

Protections contre les surtensions

Parasurtenseurs

Il s'agit de dispositifs de protection, appelés également SPD (Surge Protection Device). Ils empêchent à des surtensions impulsives transitoires, conduites par le réseau d'alimentation ou les réseaux de terre ou les réseaux de signal, d'endommager les systèmes électroniques de commande et de contrôle, les systèmes de mesure et de contrôle, ainsi que les appareils électroniques en général. Les protections limitent les surtensions dangereuses à des niveaux tolérés par les appareils prévus pour être employés dans la catégorie de surtension II (2,5 kV), dans une zone de protection contre les surtensions Classe C, ainsi que l'exigent les normes IEC1024, IEC1312-1, EN50083-1 en vigueur.

Où doivent-ils être employés ?

Conformément aux normes en vigueur, les protections contre les surtensions doivent être installées sur la ligne d'alimentation à l'entrée des tableaux de contrôle et de commande pour l'automatisation, de manière à garantir la sécurité contre les courants transitoires de tous les appareils contenus, tels que PLC, alimentations, variateurs de fréquence, etc. La conformité aux normes CEM des tableaux de commande et de contrôle exige que la surtension maximale résiduelle du réseau soit inférieure à 2,5 kV appliqués. Par conséquent, des limiteurs ou parasurtenseurs doivent être installés : ces dispositifs doivent être en mesure de limiter la surtension résiduelle à des valeurs inférieures à 2,5 kV, qui peuvent être supportées sans dommages par les appareils montés dans les tableaux.

Cosa offrono

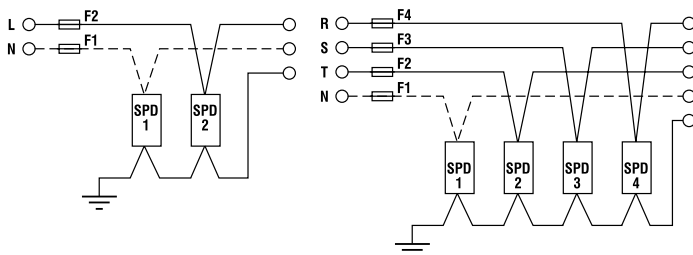
Il est formé par un socle pour le câblage pouvant être monté sur un rail DIN et par un module de protection amovible contenant le déchargeur : il est ainsi facile de débrancher la protection durant les essais d'isolation ou pour pouvoir la remplacer rapidement en fin de vie. Ils sont en mesure de supporter 20 impulsions de 10 kA de courant de décharge Isc, avec une impulsion 8/20 et une seule impulsion de 40 kA, (JVS1-C1P) E 70KA (JVS1-E1P) statistiquement très rare. Ainsi que l'exigent les normes de produit sur les parasurtenseurs, la série est équipée d'un dispositif de sectionnement interne en mesure de débrancher thermiquement les composants en cas de défaillance ; de plus, ils fournissent une indication visible de la défaillance du parasurtenseur sur l'avant de l'unité (Fig. 2).

Fusibles et dispositifs de protection

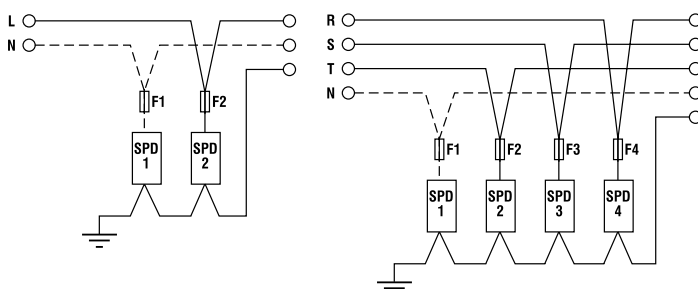
Les parasurtenseurs incorporent un dispositif qui débranche le varistor arrivé en fin de vie (presque en court-circuit ou en court-circuit) ; toutefois, ils doivent être équipés en amont d'une protection contre les courants de court-circuit, et d'un dispositif différentiel de protection contre tout contact indirect (généralement déjà présent sur l'installation). Il ne doit pas être installé en aval des dispositifs différentiels de protection à haute sensibilité (3 mA).

Connexion aux principaux réseaux électriques

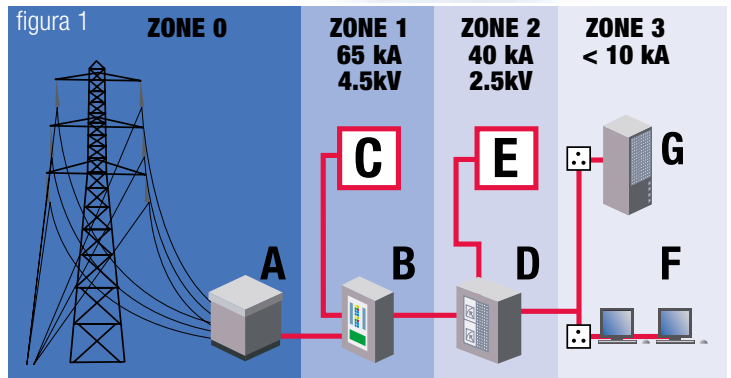
Les parasurtenseurs de série peuvent être employés dans les types de connexion suivants.



Connexion avec priorité sur la protection de la charge



Connexion avec priorité sur la continuité du service



Zones de protection contre les surtensions

Zone 0 - Zone où les appareils sont sujets à foudre directe, surtensions max. admises de 6 kV à la sortie de la cabine MT/BT

Zone 1 - Zone où les tableaux de distribution ou des grandes machines sont sujets à des surtensions max. admises de 4 kV

Zone 2 - Zone où les tableaux de distribution secondaires ou des machines sont sujets à des surtensions max. admises de 2.5 kV

Zone 3 - Zone avec des tableaux et des appareils où la surtension max. admise est de 1,5 kV

A - Sous-station

B - Tableau de distribution principale

C - Machine de grande puissance

D - Tableau de distribution locale

E - Machine de basse puissance

F - Poste de travail

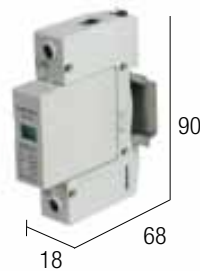
G - Appareil

figure 2

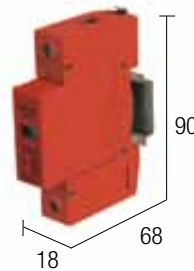


Parasurtenseurs amovibles

- Contacts renforcés
- Protection amovible
- Voyant frontal d'efficacité
- Ponts disponibles pour la connexion en parallèle



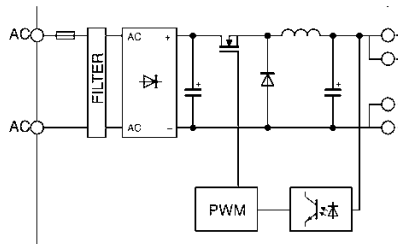
CE



CE

NOTES

SCHEMA DE PRINCIPE



VERSION	cod. XJVS1C1P		cod. XJVS1E1P	
Avec varistor	JVS1-C1P		JVS1-E1P	
DATI TECNICI ELETTRICI				
Tension nominale	230 V		400 V	
Tension opérationnelle max.	320 V		460 V	
Fréquence			50...60 Hz	
Surtension résiduelle	< 1500 V		< 2300 V	
Courant de décharge nominal (20 impulsions répétitives 8/20 µs)	20 kA		40 kA	
Courant de décharge max. (impulsions répétitives 8/20 µs)	40 kA		70 kA	
Niveau de la tension de protection	1.5 kV		2.3 kV	
Tension nominale des varistors	510 V ±10%		680 V ±10%	
Courant de fuite			< 1 mA	
Délais de réponse			<25 ns	
Energie supportée (2 ms)	640 J		1580 J	
Protection externe	disjoncteur magnétique : C-10 A o B-25 A - fusibles: 50...40 A			
DONNÉES TECHNIQUES GÉNÉRALE				
Voyant d'efficacité	vert : protection efficace rouge : protection inefficace, module à substituer			
Température ambiante	-40...+80°C			
Indice de protection	IP 20 IEC 529, EN60529			
Norme de sécurité	IEC61643-1			
Compatibilité électromagnétique	EN 55011			
Mode de raccordement	à ressort 16 mm ² (câble souple) / 25 mm ² (câble rigide)			
Module color	gris clair		rouge	
Matériau du boîtier	matière plastique UL94V-0			
Poids	128 g			
Position de montage	côté à côté sur rail			
ACCESSOIRES DE MONTAGE				
Montage type rail DIN selon la norme IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB			
Cartouche avec varistore de rechange	XJVS1C1R		XJVS1E1R	
Pont de parallèle à vis		2 poles		XJGB2P
		3 poles		XJGB3P
		4 poles		XJGB4P

APPLICATIONS

Les dispositifs de protection de la série JVS empêchent à des impulsions et à des surtensions transitoires, conduites par le réseau de distribution AC d'endommager les systèmes électroniques de commande et de contrôle, les installations externes, les installations de sécurité et de prévention des incendies ainsi que tous les appareils électroniques qui composent les installations électriques.

Ils fonctionnent en limitant les tensions aux niveaux coordonnés avec les catégories d'installation II, III et IV. Des ponts pour la connexion en parallèle de 2, 3 ou 4 parasurtenseurs sont disponibles.

Protection de sur courant électronique réglable de 1...10 A /24 Vdc



Selon la nouvelle normative EN60204-1 il est **obligatoire** de protéger de sur courant les câbles des lignes SELV-PELV. La norme demande que les protections de sur courant sur la 24Vdc interviennent coupant le dégât avant que la 24Vdc de contrôle et commande tombe dessous 21.6V, enlevant alimentation aux contrôles empêchant l'actuation des fonctions d'urgence et sécurité.

Pour la EN 60204-1 et la En 61131-1 et -2, la protection de sur courant sur les lignes SELV-PELV doit être en mesure de sectionner les courts entre 10ms et les sur courants dangereux entre 5s. L'utilisation d'alimentateurs avec haute capacité de sur courant à la sortie et des protections précises et rapides facilite le coupe des dégâts avant que la 24V tombe dessous 21.6V laissant les contrôles sans alimentation.



figura 1

Les fusibles et les magnétothermiques insérés sur les lignes 24Vdc ont des caractéristiques I / t d'intervention non adaptées à couper les dégâts avec la rapidité et la précision demandées, en plus les fusibles pourraient être substitués avec des différents types altérant la conduite de la protection et la sécurité du système.

La correcte coordination du circuit dont la protection de sur courant a été insérée doit considérer la R totale de la ligne : R connexions + R câbles + R Résidu du charge en panne. La valeur de R totale doit toujours admettre que dans le circuit puisse circuler le courant de sur déclenchement de la protection, et il faut éviter de sous dimensionner la protection pour éviter des déclenchements intempestifs causé par I de démarrage du charge, ou de la sur dimensionner en allongeant t d'intervention.

L'entier circuit constitué par l'alimentateur, la protection de sur courant, les câbles et les branchements doit être projeté pour permettre le coupe sur de sur courants entre 5s avant que la 24Vdc tombe dessous 21.6Vdc. Cette condition peut être satisfaite employant des alimentateurs Cabur série CSF et CSG, dimensionnés pour affecter un haut sur courant à la sortie (>+50% de I nom pour >5s) et des protections de sur courant électroniques CEP system équipées avec précision et rapidité beaucoup supérieures à magnétothermiques et fusibles dont leur t de déclenchement est indépendant de T ambiante et qui peuvent être réarmées avec commande local ou isolé.

Caractéristiques des protections

Les mgt ont deux différentes courbes d'intervention : Thermique et Magnétique. Le relais magnétique commence seulement en cas de court avec des courbes I/t différentes ; le relais thermiques ont tous la même courbe d'intervention indépendamment de la courbe de surcharge et en surcharge se comportent comme on voit en la figure 2 : courants de surcharge $1.13 \times I_n$ sont coupés en >1h avec, et sur courants $>1.45 \times I_n$, le déclenchement se passe dans quelque minute. Le sectionnement de courants de court se réalise par le relais magnétique dont t de déclenchement va de 0.01 à 0.1 sec s'obtient avec des courants très hauts que l'alimentateur utilisé pourrait pas être capable à affecter : un mgt C5 utilisé en DC a >70A de déclenchement sur, courant que seulement des alimentateurs avec I nom beaucoup supérieurs, ex de 40A, peuvent affecter (et non tous) mais non affectable par des alimentateurs de 10A.

Utilisant les mgt comme des protections de sur courant, si l'alimentateur utilisé a I de surcharge 1.2 fois sa I nom., le sectionnement se passera après 20...60min, au contraire avec courant 2.5 fois supérieure I nom, commencera entre 25 sec et 2 min en fonction de Tamb., des temps trop longs pour assurer la stabilité de la 24V, à protection des câbles et la sélectivité des protections. En cas de dégât jusque la protection n'intervient, l'alimentateur reste en surcharge majeur de $I_n \times 1.5 \times 5s$ et la 24V tombe dessous 21.6V laissant les fonctions normales et surtout les fonctions de sécurité sans alimentation.

Sélectivité des protections

En cas de surcharge ou court, seulement le circuit endommagé est sélectionné par sa protection sans répercussions sur l'alimentation des autres charges. Cette fonction s'obtient avec des alimentateurs avec haute capacité de sur courant et protections rapides et précises.

CEP system – le système intelligent pour le contrôle du courant

CEP « reconnaît » le sur courant au seuil le plus bas et précis possible et sectionne le circuit endommagé dans le temps le plus rapide possible. Pour la majeure flexibilité d'emploi, le système CEP permet d'établir 10 courants de déclenchement de 1A à 10A en pas de 1A et 3 courbes d'intervention « Rapide – Normale – Retardée » (voir figure 3).

L'état de la protection est signalé par deux diodes et une sortie transistor d'alarme isolé, la charge peut être activée / désaffectée par la touche sur la partie frontale (fig. 5) ou par un contrôle isolé par le PLC. La chance de contrôler séparément chaque canal est utile dans la phase d'installation, puisque les divers composants peuvent être activés ou testés singulièrement et, dans le cas des grandes installations, on peut utiliser le contrôle isolé pour activer graduellement les diverses charges évitant beaucoup de surcharges contemporaines au démarrage du système. Une ultérieure sécurité est donnée par la possibilité de sectionnement manuel de la charge, pourquoi en cas de commande de réarmement des protections d'isolé la charge restera inactive évitant toute condition de danger.



figura 3



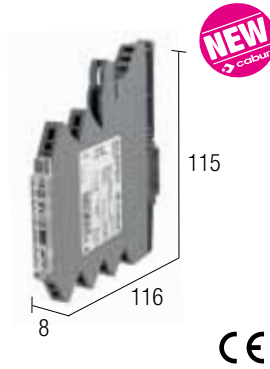
figura 4



figura 5

Protection de sur courant électronique réglable de 1..10 A /24 Vdc

- Programmable de 1 A à 10 A à pas de 1 A
- 3 courbes d'intervention programmables
- Possibilité de contrôle ON/OFF isolé ou local
- DEL d'état vert ON/ rouge OFF et signalisation isolée
- Contact à chariot pour sectionnement manuel du charge
- Petite porte frontale à plomber pour protéger la programmation



UL pendant



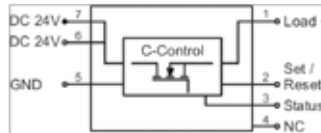
- 1) petite porte à plomber
- 2) programmation du courant
- 3) étiquette d'identification
- 4) programmation de la courbe d'intervention
- 5) rétablissement du fusible

NOTES

Les mesures tiennent compte de l'encombrement du support pour fixation sur rail.

- (1) Version non exploitée à l'entrepôt mais réalisée sur demande, contacter nos bureaux commerciaux pour disponibilité.
- (2) Le contrôle isolé se passe à travers des impulsions à 24 Vdc. La durée des impulsions devra être: ON = impulsion > 1 s / OFF = impulsion > 100 ms e < 800 ms
- (3) Les 3 courbes d'interventions standard sont illustrées dans des graphiques; la version CEP-D3 dispose même de courbe programmable à travers logiciel. via software.

SCHÉMA DE PRINCIPE



VERSION

- Avec indication du surcharge
- Avec indication de l'état (ON/OFF)
- Avec bus de champ

Cod. XCEPD1 Cod. XCEPD3

CEP-D1	(1)	CEP-D3
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DONNÉES TECHNIQUES D'ENTRÉE

Tension nominale
Courant nominal
Courant max du système
Protection
Contrôle isolé ON/OFF impulse

24 Vdc (échelle 18...32 Vdc)
10 A dc max.
40 A dc à travers barre de distribution CEP-RCC électronique intérieure contre inversion de polarité
impulse 24 Vdc extérieur
impulse 24 Vdc extérieur et à travers logiciel (2)

DONNÉES TECHNIQUES DE SORTIE

Tension nominale
Corrente min. / max.
Courbes d'intervention préétablies
Capacité max à brancher en sortie
Indications d'état
Signalisation de l'état de fonctionnement

24 Vdc (chute de tension <170 mV @ Un / In)
1...10 A dc programmable avec pas de 1 A
lente, moyenne et vite
lente, moyenne, vite, et custom programmable à travers logiciel (3)
10.000 µF
DEL verte: fixe = ok, étincelante = lout al 90% de la nominale, DEL rouge: fixe = sortie éteinte manuellement, clignotement lent= sur courant, clignotement vite = erreur transistor pour signalisation du surcharge
transistor pour signalisation de l'état (ON/OFF)
transistor avec un type de signalisation programmable

DONNÉES TECHNIQUES GÉNÉRALE

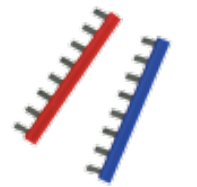
Température ambiante (service)
Isolement entrée / sortie
Indice de protection
Norme de sécurité
Mode de raccordement
Matériau du boîtier
Poids
Position de montage

-25...+60°C, réduction I _{max} 8 A oltre 40°C
3 kVac / 60 s sortie SELV
IP 20 IEC 529, EN60529
EN60950-1, EN61131-1, EN61131-2, EN60898, EN60947-4-1, EN50081
étaux à ressort 0.25...2.5 mm ² fixes
PA 6.6 (UL94V-0, NFF I2, F2)
120 g
verticale ou horizontale sur guide, coté à coté, il est conseillé d'utiliser des blocs terminaux

ACCESSOIRES DE MONTAGE

Montage type rail DIN selon la norme IEC60715/TH35-7.5
Montage type rail DIN selon la norme IEC60715/G32
Équipement d'alimentation (terminal + fermeture)
Barre de distribution
Couverture isolante pour barre de distribution
Pont à poigne

PR/3/AC, PR/3/AG/ZB, PR/3/AS, PR/3/AS/ZB
CEP-SS (cod. XCEPSS)
CEP-RCC (cod. XCEPRCC)
CEP-RCP (cod. XCEPRCP)
CEP-BCR (cod. XCEPBCR)
CEP-BCB (cod. XCEPBCB)
CEP-MTW (cod. XCEPMTW)
(8 pôles)
(8 pôles)
(tableau avec 50 plaquettes)



CEP-BCR e CEP-BCB



CEP-MTW



CEP-SS

- Courbe d'intervention :
- 1) vite
 - 2) moyenne
 - 3) lente

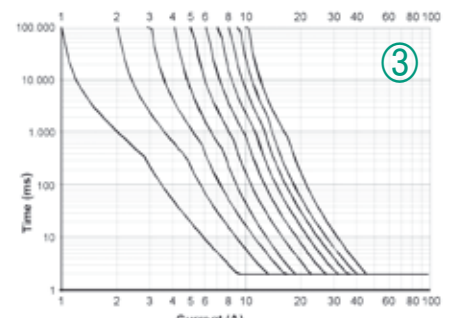
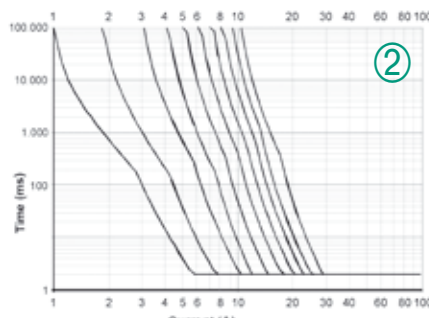
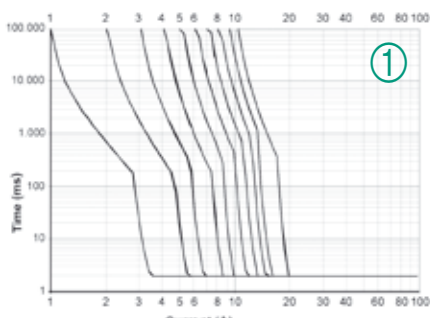


Tableau de sélection rapide filtres EMI

Ces tableaux permettent seulement de sélectionner rapidement les articles, vérifier successivement si toutes les données techniques du produit, répondent aux exigences demandées.

Filtres triphasés 400-480 Vac sans neutre

Courant	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)						Code	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
7 A	20	60	60	60	50	35	25	60	65	60	55	40	XFTDV07ST2	65
16 A	15	50	55	60	50	35	25	55	60	60	55	40	XFTDV16ST2	65
30 A	15	50	55	60	50	35	25	55	60	60	55	40	XFTDV30ST2	65
42 A	55	70	70	45	35	20	45	45	45	45	45	30	XFTDV42ST2	65
55 A	15	55	55	55	50	35	25	55	60	60	50	40	XFTDV55ST2	65
75 A	15	55	55	55	50	30	20	50	50	50	55	40	XFTDV75ST2	65
100 A	35	50	45	25	15	7	30	35	35	35	30	7	XFTDV100ST2	65
150 A	20	30	40	45	40	30	30	40	40	45	40	25	XF150TDS84C	66
180 A	20	30	40	45	40	30	30	40	40	45	40	25	XF180TDS84C	66
200 A	55	60	55	30	20	-	45	30	25	10	10	5	XF200TDDS84C	67
300 A	30	30	23	10	8	5	35	30	25	14	10	5	XF300TDS84C	68
400 A	30	30	20	10	5	2	30	30	20	10	8	2	XF400TDS84C	68
500 A	45	25	20	10	5	2	40	30	25	10	10	5	XF500TDS84C	68
600 A	25	25	20	10	5	2	40	30	25	10	10	5	XF600TDS84C	68

Filtres triphasés 400-480 Vac avec neutre

Courant	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)						Code	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
10 A	10	20	20	20	30	25	10	20	25	25	30	30	XF10TYG9	70
16 A	25	50	50	50	45	30	35	55	60	60	40	30	XF16TYT2	69
20 A	10	15	20	35	40	25	10	15	20	20	25	20	XF20TYS9	70
25 A	25	50	50	50	45	30	35	55	60	60	40	30	XF25TYT2	69
36 A	25	50	50	50	40	25	30	50	55	50	40	30	XF36TYT2	69
50 A	25	45	45	40	40	25	30	50	50	40	40	30	XF50TYT2	69
100 A	10	20	25	30	30	20	30	40	40	35	35	25	XF100TYT2	69

Filtres monophasés 120-250 Vac cellule singulière

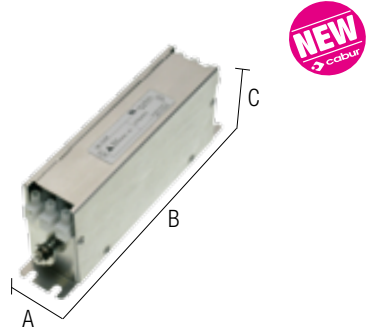
Courant	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)						Code	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
3 A	20	30	35	45	50	45	7	35	50	45	45	45	XF03DKBG5B	71
6 A	15	20	25	40	45	45	10	20	45	45	50	45	XF06DKBG5B	71
12 A	10	20	22	35	45	40	10	20	40	45	45	45	XF12DKBG5B	71
16 A	10	18	20	35	45	30	10	18	40	40	40	35	XF16DKCG5B	71
20 A	10	18	20	30	35	35	10	12	35	35	40	40	XF20DKCG5B	71
30 A	10	25	30	45	50	35	12	40	50	50	50	45	XF30DKCS5B	71

Filtres monophasés 120-250 Vac cellule double

Courant	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)						Code	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
3 A	45	60	60	55	45	45	12	45	45	45	45	45	XF03DPCG5C	72
6 A	30	50	60	55	50	35	8	45	45	45	45	45	XF06DPCG5C	72
12 A	15	25	35	55	55	35	12	40	40	35	35	40	XF12DPCG5C	72
16 A	20	35	45	60	50	35	12	40	40	45	45	50	XF16DPCG5C	72
20 A	15	40	45	50	50	40	12	45	45	45	35	50	XF20DPCG5C	72
30 A	10	30	35	55	45	30	18	45	50	40	40	40	XF30DPGS5C	72

Filtre triphasé sans neutre série TDV

- Modèles de 7 à 130 A
- Haute atténuation de 150 kHz à 30 MHz
- Haute atténuation même sur les câbles longs
- Surface minimum occupée sur le panneau

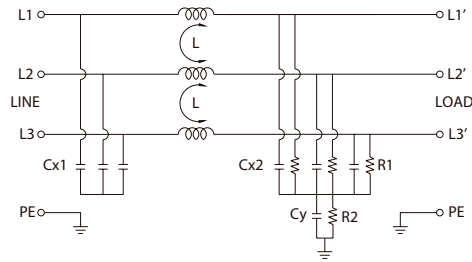


NOTES

Les dimensions et les schémas sont indicatifs, pour des ultérieurs détails voir les fiches techniques du produit.

(1) La présence des condensateurs entre phase et neutre, oblige que les épreuves d'isolation soient effectuées en DC en accord avec EN60950.

SCHÉMA DE PRINCIPE



VERSION		
Courant nominal	Sigle	Code
7 A	F 07 TDV ST2	XF07TDVST2
16 A	F 16 TDV ST2	XF16TDVST2
30 A	F 30 TDV ST2	XF30TDVST2
42 A	F 42 TDV ST2	XF42TDVST2
55 A	F 55 TDV ST2	XF55TDVST2
75 A	F 75 TDV ST2	XF75TDVST2
100 A	F 100 TDV ST2	XF100TDVST2

Dimensions			Poids (kg)
A	B	C	
42	192	72	
47	252	72	
52	272	87	
52	312	87	
87	252	92	
92	272	137	
90	270	150	

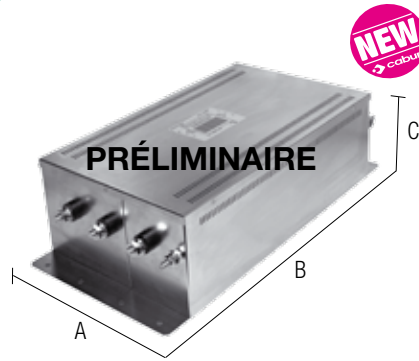
DONNÉES TECHNIQUES GÉNÉRALE

Tension nominale	480 Vac ± 10%
Courant nominal	voir tableau de versions
Fréquence	50...60 Hz
Courant de fuite à 480 Vac 60 Hz	30 mA
Température ambiante (service)	-25...+85°C
Isolation ligne/ligne	1.45 KVdc / 60 s (1)
Isolation ligne/terre	2.25 KVdc / 60 s (1)
Catégorie de surtension / degré de pollution	—
Indice de protection	IP 20 IEC 529, EN60529
Mode de raccordement	étaux à vis fixes
Matériau du boîtier	métallique
Poids	voir tableau de versions
Position de montage	à panneau à travers des vis de fixation

Sigle	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 07 TDV ST2	20	60	60	60	50	35	25	60	65	60	55	40
F 16 TDV ST2	15	50	55	60	50	35	25	55	60	60	55	40
F 30 TDV ST2	15	50	55	60	50	35	25	55	60	60	55	40
F 42 TDV ST2	55	70	70	45	35	20	45	45	45	45	45	30
F 55 TDV ST2	15	55	55	55	50	35	25	55	60	60	50	40
F 75 TDV ST2	15	55	55	55	50	30	20	50	50	50	55	40
F 100 TDV ST2	35	50	45	25	15	7	30	35	35	35	30	7

Filtere triphasé sans neutre série TDS

- Modèles de 150 à 180 A
- Haute atténuation de 150 kHz à 30 MHz
- Haute atténuation même sur les câbles longs

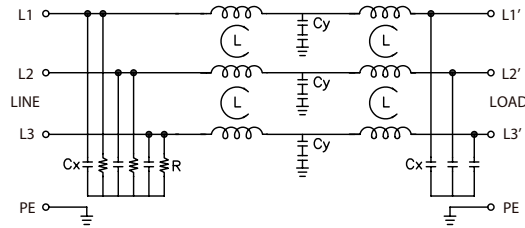


NOTES

Les dimensions et les schémas sont indicatifs, pour des ultérieurs détails voir les fiches techniques du produit.

- (1) Version non exploitée à l'entrepôt mais réalisée sur demande, contacter nos bureaux commerciaux pour disponibilité.
- (2) La présence des condensateurs entre phase et neutre, oblige que les épreuves d'isolation soient effectuées en DC en accord avec EN60950.

SCHÉMA DE PRINCIPE



VERSION			
Courant nominal	Sigle	Code	
150 A	F 150 TDS 84C	XF150TDS84C	(1)
180 A	F 180 TDS 84C	XF180TDS84C	(1)

Dimensions			Poids (kg)
A	B	C	
202	390	122	
202	390	122	

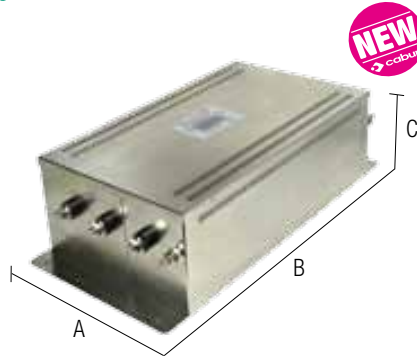
DONNÉES TECHNIQUES GÉNÉRALE

Tension nominale	480 Vac ± 10%
Courant nominal	voir tableau de versions
Fréquence	50...60 Hz
Courant de fuite à 480 Vac 60 Hz	500 mA
Température ambiante (service)	-25...+85°C
Isolation ligne/ligne	1 KVdc / 60 s (2)
Isolation ligne/terre	1 KVdc / 60 s (150A) – 2.25 KVdc / 60 s (180A) (2)
Catégorie de surtension / degré de pollution	—
Indice de protection	IP 20 IEC 529, EN60529
Mode de raccordement	à boulon
Matériau du boîtier	métallique
Poids	voir tableau de versions
Position de montage	à panneau à travers des vis de fixation

Sigle	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 150 TDS 84C	20	30	40	45	40	30	30	40	40	45	40	25
F 180 TDS 84C	20	30	40	45	40	30	30	40	40	45	40	25

_filtre triphasé sans neutre série TDDS

- Haute atténuation de 150 kHz à 30 MHz
- Haute atténuation même sur les câbles longs

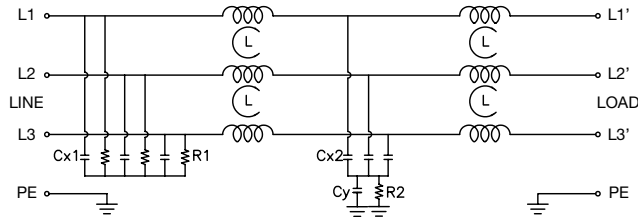


NOTES

Les dimensions et les schémas sont indicatifs, pour des ultérieurs détails voir les fiches techniques du produit.

- (1) Version non exploitée à l'entrepôt mais réalisée sur demande, contacter nos bureaux commerciaux pour disponibilité.
- (2) La présence des condensateurs entre phase et neutre, oblige que les épreuves d'isolation soient effectuées en DC en accord avec EN60950.

SCHÉMA DE PRINCIPE



VERSION			
Courant nominal	Sigle	Code	
200 A	F 200 TDDS 84C	XF200TDDS84C	(1)

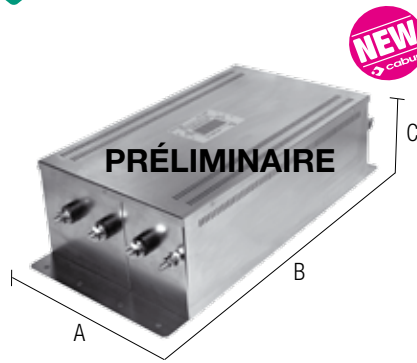
Dimensions			Poids (kg)
A	B	C	
240	477	140	

DONNÉES TECHNIQUES GÉNÉRALE	
Tension nominale	480 Vac \pm 10%
Courant nominal	200 A
Fréquence	50...60 Hz
Courant de fuite à 480 Vac 60 Hz	500 mA
Température ambiante (service)	-25...+85°C
Isolation ligne/ligne	1 KVdc / 60 s (2)
Isolation ligne/terre	1.8 KVdc / 60 s (2)
Catégorie de surtension / degré de pollution	—
Indice de protection	IP 20 IEC 529, EN60529
Mode de raccordement	à boulon
Matériau du boîtier	métallique
Poids	voir tableau de versions
Position de montage	à panneau à travers des vis de fixation

Sigle	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 200 TDDS 84C	55	60	55	30	20	/	45	30	25	10	10	5

Filtre triphasé sans neutre série TDSS

- Modèles de 300 à 600 A
- Haute atténuation de 150 kHz à 30 MHz
- Haute atténuation même sur les câbles longs

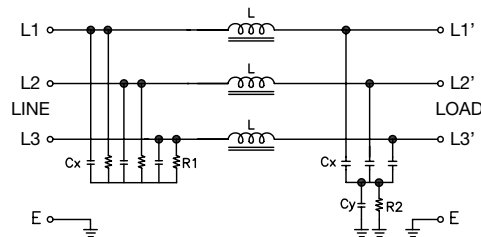


NOTES

Les dimensions et les schémas sont indicatifs, pour des ultérieurs détails voir les fiches techniques du produit.

- (1) Version non exploitée à l'entrepôt mais réalisée sur demande, contacter nos bureaux commerciaux pour disponibilité.
- (2) La présence des condensateurs entre phase et neutre, oblige que les épreuves d'isolation soient effectuées en DC en accord avec EN60950.

SCHÉMA DE PRINCIPE



VERSION			
Courant nominal	Sigle	Code	
300 A	F 300 TDSS 84C	XF300TDSS84C	(1)
400 A	F 400 TDSS 84C	XF400TDSS84C	(1)
500 A	F 500 TDSS 84C	XF500TDSS84C	(1)
600 A	F 600 TDSS 84C	XF600TDSS84C	(1)

Dimensions			Poids (kg)
A	B	C	
242	525	142	
242	525	142	
272	680	182	
272	680	182	

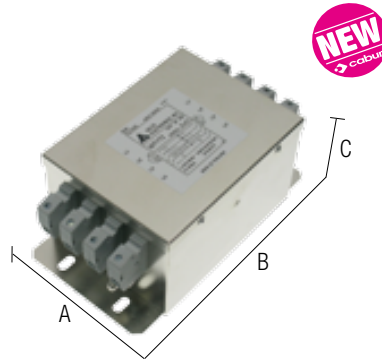
DONNÉES TECHNIQUES GÉNÉRALE

Tension nominale	480 Vac \pm 10%
Courant nominal	voir tableau de versions
Fréquence	50...60 Hz
Courant de fuite à 480 Vac 60 Hz	1000 mA
Température ambiante (service)	-25...+85°C
Isolation ligne/ligne	0.6 KVdc / 60 s (2)
Isolation ligne/terre	1 KVdc / 60 s (2)
Catégorie de surtension / degré de pollution	—
Indice de protection	IP 20 IEC 529, EN60529
Mode de raccordement	à fiche plate
Matériau du boîtier	métallique
Poids	voir tableau de versions
Position de montage	à panneau à travers des vis de fixation

Sigle	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 300 TDSS 84C	30	40	40	25	20	15	40	40	50	35	30	20
F 400 TDSS 84C	25	35	30	20	20	10	40	35	35	20	15	10
F 500 TDSS 84C	25	30	30	20	15	10	30	30	30	20	15	10
F 600 TDSS 84C	25	25	25	15	15	10	25	25	25	15	10	10

Filtre triphasé avec non imprimée série TYT

- Modèles de 16 à 100 A
- Haute atténuation de 150 kHz à 30 MHz
- Haute atténuation même sur les câbles longs

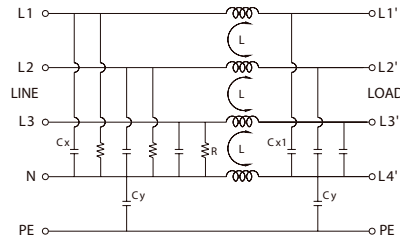


NOTES

Les dimensions et les schémas sont indicatifs, pour des ultérieurs détails voir les fiches techniques du produit.

(1) La présence des condensateurs entre phase et neutre, oblige que les épreuves d'isolation soient effectuées en DC en accord avec EN60950.

SCHÉMA DE PRINCIPE



VERSION		
Courant nominal	Sigle	Code
16 A	F 16 TYT2	XF16TYT2
25 A	F 25 TYT2	XF25TYT2
36 A	F 36 TYT2	XF36TYT2
50 A	F 50 TYT2	XF50TYT2
100 A	F 100 TYT2	XF100TYT2

Dimensions			Poids (kg)
A	B	C	
107	191.5	82	
107	191.5	82	
107	191.5	82	
124	194	104	
162	252	132	

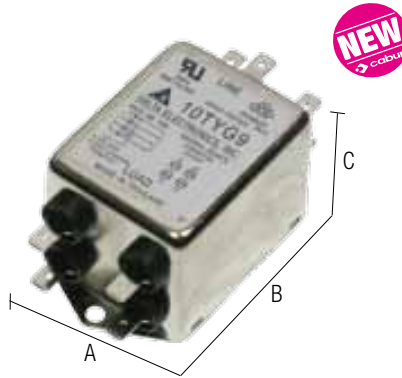
DONNÉES TECHNIQUES GÉNÉRALE

Tension nominale	440 Vac \pm 10%
Courant nominal	voir tableau de versions
Fréquence	50...60Hz
Courant de fuite à 480 Vac 60 Hz	3 mA
Température ambiante (service)	-25...+85°C
Isolation ligne/ligne	1.45 KVdc / 60 s (1)
Isolation ligne/terre	2.25 KVdc / 60 s (1)
Catégorie de surtension / degré de pollution	—
Indice de protection	IP 20 IEC 529, EN60529
Mode de raccordement	étaux à vis fixes
Matériau du boîtier	métallique
Poids	voir tableau de versions
Position de montage	à panneau à travers des vis de fixation

Sigle	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 16 TYT2	25	50	50	50	45	30	35	55	60	60	40	30
F 25 TYT2	25	50	50	50	45	30	35	55	60	60	40	30
F 36 TYT2	25	50	50	50	40	25	30	50	55	50	40	30
F 50 TYT2	25	45	45	40	40	25	30	50	50	40	40	30
F 100 TYT2	10	20	25	30	30	20	30	40	40	35	35	25

Filtre triphasé compact avec neutre série TY

- Modèles de 10 à 20 A
- Haute atténuation de 150 kHz à 30 MHz
- Haute atténuation même sur les câbles longs
- Rapport optimal qualité/prix/performances

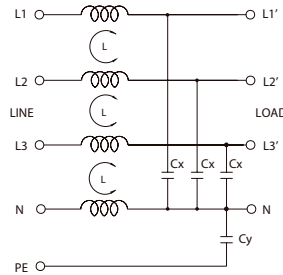


NOTES

Les dimensions et les schémas sont indicatifs, pour des ultérieurs détails voir les fiches techniques du produit.

(1) La présence des condensateurs entre phase et neutre, oblige que les épreuves d'isolation soient effectuées en DC en accord avec EN60950.

SCHEMA DE PRINCIPE



VERSION		
Courant nominal	Sigle	Code
10 A	F 10 TYG9	XF10TYG9
20 A	F 20 TYS9	XF20TYS9

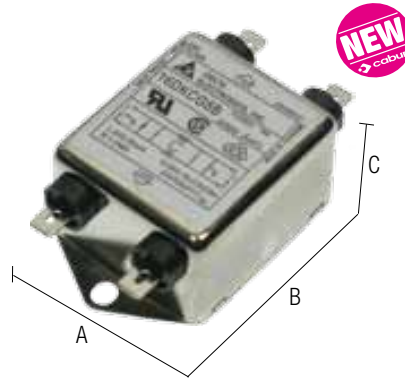
Dimensions			Poids (kg)
A	B	C	
50	85	44	
50	97	44	

DONNÉES TECHNIQUES GÉNÉRALE	
Tension nominale	440 Vac ± 10%
Courant nominal	voir tableau de versions
Fréquence	50...60Hz
Courant de fuite à 480 Vac 60 Hz	0.5 mA
Température ambiante (service)	-25...+85°C
Isolation ligne/ligne	1.45 KVdc / 60 s (1)
Isolation ligne/terre	2.25 KVdc / 60 s (1)
Catégorie de surtension / degré de pollution	—
Indice de protection	IP 20 IEC 529, EN60529
Mode de raccordement	à fiche plate (10 A) e à ressort (20 A)
Matériau du boîtier	métallique
Poids	voir tableau de versions
Position de montage	à panneau à travers des vis de fixation

DONNÉES TECHNIQUES GÉNÉRALE													
Sigle	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)						
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	
F 10T YG9	10	20	20	20	30	25	10	20	25	25	30	30	
F 20 TYS9	10	15	20	20	25	20	10	15	20	20	25	20	

Filtre monophasé cellule singulière série DK

- Modèles de 3 à 30 A
- Haute atténuation de 150 kHz à 30 MHz
- Haute atténuation même sur les câbles longs
- Surface minimum occupée sur le panneau

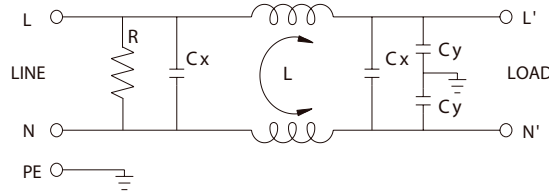


NOTES

Les dimensions et les schémas sont indicatifs, pour des ultérieurs détails voir les fiches techniques du produit.

- (1) 0.25 mA @ 115 Vac et 0.45 mA @ 250 Vac pour modèle s de 3...20 A - 1 mA @ 115 Vac et 2 mA @ 250 Vac pour modèle de 30 A.
- (2) La présence des condensateurs entre phase et neutre, oblige que les épreuves d'isolation soient effectuées en DC en accord avec EN60950.
- (3) A fiche plate pour modale de 3...20 A – à boulon pour modèle de 30 A.

SCHÉMA DE PRINCIPE



VERSION		
Courant nominal	Sigle	Code
3 A	F 03 DK BG5B	XF03DKBG5B
6 A	F 06 DK BG5B	XF06DKBG5B
12 A	F 12 DK BG5B	XF12DKBG5B
16 A	F 16 DK CG5B	XF16DKCG5B
20 A	F 20 DK CG5B	XF20DKCG5B
30 A	F 30 DK CS5B	XF30DKCS5B

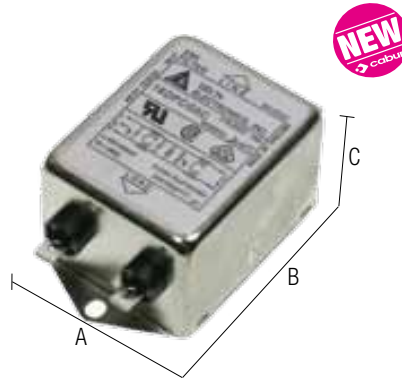
Dimensions			Poids (kg)
A	B	C	
64.5	34	30	
64.5	34	30	
64.5	34	30	
45.5	71.5	30	
51.8	84.8	30	
56.5	114	46.4	

DONNÉES TECHNIQUES GÉNÉRALE	
Tension nominale	115–250 Vac ± 10%
Courant nominal	voir tableau de versions
Fréquence	50...60 Hz
Courant de fuite à 480 Vac 60 Hz	0.25...1 mA / 0.45...2 mA (1)
Température ambiante (service)	-25...+85°C
Isolation ligne/ligne	1.45 KVdc / 60 s (2)
Isolation ligne/terre	2.25 KVdc / 60 s (2)
Catégorie de surtension / degré de pollution	—
Indice de protection	IP 20 IEC 529, EN60529
Mode de raccordement	à fiche plate (da 3 a 20 A) / à boulon (30 A) (3)
Matériau du boîtier	métallique
Poids	voir tableau de versions
Position de montage	à panneau à travers des vis de fixation

Sigle	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 03 DK BG5B	20	30	35	45	50	45	7	35	50	45	45	45
F 06 DK BG5B	15	20	25	40	45	45	10	20	45	45	50	45
F 12 DK BG5B	10	20	22	35	45	40	10	20	40	45	45	45
F 16 DK CG5B	10	18	20	35	45	30	10	18	40	40	40	35
F 20 DK CG5B	10	18	20	30	35	35	10	12	35	35	40	40
F 30 DK CS5B	10	25	30	45	50	35	12	40	50	50	50	45

Filtre monophasé double cellule série DP

- Modèles de 3 à 30 A
- Haute atténuation de 150 kHz à 30 MHz
- Haute atténuation même sur les câbles longs
- Surface minimum occupée sur le panneau

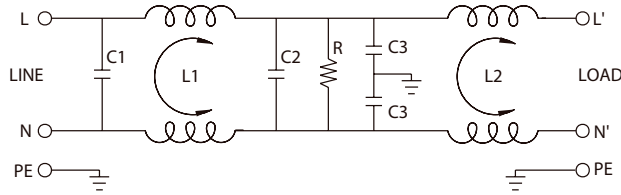


NOTES

Les dimensions et les schémas sont indicatifs, pour des ultérieurs détails voir les fiches techniques du produit.

- (1) 0.25 mA @ 115 Vac e 0.45 mA @ 250 Vac pour modèle s de 3...20 A - 1 mA @ 115 Vac et 2 mA @ 250 Vac pour modèle de 30 A.
- (2) La présence des condensateurs entre phase et neutre, oblige que les épreuves d'isolation soient effectuées en DC en accord avec EN60950.
- (3) À fiche plate per modelli da 3...20 A - à boulon pour modèle de 30 A.

SCHÉMA DE PRINCIPE



VERSION		
Courant nominal	Sigle	Code
3 A	F 03 DP CG5C	XF03DPCG5C
6 A	F 06 DP CG5C	XF06DPCG5C
12 A	F 12 DP CG5C	XF12DPCG5C
16 A	F 16 DP CG5C	XF16DPCG5C
20 A	F 20 DP CG5C	XF20DPCG5C
30 A	F 30 DP GS5C	XF30DPGS5C

Dimensions			Poids (kg)
A	B	C	
84.8	75	52	
152.9	143	51.3	
84.8	75	52	
56.5		46.4	

DONNÉES TECHNIQUES GÉNÉRALE	
Tension nominale	115-250 Vac ± 10%
Courant nominal	voir tableau de versions
Fréquence	50...60 Hz
Courant de fuite à 480 Vac 60 Hz	0.25...1 mA / 0.45...2 mA (1)
Température ambiante (service)	-25...+85°C
Isolation ligne/ligne	1.45 KVdc / 60 s (2)
Isolation ligne/terre	2.25 KVdc / 60 s (2)
Catégorie de surtension / degré de pollution	—
Indice de protection	IP 20 IEC 529, EN60529
Mode de raccordement	à fiche plate (da 3 a 20 A) / à boulon (30 A) (3)
Matériau du boîtier	métallique
Poids	voir tableau de versions
Position de montage	à panneau à travers des vis de fixation

Sigle	Atténuation en dB de mode commun (L / TERRE)						Atténuation en dB de mode différentiel (L / L)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 03 DP CG5C	45	60	60	55	45	45	12	45	45	45	45	45
F 06 DP CG5C	30	50	60	55	50	35	8	45	45	45	45	45
F 12 DP CG5C	15	25	35	55	55	35	12	40	40	35	35	40
F 16 DP CG5C	20	35	45	60	50	35	12	40	40	45	45	50
F 20 DP CG5C	15	40	45	50	50	40	12	45	45	40	35	50
F 30 DP GS5C	10	30	35	55	45	30	18	45	50	40	40	40

Analog converters

Applications of analog converters and galvanic isolation

These convert electric signals generated by sensors for measuring physical quantities such as: temperature (RTD thermocouples and PT100 thermal resistors), frequency (proximity, contacts, photoelectric cells), current (HV, Hall sensors), resistance (potentiometers), voltage, pressure, level etc., into standardised electrical signals, adapting them to the I/O of industrial PLC's, DCS's, and PC's (control), or they convert a given analog signal into a different one, adapting it to the inputs/outputs of the control, or allow remote transmission of the signal without interference via galvanic isolation (Fig. 1).

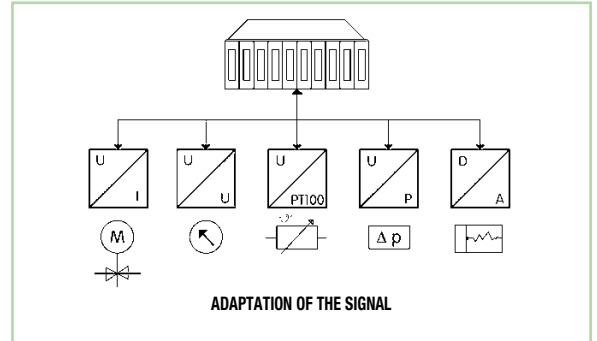


fig. 1

Adaptation between sensor output signal and control input signal:

physical quantity measured	sensor output	converter input		converter output	
Temperature	Normally one of the signals indicated in the next column	0 – 60 mV	±60 mV	0 – 5 V	±5 V
Frequency		0 – 100 mV	±100 mV	0 – 10 V	±10 V
Current		0 – 500 mV	±500 mV	0 – 20 mA	±20 mA
Resistance		0 – 1 V	±1 V	4 – 20 mA	
Voltage		0 – 5 V	±5 V		
Pressure		0 – 10 V	±10 V		
Level measurement		0 – 5 mA	±5 mA		
		0 – 10 mA	±10 mA		
		0 – 20 mA	±20 mA		
		0 – 20 mA	±20 mA		

Remote transmission of the signal:

The voltage signals reach a max. distance of 10-20 m, beyond this they lose reliability and become very sensitive to earth and induced interference (to transmit at a distance > 20 m a voltage signal must be converted into a current signal and galvanically isolated) (Fig. 2).

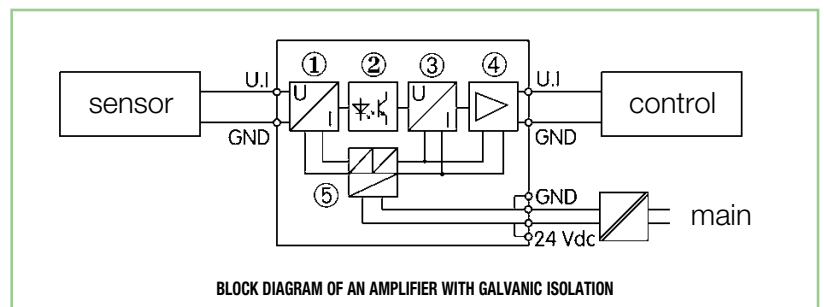


fig. 2

- current signals exceed 300 m of transmission distance and are less sensitive to induced interference. In order to transmit a current signal at a distance galvanic isolation is required.

- ① Input amplifier
- ② Opto-isolator
- ③ Signal adapter
- ④ Output amplifier
- ⑤ DC/DC converter

Galvanic isolation of the signal:

- electrically isolates and separates the circuit of the sensor from the control and power supply circuits. Thus each circuit operates with reference to its own zero potential which, being isolated from other circuits, cannot be altered by differences in potential always present between different earth references (Figs. 3 and 4).

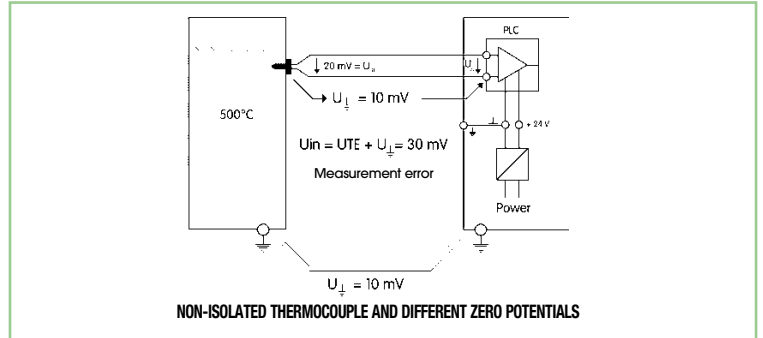


fig. 3

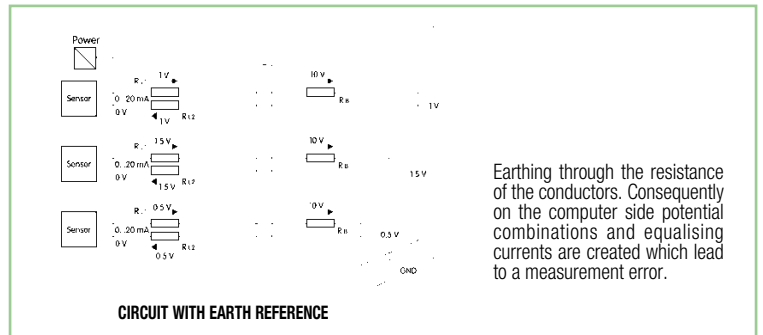


fig. 4

- isolates and separates the various zero potentials between power supply, control and sensors/actuators;
- allows transmission of the signal without errors or interference and with greater reliability;
- the higher the isolation (in KV), the greater the security of transmission where there are zero potentials, electromagnetic interference, transients (lightning, discharges etc.) (Fig. 5).

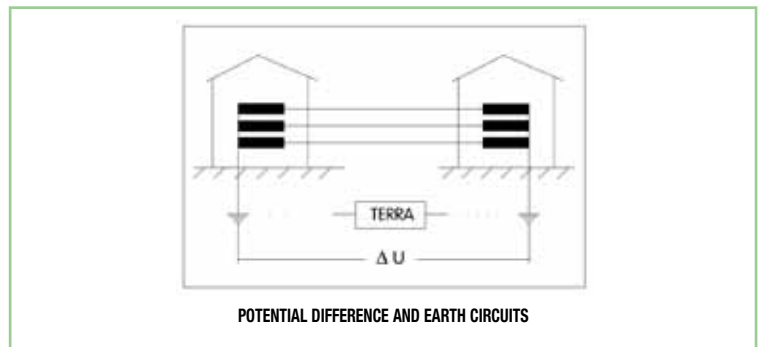


fig. 5

Galvanic isolation is necessary when:

- the distance between control and sensor/actuator is more than 20 m;
- the earth references are different;
- the zero potentials are high, or potentially high in the case of discharges or earth dispersed currents;
- electromagnetic interference is present;
- the signal cables are wired in conduits with power cables (Fig. 6).

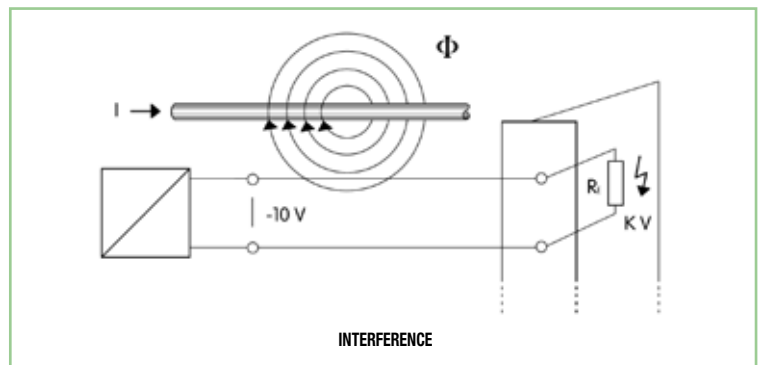


fig. 6

Analog converters selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Analog converters and isolators

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0...60 / 0...100 / 0...500 mV ±60 / ±100 / ±500 mV 0...1 / 0...2 / 0...5 / 0...10 V ±1 / ±2 / ±5 / ±10 V 0...5 / 0...10 / 0...20 / 4...20 mA ±5 / ±10 / ±20 mA	0...5 / 0...10 / ±5 / ±10 V 0...20 / 4...20 / ±20 mA	3 ways	24 Vdc	(1) (4)	CA-PI/P01	XSSAPIP01	78
0...60 / 0...100 / 0...300 / 0...500 mV 0...1 / 0...10 / 0...20 / 2...20 V 0...5 / 0...10 / 0...20 / 4...20 / ±5 / ±20 mA	0...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(1) (4)	CWUAA 6-0516	X756516	79
0...60 / 0...100 / 0...300 / 0...500 mV 0...1 / 0...10 / 0...20 / 2...20 V 0...5 / 0...10 / 0...20 / 4...20 / ±5 / ±20 mA	0...10 V 0...20 / 4...20 mA	3 ways	24...240 Vac/dc	(1) (5)	CWUAA 6-0517	X756517	79
0...10 V 0...20 / 4...20 mA	0...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(1) (4)	CWNAA 7-0539	X756539	80
0...10 V 0...20 / 4...20 mA	0...10 V 0...20 / 4...20 mA	3 ways	24...240 Vac/dc	(1) (5)	CWNAA 6-0510	X756510	80
0...10 V 0...20 / 4...20 mA	0...10 V 0...20 / 4...20 mA	2 ways	24 Vac/dc	(1) (4)	CWNAA 6-0509	X756509	81
0...10 V	0...10 V	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0530	X756530	82
0...10 V	0...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0531	X756531	82
0...10 V	4...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0532	X756532	82
0...20 mA	0...10 V	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0533	X756533	83
0...20 mA	0...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0534	X756534	83
0...20 mA	4...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0535	X756535	83
4...20 mA	0...10 V	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0536	X756536	84
4...20 mA	0...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0537	X756537	84
4...20 mA	4...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0538	X756538	84
0...10 V	0...10 V	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0500	X756500	85
0...10 V	0...20 mA	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0501	X756501	85
0...10 V	4...20 mA	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0502	X756502	85
0...20 mA	0...10 V	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0503	X756503	86
0...20 mA	0...20 mA	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0504	X756504	86
0...20 mA	4...20 mA	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0505	X756505	86
4...20 mA	0...10 V	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0506	X756506	87
4...20 mA	0...20 mA	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0507	X756507	87
4...20 mA	4...20 mA	2 ways	24 Vac/dc	(2) (4)	CWAA 6-0508	X756508	87
0...20 / 4...20 mA	0...20 / 4...20 mA	2 ways	—	(4)	CWPAA 7-0526	X756526	88
0...20 / 4...20 mA	0...20 / 4...20 mA	2 ways	—	(3) (4)	CWPAA 7-0527	X756527	88
0...10 V 0...20 / 4...20 mA	0...50 / 0...100 Hz 0...1 / 0...10 kHz	2 ways	24 Vac/dc	(1)	CWNAF 6-0511	X756511	89
0...10 V 0...20 / 4...20 mA	0...50 / 0...100 Hz 0...1 / 0...10 kHz	3 ways	24...240 Vac/dc	(1)	CWNAF 6-0512	X756512	89

Notes

- (1) programmable input and output signal via DIP switches
 (2) single range input and output signal (not programmable), articles generally not in stock but available upon request, for info please contact our sales department
 (3) two channels version
 (4) 1.5 kVAc / 60 s two way isolation (input / output) or 1.5 kVAc / 60 s three way isolation (input / output / supply)
 (5) 4 kVAc / 60 s three way isolation (input / output / supply)
 (6) 0.5 kVAc / 60 s two way isolation (input / output)

Analog / digital and digital / analog converters

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0...10 V	8 BIT		24 Vdc		ADC08V10	XW000933	98
0...20 mA	8 BIT		24 Vdc		ADC08A0	XW000934	98
4...20 mA	8 BIT		24 Vdc		ADC08A4	XW000935	98
8 BIT	0...10 V		24 Vdc		DAC08V10	XW000936	99
8 BIT	0...20 mA		24 Vdc		DAC08A0	XW000937	99
8 BIT	4...20 mA		24 Vdc		DAC08A4	XW000938	99

Analog converters selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Current converter

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0...50 A ac	adjustable threshold 1...30 A	2 ways	24 Vdc	(3)	CCIS-1	XCCIS1	94
0...50 A ac	adjustable threshold 2...40 A	2 ways	24 Vdc	(4)	CCIS-R	XCCISR	94
0...1 A ac/dc	0...10 V 0...20 / 4...20 mA	2 ways	24 Vdc	(2)	SW01VA	XW000928	95
0...5 A ac/dc	0...10 V 0...20 / 4...20 mA	2 ways	24 Vdc	(2)	SW05VA	XW000929	95
0...10 A ac/dc	0...10 V 0...20 / 4...20 mA	2 ways	24 Vdc	(2)	SW10VA	XW000930	95
0...20 A ac/dc	0...10 V 0...20 / 4...20 mA	2 ways	24 Vdc	(2)	SW20VA	XW000931	96
0...50 A ac/dc	0...10 V 0...20 / 4...20 mA	2 ways	24 Vdc	(2)	SW50VA	XW000932	96

Notes

(1) single I/O version

(2) three programmable output signals

(3) open collector threshold output

(4) threshold output with one changeover relay

Programmable frequency to analog signal converters

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0...28.8 kHz	0...10 V 0...20 / 4...20 mA	2 ways	24 Vac/dc	(1)	CWNFA 6-0524	X756524	96

Notes

(1) 21 input signals and 3 programmable output signals

(2) 3 input signals and 3 programmable output signal

Analog to threshold signal converters

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0...10 V	relé 1 exchange	2 ways	24 Vdc	(1)	GWMV10	XW000926	100
0...20 mA	relé 1 exchange	2 ways	24 Vdc	(2)	GWMA0	XW000927	100

Notes

(1) programmable threshold output 0.3...10 V and 0.1...10 V hysteresis

(2) programmable threshold output 0.6...20 mA and 0.2...20 mA hysteresis

Load cells converters

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
Measuring bridge	0...10 V 0...20 / 4...20 mA		24 Vac/dc		CWBRA 6-0522	X756522	101

Analog converters selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Converters for temperature sensors

Sensor Type	Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
PT100, PT500, PT1000 Ni100, Ni1000 PTC, KTY Potentiometers 0...5 kOhm Thermocouples B, C, D, E, J, K, L, N, R, S, T, U	Programmable -200...+2400°C (-328...+4.352°F) according to sensor type	0...10 / 2...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(1)	CWTPR 7-0890	X756890	90
PT100 3 wires (RTD)	-50...+50°C (-58...+122°F) -50...+100°C (-58...+212°F) -50...+150°C (-58...+302°F) 0...+100°C (+32...+212°F) 0...+150°C (+32...+302°F) 0...+200°C (+32...+392°F) 0...+300°C (+32...+572°F) 0...+400°C (+32...+752°F)	0...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(2)	CWPT 6-0816	X756816	91
PT100 3 wires (RTD)	-50...+50°C (-58...+122°F) -50...+100°C (-58...+212°F) -50...+150°C (-58...+302°F) 0...+100°C (+32...+212°F) 0...+150°C (+32...+302°F) 0...+200°C (+32...+392°F) 0...+300°C (+32...+572°F) 0...+400°C (+32...+752°F)	0...10 V 0...20 / 4...20 mA	3 ways	24...240 Vac/dc	(2)	CWPT 6-0817	X756817	91
Thermocouples J (FeCuNi) and K (NiCrNi)	-50...+200°C (-58...+392°F) -50...+350°C (-58...+662°F) 0...+200°C (+32...+392°F) 0...+400°C (+32...+752°F) 0...+600°C (+32...+1112°F) 0...+800°C (+32...+1472°F) 0...+1000°C (+32...+1832°F) 0...+1200°C (+32...+2192°F)	0...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(2)	CWTH 6-0844	X756844	92
Thermocouples J (FeCuNi) and K (NiCrNi)	-50...+200°C (-58...+392°F) -50...+350°C (-58...+662°F) 0...+200°C (+32...+392°F) 0...+400°C (+32...+752°F) 0...+600°C (+32...+1112°F) 0...+800°C (+32...+1472°F) 0...+1000°C (+32...+1832°F) 0...+1200°C (+32...+2192°F)	0...10 V 0...20 / 4...20 mA	3 ways	24...240 Vac/dc	(2)	CWTH 6-0847	X756847	92
PT100 2 wires (RTD)	-50...+150°C (-58...+302°F) 0...+200°C (+32...+392°F) 0...+400°C (+32...+752°F)	0...50 / 0...100 Hz 0...1 / 0...10 kHz	3 ways	24 Vac/dc	(2)	CWPTF 7-0811	X756811	93
Thermocouples J (FeCuNi)	0...+200°C (+32...+392°F) 0...+400°C (+32...+752°F) 0...+600°C (+32...+1112°F)	0...50 / 0...100 Hz 0...1 / 0...10 kHz	3 ways	24 Vac/dc	(2)	CWTHF 7-0831	X756831	93
Thermocouples K (NiCrNi)	0...+200°C (+32...+392°F) 0...+400°C (+32...+752°F) 0...+600°C (+32...+1112°F)	0...50 / 0...100 Hz 0...1 / 0...10 kHz	3 ways	24 Vac/dc	(2)	CWTHF 7-0871	X756871	93

Notes

- (1) programmable input and output signals via software
(2) programmable input and output signals via dip-switch

Auxiliary power supply for sensors and potentiometers

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
24 Vdc	10 Vdc	2 Vie			CWCV 7-6184	X766184	102

NPN and PNP signal polarity inverter

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
NPN (17...30 Vdc)	PNP				CI-NPN/PNP	XNPNPNP	103
PNP (17...30 Vdc)	NPN				CI-NPN/PNP	XNPNPNP	103

Programmable analog signal converter

- 19 input scales
- 7 output scales
- 1 SPST (NO) alarm contact
- IN/OUT isolation >3 KVac
- Auxiliary supply output for loop-powered sensors
- Input for potentiometer

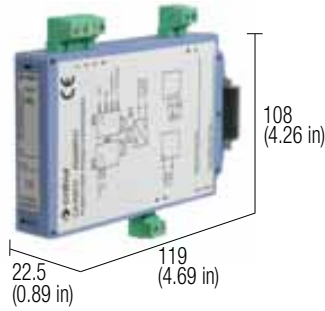


TABLE 1 - INPUT SELECTION TABLE

INPUT RANGE		SW1 (INPUT)							
UNIPOLAR	BIPOLAR	1	2	3	4	5	6	7	8
0 - 60 mV	± 60 mV								
0 - 100 mV	± 100 mV		●						
0 - 500 mV	± 500 mV			●					
0 - 1 V	± 1 V				●				
0 - 2 V	± 2 V						●		
0 - 5 V	± 5 V			●	●	●	●		
0 - 10 V	± 10 V								●
0 - 5 mA	± 5 mA	●		●					
0 - 10 mA	± 10 mA	●			●				
0 - 20 mA	± 20 mA	●						●	
4 - 20 mA	—	●					●		●

NOTES

The dimensions includes the terminal blocks and the DIN clamp.

(1) The modules in stock are programmed and calibrated with 0 - 10 V and 0 - 15 V output. Modules programmed and calibrated for all other possible configurations can be supplied on request.

BLOCK DIAGRAM

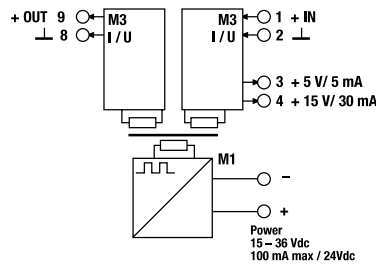


TABLE 2 - OUTPUT SELECTION TABLE

OUTPUT RANGE	INPUT TYPE	SW2 (OUTPUT)								SW3	
		1	2	3	4	5	6	7	8		
0 - 5 V	UNIP.	X		●						●	U
	BIP.	X	●							●	U
± 5 V	UNIP.	X		●						●	U
	BIP.	X	●							●	U
0 - 10 V	UNIP.	X		●						●	U
	BIP.	X	●							●	U
± 10 V	UNIP.	X		●						●	U
	BIP.	X	●							●	U
0 - 20 mA	UNIP.	X		●					X		I
	BIP.	X	●						X	●	I
± 20 mA	UNIP.	X		●					X		I
	BIP.	X	●						X	●	I
4 - 20 mA	UNIP.	X			●	●	●	●	X		I
	BIP.	X	●						X	●	I

● = ON
 = OFF
 X = ANY

VERSIONS

Cat. No. XSSAPIP01

CA-PI/P01

INPUT TECHNICAL DATA

Input signal (1)	19 programmable ranges (see Table 1)
Impedance voltage / current mode	1 MΩ / 50 Ω
Max. input voltage	15 V
Max. input current	30 mA

OUTPUT TECHNICAL DATA

Output signal (1)	7 programmable ranges (see Table 2)
Applicable load (voltage / current model)	≥ 10 KΩ / ≤ 500 Ω
Max. output voltage	12 V
Max. output current	25 mA

GENERAL TECHNICAL DATA

Supply voltage	15...36 Vdc
Rated current	100 mA max. @ 24 Vdc
Auxiliary DC feed output max. current	5 mA @ 5 Vdc / 30mA @ 15 Vdc
Gain error	< 0.1% FS
Offset error	< 0.05 % FS
Linearity error	< 0.1% FS
Zero adjustment / Span adjustment	± 10% FS
Transmission frequency	400Hz...1kHz according to full-scale
Rise time	150 mV / μs
Bandwidth	1 kHz @ -6 dB
Phase delay	< 10 μs
I/O / supply isolation	> 3 KVac / 60 s
Continuous voltage isolation	800 Vac max.
Reference Standard	IEC 664-1, DIN VDE0110.1
Overvoltage category/Pollution degree	III / 2
Operating temperature range	-10... +65°C
Δ T	5°C
Protection degree	IP 20 IEC 529, EN60529
ECM standards	EN 50081-2, EN 50082-2
Connection terminal	2.5 mm² pluggable screw type (14 AWG)
Housing material	polyamide UL94V-0
Approx. weight	150 g (5.29 oz)
Mounting information	vertical on rail, allow 5 mm spacing between adjacent component

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Plug-in jumper	red — white — blue —

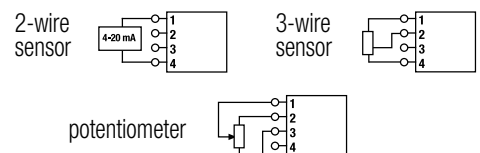
INPUT STAGE

The module can manage single-pole and two-pole inputs, choosing from among the ranges (see Table 1):

- 0...60 mV ± 60 mV
- 0...100 mV ± 100 mV
- 0...500 mV ± 500 mV
- 0...1 V ± 1 V
- 0...5 V ± 5 V
- 0...10 V ± 10 V
- 0...5 mA ± 5 mA
- 0...10 mA ± 10 mA
- 0...20 mA ± 20 mA
- 4...20 mA

The input stage provides two auxiliary supply outputs, for feeding loop powered sensor and potentiometer directly from the module (5 V and 15 V).

Example of connection:



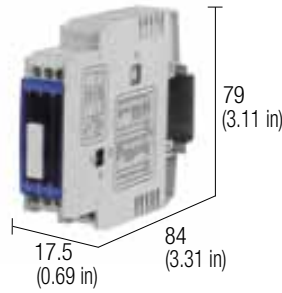
OUTPUT STAGE

The module supplies in output single-pole and two-pole signals with the following ranges (see Table 2):

- 0...5 V ± 5 V
- 0...10 V ± 10 V
- 0...20 mA ± 20 mA
- 4...20 mA

Programmable analog signal converters

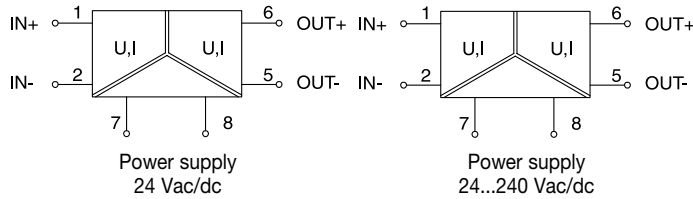
- 3 ways galvanic isolation
- 14 programmable input range
- 3 programmable output range
- Simple programming
- Available version with 24-240 Vac/dc supply voltage



NOTES

- The dimensions includes the DIN clamp.
- (1) Adjustable via rotary-switch
 - (2) Adjustable via dip-switch
 - (3) range 16.8...30 Vdc / 19.2...28.8 Vac
 - (4) range 16.8...264 Vdc / 19.2...264 Vac
 - (5) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS

- 24 Vac/dc supply voltage**
24-240 Vac/dc supply voltage

INPUT TECHNICAL DATA

Input signal (1)

Input resistance

OUTPUT TECHNICAL DATA

Output signal (2)

Applicable load

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Accuracy

Transmission frequency

Temperature coefficient

Isolation

ECM standards

Reference Standard

Overvoltage category/Pollution degree

Protection degree

Operating temperature range

Connection terminal

Housing material

Approx. weight

Mounting information

Cat. No. X756516

CWUAA 6-0516

0...60 / 0...100 / 0...300 / 0...500 mV
0...1 / 0...10 / 0...20 / 2...20 V
0...5 / 0...10 / 0...20 / 4...20 / ±5 / ±20 mA
330 KΩ with input voltage
100 Ω with input current

0...10 V
0...20 / 4...20 mA

>1 KΩ with output voltage
<400 Ω with output current

24 Vac/dc (3)

≤ 35 mA ± 10% @ 24 Vdc

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (5)

EN 50081-2, EN 50082-2

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

Noryl UL94V-0

65 g (2.29 oz)

vertical on rail adjacent without gap

Cat. No. X756517

CWUAA 6-0517

0...60 / 0...100 / 0...300 / 0...500 mV
0...1 / 0...10 / 0...20 / 2...20 V
0...5 / 0...10 / 0...20 / 4...20 / ±5 / ±20 mA
330 KΩ with input voltage
100 Ω with input current

0...10 V
0...20 / 4...20 mA

>1 KΩ with output voltage
<400 Ω with output current

24-240 Vac/dc (4)

≤ 35 mA ± 10% @ 24 Vdc

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

4 kVac / 60 s (5)

EN 50081-2, EN 50082-2

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

Noryl UL94V-0

75 g (2.65 oz)

vertical on rail adjacent without gap

APPLICATIONS

Multifunction converters can be used to convert and isolate the most common standard analog signals; the input of the modules can be set up into 14 signal ranges and the output can be set for up to 3 most important analog ranges. The set up is possible by simply switching the position of a dip switch on the side of the module.

The many different input / output combinations offered by multifunctions modules allows to reduce inventory for both new and replacement products and provides many signal conversion solutions.

The "3 ways" galvanic isolation assures total isolation between input, output and supply input; this feature, and the "self calibrating signal circuitry", gives excellent accuracy without any manual adjustment.

If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when signal is current.

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper

(16 poles, 16 A)

red

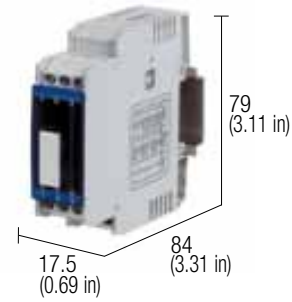
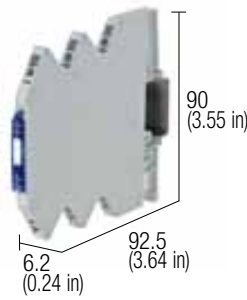
white

blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

Programmable analog signal converters

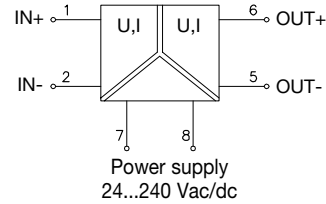
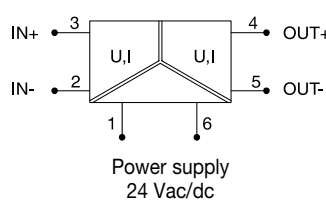
- 1.5 KV, 3 ways, IN/OUT/supply voltage isolation
- 3 programmable input range
- 3 programmable output range
- Simple programming and self calibrating
- Available version with 24-240 Vac/dc supply voltage



NOTES

The dimensions includes the DIN clamp.
 (1) range 16.8...30 Vdc / 19.2...28.8 Vac
 (2) range 16.8...264 Vdc / 19.2...264 Vac
 (3) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS

24 Vac/dc supply voltage
24-240 Vac/dc supply voltage

Cat. No. X756539

Cat. No. X756510

CWNAA-7-0539

CWNAA-6-0510

INPUT TECHNICAL DATA

Input signal

Input resistance

0...10 V

0...20 / 4...20 mA

330 K Ω with input voltage
 100 Ω with input current

0...10 V

0...20 / 4...20 mA

330 K Ω with input voltage
 100 Ω with input current

OUTPUT TECHNICAL DATA

Output signal

Applicable load

0...10 V

0...20 / 4...20 mA

>1 K Ω with output voltage
 <400 Ω with output current

0...10 V

0...20 / 4...20 mA

>1 K Ω with output voltage
 <400 Ω with output current

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Accuracy

Transmission frequency

Temperature coefficient

Isolation

ECM standards

Reference Standard

Overvoltage category/Pollution degree

Protection degree

Operating temperature range

Connection terminal

Housing material

Approx. weight

Mounting information

24 Vac/dc (1)

≤ 35 mA $\pm 10\%$ @ 24 Vdc

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 KVac / 60 s (3)

EN 61000-6-2, EN 61000-6-4

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

Noryl UL94V-0

40 g (1.41 oz)

vertical on rail adjacent without gap

24-240 Vac/dc (2)

≤ 35 mA $\pm 10\%$ @ 24 Vdc

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

4 KVac / 60 s (3)

EN 50081-2, EN 50082-2

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

Noryl UL94V-0

75 g (2.65 oz)

vertical on rail adjacent without gap

APPLICATIONS

Multi-function converters can be used to convert and isolate the most common standard analog signals; the input and the output can be set up into 3 different signal ranges. The set up is possible by simply switching the position of a dip switch on the side of the module.

The input / output combinations offered by these modules provide the most common input/output configurations more economically when compared to 14 input / 3 output modules and reduces inventory.

If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when signal is current.

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper
 (16 poles, 16 A)

red
 white
 blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

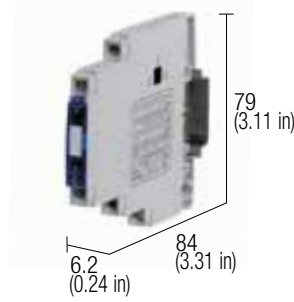
CWBK 7-0802 Cat. No. X766802

CWBK 7-0803 Cat. No. X766803

CWBK 7-0804 Cat. No. X766804

Programmable analog signal converters

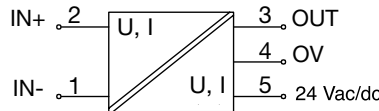
- 2 ways galvanic isolation
- 3 programmable input range
- 3 programmable output range
- Simple programming
- Available version with 24-240 Vac/dc supply voltage



NOTES

- The dimensions includes the DIN clamp.
- (1) Adjustable via dip-switch in model CWNAA 6-0509 and via rotary-switch in model CWNAA 6-0510
 - (2) range 16.8...30 Vdc / 19.2...28.8 Vac
 - (3) 2-way isolation: IN/OUT

BLOCK DIAGRAM



VERSIONS

- 24 Vac/dc supply voltage
- 24-240 Vac/dc supply voltage

INPUT TECHNICAL DATA

- Input signal (1)
- Input resistance

OUTPUT TECHNICAL DATA

- Output signal (2)
- Applicable load

GENERAL TECHNICAL DATA

Supply voltage	24 Vac/dc (2)
Rated current	≤ 35 mA ± 10% @ 24 Vdc
Accuracy	0.1% @ 23°C FS
Transmission frequency	< 30 Hz
Temperature coefficient	0.02% / K FS
Isolation	1.5 kVac / 60 s (3)
ECM standards	EN 50081-2, EN 50082-2
Reference Standard	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2
Protection degree	IP 20 IEC 529, EN60529
Operating temperature range	-25...+60°C
Connection terminal	2.5 mm ² fixed screw type
Housing material	Noryl UL94V-0
Approx. weight	35 g (1.24 oz)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES

- Mounting rail type according to IEC60715/TH35-7.5
- Mounting rail type according to IEC60715/G32
- Plug-in jumper (16 poles, 16 A)
 - red
 - white
 - blue

Cat. No. X756509

CWNAA 6-0509

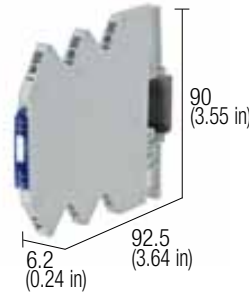
APPLICATIONS

Multi-function converters can be used to convert and isolate the most common standard analog signals; the input and the output can be set up into 3 different signal ranges. The set up is possible by simply switching the position of a dip switch on the side of the module. The input / output combinations offered by these modules provide the most common input/output configurations more economically when compared to 14 input / 3 output modules and reduces inventory. The "2 way" galvanic isolation assures isolation only between input and output signal, the supply input has the negative pole in common with the output signal; this feature, and the "self calibrating signal circuitry", gives excellent accuracy without any manual adjustment. These modules are the right solution in applications where analog converter are mounted in the same cabinet with PLC, DCS and CN, and when they are powered by the same supply; in this case they allow a cost reduction compared with 3 way fully isolated modules. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current.

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

Analog signal converters

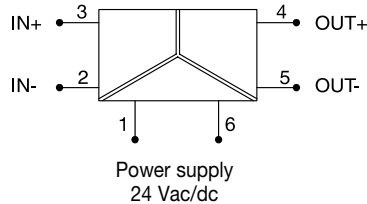
- 1.5 KV, 3 ways, IN/OUT/supply voltage isolation
- Fixed value
- Compact dimension, 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
 (1) range 16.8...30 Vdc / 19.2...28.8 Vac
 (2) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS

IN: 0...10 V / OUT: 0...10 V
IN: 0...10 V / OUT: 0...20 mA
IN: 0...10 V / OUT: 4...20 mA

INPUT TECHNICAL DATA

Input signal
 Input resistance

OUTPUT TECHNICAL DATA

Output signal
 Applicable load

GENERAL TECHNICAL DATA

Supply voltage
 Rated current
 Accuracy
 Transmission frequency
 Temperature coefficient
 Isolation
 ECM standards
 Reference Standard
 Overvoltage category/Pollution degree
 Protection degree
 Operating temperature range
 Connection terminal
 Housing material
 Approx. weight
 Mounting information

Cat. No. X756530

Cat. No. X756531

Cat. No. X756532

CWAA 7-0530

CWAA 7-0531

CWAA 7-0532

0...10 V
 330 K Ω

0...10 V
 330 K Ω

0...10 V
 330 K Ω

0...10 V
 >1 K Ω

0...20 mA
 <400 Ω

4...20 mA
 <400 Ω

24 Vac/dc (1)
 ≤ 13 mA $\pm 10\%$
 0.1% @ 23°C FS
 < 30 Hz
 0.02% / K FS
 1.5 kVac / 60 s (2)
 EN 61000-6-2, EN 61000-6-4
 IEC 664-1, DIN VDE
 III / 2
 IP 20 IEC 529, EN60529
 -25...+60°C
 2.5 mm² fixed screw type
 PPE
 40 g (1.41 oz)
 vertical on rail adjacent without gap

24 Vac/dc (1)
 ≤ 13 mA $\pm 10\%$
 0.1% @ 23°C FS
 < 30 Hz
 0.02% / K FS
 1.5 kVac / 60 s (2)
 EN 61000-6-2, EN 61000-6-4
 IEC 664-1, DIN VDE
 III / 2
 IP 20 IEC 529, EN60529
 -25...+60°C
 2.5 mm² fixed screw type
 PPE
 40 g (1.41 oz)
 vertical on rail adjacent without gap

24 Vac/dc (1)
 ≤ 13 mA $\pm 10\%$
 0.1% @ 23°C FS
 < 30 Hz
 0.02% / K FS
 1.5 kVac / 60 s (2)
 EN 61000-6-2, EN 61000-6-4
 IEC 664-1, DIN VDE
 III / 2
 IP 20 IEC 529, EN60529
 -25...+60°C
 2.5 mm² fixed screw type
 PPE
 40 g (1.41 oz)
 vertical on rail adjacent without gap

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current.

MOUNTING ACCESSORIES

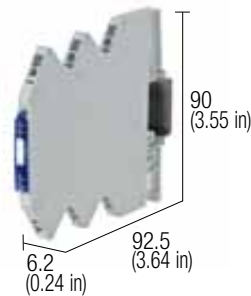
Mounting rail type according to IEC60715/TH35-7.5
 Mounting rail type according to IEC60715/G32
 Plug-in jumper red
 (16 poles, 16 A) white
 blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

—
 CWBK 7-0802 Cat. No. X766802
 CWBK 7-0803 Cat. No. X766803
 CWBK 7-0804 Cat. No. X766804

Analog signal converters

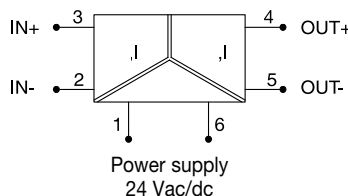
- 1.5 KV, 3 ways, IN/OUT/supply voltage isolation
- Fixed value
- Compact dimension, 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
 (1) range 16.8...30 Vdc / 19.2...28.8 Vac
 (2) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS

IN: 0...20 mA / OUT: 0...10 V

IN: 0...20 mA / OUT: 0...20 mA

IN: 0...20 mA / OUT: 4...20 mA

INPUT TECHNICAL DATA

Input signal

Input resistance

OUTPUT TECHNICAL DATA

Output signal

Applicable load

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Accuracy

Transmission frequency

Temperature coefficient

Isolation

ECM standards

Reference Standard

Overvoltage category/Pollution degree

Protection degree

Operating temperature range

Connection terminal

Housing material

Approx. weight

Mounting information

Cat. No. X756533

CWAA 7-0533

Cat. No. X756534

CWAA 7-0534

Cat. No. X756535

CWAA 7-0535

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current.

0...20 mA

100 Ω

0...20 mA

100 Ω

0...20 mA

100 Ω

0...10 V

>1 KΩ

0...20 mA

<400 Ω

4...20 mA

<400 Ω

24 Vac/dc (1)

≤ 13 mA ± 10%

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 61000-6-2, EN 61000-6-4

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

24 Vac/dc (1)

≤ 13 mA ± 10%

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 61000-6-2, EN 61000-6-4

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

24 Vac/dc (1)

≤ 13 mA ± 10%

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 61000-6-2, EN 61000-6-4

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper

(16 poles, 16 A)

red

white

blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

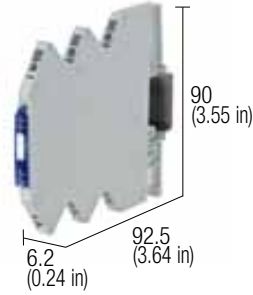
CWBK 7-0802 Cat. No. X766802

CWBK 7-0803 Cat. No. X766803

CWBK 7-0804 Cat. No. X766804

Analog signal converters

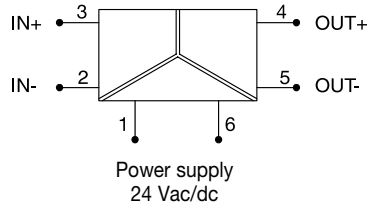
- 1.5 KV, 3 ways, IN/OUT/supply voltage isolation
- Fixed value
- Compact dimension, 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
 (1) range 16.8...30 Vdc / 19.2...28.8 Vac
 (2) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS

IN: 4...20 mA / OUT: 0...10 V

IN: 4...20 mA / OUT: 0...20 mA

IN: 4...20 mA / OUT: 4...20 mA

INPUT TECHNICAL DATA

Input signal

Input resistance

OUTPUT TECHNICAL DATA

Output signal

Applicable load

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Accuracy

Transmission frequency

Temperature coefficient

Isolation

ECM standards

Reference Standard

Overvoltage category/Pollution degree

Protection degree

Operating temperature range

Connection terminal

Housing material

Approx. weight

Mounting information

Cat. No. X756536

Cat. No. X756537

Cat. No. X756538

CWAA 7-0536

CWAA 7-0537

CWAA 7-0538

4...20 mA

100 Ω

4...20 mA

100 Ω

4...20 mA

100 Ω

0...10 V

>1 KΩ

0...20 mA

<400 Ω

4...20 mA

<400 Ω

24 Vac/dc (1)

≤ 13 mA ± 10%

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 61000-6-2, EN 61000-6-4

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

24 Vac/dc (1)

≤ 13 mA ± 10%

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 61000-6-2, EN 61000-6-4

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

24 Vac/dc (1)

≤ 13 mA ± 10%

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 61000-6-2, EN 61000-6-4

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper

(16 poles, 16 A)

red

white

blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

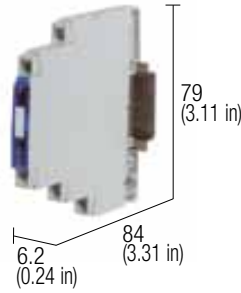
CWBK 7-0802 Cat. No. X766802

CWBK 7-0803 Cat. No. X766803

CWBK 7-0804 Cat. No. X766804

Analog signal converters

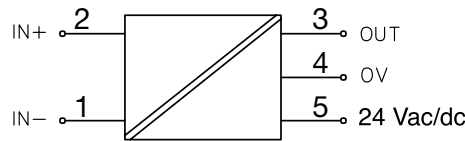
- 2 ways galvanic isolation
- Single signal range
- 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
 (1) range 16.8...30 Vdc / 19.2...28.8 Vac
 (2) 2-way isolation: IN/OUT

BLOCK DIAGRAM



VERSIONS

IN: 0... 10 V / OUT: 0...10 V

IN: 0... 10 V / OUT: 0...20 mA

IN: 0... 10 V / OUT: 4...20 mA

INPUT TECHNICAL DATA

Input signal

Input resistance

OUTPUT TECHNICAL DATA

Output signal

Applicable load

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Accuracy

Transmission frequency

Temperature coefficient

Isolation

ECM standards

Reference Standard

Overvoltage category/Pollution degree

Protection degree

Operating temperature range

Connection terminal

Housing material

Approx. weight

Mounting information

Cat. No. X756500

Cat. No. X756501

Cat. No. X756502

CWAA 6-0500

CWAA 6-0501

CWAA 6-0502

0...10 V

330 K Ω

0...10 V

330 K Ω

0...10 V

330 K Ω

0...10 V

>1 K Ω

0...20 mA

<400 Ω

4...20 mA

<400 Ω

24 Vac/dc (1)

≤ 35 mA $\pm 10\%$ @ 24 Vdc

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 50081-2, EN 50082-2

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

35 g (1.24 oz)

vertical on rail adjacent without gap

24 Vac/dc (1)

≤ 35 mA $\pm 10\%$ @ 24 Vdc

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 50081-2, EN 50082-2

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

35 g (1.24 oz)

vertical on rail adjacent without gap

24 Vac/dc (1)

≤ 35 mA $\pm 10\%$ @ 24 Vdc

0.1% @ 23°C FS

< 30 Hz

0.02% / K FS

1.5 kVac / 60 s (2)

EN 50081-2, EN 50082-2

IEC 664-1, DIN VDE

III / 2

IP 20 IEC 529, EN60529

-25...+60°C

2.5 mm² fixed screw type

PPE

35 g (1.24 oz)

vertical on rail adjacent without gap

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper

(16 poles, 16 A)

red

white

blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

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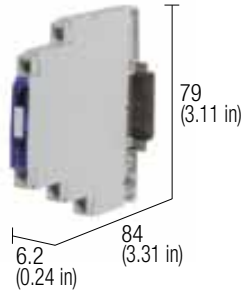
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Analog signal converters

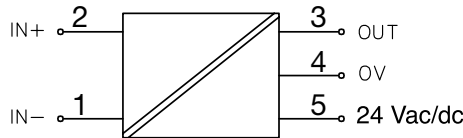
- 2 ways galvanic isolation
- Single signal range
- 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
 (1) range 16.8...30 Vdc / 19.2...28.8 Vac
 (2) 2-way isolation: IN/OUT

BLOCK DIAGRAM



VERSIONS

IN: 0...20 mA / OUT: 0...10 V
IN: 0...20 mA / OUT: 0...20 mA
IN: 0...20 mA / OUT: 4...20 mA

INPUT TECHNICAL DATA

Input signal
 Input resistance

OUTPUT TECHNICAL DATA

Output signal
 Applicable load

GENERAL TECHNICAL DATA

Supply voltage
 Rated current
 Accuracy
 Transmission frequency
 Temperature coefficient
 Isolation
 ECM standards
 Reference Standard
 Overvoltage category/Pollution degree
 Protection degree
 Operating temperature range
 Connection terminal
 Housing material
 Approx. weight
 Mounting information

Cat. No. X756503	Cat. No. X756504	Cat. No. X756505
CWAA 6-0503	CWAA 6-0504	CWAA 6-0505
0...20 mA	0...20 mA	0...20 mA
100 Ω	100 Ω	100 Ω
0...10 V	0...20 mA	4...20 mA
>1 KΩ	<400 Ω	<400 Ω
24 Vac/dc (1) ≤ 35 mA ± 10% @ 24 Vdc 0.1% @ 23°C FS	24 Vac/dc (1) ≤ 35 mA ± 10% @ 24 Vdc 0.1% @ 23°C FS	24 Vac/dc (1) ≤ 35 mA ± 10% @ 24 Vdc 0.1% @ 23°C FS
< 30 Hz	< 30 Hz	< 30 Hz
0.02% / K FS	0.02% / K FS	0.02% / K FS
1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)
EN 50081-2, EN 50082-2	EN 50081-2, EN 50082-2	EN 50081-2, EN 50082-2
IEC 664-1, DIN VDE	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
III / 2	III / 2	III / 2
IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
-25...+60°C	-25...+60°C	-25...+60°C
2.5 mm ² fixed screw type	2.5 mm ² fixed screw type	2.5 mm ² fixed screw type
Noryl UL94V-0	Noryl UL94V-0	Noryl UL94V-0
35 g (1.24 oz)	35 g (1.24 oz)	35 g (1.24 oz)
vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current

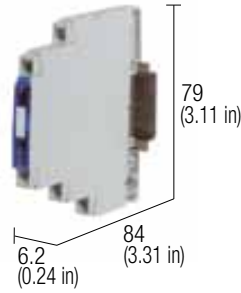
MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5
 Mounting rail type according to IEC60715/G32
 Plug-in jumper red
 (16 poles, 16 A) white
 blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
—
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—
—

Analog signal converters

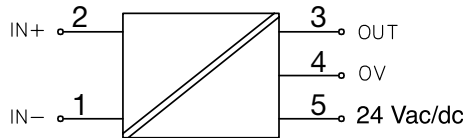
- 2 ways galvanic isolation
- Single signal range
- 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
 (1) range 16.8...30 Vdc / 19.2...28.8 Vac
 (2) 2-way isolation: IN/OUT

BLOCK DIAGRAM



VERSIONS

- IN: 4...20 mA / OUT: 0...10 V
- IN: 4...20 mA / OUT: 0...20 mA
- IN: 4...20 mA / OUT: 4...20 mA

INPUT TECHNICAL DATA

Input signal
 Input resistance

OUTPUT TECHNICAL DATA

Output signal
 Applicable load

GENERAL TECHNICAL DATA

Supply voltage
 Rated current
 Accuracy
 Transmission frequency
 Temperature coefficient
 Isolation
 ECM standards
 Reference Standard
 Overvoltage category/Pollution degree
 Protection degree
 Operating temperature range
 Connection terminal
 Housing material
 Approx. weight
 Mounting information

Cat. No. X756506	Cat. No. X756507	Cat. No. X756508
CWAA 6-0506	CWAA 6-0507	CWAA 6-0508
4...20 mA	4...20 mA	4...20 mA
100 Ω	100 Ω	100 Ω
0...10 V	0...20 mA	4...20 mA
>1 KΩ	<400 Ω	<400 Ω
24 Vac/dc (1) ≤ 35 mA ± 10% @ 24 Vdc 0.1% @ 23°C FS	24 Vac/dc (1) ≤ 35 mA ± 10% @ 24 Vdc 0.1% @ 23°C FS	24 Vac/dc (1) ≤ 35 mA ± 10% @ 24 Vdc 0.1% @ 23°C FS
< 30 Hz	< 30 Hz	< 30 Hz
0.02% / K FS	0.02% / K FS	0.02% / K FS
1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)
EN 50081-2, EN 50082-2	EN 50081-2, EN 50082-2	EN 50081-2, EN 50082-2
IEC 664-1, DIN VDE	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
III / 2	III / 2	III / 2
IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
-25...+60°C	-25...+60°C	-25...+60°C
2.5 mm ² fixed screw type	2.5 mm ² fixed screw type	2.5 mm ² fixed screw type
Noryl UL94V-0	Noryl UL94V-0	Noryl UL94V-0
35 g (1.24 oz)	35 g (1.24 oz)	35 g (1.24 oz)
vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current

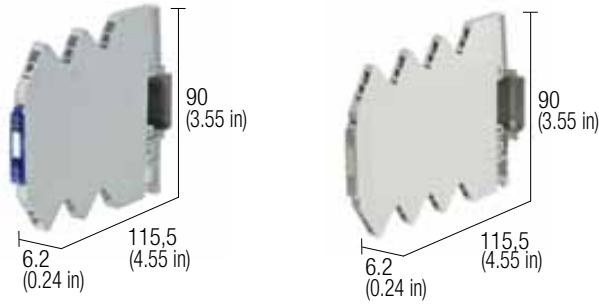
MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5
 Mounting rail type according to IEC60715/G32
 Plug-in jumper red
 (16 poles, 16 A) white
 blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
—
—
—
—

Passive galvanic isolators

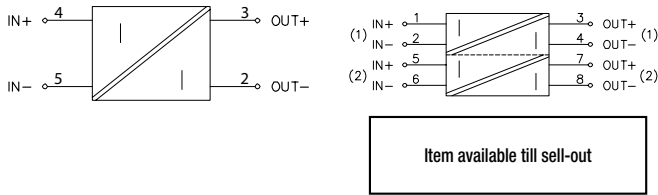
- Do not require power supply
- Suitable for loop powered sensors
- 2 Ways I/O 500 V isolation
- Single and double channel version
- Compact dimension, 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
 (1) Input voltage must have a value higher than the value calculated with this formula, where R_b is load resistance (see pic.1); for calculation refer to the diagram comparing minimum input voltage with output load and wires resistance values; refer to the diagram (see pic. 2) to define if application conditions allow to get full 20 mA output signal
 (2) 2-way isolation: IN/OUT

BLOCK DIAGRAM



VERSIONS

Single channel
 Double channel

Cat. No. X756526 Cat. No. X756527

CWPAA 7-0526 CWPAA 7-0527

INPUT TECHNICAL DATA

Input signal	1 channel 0...20 mA, 4...20 mA	2 channels 0...20 mA, 4...20 mA
Input current	—	—
Input voltage (1)	$2.7 + (20 \text{ mA} \times R_b)$	$2.7 + (20 \text{ mA} \times R_b)$
Input resistance	100 Ω	100 Ω

OUTPUT TECHNICAL DATA

Output signal	1 channel 0...20 / 4...20 mA, (max 21 mA)	2 channels 0...20 / 4...20 mA, (max 21 mA)
Applicable load	<400 Ω with output current	<400 Ω with output current

GENERAL TECHNICAL DATA

Supply voltage	—	—
Rated current	12 mA	12 mA
Accuracy	0.1 FS (23°C)	0.1 FS (23°C)
Rise time (10..90%)	10 ms	10 ms
Transmission frequency	30 Hz @ 3 dB	30 Hz @ 3 dB
Temperature coefficient	0.02% FS	0.02% FS
Isolation	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)
ECM standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standard	IED 664-1, DIN VDE	IED 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2
Protection degree	IP 20 IEC 529 EN60529	IP 20 IEC 529 EN60529
Operating temperature range	-25...+60°C	-25...+60°C
Connection terminal	1.5 mm ² fixed screw type	1.5 mm ² fixed screw type
Housing material	Luranyl	Luranyl
Approx. weight	35 g (1.24 oz)	35 g (1.24 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	—	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—	—
Plug-in jumper (16 poles, 16 A)	red white blue	CWBK 7-0802 Cat. No. X766802 CWBK 7-0803 Cat. No. X766803 CWBK 7-0804 Cat. No. X766804

APPLICATIONS

The passive galvanic isolator can isolate the signal generated by loop powered sensors, where the applied load must have a resistance lower than 400 Ω 20 mA, including the cable resistance; the applied input voltage has to be higher than 2.7 V compared with output voltage (see note 2). If above conditions are satisfied, passive isolators reduce cabling costs and eliminate power supplies thereby saving costs. If above conditions are not satisfied, passive module introduces a signal attenuation.

figure 1

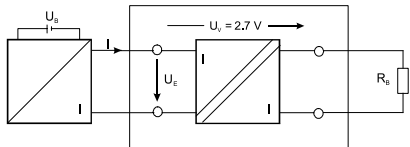
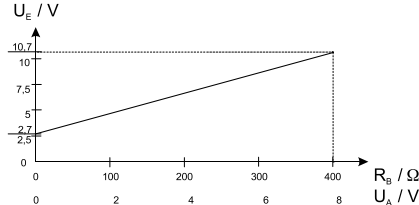
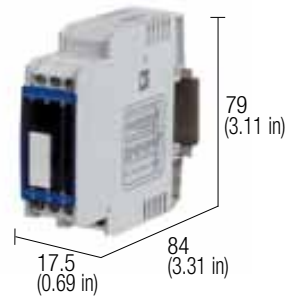
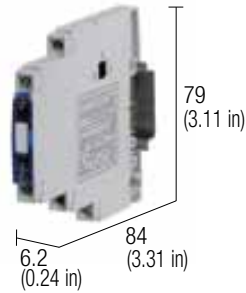


figure 2



Analog signal to frequency converters

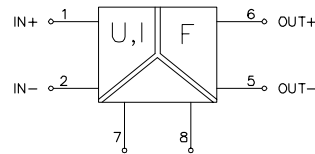
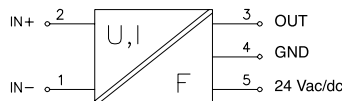
- 2 and 3 ways galvanic isolation
- 3 programmable analog signals input ranges
- 4 programmable frequency output ranges
- Simple programming
- Version with 24-240 Vac/dc supply voltage



NOTES

- The dimensions includes the DIN clamp.
- (1) Adjustable via dip-switch in model CWNAF 6-0511 and via rotary-switch in model CWNAF 6-0512
 - (2) range 16.8...30 Vdc / 19.2...28.8 Vac
 - (3) range 16.8...264 Vdc / 19.2...264 Vac
 - (4) 2-way isolation: IN/OUT
 - (5) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



Supply voltage
24...240 Vac/dc

VERSIONS

- 24 Vac/dc supply voltage
- 24-240 Vac/dc supply voltage

INPUT TECHNICAL DATA

Input signal
Input current
Input voltage (1)
Input resistance

Cat. No. X756511	Cat. No. X756512
CWNAF 6-0511	CWNAF 6-0512
0...10 V	0...10 V
0...20 / 4...20 mA	0...20 / 4...20 mA
—	—
330 K Ω with input voltage	330 K Ω with input voltage
100 Ω with input current	100 Ω with input current

OUTPUT TECHNICAL DATA

Output signal
Applicable load

0...50 / 0...100 / 0...1000 / 0...10000 Hz	0...50 / 0...100 / 0...1000 / 0...10000 Hz
20.9 V / 10 mA with 24 Vdc supply voltage	20.9 V / 10 mA with 24 Vdc supply voltage

GENERAL TECHNICAL DATA

Supply voltage
Rated current
Accuracy
Transmission frequency
Temperature coefficient
Isolation
ECM standards
Reference Standard
Overvoltage category/Pollution degree
Protection degree
Operating temperature range
Connection terminal
Housing material
Approx. weight
Mounting information

24 Vac/dc (2)	24-240 Vac/dc (3)
$\leq 43\text{mA} \pm 10\% @ 24\text{Vdc}$	$\leq 43\text{ mA} \pm 10\% @ 24\text{Vdc}$
0.1% @ 23°C FS	0.1% @ 23°C FS
<30 Hz	<30 Hz
0.015% / K FS	0.015% / K FS
1.5 kVac / 60 s (4)	4 kVac / 60 s (5)
EN 50081-2, EN 50082-2	EN 50081-2, EN 50082-2
IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
III / 2	III / 2
IP20	IP20
-20...+60°C	-20...+60°C
2.5 mm ² fixed screw type	2.5 mm ² fixed screw type
Noryl UL94V-0	Noryl UL94V-0
35 g (1.24 oz)	50 g (1.77 oz)
vertical on rail adjacent without gap	vertical on rail adjacent without gap

APPLICATIONS

These modules converts an analog signal into a 24V square wave frequency signal. They can be used to control motor drives, speed counters and in all those cases where an analog signal must be converted into a frequency. High input sensitivity and high accuracy conversion make it possible to convert into a stable and accurate frequency, the lowest input signals of few mV.

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5
Mounting rail type according to IEC60715/G32
Plug-in jumper
(16 poles, 16 A)

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	—
—	—
—	—
—	—

Programmable converters for temperature sensors

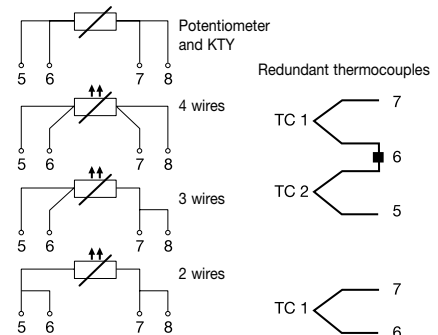
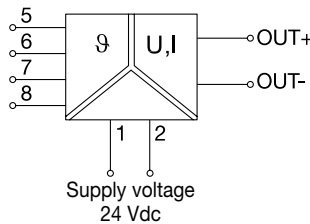
- For PT100, PT500, PT1000, Ni100, Ni1000, PTC, KTY sensors, thermocouples, potentiometers
- 3 ways I/O 2.5 KV isolation
- 3 programmable output signals
- Simple programming, self-adjusting zero and span
- Compact dimension, 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
 (1) Version with spring-clamp terminals available on request
 (2) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS

With screw terminals (standard)

With spring terminals

Programming tool

INPUT TECHNICAL DATA

Input signal

Temperature range

OUTPUT TECHNICAL DATA

Output signal

Applicable load

Display signals

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Linearity error

Temperature coefficient

Resolution

Connection terminals

Input resistance

Transmission frequency

Isolation

ECM standards

Reference Standard

Overvoltage category

Pollution degree

Protection degree

Operating temperature

Connection terminal

Housing material

Approx. weight

Mounting information

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper

Cat. No. X756890

Cat. No. X756891

CWTPR 7-0890

(1)

CWPZB 7-0891

PT100, PT500, PT1000, Ni100, Ni1000, PTC, KTY, potentiometers 0...5 K Ω
 thermocouples tipo B, C, D, E, J, K, L, N, R, S, T, U
 -200...+2400°C, according to sensor (see table)

0...10 / 2...10 V, (max. 10.6 V)
 0...20 / 4...20 mA, (max 21.2 mA)
 >2 K Ω with output voltage
 <400 Ω with output current
 green LED = OK, flashing LED = error

PT, Ni, PTC, KTY, potentiometers

$\pm 0.03\%$ over FS

<30 ppm/°C

0.1°C, 16 bit

PT2, 3, 4-wire; with 2-wire offset correction measurement

Thermocouples

—

—

—

1 M Ω approx.

—

0.5 Hz

2.5 kVac / 60 s (2)

EN 61000-6-2, EN 61000-6-4

IEC 664-1, DIN VDE

III

2

IP 20 IEC 529 EN60529

-25...+60°C

1.5 mm² fixed screw type

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

—

CWBK 7-0802 Cat. No. X766802

CWBK 7-0803 Cat. No. X766803

CWBK 7-0804 Cat. No. X766804

APPLICATIONS

CSWTPR 7-0890 is a temperature to analog signal conversion module that provides high accuracy measurement and that can be connected to a really wide range of temperature sensors. The module can be used for a temperature range from -200 to +2.400°C. In case of failure of the sensor or short circuits on the cable, the module generates a signal that allows to get a back up safety function.

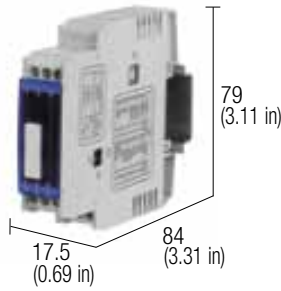
With resistive sensors it is possible to select among 2, 3, 4 wire connections. With 3 or 4 wires sensors it assures the "broken wire" function and a short circuit on sensor cables. It is also possible the redundant connection of thermocouples to the module, to increase reliability of the measurement system. Input and output are provided with over voltage protections.

TABLE 1 - Temperature range

B type	0...+1820°C
C type	0...+2300°C
D type	0...+2400°C
E type	-200...+1000°C
J type	-200...+1200°C
K type	-200...+1372°C
L type	-200...+900°C
N type	-200...+1300°C
R type	-50...+1760°C
S type	-50...+1760°C
T type	-200...+400°C
U type	-200...+400°C
PT100	-200...+850°C
PT500	-200...+850°C
PT1000	-200...+850°C
Ni1000	-58...+208°C
KTY 81-110	-58...+150°C
KTY 81-120	-58...+150°C
KTY 81-121	-58...+150°C
KTY 82-122	-58...+150°C
KTY 82-150	-58...+150°C
KTY 82-151	-58...+150°C
KTY 82-152	-58...+150°C
KTY 83-110	-58...+150°C
KTY 83-120	-58...+150°C
KTY 83-121	-58...+150°C
KTY 83-122	-58...+150°C
KTY 83-150	-58...+150°C
KTY 83-151	-58...+150°C
KTY 83-152	-58...+150°C
KTY 84-130	-40...+300°C
KTY 84-150	-40...+300°C
KTY 84-151	-40...+300°C
KTY 84-152	-40...+300°C

Programmable converters for RTD sensors

- Converters for PT100 sensors
- 3 ways galvanic isolation
- 8 programmable input range
- 3 programmable output range
- Simple programming
- Version with 24-240 Vac/dc supply voltage

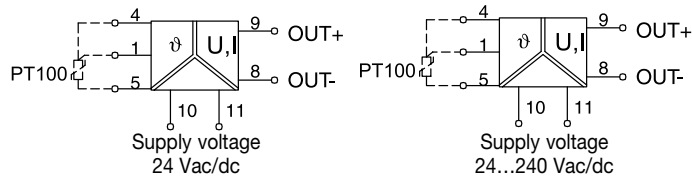


NOTES

The dimensions includes the DIN clamp.

- (1) Adjustable via rotary-switch
- (2) Adjustable via dip-switch
- (3) They can also be used with 2 wire PT100 sensor, connecting the terminals 1 and 4
- (4) range 16.8...30 Vdc / 19.2...28.8 Vac
- (5) range 16.8...264 Vdc / 19.2...264 Vac
- (6) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS

24 Vac/dc supply voltage

24-240 Vac/dc supply voltage

INPUT TECHNICAL DATA

Input signal

Temperature range (1)

Supply current

OUTPUT TECHNICAL DATA

Output signal (2)

Applicable load

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Accuracy

Transmission frequency

Temperature coefficient

Isolation

ECM standards

Reference Standard

Overvoltage category/Pollution degree

Protection degree

Operating temperature range

Connection terminal

Housing material

Approx. weight

Mounting information

Cat. No. X756816

CWPT 6-0816

PT100 3 wires (3)

- 50...+50°C (-58...+122°F)
- 50...+100°C (-58...+212°F)
- 50...+150°C (-58...+302°F)
- 0...+100°C (+32...+212°F)
- 0...+150°C (+32...+302°F)
- 0...+200°C (+32...+392°F)
- 0...+300°C (+32...+572°F)
- 0...+400°C (+32...+752°F)

0.5 mA

Cat. No. X756817

CWPT 6-0817

PT100 3 wires (3)

- 50...+50°C (-58...+122°F)
- 50...+100°C (-58...+212°F)
- 50...+150°C (-58...+302°F)
- 0...+100°C (+32...+212°F)
- 0...+150°C (+32...+302°F)
- 0...+200°C (+32...+392°F)
- 0...+300°C (+32...+572°F)
- 0...+400°C (+32...+752°F)

0.5 mA

APPLICATIONS

The modules convert and isolate signals generated by 3 wire / 2 wire PT100 (RTD) sensors into analog signals; the module can be set into 8 temperature ranges and for up to 3 most important analog ranges.

Set up is easily achieved by setting a dip-switch on one side of the module.

The modules provide input and output isolation, assuring high signal accuracy, and can be used with isolated and not isolated sensors.

Two wire sensors can be used by connecting a jumper wire between 1 and 4 terminal blocks.

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper

(16 poles, 16 A)

red

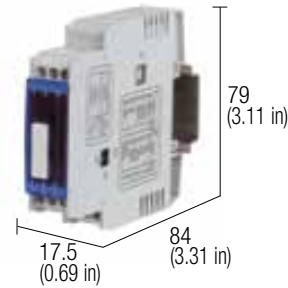
white

blue

PR/3/AC, PR/3/AG/ZB, PR/3/AS, PR/3/AS/ZB

Programmable converters for thermocouples

- Converters for sensors with thermocouples J and K type
- 3 ways galvanic isolation
- 8 programmable input range
- 3 programmable output range
- Simple programming
- Version with 24-240 Vac/dc supply voltage

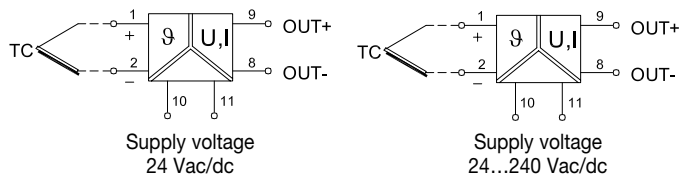


NOTES

The dimensions includes the DIN clamp.

- (1) Adjustable via rotary-switch
- (2) Adjustable via dip-switch
- (3) range 16.8...30 Vdc / 19.2...28.8 Vac
- (4) range 16.8...264 Vdc / 19.2...264 Vac
- (5) "3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS

- 24 Vac/dc supply voltage
- 24-240 Vac/dc supply voltage

INPUT TECHNICAL DATA

Input signal

Temperature range (1)

Supply current

OUTPUT TECHNICAL DATA

Output signal (2)

Applicable load

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Accuracy

Transmission frequency

Temperature coefficient

Isolation

ECM standards

Reference Standard

Overvoltage category/Pollution degree

Protection degree

Operating temperature range

Connection terminal

Housing material

Approx. weight

Mounting information

Cat. No. X756844

CWTH 6-0844

Cat. No. X756847

CWTH 6-0847

thermocouples FeCuNi (J type) e NiCrNi (K type) according to DIN/IEC584-1
 -50...+200°C (-58...+392°F)
 -50...+350°C (-58...+662°F)
 0...+200°C (+32...+392°F)
 0...+400°C (+32...+752°F)
 0...+600°C (+32...+1112°F)
 0...+800°C (+32...+1472°F)
 0...+1000°C (+32...+1832°F)
 0...+1200°C (+32...+2192°F)

thermocouples FeCuNi (J type) e NiCrNi (K type) according to DIN/IEC584-1
 -50...+200°C (-58...+392°F)
 -50...+350°C (-58...+662°F)
 0...+200°C (+32...+392°F)
 0...+400°C (+32...+752°F)
 0...+600°C (+32...+1112°F)
 0...+800°C (+32...+1472°F)
 0...+1000°C (+32...+1832°F)
 0...+1200°C (+32...+2192°F)

APPLICATIONS

The modules convert and isolate signals generated by thermocouples type J (FeCuNi) or K (NiCrNi) into an analog signal; can be set into 8 temperature input ranges, and can be set for up to 3 most important analog ranges. The set up is possible by setting a dip-switch on one side of the module.

The modules provide input and output isolation, assuring high signal accuracy, and can be used with isolated and not isolated sensors.

PR/3/AC, PR/3/AG/ZB, PR/3/AS, PR/3/AS/ZB

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper

(16 poles, 16 A)

red

white

blue

Temperature / frequency converters

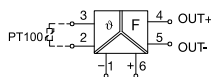
- Available for PT100 sensors, and thermocouples J or K
- 3 ways I/O 1.5 KV isolation
- 3 programmable temperature input range
- 4 programmable frequency output range
- Simple programming, self-adjusting zero and span
- Compact dimension, 6.2 mm pitch



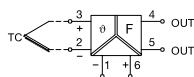
NOTES

The dimensions includes the DIN clamp.
 (1) range 20...30 Vdc
 (2) 3-way isolation: IN/OUT/power supply

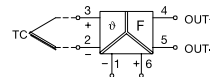
BLOCK DIAGRAM



Supply voltage
24 Vac/dc



Supply voltage
24 Vac/dc



Supply voltage
24 Vac/dc

VERSIONS

PT100 / Frequency

Termocoppia J / Frequency

Termocoppia K / Frequency

INPUT TECHNICAL DATA

Input signal

Temperature range

Input current

OUTPUT TECHNICAL DATA

Output signal

Applicable load

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Accuracy

Linearity error

Rise time (10...90%)

Setting time to accuracy 1%

Transmission frequency

Temperature coefficient

Isolation

ECM standards

Reference Standard

Overvoltage category/Pollution degree

Protection degree

Operating temperature range

Connection terminal

Housing material

Approx. weight

Mounting information

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper
(16 poles, 16 A)

red
white
blue

Cat. No. X756811

CWTHF 7-0811

Cat. No. X756831

CWTHF 7-0831

Cat. No. X756871

CWTHF 7-0871

PT100 (2 wire)

-50...+150°C

0...+200°C

0...+400°C

0.5 mA

Thermocouples J type

0...+200°C

0...+400°C

0...+600°C

—

Thermocouples K type

0...+200°C

0...+400°C

0...+600°C

—

0...50 Hz / 0...100 Hz /
0...1 KHz / 0...10 KHz
>2.5 KΩ (amplitude approx.
10 V)

0...50 Hz / 0...100 Hz /
0...1 KHz / 0...10 KHz
>2.5 KΩ (amplitude approx.
10 V)

0...50 Hz / 0...100 Hz /
0...1 KHz / 0...10 KHz
>2.5 KΩ (amplitude approx.
10 V)

24 Vac/dc (1)

30 mA max

75x811: 0.3% FS;
75x831/871: 0.5% +2 K FS

0.1% FS

depends on frequency

depends on frequency

<30 Hz

150 ppm/K FS

1.5 kVac / 60 s (2)

EN 60721-3-3; EN 55011; EN
61000-4-2/6; EN 50178

IED 664-1, DIN VDE

III / 2

IP 20 IEC 529 EN60529

-25...+60°C

1.5 mm² fixed screw ty^e

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

24 Vac/dc (1)

30 mA max

75x811: 0.3% FS;
75x831/871: 0.5% +2 K FS

0.1% FS

depends on frequency

depends on frequency

<30 Hz

150 ppm/K FS

1.5 kVac / 60 s (2)

EN 60721-3-3; EN 55011; EN
61000-4-2/6; EN 50178

IED 664-1, DIN VDE

III / 2

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75x811: 0.3% FS;
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0.1% FS

depends on frequency

depends on frequency

<30 Hz

150 ppm/K FS

1.5 kVac / 60 s (2)

EN 60721-3-3; EN 55011; EN
61000-4-2/6; EN 50178

IED 664-1, DIN VDE

III / 2

IP 20 IEC 529 EN60529

-25...+60°C

1.5 mm² fixed screw ty^e

PPE

40 g (1.41 oz)

vertical on rail adjacent without gap

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

CWBK 7-0802 Cat. No. X766802

CWBK 7-0803 Cat. No. X766803

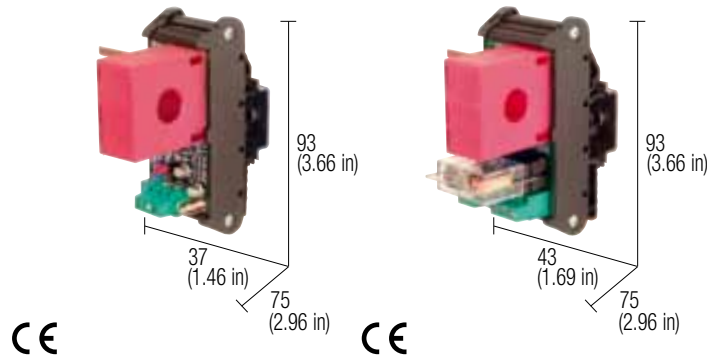
CWBK 7-0804 Cat. No. X766804

APPLICATIONS

Small control systems are used in simple applications. For economical reasons they often integrate digital inputs instead of analog inputs. The Temperature/Frequency converters offer a simple and economical solution to measure and convert temperatures, exploiting the digital inputs of the small control systems.

Current to threshold converters

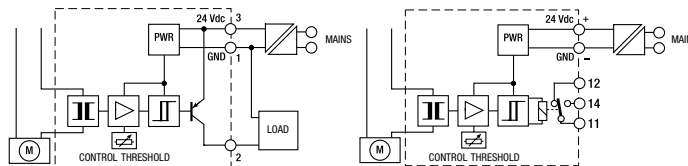
- For AC current measure
- Adjustable threshold value
- Versions with transistor or relay output
- IN/OUT 3 KV isolation



NOTES

The dimensions includes the terminal blocks and the DIN clamp.

BLOCK DIAGRAM



VERSIONS

Transistor output
Relay output

INPUT TECHNICAL DATA

Max. measured current
Max. measured voltage
Frequency
Sensor's hole diameter

OUTPUT TECHNICAL DATA

Threshold regulation
Threshold hysteresis
Max. output current
Output status

Response time

GENERAL TECHNICAL DATA

Supply voltage
Max rated current
Operating temperature range
Input/output isolation
Connection terminal
Housing material
Approx. weight
Mounting information

Cat. No. XCCIS1

CCIS-1

50 A (AC)
600 Vac
50...60 Hz
Ø 13 mm

1...30 A
± 10%
100 mA open collector PNP
"high" 24 V (closed) with I < threshold
"low" 0 V (open) with I > threshold
20 ms

24 Vdc ± 10%
100 mA
0...60°C
> 3 kVac /60 s
2.5 mm² fixed screw type (14 AWG)
polyamide UL94V-03
100 g (3.53 oz)
vertical on rail adjacent without gap

Cat. No. XCCIS-R

CCIS-R

50 A (AC)
600 Vac
50...60 Hz
Ø 13 mm

1...30 A
± 10%
100 mA open collector PNP
"high" 24 V (closed) with I < threshold
"low" 0 V (open) with I > threshold
20 ms

24 Vdc ± 10%
100 mA
0...60°C
> 3 kVac /60 s
2.5 mm² fixed screw type (14 AWG)
polyamide UL94V-03
100 g (3.53 oz)
vertical on rail adjacent without gap

APPLICATIONS

This module converts a current flowing through circuit into a threshold that can be adjusted by the potentiometer; when the current reaches the threshold value, the relay (or the transistor in the CCIS model) switches; the wire must be feed through the hole of the current sensor for current detection.

In model CCIS-1 the output will have "high" value (24 Vdc) for current higher than the threshold and "low" value (0 Vdc) for current lower than the threshold. The output is internally re-hooked to ground through a 10 k resistor, besides it is protected against overloads.

In model CCIS-R the relay will be turned on for current below the threshold, turned off for current over the threshold.

The output has all the contacts of an SPDT relay, the relay is also pluggable to allow its substitution in case of wear of the contacts.

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35
Mounting rail type according to IEC60715/G32
Plug-in jumper
(16 poles, 16 A)

red
white
blue

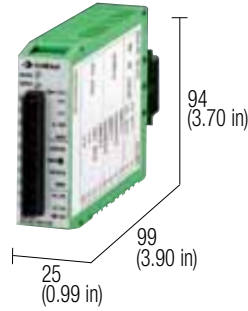
PR/3/AC, PR/3/AS

PR/DIN/AC, PR/DIN/AS, PR/DIN/AL

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—
—

Current to analog converters

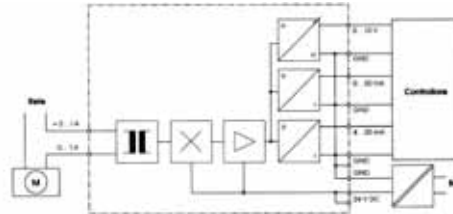
- For AC/DC current measurements
- Protected against transients
- Power supplied LED
- 3 output signals available



NOTES

The dimensions includes the terminal blocks and the DIN clamp.

BLOCK DIAGRAM



VERSIONS

- 0...1 A input
- 0...5 A input
- 0...10 A input

Cat. No. XW000928	Cat. No. XW000929	Cat. No. XW000930
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SW01VA	SW05VA	SW10VA
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APPLICATIONS

In 99 mm depth measure is included the space occupied by the terminal block provided with the product. Through a "HALL" sensor they grant AC/DC current measurements. The presence of current in a circuit indicates not only that power is supplied but also that the circuit is closed and the load connected and active. It's also possible to know the work conditions of the circuit. The module guarantees galvanic isolation between the current conductor and the analog output and, if not connected in series to the controlled current, cannot be damaged by power surges or short circuits.

INPUT TECHNICAL DATA

Input signal	0...1 A AC/DC	0...5 A AC/DC	0...10 A AC/DC
Max. input voltage	380 V	380 V	380 V
Current wire connection	2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type

0...1 A AC/DC	0...5 A AC/DC	0...10 A AC/DC
---------------	---------------	----------------

380 V	380 V	380 V
2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type

OUTPUT TECHNICAL DATA

Output signal	0...10 V	0...20 mA / 4...20 mA
Max. output signal	11 V	22 mA
Applicable load	>2 K Ω	<500 Ω

VOLTAGE	CURRENT
---------	---------

0...10 V	0...20 mA / 4...20 mA
11 V	22 mA
>2 K Ω	<500 Ω

GENERAL TECHNICAL DATA

Supply voltage	24 Vdc \pm 10%	24 Vdc \pm 10%	24 Vdc \pm 10%
Rated current	60 mA	60 mA	60 mA
Operating temperature	0...55 $^{\circ}$ C	0...55 $^{\circ}$ C	0...55 $^{\circ}$ C
Linearity error	< 0.5%	< 0.5%	< 0.5%
Offset error	< 0.5%	< 0.5%	< 0.5%
Amplification error	< 0.2%	< 0.2%	< 0.2%
Temperature coefficient	< 0.02%/K	< 0.02%/K	< 0.02%/K
Surge immunity	200 V	200 V	200 V
Response time	10 mS	10 mS	10 mS
Protection degree	IP20	IP20	IP20
Connection terminal	2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type
Approx. weight	100 g (3.53 oz)	100 g (3.53 oz)	100 g (3.53 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

24 Vdc \pm 10%	24 Vdc \pm 10%	24 Vdc \pm 10%
60 mA	60 mA	60 mA
0...55 $^{\circ}$ C	0...55 $^{\circ}$ C	0...55 $^{\circ}$ C
< 0.5%	< 0.5%	< 0.5%
< 0.5%	< 0.5%	< 0.5%
< 0.2%	< 0.2%	< 0.2%
< 0.02%/K	< 0.02%/K	< 0.02%/K
200 V	200 V	200 V
10 mS	10 mS	10 mS
IP20	IP20	IP20
2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type
100 g (3.53 oz)	100 g (3.53 oz)	100 g (3.53 oz)
vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

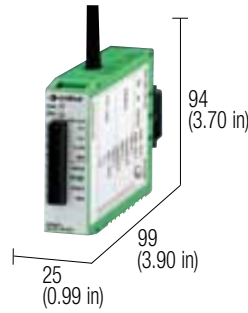
MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	
Mounting rail type according to IEC60715/G32	
Plug-in jumper	red
(16 poles, 16 A)	white
	blue

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
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—
—
—

Current to analog converters

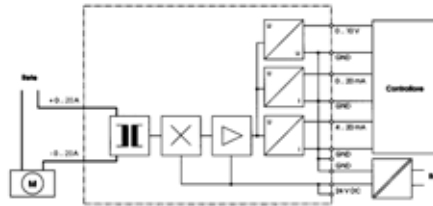
- For AC/DC current measurements
- Protected against transients
- Power supplied LED
- 3 output signals available



NOTES

The dimensions includes the terminal blocks and the DIN clamp.

BLOCK DIAGRAM



VERSIONS

- 0...20 A input
- 0...50 A input

Cat. No. XW000931 Cat. No. XW000932

SW20VA

SW50VA

INPUT TECHNICAL DATA

Input signal	0...20 A AC/DC	0...50 A AC/DC
Max. input voltage	380 V	380 V
Current wire connection	Ø 8 mm	Ø 8 mm

Input signal	0...20 A AC/DC	0...50 A AC/DC
Max. input voltage	380 V	380 V
Current wire connection	Ø 8 mm	Ø 8 mm

OUTPUT TECHNICAL DATA

Output signal	0...10 V	0...20 mA / 4...20 mA
Max. output signal	11 V	22 mA
Applicable load	>2 KΩ	<500 Ω

VOLTAGE	CURRENT
0...10 V	0...20 mA / 4...20 mA
11 V	22 mA
>2 KΩ	<500 Ω

GENERAL TECHNICAL DATA

Supply voltage	24 Vdc ± 10%	24 Vdc ± 10%
Rated current	60 mA	60 mA
Operating temperature	0...55°C	0...55°C
Linearity error	< 0.5%	< 0.5%
Offset error	< 0.5%	< 0.5%
Amplification error	< 0.2%	< 0.2%
Temperature coefficient	< 0.02%/K	< 0.02%/K
Surge immunity	200 V	200 V
Response time	10 mS	10 mS
Protection degree	IP20	IP20
Connection terminal	2.5 mm ² pluggable screw type (14 AWG)	2.5 mm ² pluggable screw type (14 AWG)
Approx. weight	100 g (3.53 oz)	100 g (3.53 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

Supply voltage	24 Vdc ± 10%	24 Vdc ± 10%
Rated current	60 mA	60 mA
Operating temperature	0...55°C	0...55°C
Linearity error	< 0.5%	< 0.5%
Offset error	< 0.5%	< 0.5%
Amplification error	< 0.2%	< 0.2%
Temperature coefficient	< 0.02%/K	< 0.02%/K
Surge immunity	200 V	200 V
Response time	10 mS	10 mS
Protection degree	IP20	IP20
Connection terminal	2.5 mm ² pluggable screw type (14 AWG)	2.5 mm ² pluggable screw type (14 AWG)
Approx. weight	100 g (3.53 oz)	100 g (3.53 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35	
Mounting rail type according to IEC60715/G32	
Plug-in jumper	red
(16 poles, 16 A)	white
	blue

PR/3/AC, PR/3/AS
PR/DIN/AC, PR/DIN/AS, PR/DIN/AL

—
—
—

APPLICATIONS

In 99 mm depth measure is included the space occupied by the terminal block provided with the product.

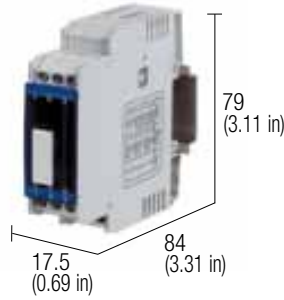
They allow the user to measure AC/DC currents by an "HALL" sensor.

The presence of current in a circuit indicates not only that power is supplied but also that the circuit is closed and the load connected and active. It is also possible to know the working conditions of the controlled circuit.

The module guarantees galvanic isolation between the current conductor and the analog output and, if not connected in series to the controlled current, cannot be damaged by power surges or short circuits.

Frequency to analog signal converters

- Adjustable frequency range 0...28.8 KHz
- 3 programmable analog signal output ranges
- 3 ways I/O 2.5 KV isolation

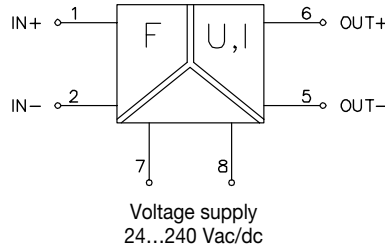


NOTES

The dimensions includes the terminal blocks and the DIN clamp.

- (1) range 16.8...30 Vdc / 19.2...28.8 Vac
 (2) 3-way isolation: IN/OUT

BLOCK DIAGRAM



VERSIONS

Cat. No. X756524
CWNFA 6-0524

APPLICATIONS

This module is used to convert a frequency signal, with either sinusoidal or square waveform, into a standard analog signal (eg. 0...10 V, 0..20 mA, 4...20 mA). A microprocessor provides a high resolution, high stability and accuracy output signal and a dip switch gives the possibility to select a calibrated range of frequency measurement from 0 ... 100 Hz up to 0...28.8 kHz.

INPUT TECHNICAL DATA

Input signal (range)	0...28.8 KHz adjustable via DIP switch
Input signal (type)	AC/DC 0.6...30 Vpp
Input resistance	50 K Ω
Hysteresis	0.5 Vpp o 5 Vpp adjustable via DIP switch

OUTPUT TECHNICAL DATA

Output signal	0...10 V, (max. 10.6 V) 0...20 / 4...20 mA, (max 21 mA)
Applicable load	>1 K Ω with output voltage <400 Ω with output current
Ripple	< 5 mVeff

GENERAL TECHNICAL DATA

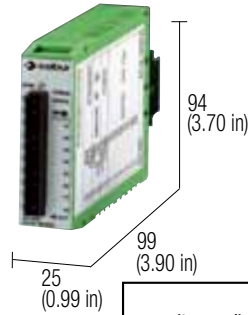
Supply voltage	24 Vac/dc (1)
Rated current	20 mA
Accuracy	0.1 FS (23°C)
Linearity error	0.02%
Ripple	0.1%
Setting time (accuracy 1%)	200 ms
Temperature coefficient	70 ppm/K
Isolation	1.5 KVac / 60 s (2)
ECM standards	EN 61000-6-2, EN 61000-6-4
Reference Standard	IED 664-1, DIN VDE
Overvoltage category	III
Pollution degree	2
Protection degree	IP 20 IEC 529 EN60529
Operating temperature range	-25...+60°C
Connection terminal	1.5 mm ² fixed screw type
Housing material	PPE
Peso approssimativo	70 g (2.47 oz)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Plug-in jumper	red — white — blue —

Analog to digital signal converters

- 8 bit resolution
- Possibility of connection in parallel
- Protected against transients
- Power supplied LED
- Pluggable terminals

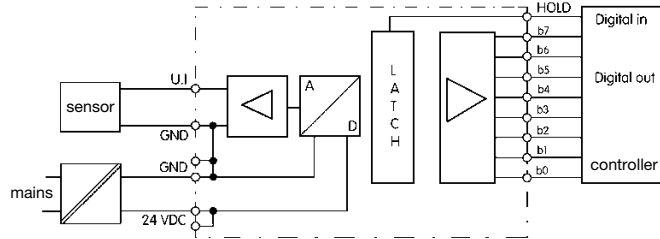


Item available till sell-out

NOTES

The dimensions includes the terminal blocks and the DIN clamp.

BLOCK DIAGRAM



VERSIONS

- IN: 0... 10 V / OUT: 8 bit
- IN: 0...20 mA / OUT: 8 bit
- IN: 4...20 mA / OUT: 8 bit

Cat. No. XW000933	Cat. No. XW000934	Cat. No. XW000935
ADC08V10	ADC08A0	ADC08A4

APPLICATIONS

It allows to convert analog input signals into digital 8 bit output signal, suitable to be used with the less expensive digital inputs of any PLC. The 8 bit signal stored in the LATCH memory is controlled by HOLD signal input. If HOLD is active, the memory does not convert any new signal from the input, and keeps the last stored signal which can be supplied to the output when the module receives a control signal on the bus, allowing connection in parallel of more modules.

INPUT TECHNICAL DATA

Input signal	0...10 V	0...20 mA	4...20 mA
Resistance	400 K Ω	400 K Ω	400 K Ω

OUTPUT TECHNICAL DATA

Output signal	8 bit	8 bit	8 bit
Max. output signal	25 mA	25 mA	25 mA
Signal level	"L" = 0, "H" = $V_N - 2 V$	"L" = 0, "H" = $V_N - 2 V$	"L" = 0, "H" = $V_N - 2 V$

GENERAL TECHNICAL DATA

Supply voltage	24 Vdc \pm 10%	24 Vdc \pm 10%	24 Vdc \pm 10%
Rated current	25 mA	25 mA	25 mA
Operating temperature	0...55 $^{\circ}$ C	0...55 $^{\circ}$ C	0...55 $^{\circ}$ C
Transmission error	\pm 1 LSB	\pm 1 LSB	\pm 1 LSB
Hold signal	enabled > 5 V	enabled > 5 V	enabled > 5 V
Bus signal	enabled > 5 V	enabled > 5 V	enabled > 5 V
Conversion time	1.5 ms	1.5 ms	1.5 ms
Resolution	39 mV	78 μ A	63 μ A
Temperature coefficient	0.01% k	0.01% k	0.01% k
Surge immunity	200 V	200 V	200 V
Protection degree	IP20	IP20	IP20
Connection terminal	2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type	2.5 mm ² pluggable screw type
Peso approssimativo	103 g (3.64 oz)	103 g (3.64 oz)	103 g (3.64 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES

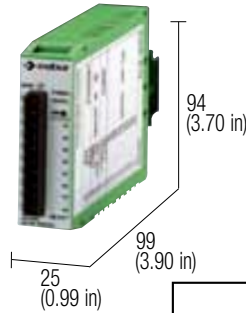
Mounting rail type according to IEC60715/TH35-7.5	
Mounting rail type according to IEC60715/G32	
Plug-in jumper	red white blue

PR/3/AC, PR/3/AS PR/DIN/AC, PR/DIN/AS, PR/DIN/AL

	—
	—
	—

Digital to analog signal converters

- 8 bit resolution
- START/STOP function
- Protected against transients
- Pluggable terminals

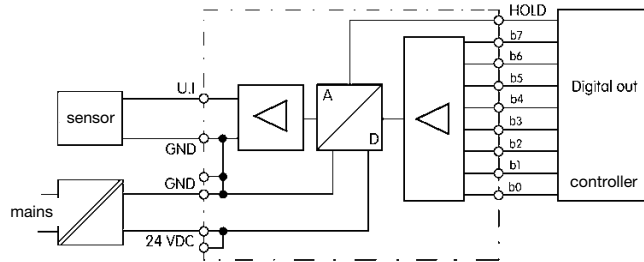


Item available till sell-out

NOTES

The dimensions includes the terminal blocks and the DIN clamp.

BLOCK DIAGRAM



VERSIONS

IN: 8 bit / OUT: 0... 10 V

IN: 8 bit / OUT: 0...20 mA

IN: 8 bit / OUT: 4...20 mA

INPUT TECHNICAL DATA

Input signal

Max. input current

Signal level

OUTPUT TECHNICAL DATA

Output signal

Max. output signal

Applicable load

GENERAL TECHNICAL DATA

Supply voltage

Rated current

Operating temperature

Transmission error

Hold signal

Conversion time

Resolution

Temperature coefficient

Surge immunity

Protection degree

Connection terminal

Peso approssimativo

Mounting information

Cat. No. XW000936

Cat. No. XW000937

Cat. No. XW000938

DAC08V10

DAC08A0

DAC08A4

8 bit

25 mA

"L" < 2.5 V, "H" > 15 V

8 bit

25 mA

"L" < 2.5 V, "H" > 15 V

8 bit

25 mA

"L" < 2.5 V, "H" > 15 V

0...10 V

11 V

> 2 K Ω

0...20 mA

25 mA

<500 K Ω

4...20 mA

25 mA

<500 K Ω

24 Vdc \pm 10%

40 mA

0...55°C

\pm 1 LSB

enabled > 5 V

100 μ s

39 mV

0.01% k

200 V

IP20

2.5 mm² pluggable screw type

103 g (3.64 oz)

vertical on rail adjacent without gap

24 Vdc \pm 10%

40 mA

0...55°C

\pm 1 LSB

enabled > 5 V

100 μ s

78 μ A

0.01% k

200 V

IP20

2.5 mm² pluggable screw type

103 g (3.64 oz)

vertical on rail adjacent without gap

24 Vdc \pm 10%

40 mA

0...55°C

\pm 1 LSB

enabled > 5 V

100 μ s

63 μ A

0.01% k

200 V

IP20

2.5 mm² pluggable screw type

103 g (3.64 oz)

vertical on rail adjacent without gap

APPLICATIONS

This module allows to convert analog input signals into a digital 8 bit output signal, suitable to be used with the less expensive digital inputs of any PLC. The 8 bit signal stored in the LATCH memory is controlled by HOLD signal input. If HOLD is active, the memory does not convert any new signal from the input, and keeps the last stored signal which can be supplied to the output when the module receives a control signal on the bus, allowing connection in parallel of more modules.

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5

Mounting rail type according to IEC60715/G32

Plug-in jumper

red

white

blue

PR/3/AC, PR/3/AS

PR/DIN/AC, PR/DIN/AS, PR/DIN/AL

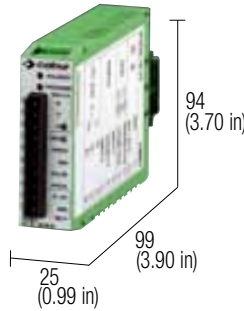
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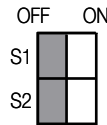
Analog signal to threshold converters

- Adjustable threshold and hysteresis
- Monitorable threshold value
- Programmable min./max. function

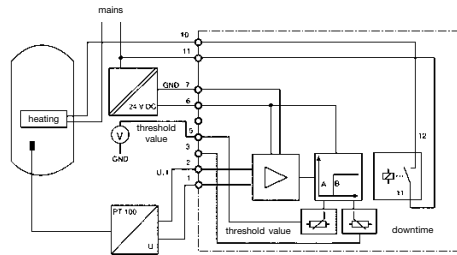


NOTES

The dimensions includes the terminal blocks and the DIN clamp.
 S1=OFF/S2=ON Relay is turned ON below the threshold (minimum function)
 S1=OFF/S2=OFF Relay is turned ON above the threshold (minimum function)
 S1=ON/S2=ON Relay is turned ON inside the hysteresis range
 S1=ON/S2=OFF Relay is turned ON outside the hysteresis range



BLOCK DIAGRAM



VERSIONS

IN: 0... 10 V / OUT: 1 threshold
 IN: 0...20 mA / OUT: 1 threshold

INPUT TECHNICAL DATA

Input signal
 Max input signal
 Surge immunity
 Resistance

OUTPUT TECHNICAL DATA

Relay contact
 Rated voltage
 Rated current
 Max. continuous current
 Min. contact current
 Threshold value
 Response time

GENERAL TECHNICAL DATA

Supply voltage
 Rated current
 Surge immunity
 Setpoint setting range
 Hysteresis setting range
 Max. hysteresis offset
 Transmission error
 Operating temperature range
 Connection terminal
 Approx. weight
 Mounting information

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35
 Mounting rail type according to IEC60715/G32
 Plug-in jumper
 (16 poles, 16 A)

red
 white
 blue

Cat. No. XW000926

GWMV10

0...10 V
 11 V
 200 V
 > 100 K Ω

SPDT AgCdO
 250 Vdc, 230 Vac
 5 A
 2 A
 —
 100% contact ratio
 20 ms

24 Vdc \pm 10%
 40 mA
 200 V
 0.3...10 V
 0.1...10 V
 \pm 30 mV
 0.5%
 0...55°C
 2.5 mm² pluggable screw type
 110 g (3.88 oz)
 vertical on rail adjacent without gap

Cat. No. XW000927

GWMA0

0...20 mA
 22 mA
 200 V
 50 Ω

SPDT AgCdO
 250 Vdc, 230 Vac
 5 A
 2 A
 —
 100% contact ratio
 20 ms

24 Vdc \pm 10%
 40 mA
 200 V
 0.6...20 V
 0.2...20 V
 \pm 60 μ A
 0.5%
 0...55°C
 2.5 mm² pluggable screw type
 110 g (3.88 oz)
 vertical on rail adjacent without gap

APPLICATIONS

The modules were designed above all for two examples of application:

1. Threshold value signal

With the aid of a trimmer integrated in the module, a threshold value is set. The base is represented by the input signal of the connected sensor.

If the input signal reaches the nominal value set, a relay is enabled in the output stage. By means of a dip-switch, energisation or de-energisation of the relay can be selected on reaching the nominal value.

2. Minimum/maximum function

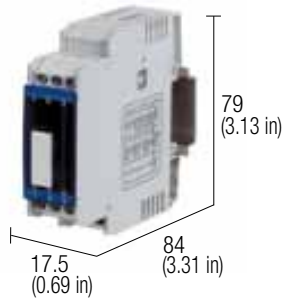
Having regulated the threshold, regulation of the hysteresis allows a non-intervention zone to be set between the minimum and maximum, of variable extent.

The relay does not operate on a threshold as constant on/off, but only if the upper and lower limits defined by the hysteresis set are exceeded.

On the THRESHOLD VALUE and HYSTERESIS terminals the limit value set can be displayed with the aid of an external voltmeter. The indication of this measuring instrument also allows the value to be read when setting the threshold and hysteresis values. If several switching points are required, there is the possibility of connecting the appliances with current input (in series).

Load cells converter

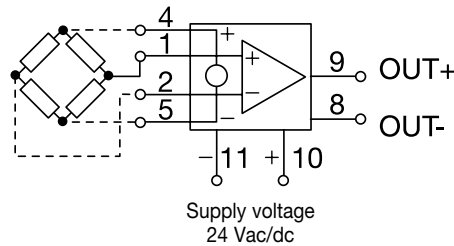
- Suitable for pressure sensors, for load cells, strain gauges and other measuring bridges
- High impedance differential input, bipolar input and output
- 3 programmable analog signal output ranges



NOTES

The dimensions includes the DIN clamp.
(1) range 20.4...28.8 Vdc

BLOCK DIAGRAM



VERSIONS

Cat. No. X756522

APPLICATIONS

CWBRA 6-0522

INPUT TECHNICAL DATA

Input current	1 nA (typical)
Noise	1 mV (0.1...10 Hz, pp RTI, typical)
Range changeover error	0.5%
Common mode range	-7 to +7 V

These devices amplify the output signal of a measuring bridge and convert it in a standard analog signal (for example, 0...10 V, 0...20 mA, 4...20 mA). Suitable for pressure sensors, for load cells, strain gauges and other measuring bridges.

They have a high impedance differential input, bipolar I/O, and they supply the measuring bridge with an accurate auxiliary voltage. Moreover they are protected from short circuit, polarity inversion and from overvoltage up to 40 Vdc.

OUTPUT TECHNICAL DATA

Output signal	0...10 V
Output current	0...20 / 4...20 mA
Output voltage	<5 mA with output voltage
Applicable load	<21 mA with output current
	min.: -10.2 V / max.: 10.5 V
	>2 K Ω with output voltage
	<400 Ω with output current
Residual ripple	< 5 mV _{eff}

GENERAL TECHNICAL DATA

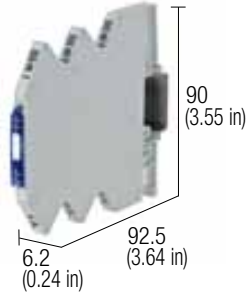
Supply voltage	24 Vac/dc (1)
Rated current	<30 mA
Accuracy	0.1 FS (23°C)
Linearity error	0.02%
Transmission frequency	range 30 mV: 25 Hz/6 Hz; range 1 mV: 2 Hz/1.5 Hz; reversible
Setting time to accuracy 1%	25 Hz: 50 ms; 6 Hz: 200 ms; 2 Hz: 600 ms; 1.5 Hz: 800 ms
Operating voltage influence	0.005 %/V
Isolation	—
ECM standards	EN 60721-3-3; EN 55011; EN 61000-4-2/6; EN 50178
Reference standards	IED 664-1; DIN VDE
Overvoltage category/Pollution degree	III / 2
Protection degree	IP 20 IEC 529 EN60529
Operating temperature range	-25...+60°C
Connection terminal	1.5 mm ² fixed screw type
Housing material	PPE
Approx. weight	70 g (2.47 oz)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Plug-in jumper	—
	red
	white
	blue

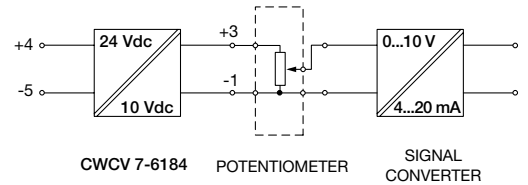
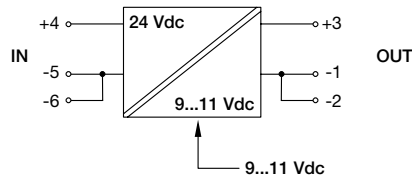
Auxiliary supply output for sensors and potentiometers

- Stabilized switching converter
- IN 16.8...20 Vdc / 9...11 Vdc 60 mA
- Suitable to feed potentiometers and sensors



NOTES	BLOCK DIAGRAM	EXAMPLE
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The dimensions includes the DIN clamp.
(1) range 16.8...30 Vdc



VERSIONS	Cat. No. X766184
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With screw connection (standard)
With spring connection

INPUT TECHNICAL DATA	CWCV 7-6184
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Rated voltage	24 Vdc (1)
Current @ Iout max.	30 mA @ 10 Vdc
Protection fuse	T 1 A (external)

OUTPUT TECHNICAL DATA	CWCV 7-6184
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Voltage	10 Vdc (9...11 Vdc adjustable)
Maximum current	60 mA
Continuous current	60 mA
Load regulation	< 1%
Ripple @ rated U-I output	≤ 50 mVpp
Overload / short circuit protection	si
Output signal	yellow LED Power OK
Parallel connection	possible with external diode

GENERAL TECHNICAL DATA	CWCV 7-6184
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Operating temperature range	-25...+60°C
Input/output isolation	50 Vac / 60 s
Protection degree	IP 20 IEC529, EN60529
EMC Standards	EN 50081-1, EN 50082-2, EN 61000-3-2
Surge immunity	EN61000-4-2, EN61000-4-4
Connection terminal	1.5 mm ² screw type / 1.5 mm ² spring type (16 AWG)
Housing material	Noryl UL94V-0
Approx. weight	35 g (1.24 oz)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES	CWCV 7-6184
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Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Plug-in jumper	red CWBK 7-0802 Cat. No. X766802 white CWBK 7-0803 Cat. No. X766803 blue CWBK 7-0804 Cat. No. X766804

APPLICATIONS

For the highest accuracy of electronic measurements in process control and automation systems, a stable supply source is required to feed reference voltages. Accuracy of position sensors, such as linear or rotary potentiometers, depends greatly on the stability and accuracy of the DC supply of the sensor. For this reason our modules are provided with a calibrated DC output dedicated to feed the sensor for the highest accuracy, and this feature also helps to save space and the cost of an external DC supply source.

NPN and PNP signal polarity inverter

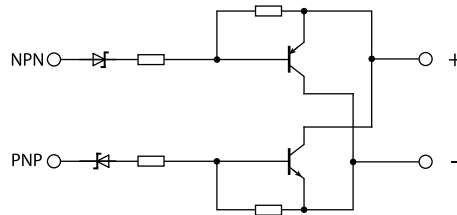
- Converts a NPN sensor in a PNP sensor and vice versa
- Compact design



NOTES

The dimensions includes the terminal blocks and the DIN clamp.
(1) range 17...30 Vdc

BLOCK DIAGRAM



VERSIONS

Cat. No. XNPNPNP
CI-NPN/PNP

APPLICATIONS

It converts signal form PNP sensors into NPN signal and vice versa. It allows to adapt the PLC inputs to all sensors on the market, regardless of their output polarity, and it is a great help for maintenance and allows in any case a quick replacement of failed sensors when you need a PNP sensor but you have a NPN type.

INPUT TECHNICAL DATA

Input voltage	24 Vdc (1)
Max. current	200 mA
Max. frequency	120 KHz

GENERAL TECHNICAL DATA

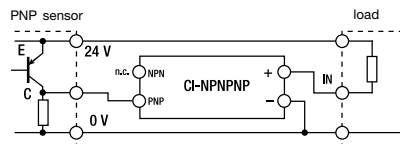
OFF state current	—
ECM standards	EN 61000-6-2, EN 61000-6-4
Reference Standard	IEC 664-1, DIN VDE
Overvoltage category	II
Pollution degree	2
Protection degree	IP 20 IEC 529 EN60529
Operating temperature range	0...55°C
Connection terminal	morsetti a vite 2.5 mm ² fissi
Housing material	Poliammide UL94V-0
Approx. weight	20 g (0.71 oz)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AS
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Plug-in jumper	red — white — blue —

EXAMPLE

Conversion from PNP to NPN



Conversion from NPN to PNP

