

the sensor people

COMPACT EX1

Safety Light Curtain and
Multiple Light Beam Device




About the COMPACT EX1 Connecting and Operating Instructions for zones 1 and 2 (gas) and 21 and 22 (dust)

The general COMPACT Operating Instructions form a part of the standard delivery, and are to be observed in when assembling or putting the equipment into operation, etc. This supplementary description essentially lists the modifications relevant to use in areas where there is a risk of explosion.



All mounting, installation and commissioning work must be carried out by accordingly qualified personnel only. It is absolutely necessary to adhere to requirements of the connecting and operating instructions COMPACT as well as to this amendment, and in particular to the standards EN 60079 for the application of electric production equipment in areas with explosive gas/air mixtures and EN 61421 in areas with explosive dust/air mixtures.

The operation of the COMPACT EX1 in Ex environments is in addition governed by the regulations of the Directive 1999/92 EC, which have been implemented by the European states through corresponding national laws, for example in Germany through the Betriebssicherheitsverordnung (Ordinance on Industrial Safety and Health/BetrSichV).

Notes regarding safety and warnings are marked by this symbol  .

Leuze electronic GmbH + Co. KG is not liable for damages caused by improper use. Knowledge of this manual is an element of proper use.

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1 General points

COMPACT EX1 has been developed according to the regulations of the EC Directive 94/9/EC (Ex directive). It is covered by the device group II, category 2 and, in accordance with the regulations, is intended for use in potentially explosive areas of zones 1 and 2 for gases and zone 21 and 22 for dusts. The technical data shown below apply as recorded on the name plate.

1.1 Proper use

- COMPACT EX1 must only be used after it has been selected and has been, by a competent person, installed on the machine, connected, commissioned, and checked. These actions must be in accordance with the respectively applicable original operating instructions and the relevant rules, standards, and regulations regarding explosion protection, labor protection and occupational safety.
- From Version P22 onwards (see name plate on the back of bearer for the CR receiver), COMPACT EX1 permits the selection of additional functions such as start/restart inhibit and dynamic contactor monitoring through configuration via switches and corresponding wiring.
- The start button and/or the feedback contacts of a safety interface device that must be located outside the Ex zone must be connected directly to the receiver. As mentioned in the supplementary description, the regulations of the standards EN 61241 (dust) and EN 60079 (gas) continue to apply
- These supplementary instructions form part of the original operating instructions and must be attached to the documentation of the machine at which the protective device is mounted. This must be done such that the operator can access the instructions at any time.

1.2 Foreseeable misuse

Any use other than that defined under the "intended use" or which goes beyond that use is considered improper use!




e.g.

- exceeding or failing to comply with the technical values specified for normal operation

1.3 Additional EX model label

Ex model label on the housing

The model label shown here is affixed to the lid of the 'Ex' protective tube. It includes specifications for the use of the COMPACT EX1 in 'Ex' zones.

A.T.X.		Ref : 500168	
Noisy le Sec - France			
TYPE	FLd	N°	Serien Nr
			LCIE 97 ATEX 6012
 0081			II 2 G - EEx d II B T6
			II 2 D T 85°C
			Ta = -20 °C / + 55 °C
			DIPA21 TA = 85°
		Ex d II B T6 LCIE N° 03.012	
		Wartezeit vor dem Öffnen	} 50 min
		Time before opening	
		Délai d'attente avant ouverture	
		Classe I	Nicht unter Spannung öffnen! Do not open when energized! No abrir bajo tension!
		IP66/67 	

'Ta' refers to the permissible ambient temperature for the protective tube. The Compact can operate in a temperature range between 0 and 55° C.

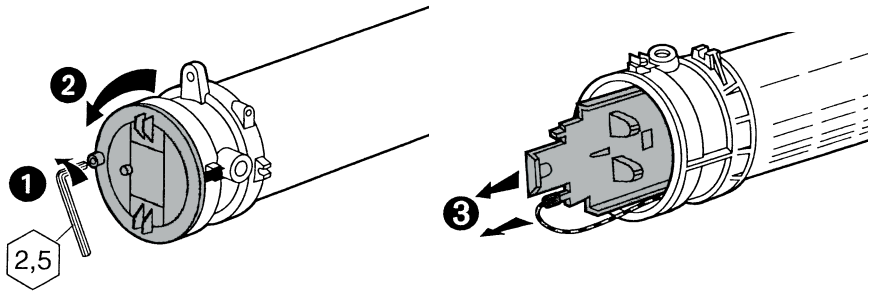
2 Assembly

The assembly and commissioning of the equipment may only be carried out during a process pause. That is to say, the transmitters and receivers must be fully assembled and connected, in accordance with the Operating Instructions, before the process can be restarted.

Please note that the glass tube is vulnerable to damage by vehicles, robot arms etc. In such cases, when operating the equipment in areas where there risk of explosion, adequate mechanical protection measures are indispensable.

The cable glands are designed for cables with an external diameter between 5 mm and 15 mm; other cables are not to be used. The cables must be laid in such a way that they cannot be accidentally damaged.

When installing, please have regard also to the correct earthing procedure and select your cable in accordance with the standards EN 61421 (dust) and EN 60079 (gas).



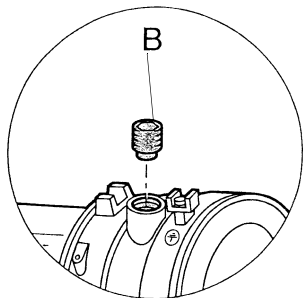
- The prescribed tightening torque is 0.85Nm (+-15%)
 1. Loosen hexagonal screw
 2. Unscrew lid
 3. Remove reflector plate and separate earth on cable lug from plug contact
 4. Disconnect plug connector



Important!

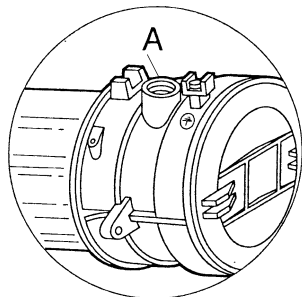
When reassembling, the earth lead must be reconnected to the inner deflection late.

The Compact light curtain is connected in accordance with the COMPACT Connecting and Operating Instructions. The connecting cables must be inserted into the inlets of the glass tube with suitable rubber insulating materials (provided for cables of 5 mm diameter). Inlets that are not used should be closed off with filler plugs.



B: Filler plugs

After assembly and before putting the equipment into operation, you should check to see that all the fastening screws on the lid and all the cable glands are sufficiently tightened. Before putting the equipment into operation, the external earth lead must be connected.



A: Earth lead



Warning!

Opening the transmitter or receiver when voltage is present can result in **sparks**, which in 'Ex' zones can cause gas or dust to explode! The equipment may therefore only be opened when the power supply has been cut off outside the 'Ex' zone and measures have been taken to ensure that it cannot be restored. A waiting period of at least 50 minutes after switching off should be observed.

3 Maintenance

COMPACT EX1 safety light curtains do not require maintenance. The front plate should be cleaned if necessary, but only with a damp cloth. Otherwise the range may be reduced, and unwanted accretions of dust may arise.

Safety label:



Frontscheibe nur mit feuchtem Tuch reinigen!
Clean screen with moist cloth only!
Ne nettoyez la vitre qu' avec un chiffon humide!

Warning: it is important that the cloth should be moist in order to avoid supplying an **electric charge** to the front plate! An electric charge may cause gas or dust to ignite!

When the equipment is assembled, the warning labels reading "Clean screen with moist cloth only!" must be clearly legible on the transmitter and the receiver.

The protective tube is supplied with the terminal faces already greased. After installation, these must be maintained in proper condition by subsequent greasing. A hardening anti-corrosion grease should be used for this purpose.

4 Testing

You should carry out regular visual inspections of the connections and the cables, but without touching them.



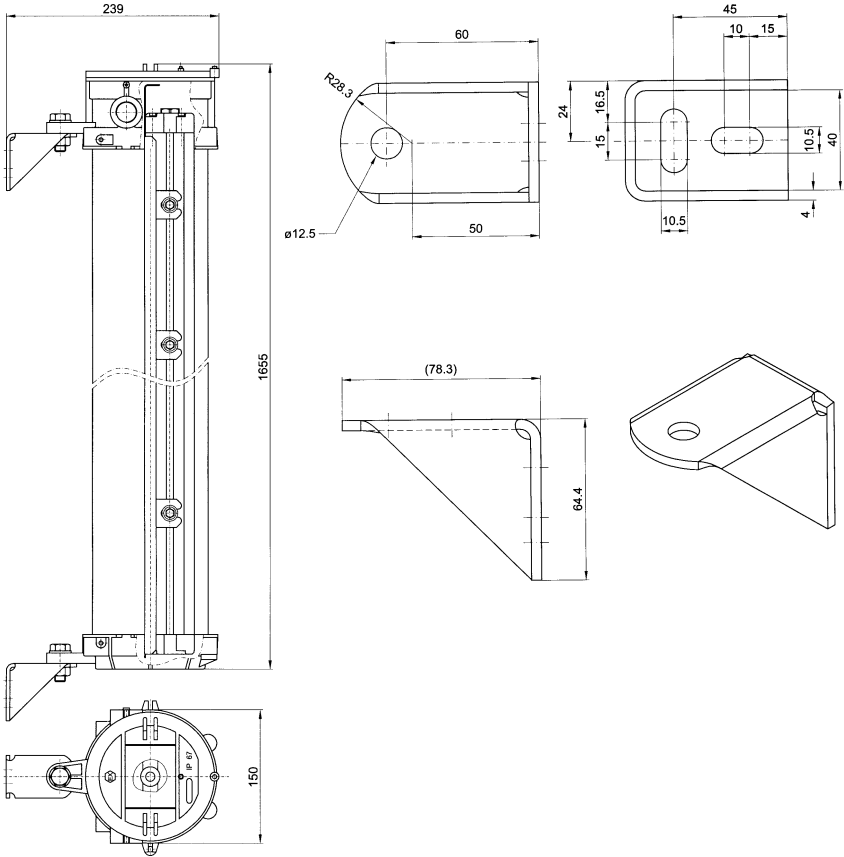
Warning!

If visual inspection reveals damage to the equipment or the cables, the damaged components should not be touched! Instead, all persons present should leave the 'Ex' zone immediately and the power supply should be switched off, outside the 'Ex' zone, and measures taken to ensure that it cannot be restored. Before the equipment can be disassembled and investigated a process pause must be observed, so as to avoid the risk of explosion.

In case of need you can contact our hotline.

5 Scale drawing

Mounting bracket



6 Ordering specifications

Type		Art. No.
CT14-750EX1	Receiver	569140
CR14-750EX1	Transmitter	569141
CT14-1050EX1	Receiver	569142
CR14-1050EX1	Transmitter	569143
CT14-1500EX1	Transmitter	569070
CR14-1500EX1	Receiver	569071
CT30-1500EX1	Transmitter	569072
CR30-1500EX1	Receiver	569073



**DECLARATION DE CONFORMITE
DECLARATION OF CONFORMITY**

N°50203-11
1/2

E.I.N. 35 rue André Durouchez
80084 Amiens cedex 2 - France

Nous déclarons que les appareils destinés à être mis sur le marché afin d'être utilisés en atmosphères explosibles, désignés ci-après \ we declare that the fittings designed to be placed on the market for use in the explosive atmospheres described below :

Appareil d'éclairage tubulaire type : FLd Pour Gaz / For Gas : CE 0081 II 2 G
Tubular lighting fixture Ex d IIB / IIC T (voir / see Annexe)
Pour poussières / For Dusts : CE 0081 II 2 D
Ex TD A21 T (voir / see annexe)
T° ambiante / ambient T° :

-20°C ≤ Ta ≤ +55°C	FLd 1200, FLd 1500
-40°C ≤ Ta ≤ +55°C	FLd 335, FLd 375, FLd 600

Indice de protection/ Protection Index : IP66/68 (10m)

satisfont / satisfy : - aux dispositions de la directive 94/9/CE / the provisions of directive 94/9/EC
- aux normes / standards :

EN 60079-0 (2006) EN 60079-1 (2004) EN 61241-0 (2006) EN 61241-1 (2004)

- aux variantes issues du type et représentatives de la gamme ayant fait l'objet de l'attestation d'examen CE de type N° 97 ATEX 6012 (conformément à annexe III) et notification de l'évaluation du système qualité n° 02 ATEX Q8019 (conformément à annexe IV) délivrés par le LCIE.
variants originating from this type and representative of the range of products that have received the EC examination certification type n° 97 ATEX 6012 (in accordance with Appendix III) and the quality system evaluation notification n° 02 ATEX Q8019 (in accordance with Appendix IV) issued by the LCIE.

- au chapitre premier, article 2 de la directive 94/9 CE, par la conformité aux spécifications suivantes \ the chapter first, clause 2 in directive 94/9 EC, in accordance with the following specifications :

EN 60598-1 (2005) + A1 (2007) EN 60598-2-22 (2003)
NFC 71 800 (2000) NFC 71 820 (1999)

- aux dispositions de la directive 89/336, "COMPATIBILITE ELECTROMAGNETIQUE", modifiée par les directives 92/31 CEE 93/68 CEE, par la conformité aux spécifications suivantes :
the provisions of directive 89/336, "ELECTROMAGNETIC COMPATIBILITY ", modified by directives 92/31 EEC and 93/68 EEC, in accordance with the following specifications :

EN 55015 (2003) EN 61547 (2001)

sous réserve d'une utilisation conforme à leur destination et/ou d'une installation conforme aux normes en vigueur et/ou aux recommandations du constructeur.
subject to use for the purpose for which they were designed and/or installed in accordance with standards in force and/or with the manufacturer's recommendations.

Le produit désigné a été conçu, fabriqué et contrôlé dans le cadre d'un système d'assurance qualité certifié conforme à \ The said product has been designed, manufactured and controlled within the guidelines of a quality insurance system which is certified to be conform with :

EN ISO 9001 (2000)

par le Laboratoire Central des Industries Electriques (L.C.I.E.) / by the Laboratoire Central des Industries Electriques (L.C.I.E.)
Certificat n° / Certificate n° 196001-05

Amiens, le 17 Décembre 2007

E. LEFRANC
Responsible Certification
Certification Manager

L'organisme notifié chargé de la surveillance est : / The notified body responsible for monitoring is :
LCIE (N° identification 0081) - B.P. 8 - F 92260 Fontenay-aux-Roses Cedex



**DECLARATION DE CONFORMITE
DECLARATION OF CONFORMITY**

N°50203-11

2/2

Modèle Model	Contenu Content	T° Pousière sans réflecteur extérieur à Ta maxi	T° Pousière avec réflecteur extérieur à Ta maxi	classe de T° et attente avant ouverture T° class and delay before opening					
				Sans carénage ou réflecteur extérieur / Without fairing or external reflector			Avec carénage ou réflecteur extérieur / With fairing or external reflector		
				Ta =+40° C	Ta =+55° C	Ta =+70° C	Ta =+40° C	Ta =+55° C	
FLd 335 IIC	a) lampes inc./Inod. lamps, 40W	95°C	95°C	T5 30mn	T5 30mn	/	T5 30mn	T5 30mn	
	b) lampe fluo compacte / Compact fluor. lamp 26W max.	95°C	130°C	T6 50mn	T5 50mn	/	T5 30mn	T4 30mn	
	c) Lampe fluo / Fluor lamp 18W max. (G5-G23) Lampe fluo / Fluor. Lamp 18W max. (2 G11)	95°C	130°C	T6 50mn	T5 50mn	/	T6 50mn	T5 50mn	
		95°C	130°C	T6 50mn	T5 50mn	/	T5 30mn	T4 30mn	
	d) Blocs autonomes Self-contained units	80°C	80°C	T6	T6	/	T6	T6	
	e) Signalisation optique / Optical signalling: 5J, < E < 11J, E = 15J.	95°C	95°C	T6 20mn T6 90mn	T6 20mn T5 90mn	/	T6 20mn T6 90mn	T6 20mn T5 90 mn	
f) Colonne lumineuse / Luminous column 10W / lamp 4 lamps maxi	80°C	80°C	T6	T6	/	T6	T6		
FLd 375 IIC	a) Blocs autonomes Self-contained units	80°C	80°C	T6	T6	/	T6	T6	
	b) lampe 70 W Na HP	122°C		T4 10mn (jusqu'à 50°C)	/	/	/	/	
FLd 600 IIC	a) Lampe fluo / Fluor. lamps G13 Ballast ferromagnétique 1 X 18 W 2 X 18 W	97°C	95°C	T6 30mn	T5 30mn	T4 15mn	T6 50mn	T5 30mn	
	Lampe fluo / Fluor. lamps G13 Ballast électronique 1 X 18 W 2 X 18 W 3 X 18 W	78°C	95°C	T6 30mn	T6 30mn	/	T6 50mn (pas de version trio)	T5 30mn (pas de version trio)	
	b) Lampe fluo / Fluor. lamps 2G11: 1 X 36 W, 2 X 36 W.	95°C	130°C	T6 50mn	T5 30mn T5 30mn	/	T6 50mn T5 30mn	T4 30mn T4 30mn	
	c) Bloc autonome / Self-contained units 20 W	80°C	95°C	T6 50mn	T6 50mn	/	T5 30mn	T5 30mn	
FLd 1200 IIB+H2	a) Lampe fluo / Fluor. lamps G13 Ballast ferromagnétique 1 X 36 W 2 X 36 W	110°C	95°C	T6 30mn	T5 30mn	T4 15mn	T6 30mn	T5 30mn	
	Lampe fluo / Fluor. lamps G13 Ballast électronique 1 X 36 W 2 X 36 W 3 X 36 W	78°C	80°C	T6 30mn	T6 30mn	/	T6 30mn (pas de version trio)	T6 30mn (pas de version trio)	
FLd 1500 IIB	b) Lampe fluo / Fluor. lamps Fa6 40 W max	80°C	80°C	T6 30mn	T6 30mn	/	T6 30mn	T6 30mn	
	a) Lampe fluo / Fluor. lamps Fa6 65 W max	80°C	95°C	T6 30m	T6 30mn	/	T6 30mn	T5 30mn	
	b) Lampe fluo / Fluor. lamps G13 Ballast ferromagnétique 1 X 58 W 2 X 58 W	80°C	95°C	T6 30mn	T6 30mn	/	T6 30mn	T5 30mn	
FLd 1500 IIB	Lampe fluo / Fluor. lamps G13 Ballast électronique 1 X 58 W 2 X 58 W 3 X 58 W	84°C	95°C	T6 30mn	T5 30mn	/	T6 30mn (pas de version trio)	T5 30mn (pas de version trio)	

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