

**P-032**



# Police Modifier Bulletin

## **SVE BULLETIN**

**SPECIAL VEHICLE ENGINEERING – BODY BUILDERS ADVISORY SERVICE**

E-Mail via website: [www.fleet.ford.com/truckbbas](http://www.fleet.ford.com/truckbbas) (click "Contact Us")

Toll-free: (877) 840-4338

Date: 16 June, 2021

### **2020MY and beyond Police Interceptor Utility Driver's Door Ajar Circuit**

#### **Models Affected**

2020MY and beyond Police Interceptors Utilities

#### **Purpose**

To provide information regarding access to the driver's door ajar circuit on 2020MY and beyond Police Interceptors Utility vehicles (reference Police Modifier's Guide pg. 5-26)

When using pin 13 on the factory 14 way connector to access the driver's door ajar circuit, a 70 mA maximum coil current relay with an integrated clamping diode is required to protect against damage to the door latch.

An example of this would be ETA solid state Electronic Standard Relay ESR 10 Iso Micro solid state automotive relay.

# ET&A<sup>®</sup> Electronic Standard Relay - ESR10 ISO Micro

## Description

The smart power relay ESR10 Micro (Electronic Standard Relay) is a solid state relay which can replace electro-mechanical relays.

The ESR10 is a plus switching (high side switch) closing relay (NO) in an ISO Micro automotive relay enclosure.

It allows bipolar control by a positive voltage. This space-saving relay is available in two power classes:

- 10 A for max. 85° C / (12 and 24) Vdc
- 17 A for max. 105° C / (12 and 24) Vdc

## Applications

The ESR10 helps to switch loads whose current demand is too high to be connected directly to the controlgear. The switching function of the ESR10 is completely noiseless. This allows installation in the vehicle's interior.

The ESR10 Micro is suitable for all applications in DC 12 V or 24 V electrical systems where valves, motors, lamps etc. have to be switched:

- Road vehicles (passenger cars, bicycles, trucks, buses, working vehicles and emergency cars, special vehicles)
- Construction vehicles and agricultural vehicles
- Watercraft (ships, sailing boats, motor yachts etc.)

## Benefits

- The low current consumption, particularly in the ON condition, helps to reduce gas consumption as well as CO<sub>2</sub> emissions.
- The solid state relay switches silently and features wear-free operation of all loads with an extremely long life span.

## Order numbering code

Type No.	Description
ESR10	electronic standard relay
	Protection (characteristic curve)
N	not protected, only short circuit protection
	Type of enclosure
C2	Micro enclosure with hexagonal latching lugs
	Terminals (pins)
A4	standard automotive, 4-pole (ISO)
	Load and control
HB	high-side-switch (HSS), bipolar control
	Sub type
00	standard
	System voltage
D1	DC 12 V
D2	DC 24 V
	Current rating (at 25°C)
	10 A
	17 A
ESR10 - N C2 A4 HB - 00 - D1 - 10A	ordering example



## Technical data (25 °C) – ESR10 Micro 10 A

### Voltage supply LINE+

System voltage	U <sub>B</sub>	DC 12 V / DC 24 V
Operating voltage		6...16 V / 10...32 V
Closed current <sup>1)</sup>	OFF	8 µA

### Load circuit LOAD

Load output		MOSFET, high side switching (HSS)
Load types		resistive, inductive and capacitive
Protective function		short circuit proof, temperature disconnection (pulsing)
Current rating	I <sub>N</sub>	10 A
Voltage drop <sup>1)</sup>	U <sub>ON</sub>	75 mV
Max. short circuit current		60 A (L/R = 3 ms)

### Control input IN+

Control voltage	ON	12 V: ±6...16 V; 24 V: ±10...32 V
	OFF	12 V: ±0...2 V; 24 V: ±0...4 V
Control current <sup>1) 2)</sup>		10 mA (at 13.5 V respectively 27 V) (derating see chart)
Switching frequency	max.	see chart
Rising edge		< 5 ms

### General data

Reverse polarity protection circuit, load circuit	load	yes (reverse polarity conductive) <sup>3)</sup>
Cycle times <sup>1)</sup>	t <sub>ON</sub>	0.5 ms
	t <sub>OFF</sub>	0.5 ms
Temperature range		-40 °C...85 °C
Dimensions		ISO Standard Micro (with retaining lugs)
	plugged in including contacts	26 x 15.5 x 26 mm 26 x 15.5 x 37 mm
Mass <sup>1)</sup>		15 g

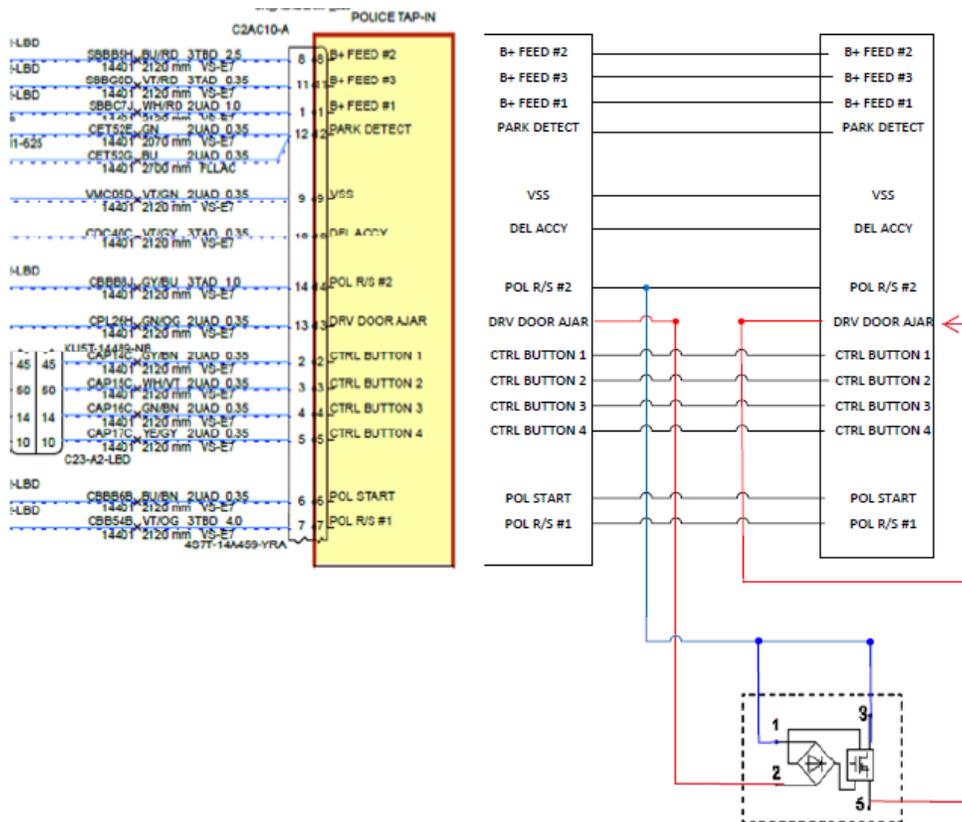
<sup>1)</sup> typically

<sup>2)</sup> The upstream controlgear may misconstrue the situation as "wire break" due to the extremely low control current. In this case the

7

Connector View For Gray 14 pin Connector

Pin Number	Description	Wire Color
1	B+ Feed #1	WH-RD
2	Control Button 1	GY-BN
3	Control Button 2	WH-VT
4	Control Button 3	GN-BN
5	Control Button 4	YE-GY
6	Police Start	BU-BN (For voltage output see "Police Start" wire diagram in section 5-25 )
7	RN/ST #1	VY-OG
8	B+ Feed #2	BU-RD
9	Vehicle Speed	VT-BN
10	Delay Accessory	VT-GY
11	B+ Feed #3	VT-RD
12	Park Detect	GN (See "Park Detect" wire diagram in section 5-25)
13	Diver Door Ajar	GN-VT
14	R/S #2	GY-BU



Note:  
 With this solution, the DRV DOOR AJAR circuit will be 12V when the Driver Door is closed and the key is in the Run/Start position. When the Key is OFF or the Driver Door is Open the DRV DOOR AJAR circuit will be Open

# 2020 Utility Police Interceptor Driver Door Ajar

