

Challenger Version 8 Programming Macro Logic. AN18

This document provides details of the requirements for planning and programming Macro Logic in a Version 8 Challenger System for use in Alarm Control and/or Access Control functions.

The Macro Logic function is used to activate an Event Flag or an Input under specific logic conditions.

Up to four Relays or Event Flags can be included in the logic equation. Each Relay or Event Flag in the logic equation can be programmed as an AND or OR function and can also be programmed to invert the logic.

Programming options are provided so that the Event Flag or Input will pulse, time, on delay, off delay or latch when activated.

CAUTION!

It is very important to plan out a Macro Logic program carefully on paper, noting all details, and the origin of every Event or Relay, before attempting to program.

A Macro Logic diagram is provided at the end of this document for quick reference.

Accessing the Install Menu:

To display menu option 19 (Install Menu) in the User menu, the alarm group of the user code must allow it. The Master Installer is User Number 50. The default master PIN code (User 50) = 4346. The master PIN code should be changed. The Alarm Group assigned to User 50 should never be changed.

The Installer menu is accessed via the User menu and is User menu option 19.

The system must be disarmed before it is possible to use the Installer Menu.

To disarm the system:

4 3 4 6 (Master PIN code) **<OFF>** then **0** (Select all areas) **<ENTER>**

To access the Install Menu:

<MENU> **4 3 4 6** (Master PIN code) **<ENTER>** Accesses User Menu.
then **1 9** **<ENTER>** Selects Install Menu

1. Determine the function that the Macro Logic program is required to perform and fill out the appropriate programming sheets.

2. Program or determine the Event Flag/s that you may include in the Macro Logic program.

Event Flags may be assigned to many functions in the Challenger and are listed opposite:

Note that Event Flag numbers 1 through to 16 have pre-defined functions and should not be used for programmable Event Flags.

3. Program or determine any Timezones that you may wish to include in the Macro Logic program. (Timezones are included via Relays)

TIMEZONES 1 to 24

There are 24 "Real-time" timezones in the system, based on the built-in real-time clock.

TIMEZONES 26 TO 41

There are also 16 "Soft" Timezones, or "Timezone to follow relay". These timezones are used to specify a timezone that is valid when any of the "Events" as listed in the Event Flags above is active. e.g. When an area is in access or when an exit timer is running.

Blank programming sheets are found at the rear of the Version 8 Programming guide.

For this application you will need to consider the following Installer Menu databases.

1. Input Database
2. Area Database
3. Arming Stations
13. Time Zones
16. Map Relays
21. Input Shunt timers
34. Summary Event Flags
35. Macro Logic

EVENT FLAGS:

Installer Menu Option 1: - Input Database

Secure Alarm Event/s
Access Alarm Event/s
24Hr Alarm Event/s
Programmable Event

Installer Menu Option 2: - Area Database

Area Accessed	Siren
Inputs Unsealed	Inputs Isolated
Secure Alarm	Access Alarm
Local Alarm	Pre Alarm
Entry Event	Exit Event
Warning Timer	Camera

Installer Menu Option 3: - Arming Stations

Door Event

Installer Menu Option 21: - Input Shunts

Shunt Event Shunt Warning Event

Installer Menu Option 34: - Summary Event Flags

Mains Fail	Low Battery
Fuse Fail	Tamper
Siren Fail	DGP Isolate
DGP Offline	RAS Offline
Keyboard Duress	Firm Out
Report Fail	Testmode
All Secured	Console Trigger

Installer Menu Option 35: - Program Macro Logic
Events generated by Macro Logic Programs

TIMEZONES 1 to 24 are programmed in Installer Menu Option 13.

Each Timezone may have up to 4 segments, each programmed with a start time, end time and days.

TIMEZONES 26 TO 41 are programmed in Installer Menu Option 22.

A relay is assigned to each timezone. The timezone is valid when the relay assigned to it is active. If programming timezones 26 to 41 you may need to map a relay to an event flag first. Refer to steps 6 to 11.

4. Program or determine any Relays that you may include in the Macro Logic program.

Relays may be used in Macro Logic equations.

This allows an end relay function to be used as a logical input the Macro.
It also allows Timezones to be included in Macro Logic equations, as Relays can be programmed to be held Active or Inactive during a Timezone.

See AN6-Programming Relays for more details.

5. Select a Macro Logic Program number to program.

6. Select the Output Function of the Macro Logic program.

Refer to the descriptions and timing diagrams under "Macro Logic Output Functions" for details.

7. Program a Time period if a timing function was selected.

8. Select whether an Event Flag or an Input will be activated by the Macro, and program the Event or Input number.

9. Program the Macro Logic equation (or "rules"), using the Event Flag/s and/or Relay/s chosen in steps 2 & 4.

RELAYS are programmed in Installer Menu Option 16: - Relay Mapping.

- Select a relay number to program.
- Program the Event Flag that will activate the relay. (if required)
- Program the Timezone that will control the relay. (if required)
- If a Timezone has been assigned, select whether the relay is to be held ACTIVE or INACTIVE during the timezone.
- Select whether the relay is to operate in NON-INVERTED or INVERTED mode.

MACROS are programmed in Installer Menu Option 35: - Macro Logic.

There are 24 programs available.

Select whether the Output Function of the Macro will be Non-Timed, will perform one of the timing functions available, or will be latching.

Records a time period which is used when any of the timed functions are selected.

A value of 2 or greater should be used.
When programming 1 to 4 minute periods, program in seconds.
i.e. 60, 120, 180 or 240 seconds.

Enables the Event Flag Number or Input Number to be specified.

The programmed Event Flag or Input will be activated when the result of the logic equation is active and any timing conditions are met.
The Event or Input may also be inverted if required

Enables programming of up to four logic inputs, which can be Event Flag Numbers or Relay Numbers.

The logic connecting the four inputs can be programmed for AND or OR functions.
A NAND or NOR function can be achieved by inverting the logic of the particular input.

When all conditions of the logic equation are met, the result is active and the Event Flag or Input programmed in the previous step will be activated. (Depending on any timing function programmed)

Note that any inputs not used MUST be left as an OR function.

10. Program the "Input Database" (if the Macro activates an input) to define what the Macro output will actually do in the system.

INPUTS are programmed in Installer Menu Option 1.

See AN1 - Programming a Basic Alarm System, or The Challenger Version 8 Programming Guide for details on programming Inputs.

OR

Program "Relay Mapping" or another "Macro Logic" (if the Macro activates an Event Flag) to define what the Macro output will actually do in the system.

See AN6-Programming Relays for more details.

RELAYS are programmed in Installer Menu Option 16: - Relay Mapping.

- a) Select a relay number to program.
- b) Program the Event Flag that will activate the relay. (if required)
- c) Program the Timezone that will control the relay. (if required)
- d) If a Timezone has been assigned, select whether the relay is to be held ACTIVE or INACTIVE during the timezone.
- e) Select whether the relay is to operate in NON-INVERTED or INVERTED mode.

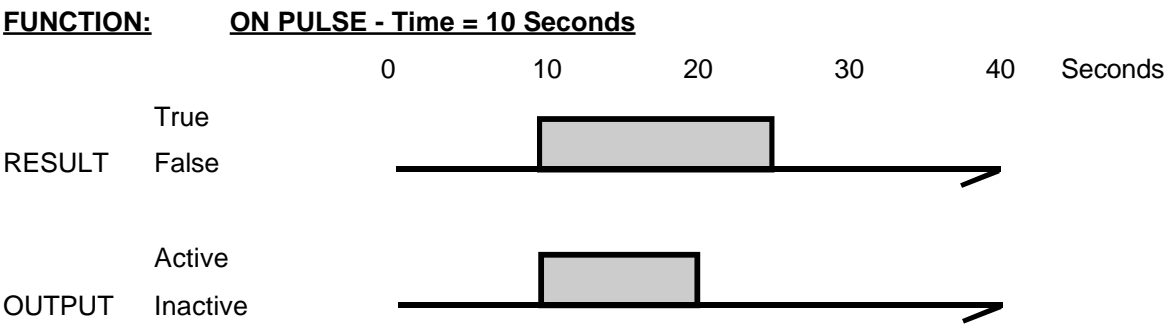
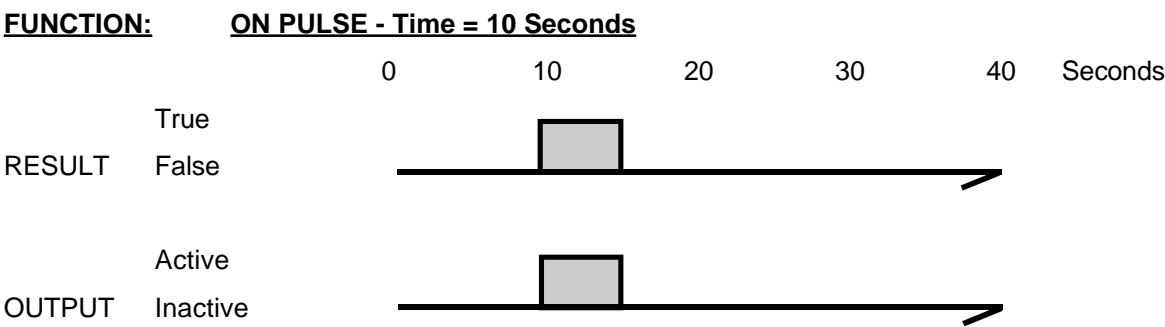
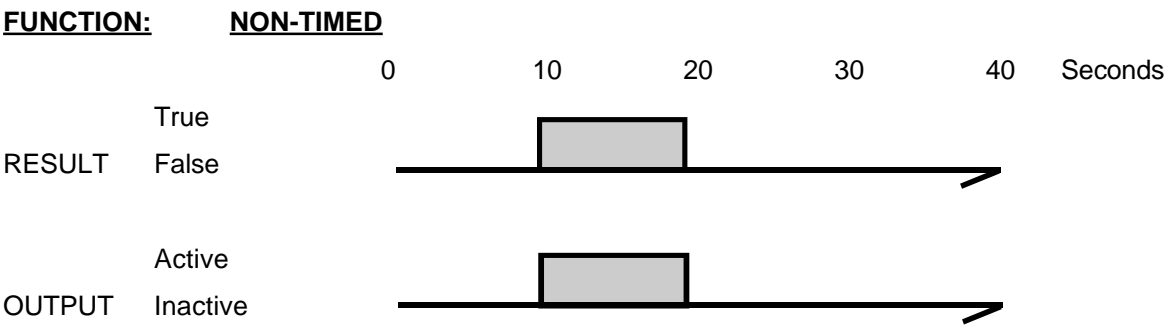
Macro Logic Output Functions

Non Timed	Follows the result of the logic equation only.
On Pulse	Activates for the programmed time or the active period of the logic result, whichever is the SHORTEST.
On Timed	Activates for the programmed time regardless.
On Delay	Activates after the programmed time period unless logic result is no longer active.
Off Delay	Follows the result of the logic equation, but remains active for the time programmed after the logic result is no longer active.
Latched	Activates on any of the first three inputs in the logic equation and is only reset by the fourth input. (AND / OR function not used)

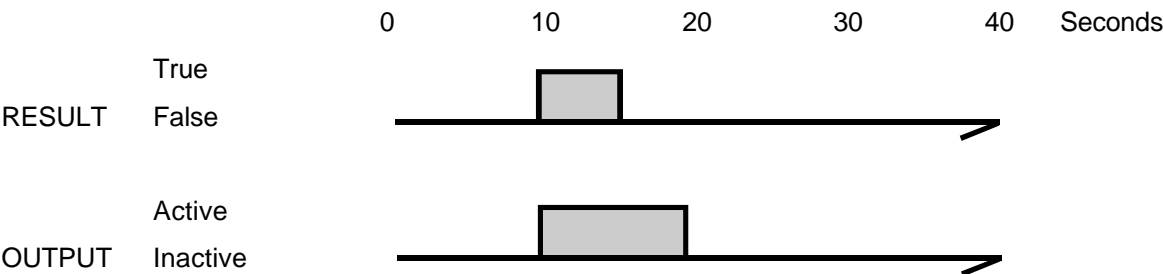
Note that all Timing Functions can be selected to time in Seconds or Minutes, with a maximum value of 255.

Macro Logic Output Function Diagrams

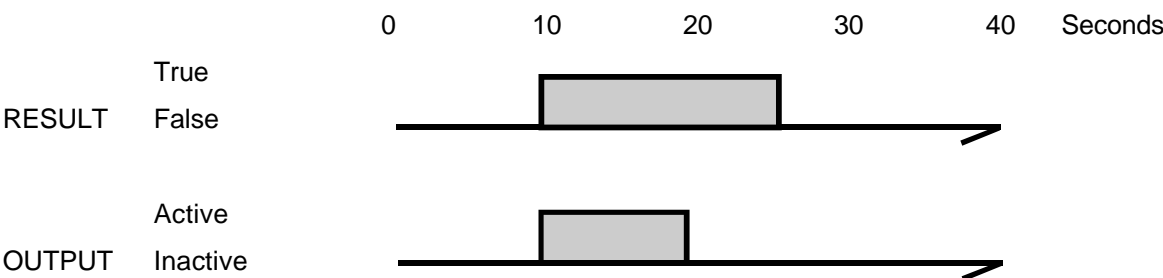
These diagrams provide examples of the Macro Logic timing functions available.



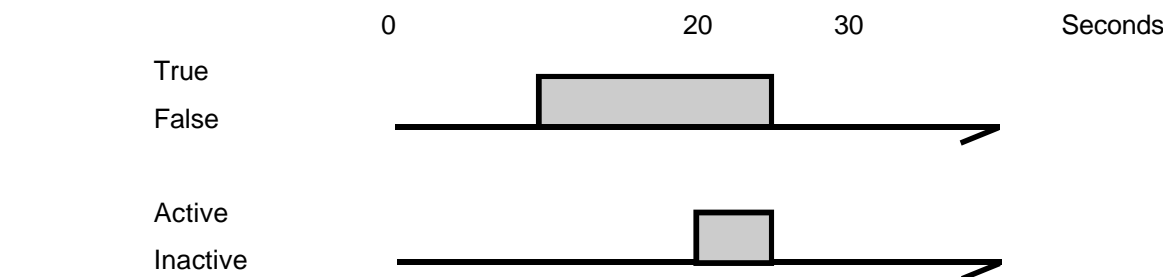
FUNCTION: ON-TIMED - Time = 10 Seconds



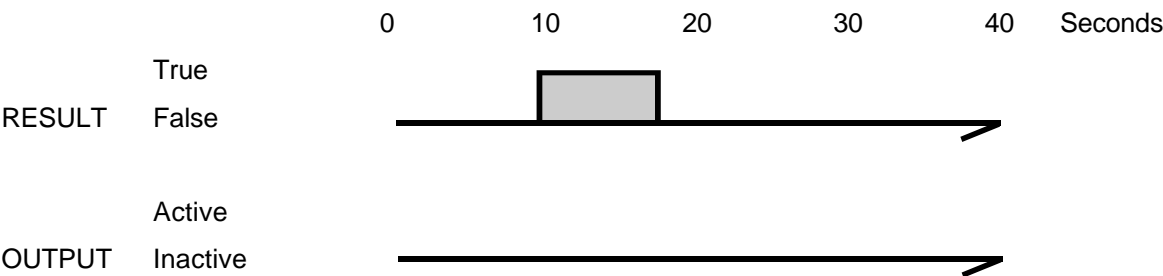
FUNCTION: ON TIMED - Time = 10 Seconds



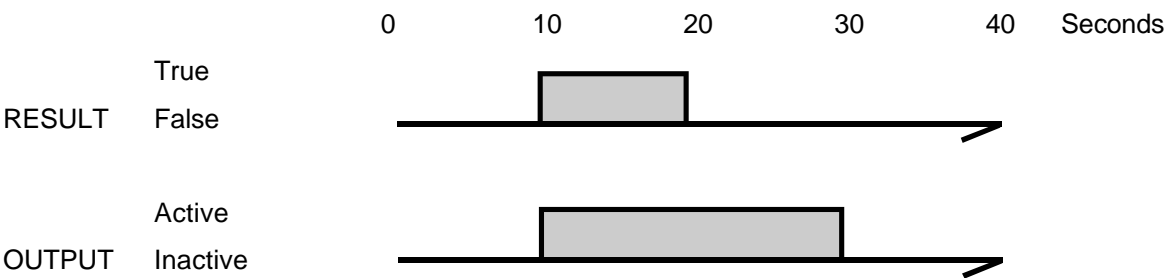
FUNCTION: ON DELAY - Time = 10 Seconds



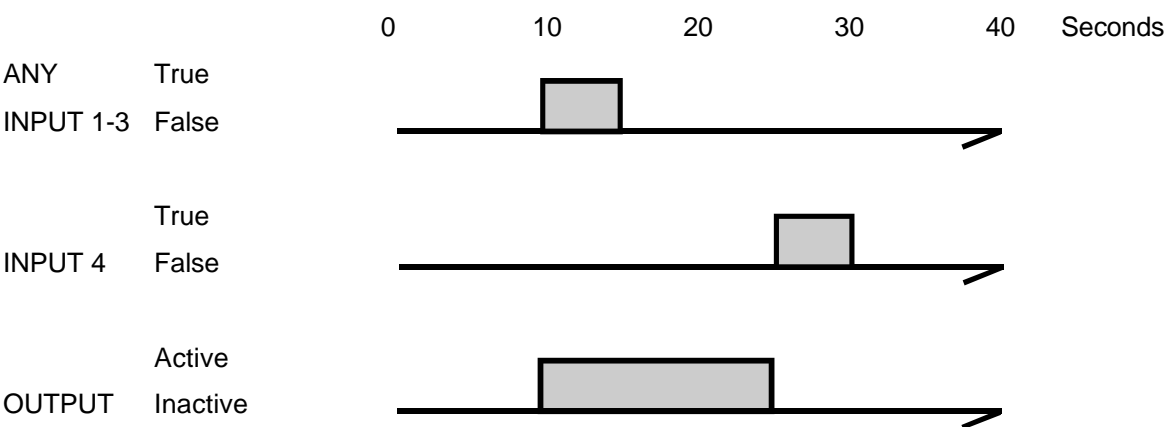
FUNCTION: ON DELAY - Time = 10 Seconds



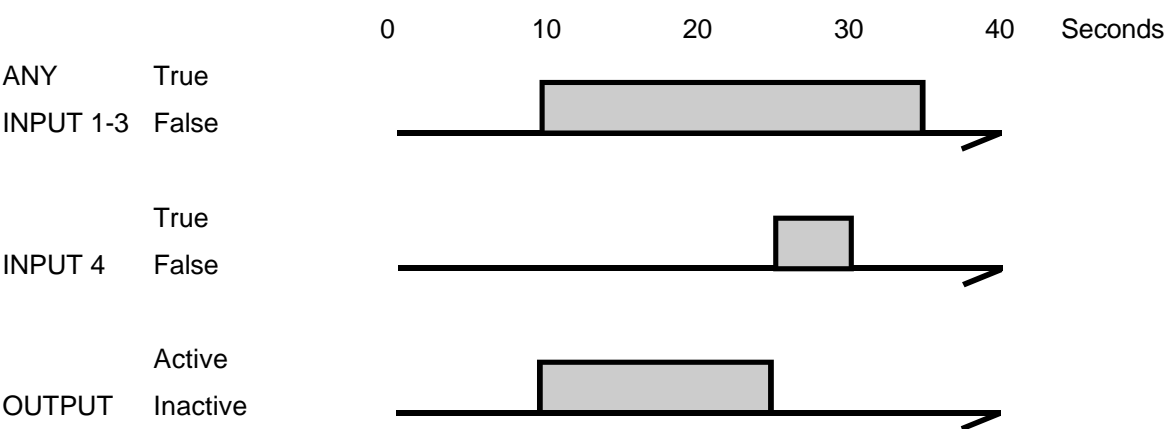
FUNCTION: OFF DELAY - Time = 10 Seconds



FUNCTION: LATCHED



FUNCTION: LATCHED



Macro Logic Processing diagram.

(Note: Does not apply to the "Latched" function)

