Make the most of your energy

MotorSys™ iPMCC

Intelligent Power & Motor Control Centre

Auxiliary Power Supply
Panel Builders Guide
Addendum Special case Long lines AC

→ Revision **#1.0**

Schneider Electric™

Chapter

Design Special case Long lines AC

Cabling and relay recommendations

Design information - Special case long lines AC

1. Logical Inputs protection against voltage transients

AC and mostly DC coils relay, contactor, actuator could be very disturbing sources if no

LTMR & LTME logical input are designed to comply with 50/60 Hz voltage and their first voltage harmonics.

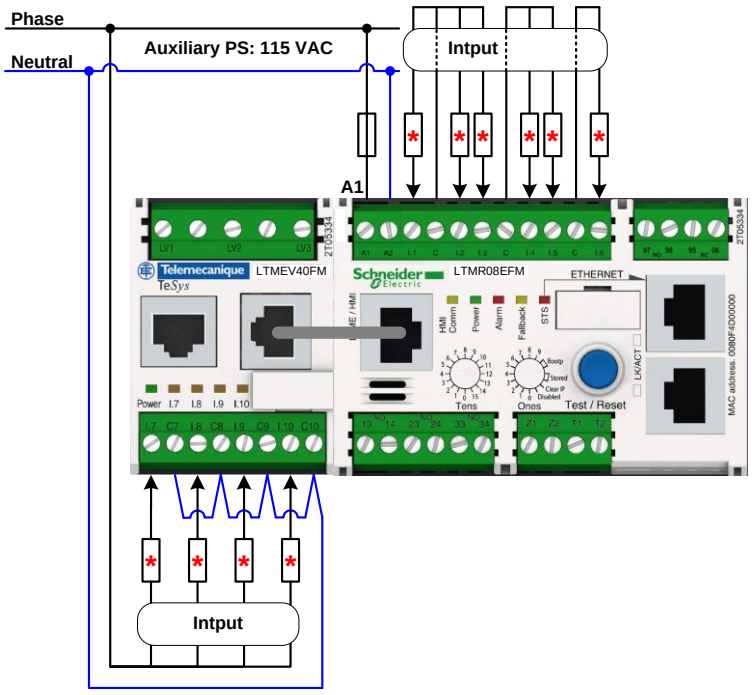
Tesys T complies also with the standard product family EMC levels (IEC 61000-4-4 for EFTB, IEC 61000-4-5 for Surge).

In case of higher very fast and huge voltage transient levels and durations, the inputs could fail depending on the transient's energy (du/dt and di/dt, lines impedance).

These overvoltage transients are mainly due to:

- Power faults (short-circuit) clearance,
- Lightning strokes in close proximity to the process,
- Fast voltage switching's on the power lines,
- Capacitive or inductive long lines,
- Capacitor bank switching,
- Relay or contactor fast contact switching.

To increase the robustness of the Logical Inputs, it is recommended to add an external **3 Watt** resistor in serial with the inputs (Cf. following drawing).



(*) Add a serial resistor **only** with the inputs used in your application:
LTMR: I1 to I6
LTME: I7 to I10

The recommended model is Welwym W31 series or equivalent. Welwym W21 could also be used.

The suitable resistor value should be chosen between 560 Ω up to 1 kΩ depending on the market availability. 1 kΩ is the preferred value.

The resistor tolerance shall be ± 5 % (E24 series) or less.

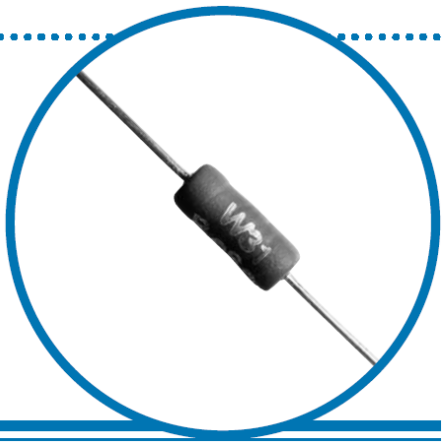
The main W31 resistor characteristics are described below:

Cement Coated Wirewound Resistors

TT electronics

W30 Series

- **Values down to 10m ohms**
- **Tolerance to 1%**
- **Flameproof protection**
- **Custom built to meet pulse requirements**



Welwyn

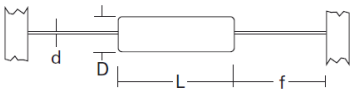
www.welwyn-tt.com

Electrical Data

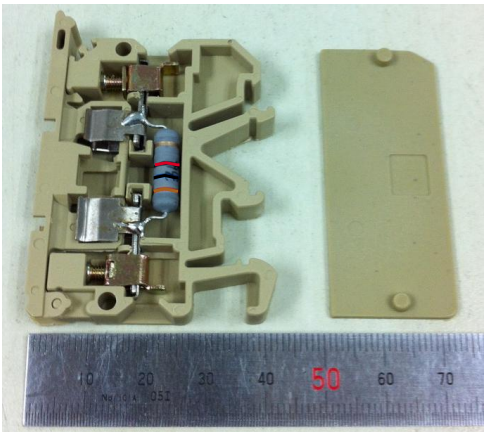
		W31	Notes
Power rating at 25°C	watts	3.0	
Power rating at 70°C	watts	2.5	
Resistance range	ohms	0R01 to 10K	
TCR (-55 to 155°C)	ppm/°C	See below	
Resistance tolerance	%	<R10: 5 >=R10: 1, 2, 5	
Standard values		E24 series preferred	Other values to special order
Thermal impedance	°C/watt	83	
Ambient temperature range	°C	-55 to 155	
Limiting element voltage	volts	100	
TCR	ppm/°C	0.01 ohms <1000	
		0.033 ohms <500	
		0.091 ohms <200	
		10 ohms <150	
		10K ohms <100	

Physical Data

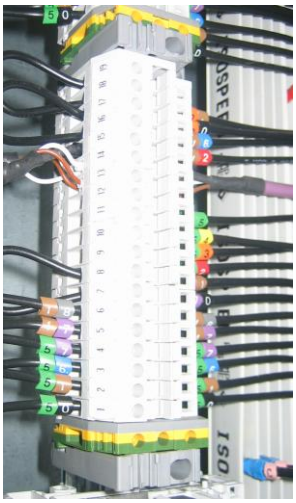
Maximum Dimensions (mm) and Weight (g)					
Type	L max.	D max.	f min.	d nom.	Wt.nom.
W31	13	5.6 (note 1)	22.75	0.8	1.0



The resistor could be inserted inside a terminal junction block as shown below as an example.



The terminal junction block with the resistor could replace the existing one installed in the cubicle (Customer junction block interfaces).



2. Evolution history

Date	Revision	Type	Written by	Verified by
22-10-2012	R1.0	Creation	D. LAUWERS	B. JOVER

Example 1

Special case Long lines AC

Annexe 4

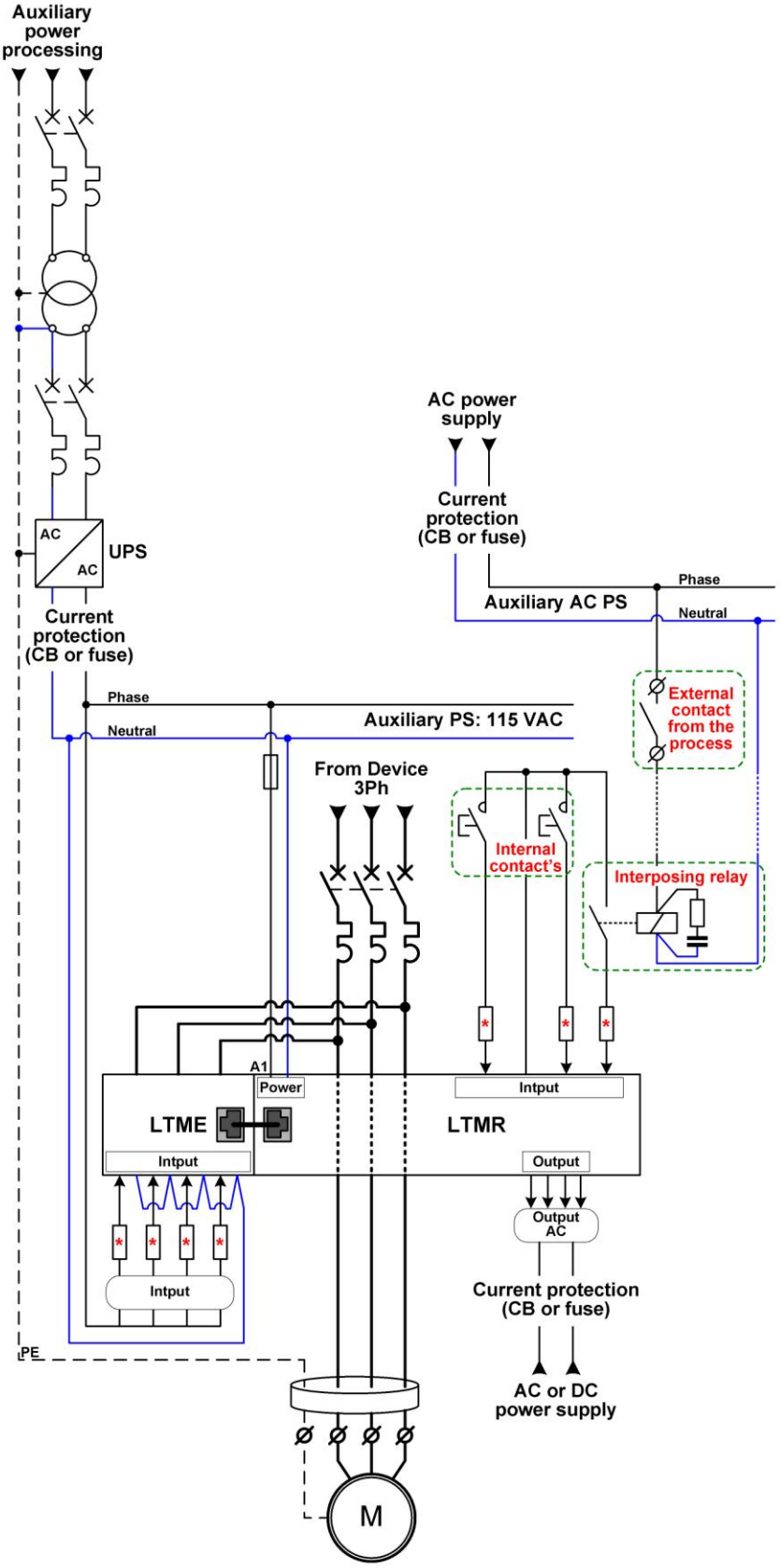
Example 1: 1 incomer with auxiliary power AC non-redundant - Special case long lines AC

1. Principle

Cf. § “Design information - Special case long lines AC”.

2. Proposal

2.1 Auxiliary power supply processing



3. Characteristic

Auxiliaire power supply

- ***(*)*** *Add a serial resistor **only** with the inputs used in your application (See the resistor characteristics in § « Logical Inputs protection against voltage transients » in the introductory chapter « Design information - Special case long lines AC »).*

4. Evolution history

Date	Revision	Type	Written by	Verified by
22-10-2012	R1.0	Creation	D. LAUWERS	B. JOVER

Notes

Notes

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