SAM

Static Timing

Static timing relays for general purpose timing applications.

Features and Benefits

- High reliability solid-state components
- Single or dual timing units available
- Timing range of 0.10 to 9.99 sec
- Various output contact arrangements available
- Front panel settings adjustment
- Flush mounting
- Drawout case construction

Applications

- Accurate and repeatable timing functions
- Distance relay timing

Protection and Control

- Accurate repeatable timing for contact closure control

Description

The SAM series of relays provide highly accurate and repeatable timing functions that produce a contact closure after a selected time delay has expired. The total time delay consists of the set time delay added to the operating time of the associated output relay (typically 2-6 ms).

The time delay settings are made using toggle switches on the front plate of the relay, easily accessible by removing the front cover. Utilizing high reliability solid-state components, the SAM relays operate in stage-settable ranges of .01 to 99 sec, within ±3 ms of selected setting.

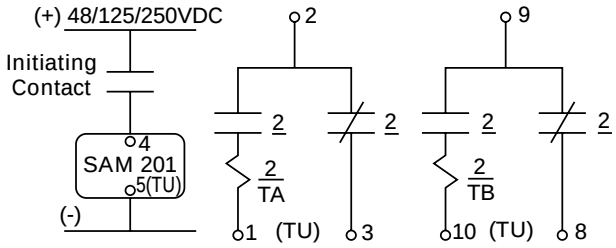
The SAM series are designed to supersede the SAM11A-17G relays (see Selection Guide).

Application

The SAM relays may be applied wherever accurate and repeatable timing functions are required. The basic timing function is the same for all models of the SAM family, but each model is different based on the number of timing functions present, the presence or absence of targets, and the contact arrangement. This differentiation makes certain models more suitable for specific applications. The Selection Guide lists the models and their recommended applications.

Connection Diagrams

SAM201

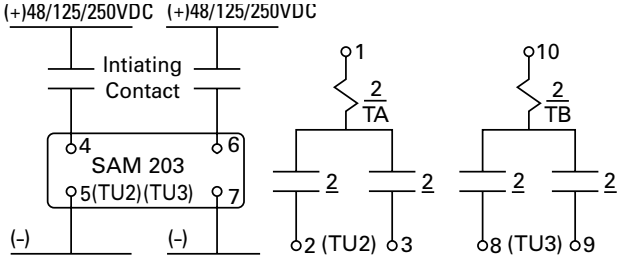


LEGEND

2	SAM Timing Relay
TB	Target

TA	Target
TU	Timing Unit

SAM203

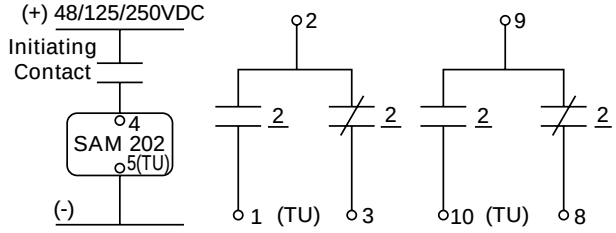


LEGEND

2	SAM Timing Relay
TA	Target
TB	Target

TU2	Timing Unit Unit 2
TU3	Timing Unit 3

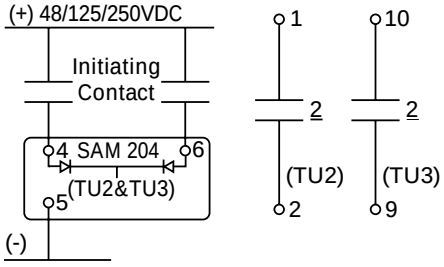
SAM202



LEGEND

2	SAM Timing Relay
TU	Timing Unit

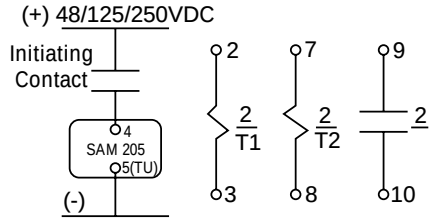
SAM204



LEGEND

2	SAM Timing Relay
TU2	Timing Unit 2
TU3	Timing Unit 3

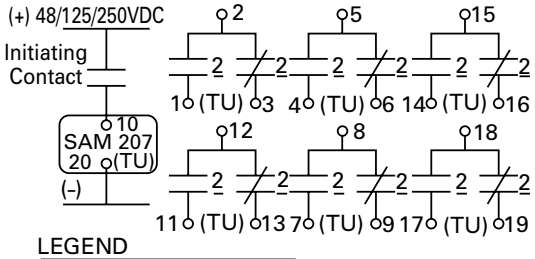
SAM205



LEGEND

2	SAM Timing Relay	T2	Target
T1	Target	TU	Timing Unit

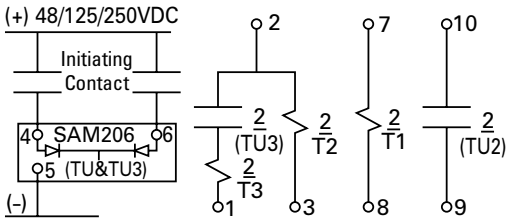
SAM207



LEGEND

2	SAM Timing Relay
TU	Timing Unit

SAM206



LEGEND

2	SAM Timing Relay	T1	Target
TU2	Timing Unit 2	T2	Target
TU3	Timing Unit 3	T3	Target

Technical Specifications

RATING

DC Control Voltage:
- **Nominal:** 48, 110, 125, 220, 250
- **Minimum:** 37 V
- **Maximum:** 280 V

Timing Settings:
- **Range Multiplier - 0.01**
  - **Recommended Timing Range:** 0.03 to 0.99 sec in 0.01 sec steps
  - **Repeatability:** ±1.5%
- **Range Multiplier - 0.1**
  - **Recommended Timing Range:** 0.10 to 9.90 sec in 0.10 sec steps
  - **Repeatability:** ±0.75%
- **Range Multiplier - 1.0**
  - **Recommended Timing Range:** 1.0 to 99.0 sec in 1.00 sec steps

ENVIRONMENTAL

Operating Temperature: -20°C to +55°C
Relative Humidity: 95% (noncondensing)
Surge: ANSI C37.90 and GE RFI tests IEC 255-4, 255-5

CONTACT RATINGS

Make and carry 30 A for 1 sec

BURDEN

	Power Supply DC Watts		
Model	**48**	**125**	**250**
201, 202, 205	1.1	3.0	6.3
203	2.3	6.3	13.5
204, 206	1.8	4.7	9.9
207	2.4	6.5	13.9

Specification subject to change without notice.

Selection Guide

Model	Applications	Timing Functions	Trip Targets*	Case Size	Functional Equivalent
SAM201A1A	General purpose	TU	TA & TB	S1	SAM11B, D, H
SAM202A1A	General purpose - 2-zone step distance schemes for zone-packaged distance relays	TU	None	S1	SAM11A, 17A, SAM99AA, 17D
SAM203A1A	General purpose - 3-zone step distance schemes for line protection	TU2 & TU3	TA & TB	S1	SAM13C
SAM204A1A	3-zone step distance schemes for line protection using zone-packaged distance relays	TU2 & TU3	None	S1	SAM16A
SAM205A1A	2-zone step distance schemes for line protection using phase-packaged distance relays	TU	T1 & T2	S1	SAM17C, G
SAM206A1A	3-zone step distance schemes for line protection using phase-packaged distance relays	TU2 & TU3	T1, T2, T3	S1	SAM14A, SAM14B, SAM99F
SAM207A1A	General purpose	TU	None	S2	- - - - - -

*Target identification is user selectable.

"General purpose" category includes use of appropriate SAM relay for timing function associated with local breaker-failure backup schemes.

"Phase-packaged" refers to component distance relays where the measuring units for all zones associated with one phase or phase-pair are included in one relay case.

"Zone-packaged" refers to component distance relays where the measuring units of all 3 phases or phase-pairs associated with one zone are included in one relay case.