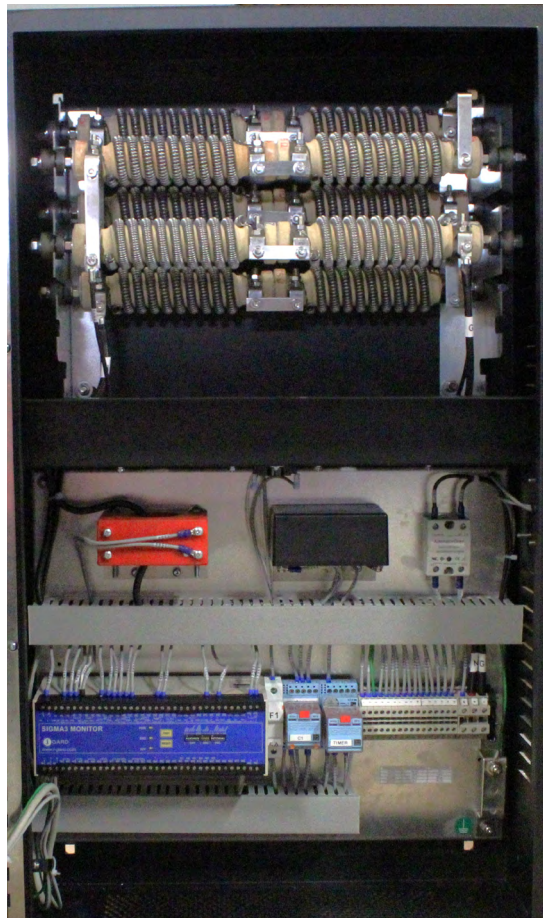


Figure 1: Interior Layout

3. INSTALLATION

DANGER
Hazard of Electrical Shock, Burn or Explosion
All installation, servicing and testing referred to in this manual must be performed by qualified personnel. All power should be disconnected prior to removing covers or enclosures and where live conductors may otherwise be exposed.
Failure to observe these precautions may result in death or severe personal injury and damage to equipment. Before placing an intentional ground fault on the power system, check that a fault does not already exist. Any test ground fault equipment must be rated for full system voltage and be fused for protection.

The **Sleuth** is housed in a **NEMA 2 indoor drip-proof enclosure** and must be installed in accordance with local electrical codes. It operates on a **120 V AC supply**. The **system neutral must be connected to terminals N and NN**, and the **system ground to terminal G**, as shown in the wiring diagram refer Figure 2.

Upon delivery, **inspect the unit carefully**. If damaged, do **not install** contact I-Gard using the information provided on the back cover.

To access the mounting holes, **loosen the two front door bolts** and open the door. For units with an artificial neutral, refer to Figure 4 for mounting dimensions.

3.1 MODEL INFORMATION & INSTALLATION NOTES

- **Typical Models:**
 - PS-277 (480 V, 5 A)
 - PS-347 (600 V, 5 A)
- **Medium Voltage Versions:** Available upon request – contact I-Gard for details.



Before Installation:

- Confirm that the correct model has been supplied.
- Carefully unpack and inspect the unit. Do not install if damaged, contact I-Gard immediately using the information on the back cover.
- Open the front door by loosening the two bolts to access the mounting holes.
- Mount only in accordance with local electrical codes.
- For mounting dimensions, see Figure 4.

3.2 MOUNTING & ELECTRICAL INSTALLATION

Wall Mounting (See Figure 4):

- Enclosure dimensions:
 - Height: 34"
 - Width: 20"
 - Depth: 9 ½"
- Rear mounting holes (4 total):
 - Vertical spacing: 31 ½" (800.1 mm)
 - Horizontal spacing: 16 ½" (419.1 mm)
 - Hole diameter: ⅜" (9.5 mm)
 - Mount securely per local electrical code

Electrical Access (See Figure 3):

- **Conduit knockouts:**
 - 4 knockouts on bottom: $\frac{7}{8}$ " **diameter** (sized for $\frac{1}{2}$ " conduit)
 - 2 knockouts on each side: $\frac{7}{8}$ " **diameter**

Power Requirements:

- Supply voltage: **120 V AC**
- Recommended wire size: **14 or 12 AWG**

Conductor Guidelines:

- Minimum wire size per electrical code:
 - 8 AWG** in conduit
 - 6 AWG** if exposed
- All conductors must be **fully insulated to system voltage**
- **System neutral (X0)** must be connected at **one point only**, no shared or floating references

Artificial Neutral Notes (Delta Systems Only):

- For delta configurations using an artificial neutral:
 - Connect three-phase cables plus ground as shown in **Figure 2**
 - Ground connects to **terminal G**
- Only applicable to systems with an artificial neutral transformer

Before Energizing:

- Perform a final inspection of all internal wiring
- Remove any foreign objects from the enclosure
- Verify that all connections are properly secured and torqued
- Ensure the door is fully closed and both bolts are fastened before applying power



WARNING

Important Neutral (NN) must be connected at one point only. All conductors must be insulated to full system voltage. Do not connect N or NN to ground. Always follow wiring diagrams and local code.

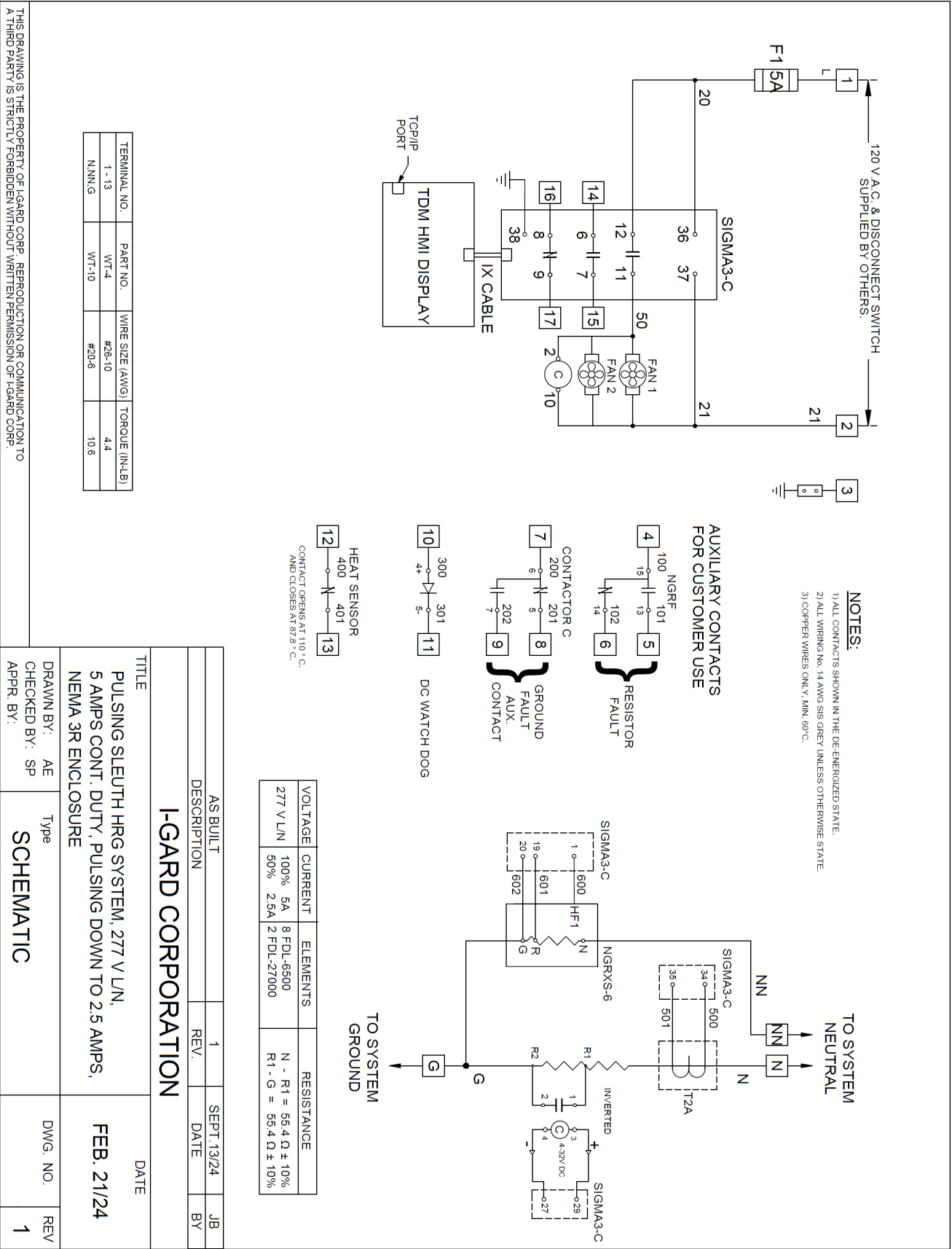
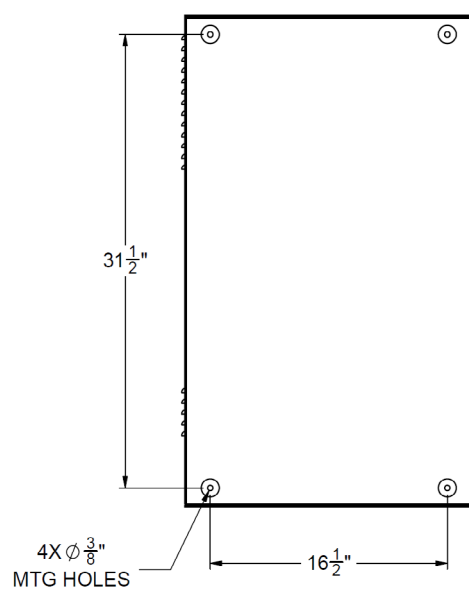
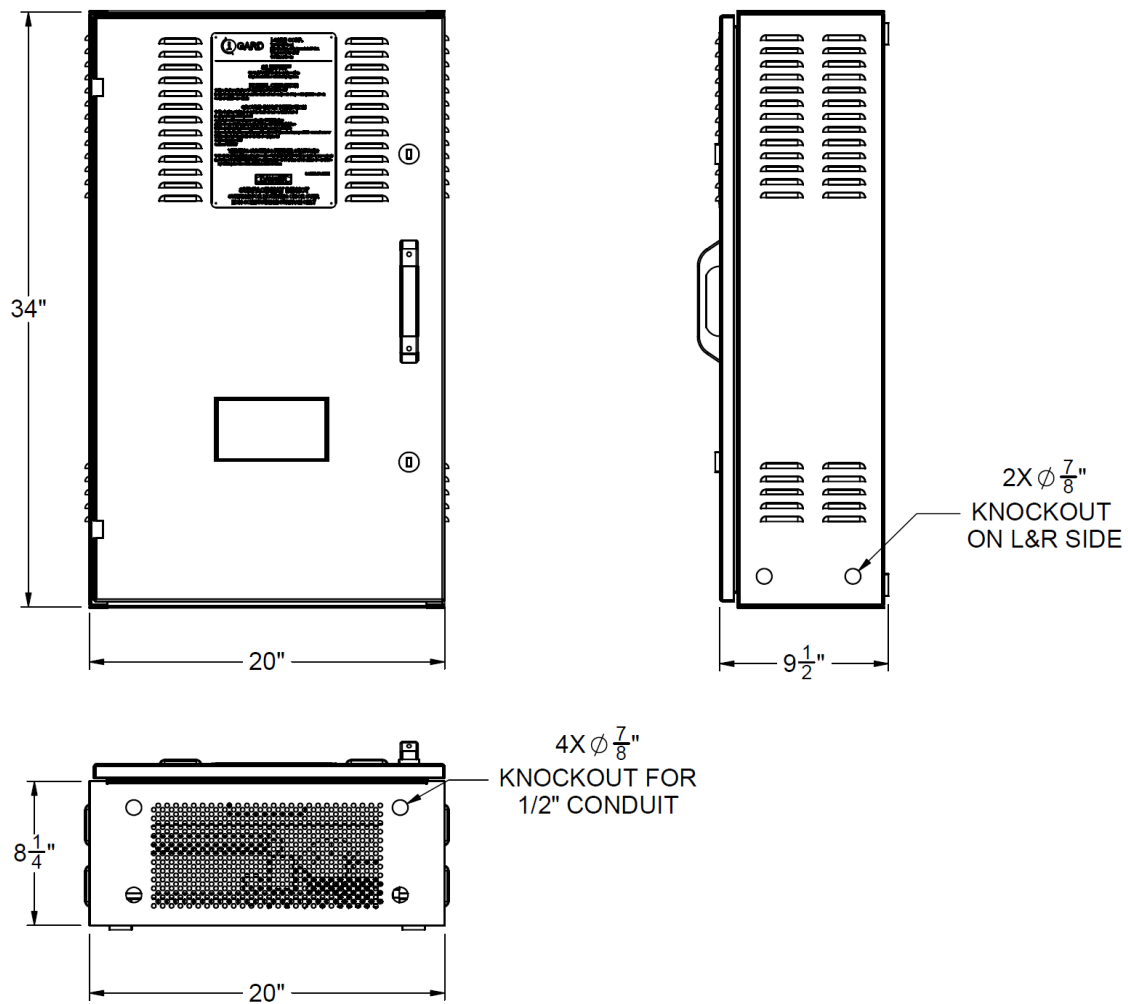


Figure 2: Wiring Diagram for Sleuth Pulsing



4. OPERATION



Figure 5: Sleuth Control Panel / TDM Home Screen

4.1 SIGMA3-C AND TDM OPERATION

The SIGMA3-C connects to the SIGMA3-C-TDM touchscreen interface via the MODBUS port using the provided IX cable. The TDM is mounted on the front panel and provides centralized control and monitoring.

TDM Functions:

- View system status, ground fault current, and neutral-to-ground (NGR) voltage
- Access event logs and view historical fault trends
- Configure pulsing settings (frequency, duration)
- Remotely reset Trip, Ground Fault, or NGR alarms
- Enable/disable MODBUS TCP/IP communication
- Adjust system parameters such as trip level, delay time, and alarm behavior

Upon connection, the HOME screen (see Figure 5) appears on the TDM. Use the interface buttons to:

- **System Status:** View real-time fault indicators, enable pulsing, run test/reset
- **Event Logs:** Access historical logs with time stamps
- **Settings:** Configure voltage, pulsing, alarms, Modbus settings

4.2 RELAY OUTPUTS – SIGMA3-C TERMINAL DESCRIPTIONS

The SIGMA3-C provides Form C (SPDT) relays. Each relay has internally wired contacts and corresponding external terminal block connections.

4.2.1 Trip Relay

Activated on ground fault or NGR fault, based on configuration.

- **Fail-Safe Mode:** Relay is energized in normal conditions and drops on fault
- **Shunt Trip Mode:** Relay energizes only during fault

Connections:

- **NO (Normally Open):** Terminal block 14–15, SIGMA3-C terminals 6 (COM2) to 7 (NO2)
- **NC (Normally Closed):** Terminal block 16–17, SIGMA3-C terminals 8 (NC1) to 9 (COM1)

This relay trips on ground fault or NGR fault, based on DIP switch config.

- **Shunt Trip Mode:** de-energized normally, energizes on fault
- **Fail-Safe Mode:** energized normally, de-energizes on fault or power loss

4.2.2 Ground Fault Relay

Signals a ground fault condition after the programmed time delay.

Mode: Operates only in **Shunt Trip** configuration

Connections:

- NO: Terminal block 7–9, SIGMA3-C terminals 12 (COM2) to 11 (NO2)
- NC: Terminal block 7–8, SIGMA3-C terminals 12 (COM2) to 10

4.2.3 NGR Fault Relay (RPF Relay)

Indicates a resistor path fault (open or shorted).

- **Mode:** Active only in **Shunt Trip** configuration

Connections:

- NO: Terminal block 4–5, SIGMA3-C terminals 15 (COM3) to 13 (NO3)
- NC: Terminal block 4–6, SIGMA3-C terminals 15 (COM3) to 14 (NC3)

4.2.4 Watchdog Relay

The **Watchdog Relay** monitors the health of the SIGMA3-C system. It provides a constant output signal indicating whether the relay is functioning normally or has encountered a system issue or power loss.

Relay Behavior:

- Energized = Normal operation
- De-energized = Power loss or system fault

Connections (SIGMA3-C internal terminals):

- NO (Normally Open): Terminals 16–18
- NC (Normally Closed): Terminals 17–18

Use this relay to activate alarms or signal supervisory systems in case of internal failure or communication loss.

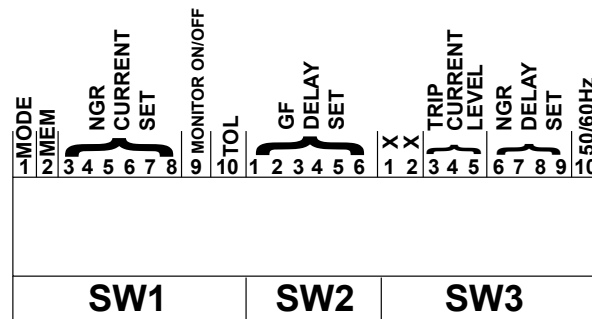


Figure 6: SIGMA3-C Dip Switch Array

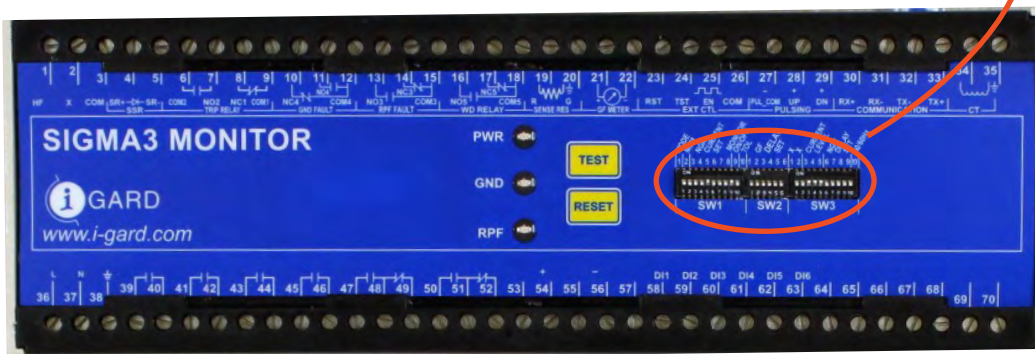


Figure 7: SIGMA3-C Relay

4.3 PARAMETER LIST

Parameter	Setting range	Default value	Setting Through
Trip Relay operating Modes	Fail-safe (undervoltage trip), Non-fail Safe (Shunt Trip)	Non-fail Safe (Shunt Trip)	Dip Switch
Trip Memory settings	On, Off	Off	Dip Switch
NGR Let-through Current	1...1000 A	1 A	Dip Switch
NGR Fault Trip Time Delay	1 Min... 48 Min	10 Sec	Dip Switch
	1 Hour ... 48 Hours	10 Min	Dip Switch
RPF Monitor	On, Off	On ¹ / Off ²	Dip Switch
RPF Tolerance	66 ... 300%, 66 ... 150%	66 ... 150%	Dip Switch
Ground Fault Trip Time Delay	60 ... 9300 ms	60 ms	Dip Switch
Ground Fault Trip Current Level	5 ... 50%	5%	Dip Switch
System Frequency	50 Hz , 60 Hz	60 Hz	Dip Switch
Pulsing	On, Off	Off	TDM
Pulse Frequency Range	1Hz - 3.25Hz	1Hz	TDM
Alarm mute delay	15 Min ... 24 Hr	15 Min	TDM
Voltage (L-L)	120 V ... 34.5 kV	-	TDM

Table 4.3: Parameter list

¹ For Canada Market RPF Monitor is ON as per CSA CSA C22.1 Section 10 and Table 17

² For US Market RPF Monitor is OFF

4.4 SW1

4.4.1 DIP Switch 1 (Trip Relay Operating Modes)

The trip relay operating can be set with SW1, DIP switch 1. The SIGMA3-C can be set for a shunt trip operating mode (not fail-safe) or an Undervoltage trip operating mode (fail-safe) operation with the trip relay operating mode dip switch.

Refer section 5.4.1 (from SIGMA3-C Manual) for details on Trip Relay Operating Mode

(1 = Up, 0 = Down)

Mode	Dip Switch Settings
Fail-safe (Undervoltage Trip)	1
Non-fail safe (Shunt Trip)	0

Table 4.4.1: Trip Relay Operating Mode SW1 DIP Switch 1 (left hand array)

4.4.2 DIP Switch 2 (Trip Memory Setting)

The trip memory can be set with SW1, DIP switch 2. The SIGMA3-C can be set for trip memory ON or trip memory OFF.

Refer section 5.6 (from SIGMA3-C Manual) for details on Trip Memory

(1 = Up, 0 = Down)

Trip Memory On/Off	Dip Switch Settings
TRIP MEMORY ON	1
TRIP MEMORY OFF	0

Table 4.4.2: Trip Memory Setting SW1 DIP Switch 2 (left hand array)

4.4.3 DIP Switch 3,4,5,6,7,8 (NGR Let-Through Current)

The NGR let-through current setting on the SIGMA3-C is configured using DIP switches to match the rating of the NGR. The trip level can be selected as a percentage of the RPF let-through current setting. The available percentages are 5%, 10%, 15%, 20%, 25%, 30%, 40%, and 50%.

The NGR let-through current can be set with SW 1, DIP SWITCH (3, 4, 5, 6, 7, 8).

(1 = Up, 0 = Down)

Current Settings (Amps)	Dip Switch Settings						ZSCS Employed
	3	4	5	6	7	8	
1	0	0	0	0	0	0	TxA or Rx-yA
2	1	0	0	0	0	0	TxA or Rx-yA
3	0	1	0	0	0	0	TxA or Rx-yA
4	1	1	0	0	0	0	TxA or Rx-yA
5	0	0	1	0	0	0	TxA or Rx-yA
6	1	0	1	0	0	0	TxA or Rx-yA
7	0	1	1	0	0	0	TxA or Rx-yA
8	1	1	1	0	0	0	TxA or Rx-yA
9	0	0	0	1	0	0	TxA or Rx-yA
10	1	0	0	1	0	0	TxA or Rx-yA
15	0	1	0	1	0	0	TxA or Rx-yA
20	1	1	0	1	0	0	TxA or Rx-yA
25	0	0	1	1	0	0	TxA or Rx-yA
30	1	0	1	1	0	0	TxA or Rx-yA
35	0	1	1	1	0	0	TxA or Rx-yA
40	1	1	1	1	0	0	TxA or Rx-yA
45	0	0	0	0	1	0	TxA or Rx-yA
50	1	0	0	0	1	0	TxA or Rx-yA
55	0	1	0	0	1	0	TxA or Rx-yA
60	1	1	0	0	1	0	TxA or Rx-yA
65	0	0	1	0	1	0	TxA or Rx-yA
70	1	0	1	0	1	0	TxA or Rx-yA
75	0	1	1	0	1	0	TxA or Rx-yA
80	1	1	1	0	1	0	TxA or Rx-yA
85	0	0	0	1	1	0	TxA or Rx-yA
90	1	0	0	1	1	0	TxA or Rx-yA
95	0	1	0	1	1	0	TxA or Rx-yA
100	1	1	0	1	1	0	TxA or Rx-yA
125	0	0	1	1	1	0	TxA or Rx-yA
150	1	0	1	1	1	0	TxA or Rx-yA
175	0	1	1	1	1	0	TxA or Rx-yA
200	1	1	1	1	1	0	TxA or Rx-yA
225	0	0	0	0	0	1	TxA or Rx-yA
250	1	0	0	0	0	1	TxA or Rx-yA
275	0	1	0	0	0	1	TxA or Rx-yA
300	1	1	0	0	0	1	TxA or Rx-yA
325	0	0	1	0	0	1	TxA or Rx-yA
350	1	0	1	0	0	1	TxA or Rx-yA
375	0	1	1	0	0	1	TxA or Rx-yA

400	1	1	1	0	0	1	TxA or Rx-yA
450	0	0	0	1	0	1	TxA or Rx-yA
500	1	0	0	1	0	1	TxA or Rx-yA
550	0	1	0	1	0	1	TxA or Rx-yA
600	1	1	0	1	0	1	TxA or Rx-yA
650	0	0	1	1	0	1	TxA or Rx-yA
700	1	0	1	1	0	1	TxA or Rx-yA
750	0	1	1	1	0	1	TxA or Rx-yA
800	1	1	1	1	0	1	TxA or Rx-yA
850	0	0	0	0	1	1	TxA or Rx-yA
900	1	0	0	0	1	1	TxA or Rx-yA
950	0	1	0	0	1	1	TxA or Rx-yA
1000	1	1	0	0	1	1	TxA or Rx-yA

Table 4.4.3: RPF Let-Through Current SW#1, DIP Switch #(3, 4, 5, 6, 7, 8) (Right Hand Array)

4.4.4 DIP Switch 9 (RPF Monitor ON/OFF)

The RPF Monitor can be set with SW1, DIP switch 9.

Refer section 5.2 (from SIGMA3-C Manual) for details on Resistor path monitoring.

(1 = Up, 0 = Down)

Mode	Dip Switch Settings
On	1
Off	0

Table 4.4.4: RPF Monitor On/Off SW#1, DIP Switch #9

4.4.5 DIP Switch 10 (RPF Tolerance)

The SIGMA3-C offers two RPF tolerance settings, where it calculates the apparent resistance of the NGR using the current from the ZSCS and the voltage across the NGR from the NGRX:

- **66% to 150%:** If the calculated resistance is greater than 150% or less than 66% of the nominal value, the SIGMA3-C will signal an RPF fault.
- **66% to 300%:** If the calculated resistance is greater than 300% or less than 66% of the nominal value, the SIGMA3-C will signal an RPF fault.

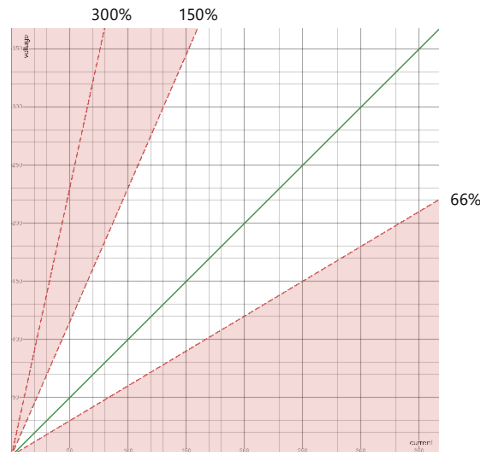


Figure 8: RPF Tolerance

The RPF Tolerance can be set with SW1, DIP switch 10. The RPF Tolerance feature is OFF when RPF Monitor is OFF.

(1 = Up, 0 = Down)

RPF Tolerance %	Dip Switch Settings
66% to 300%	1
66% to 150%	0

Table 4.4.5: RPF Tolerance SW#1, DIP Switch #10

4.5 SW2

4.5.1 DIP Switch 1, 2, 3, 4, 5, 6 (Ground Fault Delay Set)

The ground fault trip delay setting determines the duration that a ground fault must persist before being recognized as a fault. This setting is adjustable using DIP switches, ranging from a minimum of 60 milliseconds to a maximum of 9.3 seconds

The Ground Fault Trip Time Delay can be set with SW2, DIP switch 1,2,3,4,5,6.

(1 = Up, 0 = Down)

Ground Fault Trip Time Delay (in milliseconds)	Dip Switch Settings					
	1	2	3	4	5	6
60	0	0	0	0	0	0
150	1	0	0	0	0	0
300	0	1	0	0	0	0
450	1	1	0	0	0	0
600	0	0	1	0	0	0
750	1	0	1	0	0	0
900	0	1	1	0	0	0
1050	1	1	1	0	0	0
1200	0	0	0	1	0	0
1350	1	0	0	1	0	0
1500	0	1	0	1	0	0
1650	1	1	0	1	0	0
1800	0	0	1	1	0	0
1950	1	0	1	1	0	0
2100	0	1	1	1	0	0
2250	1	1	1	1	0	0
2400	0	0	0	0	1	0
2550	1	0	0	0	1	0
2700	0	1	0	0	1	0
2850	1	1	0	0	1	0
3000	0	0	1	0	1	0
3150	1	0	1	0	1	0
3300	0	1	1	0	1	0
3450	1	1	1	0	1	0
3600	0	0	0	1	1	0
3750	1	0	0	1	1	0
3900	0	1	0	1	1	0
4050	1	1	0	1	1	0
4200	0	0	1	1	1	0
4350	1	0	1	1	1	0
4500	0	1	1	1	1	0
4650	0	1	1	1	1	1
4800	1	0	0	0	0	0
4950	1	0	0	0	0	1
5100	0	1	0	0	0	1
5250	1	1	0	0	0	1
5400	0	0	1	0	0	1
5550	1	0	1	0	0	1

5700	0	1	1	0	0	1
5850	1	1	1	0	0	1
6000	0	0	0	1	0	1
6150	1	0	0	1	0	1
6300	0	1	0	1	0	1
6450	1	1	0	1	0	1
6600	0	0	1	1	0	1
6750	1	0	1	1	0	1
6900	0	1	1	1	0	1
7050	1	1	1	1	0	1
7200	0	0	0	0	1	1
7350	1	0	0	0	1	1
7800	0	1	0	0	1	1
7950	1	1	0	0	1	1
8100	0	0	1	0	1	1
8250	1	0	1	0	1	1
8400	0	1	1	0	1	1
8550	1	1	1	0	1	1
8700	0	0	0	1	1	1
8850	1	0	0	1	1	1
9000	0	1	0	1	1	1
9150	1	1	0	1	1	1
9300	0	0	1	1	1	1
9300	1	0	1	1	1	1
9300	0	1	1	1	1	1
9300	1	1	1	1	1	1

Table 4.5.1: Ground Fault Trip Time Delay SW#2, DIP Switches #(1,2,3,4,5,6) (left hand array)

4.6 SW3

4.6.1 DIP Switch 1, 2 (Dummy)

DIP Switch 1 and 3 are dummy and are not connected to circuit.

4.6.2 DIP Switch 3, 4, 5 (Ground Fault Trip Current Level)

The ground fault trip current level can be set with SW 3, DIP Switch 3, 4, 5. The SIGMA3-C can be programmed for a number of ground fault trip levels expressed as a percentage of the NGR let-through current setting. Eight ground fault trip level settings are available and are: 5%; 10%; 15%; 20%; 25%; 30%; 40%; 50%.

(1 = Up, 0 = Down)

Ground Fault Trip Level (% of NGR Let-Through Current)	Dip Switch Settings		
	3	4	5
5%	0	0	0
10%	1	0	0
15%	0	1	0
20%	1	1	0
25%	0	0	1
30%	1	0	1
40%	0	1	1
50%	1	1	1

Table 4.6.2: Ground Fault Trip Current Level SW#3, DIP Switches #(3, 4, 5) (Right hand array)

4.6.3 DIP Switch 6, 7, 8, 9 (NGR Delay Set)

The NGR delay can be set to minutes or hours based on the position of dip switch 9 on SW3. If dip switch 9 is OFF, the delay is set in minutes. If it is ON, the delay is set in hours.

The RPF delay can be set with SW3, DIP switch 6,7,8,9.

Minutes	Dip Switch Settings			
	6	7	8	9
1	0	0	0	0
6	1	0	0	0
12	0	1	0	0
18	1	1	0	0
24	0	0	1	0
30	1	0	1	0
36	0	1	1	0
48	1	1	1	0

Table 4.6.3.a: NGR Delay Set SW#3,
DIP Switch #(6, 7, 8, 9) Min

Hours	Dip Switch Settings			
	6	7	8	9
1	0	0	0	1
6	1	0	0	1
12	0	1	0	1
18	1	1	0	1
24	0	0	1	1
30	1	0	1	1
36	0	1	1	1
48	1	1	1	1

Table 4.6.3.b: NGR Delay Set SW#3,
DIP Switch #(6, 7, 8, 9) Hr

4.6.4 DIP Switch 10 (System Frequency)

The system frequency setting can be set with SW 3, DIP Switch 10. A system frequency of 50 Hz or 60 Hz can be chosen.

(1 = Up, 0 = Down)

System Frequency 50/60 Hz	Dip Switch Setting
System Frequency 50 Hz	1
System Frequency 60 Hz	0

Table 4.6.4: System Frequency SW#3, DIP Switch #10 (right hand array)

5. SIGMA3-C TECHNICAL DATA

General Data	Description			
Power supply	Rated supply voltage	110-240 VAC/DC 50/60 Hz 36W Power supply ¹		
	Tolerance	-22.72% to +10% (85-264 AC/DC)		
Frequency range	50 / 60 Hz			
Temperature Range	Operating	-40°C to +60°C		
	Storage	-50°C to +70°C		
Electrical Tests	Surge test	3 kV		
	Dielectric test	2 kV for 1 minute		
NGR Let-Through Current Settings	1-1000A			
Output Relay Contacts	Trip Relay (See Fig 2.4.1)	Type	Form Z (NO and NC pair)	
		Rating	8 A, 250 VAC 0.4 A, 125 VDC	
	Ground Fault (See Fig 2.4.2)	Type	1 Form C (NO/ NC)	
		Rating	8 A, 250 VAC/ 24 VDC 0.4 A, 125 VDC	
	RP Fault (See Fig 2.4.2)	Type	1 Form C (NO/ NC)	
		Rating	8 A, 250 VAC/ 24 VDC 0.4 A, 125 VDC	
	Watchdog Relay (Default is DC)	DC	Type	1 Form A (NO), Fail-safe Mode DC
			Rating	1 A @ 120 VDC Relay
AC ²		Type	1 Form C (NO/ NC)	
		Rating	8 A, 250 VAC/ 24 VDC	
Meter Output	0-1 mA DC (0-100% of Let through Current Setting)			
Ground Fault Trip Settings	Trip Level	5%, 10%, 15%, 20%, 25%, 30%, 40%, 50%		
	Trip Time	60 - 9300 ms		
Operating Modes	Fail-safe (Under-voltage Trip) / Shunt-trip ³			
	Trip Memory On / Trip Memory Off			

Table 5 SIGMA3-C Technical Specifications

¹ 24V DC and 48V DC control supply is also available upon customer request

² Available upon customer request

³ In Shunt Trip mode, the Trip relay is normally closed (NC) and changes to the normally open (NO) state when tripped. In Failsafe mode, the relay operates in reverse, remaining normally open (NO) and changing to normally closed (NC) when tripped.

6. MAINTENANCE

Commissioning Checklist – SIGMA3-C

To commission the SIGMA3-C and Sleuth system, follow these key steps:

- **Inspect installation** and physical condition
- **Verify all electrical connections**
- **Check all DIP switch and TDM settings**
- **Energize the SIGMA3-C**

Functional Verification

- Test the **RESET** and **TEST** buttons
- Enable and observe **pulsing**
- Confirm **TDM touchscreen communication**

System Tests

- Perform **primary or secondary current injection** to verify ground fault response
- Run **NGR open and short circuit tests** (with system de-energized)
- Power on full system
- Perform **online calibration** if impedance changes noticeably after energization

Cleaning Procedure – Sleuth

Before cleaning, **disconnect the NGR from the system neutral (X0)** and isolate control power. Use compressed air to remove internal dust and debris. Wipe the exterior with a **slightly damp cloth**.

Ensure the unit is **completely dry** before restoring power.

Close the front door, **reconnect power**, and **test the system** before returning it to service.



WARNING

Always follow proper safety protocols during maintenance.



Unparalleled Protection



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