

Ride distributed by:

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Bulletin No: 09-RC/TC01

Release Date: 16 April 09

Effective Date: 16 April 09

Supersedes:

Completion Date: Informative

Page: 1 of 8

NOTIFICATION

Ride Manufacturer: A. Zamperla SpA

Affected Production Dates: 2004 and after

Ride Name: Twister Coaster Family

Affected Serial Nos.: 04270, 04287, 04315, 04356, 05214,

Model Number: 420M, 310M

06114, 06380, 06398

Abstract Of Issue:

To define preventive maintenance based on either ride cycles or operational hours.

Reason For Release:

To provide Ride Owners with the option to schedule preventive maintenance based on ride cycles or operational hours.

Action To Be Taken:

If Ride Owners elect to schedule maintenance based on ride cycles or operational hours, update preventive maintenance programs to include the information included in attached non-destructive testing (NDT) requirements and limited life component requirements. (pages 2 and 3 of 8)

If Ride Owners elect to schedule maintenance based on ride cycles, a ride counter must be installed on the ride in accordance to page 19 of the electrical schematic 9ESCH47601A-r2 (see page 5 of 8).

Detail Of Issue:

See attached NDT schedules. (pages 2 and 3 of 8)

Future Action To Be Taken:

Follow attached NDT schedules into existing preventive maintenance programs. (pages 2 and 3 of 8)

If ride cycles are used to schedule preventive maintenance, the following must be done:

- Log book of ride cycles must be updated monthly and stored with ride. See attached example of minimum required information to be documented. (page 4 of 8)
- Verify the ride cycle count logged each month shows no anomalies (e.g. count is not less than prior month).
- Verify monthly that counter is counting correctly (i.e. 1 count for only 1 ride cycle).

Ref. page on Use and Maintenance Manual		Drawing #	Component	Test method code	Test every	
Serial numbers 06380, 06398	Serial numbers 04270, 04287, 04315, 04346, 05214, 06114				[no. of operational hours]	[no. of ride cycles] (*)
6-43	6-44	9 476 027 121 A	Safety bars	VT PT	3,000	72,000
		9 476 027 124 A				
		9 476 027 125 A				
		9 476 027 126 A				
		9 476 027 127 A				
6-44	6-45	9 476 027 016 B	Main wheels pins	PT	3,000	72,000
6-45	6-46	9 476 027 015 B	Side wheels pins	PT	3,000	72,000
6-46	6-47	9 476 027 012 B	Axles rotation shafts	PT	3,000	72,000
6-47	6-48	9 476 027 035 A	Axles	PT	(first test after) 1,500	36,000
6-48	6-49	9476 027 001 B	Rotating frame	VT	3,000	72,000
6-49	6-50			MT	15,000	360,000
6-50	6-51	9 476 027 017 B	Chassis	VT	3,000	72,000
6-51	6-52			MT	15,000	360,000
6-53	6-52	9 476 027 002 A	Wheels support	VT	3,000	72,000
6-54	6-53			MT	15,000	360,000
(*) applicable only if a ride counter cycle is available.						
Test method code						
VT = visual inspection						
MT = magnetic particle testing (EN 1290, EN 1291-2X)						
PT = dye penetrant testing (EN 571-1, EN 1289-2X)						
UT = ultrasonic testing (EN 1714-B, EN 1712-2)						
Operational hour is defined in ASTM F2291-06a, section 8.3.2						

Ref. page on Use and Maintenance Manual		Drawing #	Component	To be replaced every	
Serial numbers 06380, 06398	Serial numbers 04270, 04287, 04315, 04346, 05214, 06114			[no. of operational hours]	[no. of ride cycles] (*)
6-46	6-47	9 476 027 012 B	Axles rotation shafts	15,000	360,000
6-46	6-47	105000401	Bearings	15,000	360,000
6-47	6-48	9 476 027 035 A	Axles	15,000	360,000
(*) applicable only if a ride counter cycle is available.					
Operational hour is defined in ASTM F2291-06a, section 8.3.2					

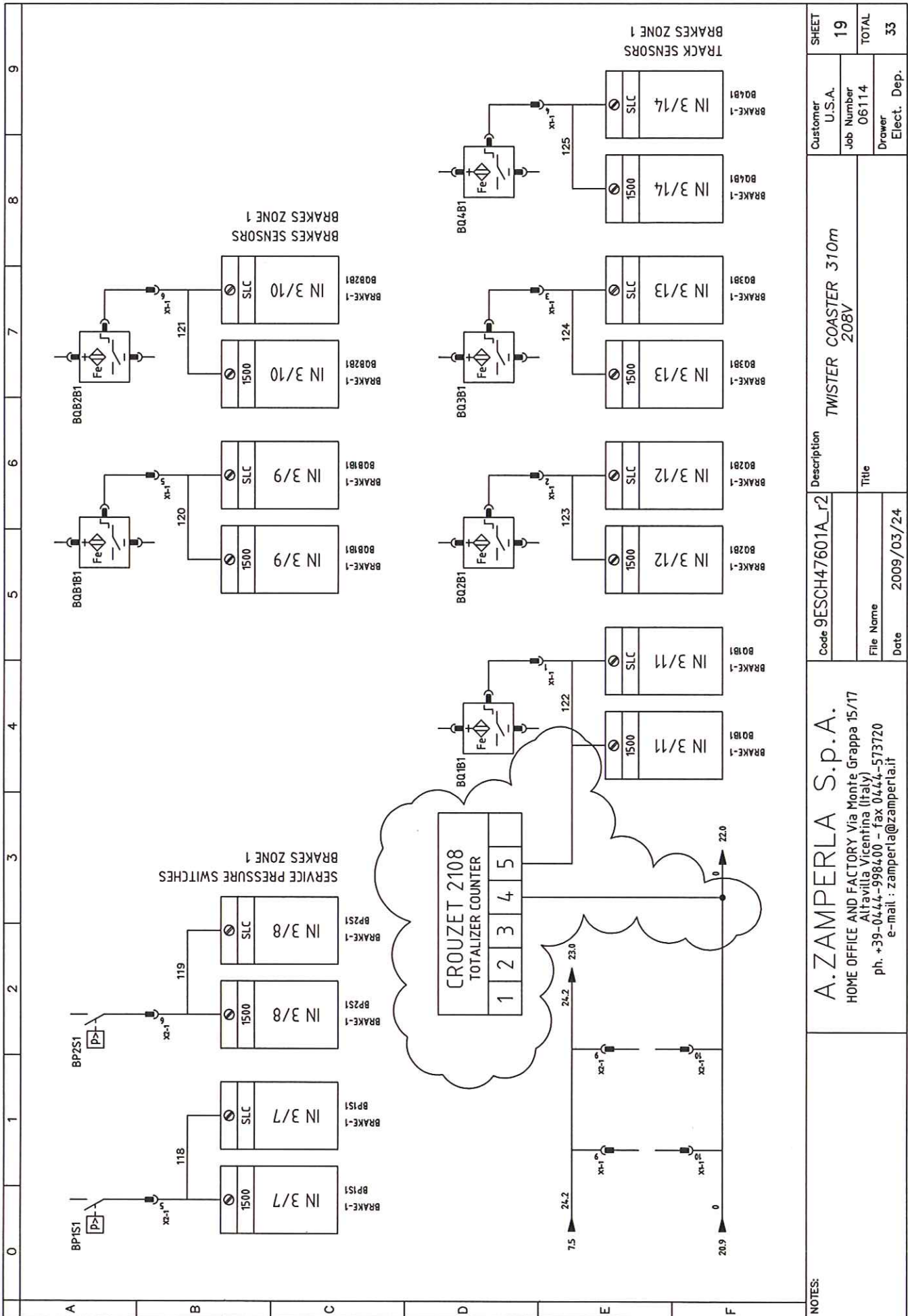
Ride name: _____

Ride serial number: _____

Ride Operator: _____

Year: _____

Month	Ride cycles on first day of month	Ride cycles on last day of month	Print name	Signature
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				



NOTES:	A.ZAMPERLA S.p.A. HOME OFFICE AND FACTORY Via Monte Grappa 15/17 Altavilla Vicentina (Italy) ph. +39-0444-998400 - fax 0444-573720 e-mail : zamperla@zamperla.it	Code 9ESCH47601A_r2		Description	Customer U.S.A.	SHEET 19
				TWISTER COASTER 310m 208V		
		File Name		Title	Job Number 06114	TOTAL 33
		Date		2009/03/24	Drafter Elect. Dep.	

2108 SERIES

TOTALIZING COUNTER

- 8 Digit 7mm High LCD Display
- Replaceable Lithium Battery - 8 Year Life
- Compact Size

24 x 48mm (.95" x 1.89") Front Panel
37.5mm (1.48") Depth



GENERAL FEATURES:

The 2108 Series is a totalizing counter housed in a DIN-sized (24 x 48mm) enclosure. The 2108 has an eight digit 7mm high LCD display. The count input (slow speed) and reset input can be by contact closure and by NPN open collector transistor. The high speed input (7 kHz max) requires a 4 to 30 VDC voltage pulse and is compatible with 2 and 3 wire DC proximity switches and encoders. The unit is powered by a 3 volt lithium battery with an eight year life. When changing the battery, the current count value is retained long enough to allow battery replacement without losing the count value. The unit can be set remotely or from the front panel. The front panel reset can be enabled or disabled with jumpering of terminals on back of unit.

SPECIFICATIONS:

Power	Lithium battery, 8 year life
Count Inputs	Contact Closure (slow speed) NPN open collector (slow speed) Voltage input (high speed)
Low Speed	40 Hz
Minimum Pulse	12 ms
Current Consumption	52 μ A max.
Leakage Current	0.2 μ A max.
Residual Voltage	0.4 V max.
High Speed	7 kHz max.
1 State	4 to 30 VDC
0 State	0 to 1 VDC
Absorbed current	6 mA at 24 VDC
Reset Remote	Contact Closure NPN open collector 12 ms min.
Reset Pushbutton	Activate with jumper across terminals 2 & 4
Memory	Yes, 1 lithium battery - 8 year life
Protection	Front Panel IP64 Terminal IP20
Connections	Screw terminals 2 x 1.5mm ² capacity
Operating temperature	+32 to 131°F (0 to +55°C)
Storage temperature	-13° to 158°F (-25°C to 70°C)
Weight	2.1 oz. (60g)

CONFORMITY:

Electromagnetic environment

Radiated field	IEC 1000-4-3, level 3, 10 V/M, 26 MHz to 1 GHz
Fast transients	IEC 1000-4-4, level 3, 1 KV
Damped oscillatory wave	IEC 255.4, level 3, 1 KV
Electrostatic discharge	IEC 1000-4-2, level 3, 8 KV

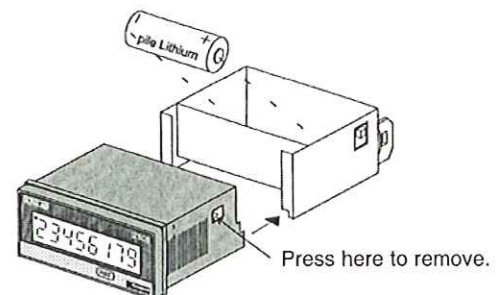
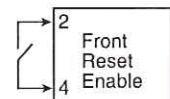
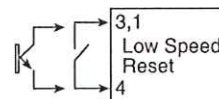
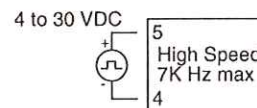
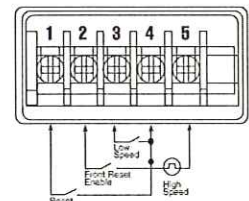
ORDERING INFORMATION:

87 610 340

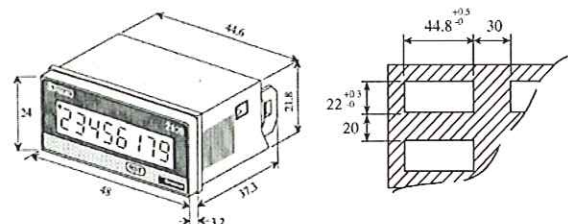
Products and specifications subject to change without notice.
Consult factory for application assistance.

WIRING:

- 87 610 340
1- Reset Input
2- Front Panel Reset Enable
3- Low Speed Input
4- OV
5- High Speed Input



DIMENSIONS: (mm)





CP 2

Compteur totalisateur

Totalizer counter

Summenzähler

Contatore totalizzatore

Contador totalizador

2108

NTR 803 B



Caractéristiques techniques

Compteur d'impulsions.
8 digits LCD.
Hauteur des digits : 7 mm.
Capacité de comptage :
0 à 99 999 999.

Entrée lente : In. L

40 Hz max.
T off : 12 ms min.
T on : 12 ms min.
Courant émis : 52 μ A max.
Courant de fuite à l'état off : 0,2 μ A max.
Tension de déchet :
0,4 V max.
Contact sec ou transistor
NPN collecteur ouvert.

Entrée rapide : In. H

7 KHz max.
T off : 70 μ s min.
T on : 70 μ s min.
Niveau 0 : 0 à 1 VDC
Niveau 1 : 4 à 30 VDC
Courant absorbé :
6 mA max à 24 VDC

Remise à zéro : Reset

Contact sec ou transistor
NPN collecteur ouvert.
T off : 12 ms min.

Enable reset : En. R

Contact sec.

Alimentation

Pile Lithium ; 0,95 Ah
Durée de vie : 8 ans.

Présentation et environnement

Matière : autoextinguible.
Raccordement par 5
bornes à vis à l'arrière du
boîtier.

Capacité de serrage :
2 x 1,5 mm².

Couple de serrage :

Vis M3 : 0,6 N.m

Fixation par bandeau

(étrier).

Protection (CEI 529) :

face avant, IP66

corps, IP40

Vibrations (CEI 68-2-6) :

Fréquences : 10 - 55 Hz

Amplitude : 0,35 mm

Températures limites

Emplol (CEI 68-2-14) :

0 à +55 °C

Humidité : 30 à 93 %

(-3% +2%) : CEI 68-2-30

Altitude : 0 à 2000 m

Stockage (CEI 68-2-1/2) :

-25 à +70 °C

Humidité : < 70 %

Environnement électromagnétique

Décharge électrostatique :

CEI 1000-4-2, niveau 3

8 KV : Air

6 KV : Contact

Champ rayonné :

CEI 1000-4-3 (ENV

50140/204), niveau 3

10 V/m,

80 MHz à 1 GHz

Transitoire rapide :

CEI 1000-4-4, niveau 3

1 KV (câble blindé si

F > 4 KHz)

Technical characteristics

Impulse counter.
8 digit LCD.
Height of digits : 7 mm.
Counting capacity :
0 to 99,999,999.

Slow counting input : In. L

40 Hz max.
T off : 12 ms min.
T on : 12 ms min.
Output current :
52 μ A max
Leakage current at off
state : 0,2 μ A max.
Residual voltage :
0,4 V max.
Volt-free contact or NPN
open collector transistor.

High-speed counting input : In. H

7 KHz max.
T off : 70 μ s min.
T on : 70 μ s min.
Level 0 : 0 to 1 VDC
Level 1 : 4 to 30 VDC
Current absorbed :
6 mA max. at 24 VDC

Reset to zero : Reset

Volt-free contact or NPN
open collector transistor.
T off : 12 ms min.

Enable reset : En. R

Volt-free contact.

Power supply

Lithium battery ; 0,95 Ah
Battery life : 8 years.

General specifications

Material: self-extinguishing
Connection by 5 screw
terminals at rear of casing.

Terminal capacity :
2 x 1,5 mm².

Tightening torque :

M3 screw : 0,6 N.m

Fixing by yoke (screw-

clamped).

Protection (IEC 529) :

front panel, IP66

unit, IP40

Vibrations (IEC 68-2-6) :

Frequencies : 10 - 55 Hz

Amplitude : 0,35 mm

Temperature limits

Use (IEC 68-2-14) :

0 to +55 °C

Humidity : 30 to 93 %

(-3% +2%) : IEC 68-2-30

Altitude : 0 to 2000 m

Stored (IEC 68-2-1/2) :

-25 to +70 °C

Humidity : < 70 %

Electromagnetic environment

Electrostatic discharge :

IEC 1000-4-2, level 3

8 KV : Air

6 KV : Contact

Radiated field :

IEC 1000-4-3 (ENV

50140/204), level 3

10 V/m,

80 MHz to 1 GHz

Rapid transients :

IEC 1000-4-4, level 3

1 KV (screened cable if

F > 4 KHz)

Kennwerte

Impulszähler.
8-stellige LCD-Anzeige.
Zifferhöhe 7 mm.
Zahlbereich : 0 - 99 999 999

Langsamer Zähleingang : In. L

max. 40 Hz
Impulsdauer min :
Pegel 0 = 12 ms
Pegel 1 = 12 ms
Schallstrom max. : 52 μ A.
Leckstrom max. bei
Pegel 0 = 0,2 μ A.
Verlustspannung : 0,4 V max.
potentialfreier Kontakt oder
NPN-Transistor mit offenem
Kollektor.

Schneller Zähleingang : In. H

max. 7 KHz.
Impulsdauer min :
Pegel 0 = 70 μ s
Pegel 1 = 70 μ s
Spannungsspegel :
Pegel 0 = 0 - 1 VDC
Pegel 1 = 4 - 30 VDC
Eingangstrom max. :
6 mA bei 24 VDC

Nullrückstellung : Reset

potentialfreier Kontakt oder
NPN-Transistor mit offenem
Kollektor.
Impulsdauer min. : 12 ms.

Frontreset- Sperrung : En. R

potentialfreier Kontakt.

Versorgungsspannung

Lithiumbatterie ; 0,95 Ah
Lebensdauer : 8 Jahre.

Allgemeine technische Daten und Umweltbedingungen

Material : selbstlöschend.
Anschluß über 5
Schraubklemmen an der
Gehäuserückseite.

Anschlußkapazität :
2 x 1,5 mm².

Drehmoment :

Schraube M3 : 0,6 N.m

Befestigung mittels

Spannbügel.

Schutzart (IEC 529) :

frontseitig : IP66

Gehäuse : IP40

Vibrationsfestigkeit

(IEC 68-2-6) :

Frequenz : 10 - 55 Hz

Amplitude : 0,35 mm

Umgebungstemperaturen

im Einsatz (IEC 68-2-14) :

0 bis +55 °C

Luftfeuchtigkeit : 30 - 93 %

(-3% / +2% gemäß)

IEC 68.2.30

Betriebshöhe : 0 - 2000 m

Lagerungstemperatur

(IEC 68-2-1/2) :

-25 °C bis +70 °C

Luftfeuchtigkeit : < 70 %

Schutz gegen elektromagnetische Störungen

Elektrostatische Entladung :

IEC 1000-4-2, Schärfegrad 3

8 KV : Luft

6 KV : Kontakt

Strahlungsfeld :

IEC 1000-4-3 (ENV

50140/204),

Schärfegrad 3

10 V/m,

80 MHz bis 1 GHz

Störschwingungen :

IEC 1000-4-4, Schärfegrad 3

1 KV (abgeschirmtes Kabel

wenn F > 4 KHz)

Caratteristiche tecniche

Contatore d'impulsi.
8 cifre LCD.
Altezza delle cifre : 7 mm.
Capacità di conteggio :
da 0 a 99 999 999.

Ingresso lento : In. L

40 Hz max.
T off : 12 ms min.
T on : 12 ms min.
Corrente erogata :
52 μ A max.
Corrente di fuga in stato
OFF : 0,2 μ A max.
Tensione residua :
0,4 V max.
Contatto secco o transistor
NPN collettore aperto.

Ingresso rapido : In. H

7 KHz max.
T off : 70 μ s min.
T on : 70 μ s min.
Livello 0 : da 0 a 1 Vcc
Livello 1 : da 4 a 30 Vcc
Corrente assorbita :
6 mA max. a 24 Vcc

Rimessa a zero : Reset

Contatto secco o transistor
NPN collettore aperto.
T off : 12 ms min.

Abilitazione Reset : En. R

Contatto secco.

Alimentazione

Pila Litio ; 0,95 Ah
Durata di vita : 8 anni.

Presentazione e ambiente

Materiale:autoextinguibile
Collegamento :

5 morsetti a vite sul

retro dell' apparecchio

Capacità di serraggio :

2 x 1,5 mm².

Coppia di serraggio :

vite M3 : 0,6 N.m

Fissaggio con staffa.

Protezione (IEC 529) :

frontale IP66

custodia IP40

Vibrazioni (IEC 68-2-6) :

Frequenze : 10 a 55 Hz

Ampiezza : 0,35 mm

Temperatura limite

Impegno (IEC 68-2-14) :

da 0 a +55 °C

Umidità : da 30 a 93 %

(-3% +2%) : IEC 68-2-30

Altezza : da 0 a 2000 m

Stoccaggio (IEC 68-2-1/2) :

da -25 a +70 °C

Umidità : < 70 %

Ambiente elettromagnetico

Scariche elettrostatiche :

IEC 1000-4-2, livello 3

8 KV : Aria

6 KV : Contatto

Zona irradiata :

IEC 1000-4-3 (ENV

50140/204), livello 3,

10 V/m,

da 80 MHz a 1 GHz

Transitorio rapido :

IEC 1000-4-4, livello 3

1 KV (cavo schermato

quando F > 4 KHz)

Características técnicas

Contador de impulsos.
8 dígitos LCD.
Altura de los dígitos :
7 mm.
Capacidad de conteo :
0 a 99 999 999.

Entrada lenta : In. L

40 Hz máx.
T off : 12 ms mín.
T on : 12 ms mín.
Corriente emitida :
52 μ A máx.
Corriente de fuga en el
estado off : 0,2 μ A máx.
Calda de tensión :
0,4 V máx.
Contacto seco o transistor
NPN colector abierto

Entrada rápida : In. H

7 KHz máx.
T off : 70 μ s mín.
T on : 70 μ s mín.
Nivel 0 : 0 a 1 VCC
Nivel 1 : 4 a 30 VCC
Corriente absorbida :
6 mA máx. a 24 VCC

Puesta a cero : Reset

Contacto seco o transistor
NPN colector abierto.
T off : 12 ms mín.

Autorización del reset : En. R

Contacto seco

Alimentación

Pila de litio ; 0,95 Ah
Duración-vida : 8 años.

Presentación y entorno

Materia : autoextinguible.
Conexión por 5 bornes
a tornillo, detrás de la caja.

Capacidad de los bornes :

2 x 1,5 mm².

Par de apriete :

tornillo M3 : 0,6 N.m

Fijación por brida.

Protección (CEI 529) :

frontal IP66

cuerpo IP40

Vibraciones (CEI 68-2-6) :

Frecuencias : 10 a 55 Hz

Amplitud : 0,35 mm

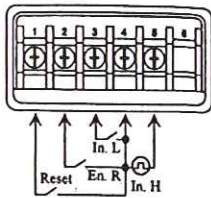
Temperaturas límite

Utilización (CEI 68-2-14)

0 a +55 °C

Humedad : 30 a 93 %

(-3% +2%) : CEI 68



Repérage des bornes / Terminal identification / Klemmenbelerung / Identificazione dei morsetti / Identificación de los bornes

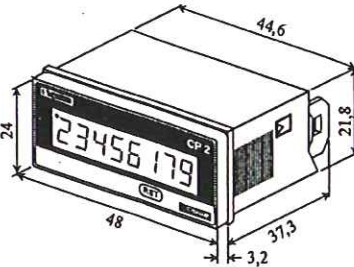
- | | |
|---|-------|
| 1 - Entrée reset / Reset input / Eingang Nullrückstellung / Ingresso Reset / Entrada reset | Reset |
| 2 - Enable reset / Gemeinsam Nullrückstellung / Abilitazione Reset / Autorización reset | En. R |
| 3 - Comptage lent / Slow counting / langsamer Zähleingang / Conteggio lento / Contaje lento | In. L |
| 4 - 0 V / Gemeinsamer Zähleingang | |
| 5 - Comptage rapide / High-speed counting / schneller Zähleingang / Conteggio rapido / Contaje rápido | In. H |

Affichage / Display / Anzeige / Visualizzazione / Visualización

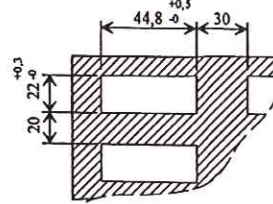


Ce point indique un dépassement de capacité. / This dot indicates a capacity overflow. / Der Punkt signalisiert ein Überschreiten des Zahlbereichs. / Questo punto indica un superamento di capacità. / Este punto indica un rebasamiento de la capacidad de contaje.

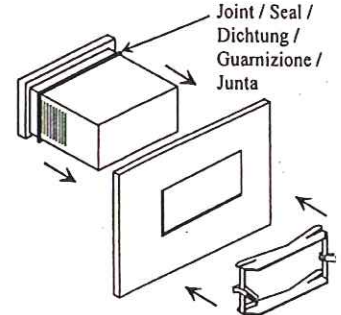
Encombrement / Dimensions / Abmessungen / Dimensioni / Medidas



Découpe panneau / Panel cut-out / Frontplattenausschnitt / Foratura pannello / Corte del panel



Etrier de fixation / Fixing yoke / Spannbügel / Staffa di fissaggio / Brida de fijación



Masse / Weight / Gewicht / Peso / Masa = 38 g

Dimensions en mm. / Dimensions in mm. / Abmessungen in mm. / Dimensioni in mm. / Dimensiones en mm.

Contient une pile au lithium. Ne pas recharger, démonter ou jeter au feu.

Lithium batteries inside. Do not recharge, disassemble or dispose of in a fire.

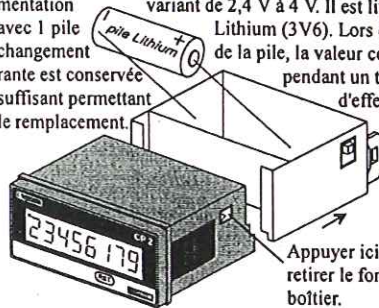
Enthält eine Lithium-Batterie. Nicht wiederaufladen, nicht öffnen, nicht ins Feuer werfen.

Contiene una pila al litio. Non ricaricare, smontare o bruciare.

Contiene una pila de litio. No recargar, desmontar o echar al fuego.

Montage de la pile

Le compteur peut fonctionner avec des tensions d'alimentation variant de 2,4 V à 4 V. Il est livré avec 1 pile changement de la pile, la valeur courante est conservée pendant un temps suffisant permettant le remplacement.



Battery installation

The counter can operate with supply voltages between 2.4 V and 4 V. It comes fitted with 1 lithium battery (3V6). When changing the battery, the current value is retained for long enough to undertake battery replacement.

Press here to remove the back of the casing.

Einsetzen der Batterie

Das Gerät arbeitet in einem Spannungsbereich zwischen 2,4 V - 4 V. Das Gerät ist mit einer Lithiumbatterie 3,6 V ausgerüstet. Im Falle eines Batteriewechsels wird der aktuelle Zahlwert für eine für den Wechsel ausreichende Zeitspanne gespeichert.

Zum Öffnen des Gehäuses hier drücken.

Montaggio della pila

Il contatore può funzionare con delle tensioni d'alimentazione variabili da 2,4 V a 4 V. Viene consegnato corredato di 1 pila al Litio (3V6). Al momento di sostituire la pila, il valore corrente viene conservato per un tempo sufficiente ad effettuare la sostituzione.

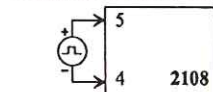
Premere in questo punto, per sfilare il fondo della custodia.

Montaje de la pila

El contador puede funcionar con tensiones de alimentación que varíen de 2,4 a 4 V. Se suministra con una pila de litio (3V6). Cuando ésta se cambia, el valor acumulado se conserva durante el tiempo suficiente para efectuar dicho cambio.

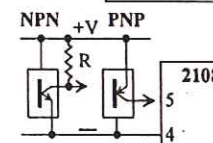
Presionar aquí para retirar el alojamiento de la pila

Schémas de branchement / Connection diagrams / Anschlußschema / Schemi di collegamento / Esquemas de conexión



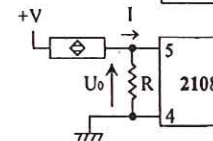
Entrée comptage rapide / High-speed counting input / Schnelzzählung / Ingresso conteggio rapido / Entrada contaje rápido

■ Tension / Voltage / Spannung / Tensione / Tensión



■ Détecteur 3 fils / 3 wire detectors / 3-Leiter-Sensoren / Rilevatore 3 fili / Detector 3 hilos

PNP, + V : 4 - 30 V
NPN, + V : 6.5 - 30 V
+ R : 3.9 KΩ 1/4 W



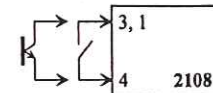
■ Détecteur 2 fils / 2 wire detectors / 2-Leiter-Sensoren / Rilevatore 2 fili / Detector 2 hilos

$R \approx \frac{U_0}{I}$ $P_R = \frac{V^2}{R}$

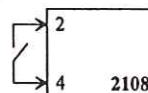
Exemple / Example / Beispiel / Esempio / Ejemplo :

$I = 1,5 \text{ mA}$ (courant de fuite / leakage current / Leckstrom / corrente di fuga / corriente de fuga)

$U_0 \leq 1 \text{ V}$ $R \approx \frac{1 \text{ V}}{1,5 \text{ mA}} = 666 \Omega \Rightarrow R = 680 \Omega$ $P_R = \frac{(24)^2}{680} = 0,847 \text{ W} \Rightarrow R = 680 \Omega 1 \text{ W}$



Entrée comptage lent et remise à zéro / Slow-counting and reset input / Langsame Zählung und Nullrückstellung / Ingresso conteggio lento e reset / Entrada contaje lento y puesta a cero



Entrée enable reset / Enable reset input / Eingang für FrontresetSperrung / Ingresso abilitazione reset / Entrada de autorización del reset

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