tele
Automation Components

	G4PM690VSYL20	G4PM500VSYL20	G2PM400VSY20 24-240V	G2PM400VSY20	G2PM230VSY20 24-240V	G2PM400VSY10	G2PM230VSY10	G2PM115VSY10	G2PM115VSY20 24-240V	G2PW400V10	G2YM400VL20	G2PF400VS02	G2PF230VS02	G2PF115VS02	E1YF400V01 0.85	E3YF400V02 0.85	E1YF400VT01 0.85	E3YF400VT02 0.85	E3YF400VE20 0.65
Measurable Variable and norminal Range	Voltage 3~ 690V	Voltage 3~ 500V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 230V	Voltage 3~ 400V	Voltage 3~ 230V	Voltage 3~ 115V	Voltage 3~ 115V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 230V	Voltage 3~ 115V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V
Supply voltage	24-500V AC with TR3		24-240V AC/DC coolZoom	12-440V AC with TR2	24-240V AC/DC coolZoom		12-440V AC with TR2		24-240V AC/DC coolZoom	12-440V AC with TR2	12-440V AC with TR2		=Measured Signal		=Measured Signal	=Measured Signal	=Measured Signal	=Measured Signal	=Measured Signal
Over	■			■			■		■		■								
Under	■			■			■		■		■				■	■	■	■	■
Window	■			■			■		■	■	■								
Inv. Window																			
Phase Sequence	■			■			■		■				■						
Phase Failure	■			■			■		■				■		■	■	■	■	■
Asymmetry	■			■			■		■				■						
Short Circuit Monitoring																			
Adjustable Setpoint	■			■			■		■	■	■								
Hysteresis adjustable	■			■			■		■		■								
Latch	■										■								
Testfunction																	■	■	
Start-up Suppression Time																			
Tripping Delay	■			■			■		■	■	■								
Kind/Number of Outputs	2CO			2CO			1CO		2CO	1CO	2CO		2CO		1CO	2CO	1CO	2CO	2CO
Industrial Design	■			■			■		■	■	■		■						
Installation Design															■	■	■	■	■
Plug In																			
Catalogue Page	15	15	15	15	17	15	17	17	17	17	19	21	21	21	41	41	41	41	41

WatchDog

The WatchDog sensor relay in the TELE product range includes a variety of devices in the GAMMA and ENYA series for monitoring temperatures/thermistors, phase sequences/phase failures, levels, current and voltage.

So just what is a WatchDog?

WatchDogs keep a look out. They are thorough and reliable in this task. We could even go as far as to say they enjoy their work - keeping a look out is their mission in life and nothing will come between them and their job. WatchDogs work because they have fun doing it. They protect your territory - they are vigilant, persevering and are always on their guard. They enjoy difficult conditions and getting their paws dirty. Its acute intuition spots everything and it dutifully protects its surroundings. Should it notice the slightest detail out of place, it will bring everything back into order. Because it is the boss.

	E1YU400V01	E3YU400V02	E1YM400VS10	E3YF400VFAL02	E1PF400VSY01	E3PF400VSY02	K3YM400VSY20	K3PF400VSY02	TPW400VSN4X	TPW230VSN4X	TPW115VSN4X	TPW400VN4X	TPF400VS4X	TPF230VS4X	G2UM300VL20 24-240V	G2UM300VL20	G2UM500VL10 230VAC	G2UM300VL10	G2UW300V10	E1UM230V01	E1UU230V01	K3UM24VDC02	K3UM230VAC02
	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 230V	Voltage 3~ 115V	Voltage 3~ 400V	Voltage 3~ 400V	Voltage 3~ 230V	Voltage 1⊑ 300V	Voltage 1⊑ 300V	Voltage 1⊑ 500V	Voltage 1⊑ 300V	Voltage 1⊑ 300V	Voltage 1~ 230V	Voltage 1~ 230V	Voltage 1~24V	Voltage 1~ 230V
	=Measured Signal	=Measured Signal	=Measured Signal	=Measured Signal	=Measured Signal	=Measured Signal	=Measured Signal	=Measured Signal		12-440V AC with TR2		12-440V AC with TR2	=Measured Signal		24-240V AC/DC coolZoom	12-440V AC with TR2	230V AC	12-440V AC with TR2	12-440V AC with TR2	=Measured Signal	=Measured Signal	=Measured Signal	
	■	■	■	■			■								■		■	■					
	■	■	■	■			■			■		■			■	■	■	■		■	■		■
			■	■			■								■	■	■	■	■	■			■
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	■	■	■	■	■	■	■	■		■			■										
					■	■	■	■		■		■	■										
	■	■	■	■			■			■		■			■	■	■	■	■	■	■		■
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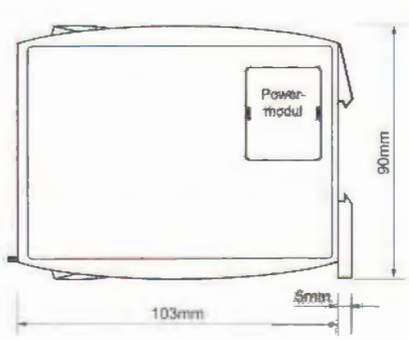
				■											■	■	■	■					
															■		■	■					
			■				■			■		■			■	■	■	■	■				
	1CO	2CO	1CO	2CO	1CO	2CO	2CO	2CO		1CO		1CO		1CO	2CO		1CO	1CO	1CO	1CO	1CO		2CO
										■		■		■	■		■	■	■				
	■	■	■	■	■	■														■	■		
							■	■															■
	43	43	43	45	47	47	57	57	59	59	59	59	61	61	23	23	23	23	23	49	49	57	57

Series GAMMA

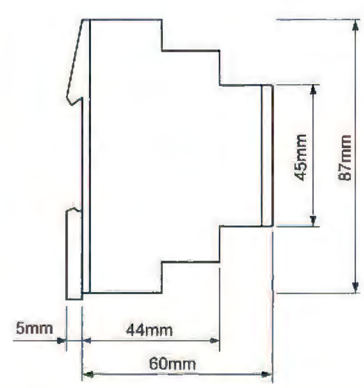
- Single- or Multifunction
- Monitoring of Voltage (1~ or 3~); Phase Sequence and Phase Failure; Asymmetry; Current (1~ or 3~); Temperature (PTC, PT100) and level of conductive substances
- With or without Fault Latch
- 1 or 2 CO contacts
- Supply voltage via PowerModules, single voltage, zoom voltage or by measured signal
- Width 22,5 (G2) or 45mm (G4)
- Industrial Design



TUW4X	Voltage 1≃	12-440V AC with TR2			■	■					■		■		■	■	1CO	■			63
TUH4X	Voltage 1≃	12-440V AC with TR2	■								■	■	■		■	■	1CO	■			63
G2JM5AL20 24-240VAC/DC G2JM5AL20	Current 3~ 5A	24-240V AC/DC coolZoom 12-440V AC with TR2	■	■	■						■	■	■		■	■	2CO	■			31 31
G2IM10AL10	Current 1≃ 10A	12-440V AC with TR2	■	■	■						■	■	■		■	■	1CO	■			25
G2IM5AL10	Current 1≃ 5A	12-440V AC with TR2	■	■	■						■	■	■		■	■	1CO	■			25
G2IM10AL20 24-240V G2IM10AL20	Current 1≃ 10A	24-240V AC/DC coolZoom 12-440V AC with TR2	■	■	■						■	■	■		■	■	2CO	■			27 27
G2IM5AL20 24-240V G2IM5AL20	Current 1≃ 5A	24-240V AC/DC coolZoom 12-440V AC with TR2	■	■	■						■	■	■		■	■	2CO	■			27 27
G2IW5A10	Current 1≃ 5A	12-440V AC with TR2			■						■					■	1CO	■			25
G2IO10A10	Current 1≃ 10A	12-440V AC with TR2	■								■	■				■	1CO	■			29
G2IO5A10	Current 1≃ 5A	12-440V AC with TR2	■								■	■				■	1CO	■			29
G2IU10A10	Current 1≃ 10A	12-440V AC with TR2		■							■	■				■	1CO	■			29
G2IU5A10	Current 1≃ 5A	12-440V AC with TR2		■							■	■				■	1CO	■			29
E1IM10AACL10	Current 1~ 10A	230V AC (measuring potential)	■	■	■						■	■	■			■	1CO		■		51
E3IM10AL20	Current 1≃ 10A	230V AC (galvanically isolated)	■	■	■						■	■	■			■	2CO		■		51
E1IU5AAC01 E1IU500mAAC01	Current 1~ 5A Current 1~ 500mA	230V AC (measuring potential)		■							■						1CO		■		51
K3IM5AACL20 230V	Current 1~5A	230V AC (measuring potential)	■	■	■						■	■	■			■	2CO			■	57
TIW4X	Current 1≃ 10A	12-440V AC with TR2			■	■					■		■		■	■	1CO	■			65
TIH4X	Current 1≃ 10A	12-440V AC with TR2	■								■	■	■		■	■	1CO	■			65
TIF30-300mAAC4X	Current 1~ 300mA	230V AC		■													2CO	■			65

Series ENYA

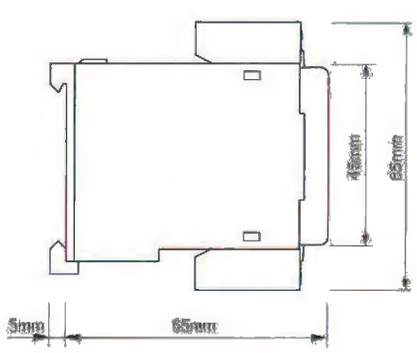
- Single- or Multifunction
- Monitoring of Voltage (1~ or 3~); Phase Sequence and phase failure; Asymmetry; Current (1~ or 3~); Temperature (PTC, PT100) and level of conductive substances
- Variable or fixed setpoints
- With or without Fault Latch
- 1 or 2 CO contacts
- Supply by measured signal (self powered)
- Width 17,5mm (E1) or 35mm (E3)
- Installation Design

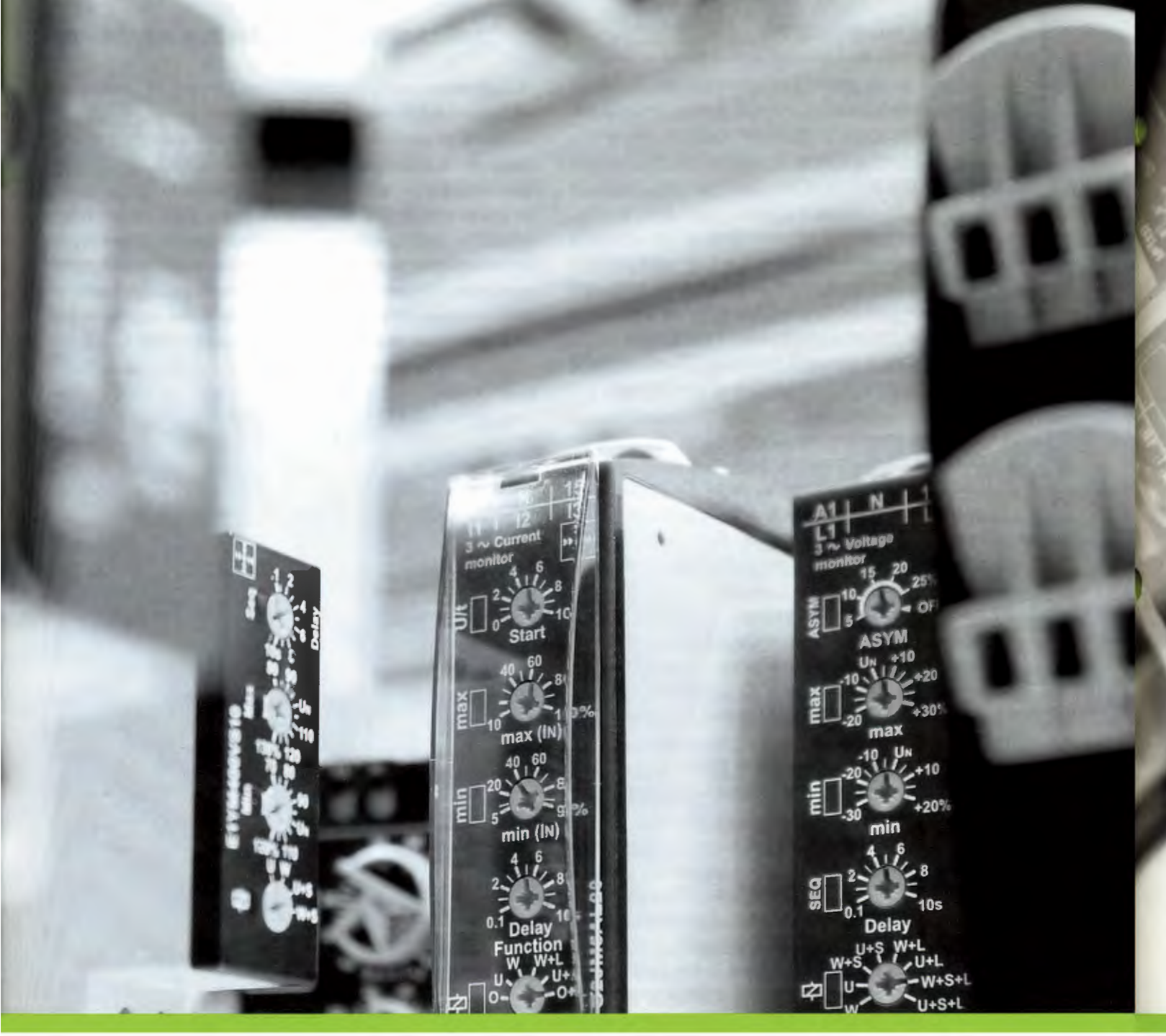


G2TMPT100L20 24-240V	G2TFKN02 24-240V	G2TFKN02	G2TF01	G2TF01 230VAC	G2TF02 24-240V	G2TF02	G2TF02 230VAC	G2TF02 110VAC	E3TF01	TDT4X	TT2X 24VAC	TT2X 230VAC	G2LM20 230VAC	G2LM20 110VAC	G2LM20 24VAC	E3LM10	TLH4X 24VAC	TLH4X 230VAC	TLC4X 230VAC	
Temperature (PT100)	Temperature (Thermistor)		Temperature (Thermistor)			Temperature (Thermistor)			Temperature (Thermistor)	Temperature (Thermistor)	Temperature (Thermistor)		Level			Level	Level	Level		Measurable Variable and norminal Range
24-240V AC/DC coolZoom	24-240V AC/DC coolZoom	12-440V AC with TR2	12-440V AC with TR2	230V AC	24-240V AC/DC coolZoom	12-440V AC with TR2	230V AC	110V AC	230V AC	12-440V AC with TR2	24V AC	230V AC	230V AC	110V AC	24V AC	230V AC	24V AC	230V AC	230V AC	Supply voltage
■	■		■			■			■	■	■			■		■	■	■	Over	
■														■		■	■	■	Under	
■																			Window	
																			Inv. Window	
																			Phase Sequence	
																			Phase Failure	
																			Asymmetry	
	■								■	■		■							Short Circuit Monitoring	
■														■		■	■	■	Adjustable Setpoint	
■														■		■			Hysteresis adjustable	
■	■		■			■			■	■									Latch	
	■		■			■													Testfunction	
■																			Start-up Suppression Time	
														■		■	■		Tripping Delay	
2CO	2CO		1CO			2CO			1CO	2CO	1NO			2CO		1CO	1CO	1CO	Kind/Number of Outputs	
■	■		■			■				■	■			■			■	■	Industrial Design	
									■							■			Installation Design	
																			Plug In	
33	35	35	35	35	37	37	37	37	53	67	67	67	39	39	39	55	69	69	69	Catalogue Page

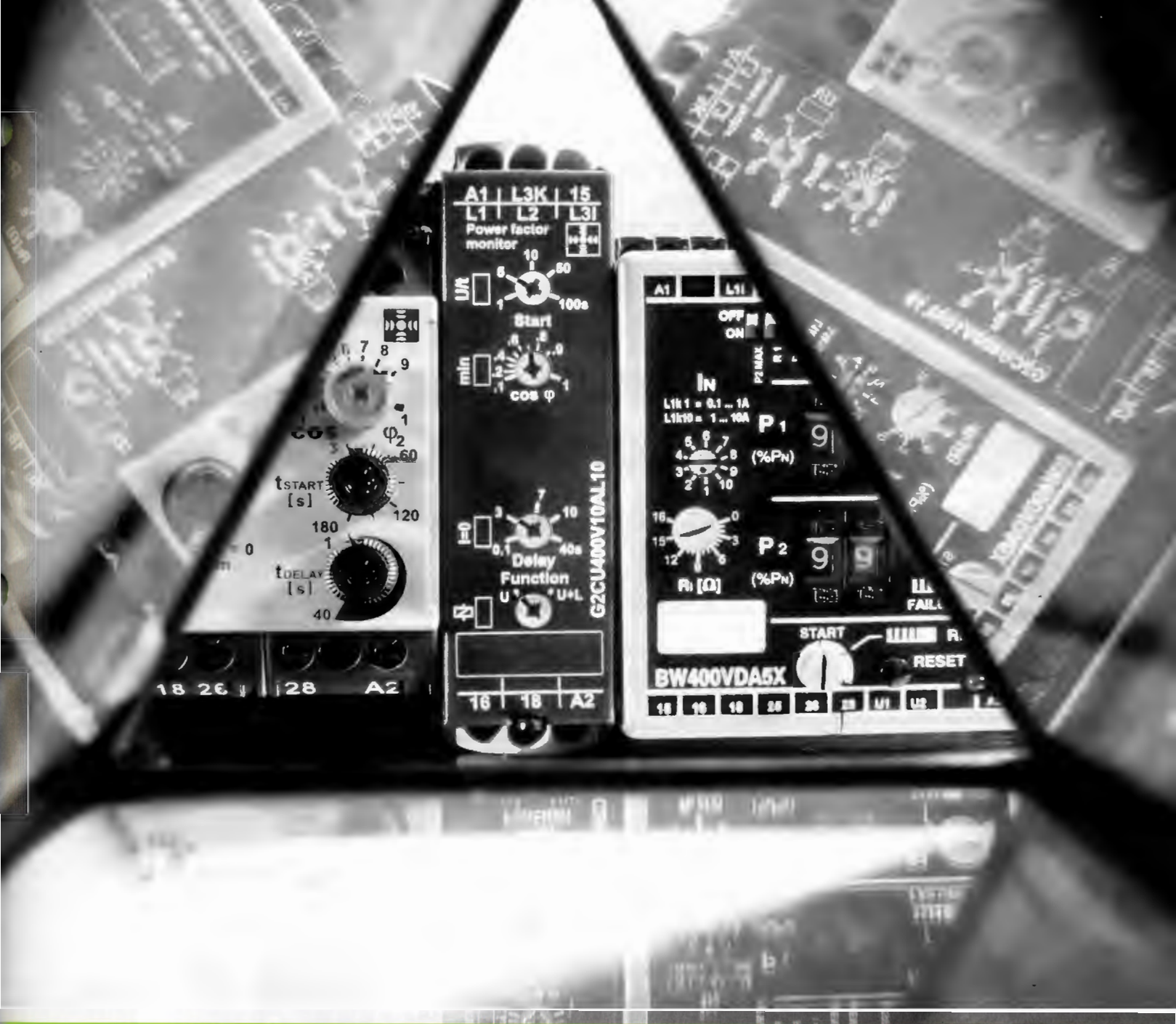
Series TREND

- Single- or Multifunction
- Monitoring of Voltage (1~ or 3~); Phase Sequence and phase failure; Asymmetry; Current (1~); Temperature (PTC) and level of conductive substances
- With or without Fault Latch
- 1 or 2 CO contacts
- Supply voltage via PowerModules, single voltage or by measured signal
- Width 22,5 or 45mm
- Industrial Design





Sensing & Monitoring Relays



Loadmonitors

Accuracy And Efficiency
Power Monitoring made by TELE

Type	Measurable Variable	Supply Voltage				Underload	Overload	Windowfunction	Identification I=0	Thermal Circuit Braker	Thermistor	Analogue Output	Adjustable Threshold	Hysteresis fixed	Hysteresis adjustable	Fault Latch	Start-Up Supporession	Tripping Delay	Relay Setting invertible	Kind/Number of Outputs
		24V AC	24C DC	110V AC	230V AC															
G4BM400V12ATL20	True power	12-400V AC with TR2				■	■	■	■	■	■		■	■		■	■	■		2C/O
G2BM400V12AL10	True power	12-400V AC with TR2				■	■		■				■	■		■	■	■		1C/O
G2BM400V12AFL10	True power	12-400V AC with TR2				■	■		■				■	■		■	■	■		1C/O
G2BA400V12A 4...20mA	True power	12-400V AC with TR2										■								4...20mA
G2CM400V10AL20	cos phi	12-400V AC with TR2				■	■	■	■				■		■	■	■	■		2C/O
G2CM400V2AL20	cos phi	12-400V AC with TR2				■	■	■	■				■		■	■	■	■		2C/O
G2CU400V10AL10	cos phi	12-400V AC with TR2				■			■				■	■		■	■	■		1C/O
BW...DA5X	True power, PTC	all Powermodules TR3				■	■	■	■			■	■	■		■	■	■	■	2C/O
BW400V5X	True power, PTC	12-440V AC with TR3				■	■	■	■				■	■		■	■	■	■	2C/O
BU400V5X	True power	12-440V AC with TR3				■	■		■				■	■		■	■	■	■	1C/O
BUT...A5X	True power, PTC	all Powermodules TR3				■	■		■	■	■	■	■	■		■	■	■	■	1C/O, 1N/O
	C/O = Change over Contact, N/O = Normal open Contact																			

GAMMA Series

Power factor and active power

The seleced features of the individual types enable to smart solutions in a wide range of applications. Basic units for load detection of fans and pumps are available as well as units especially designed for low loads. Others are trimmed to the requirements in hoist and crane control.

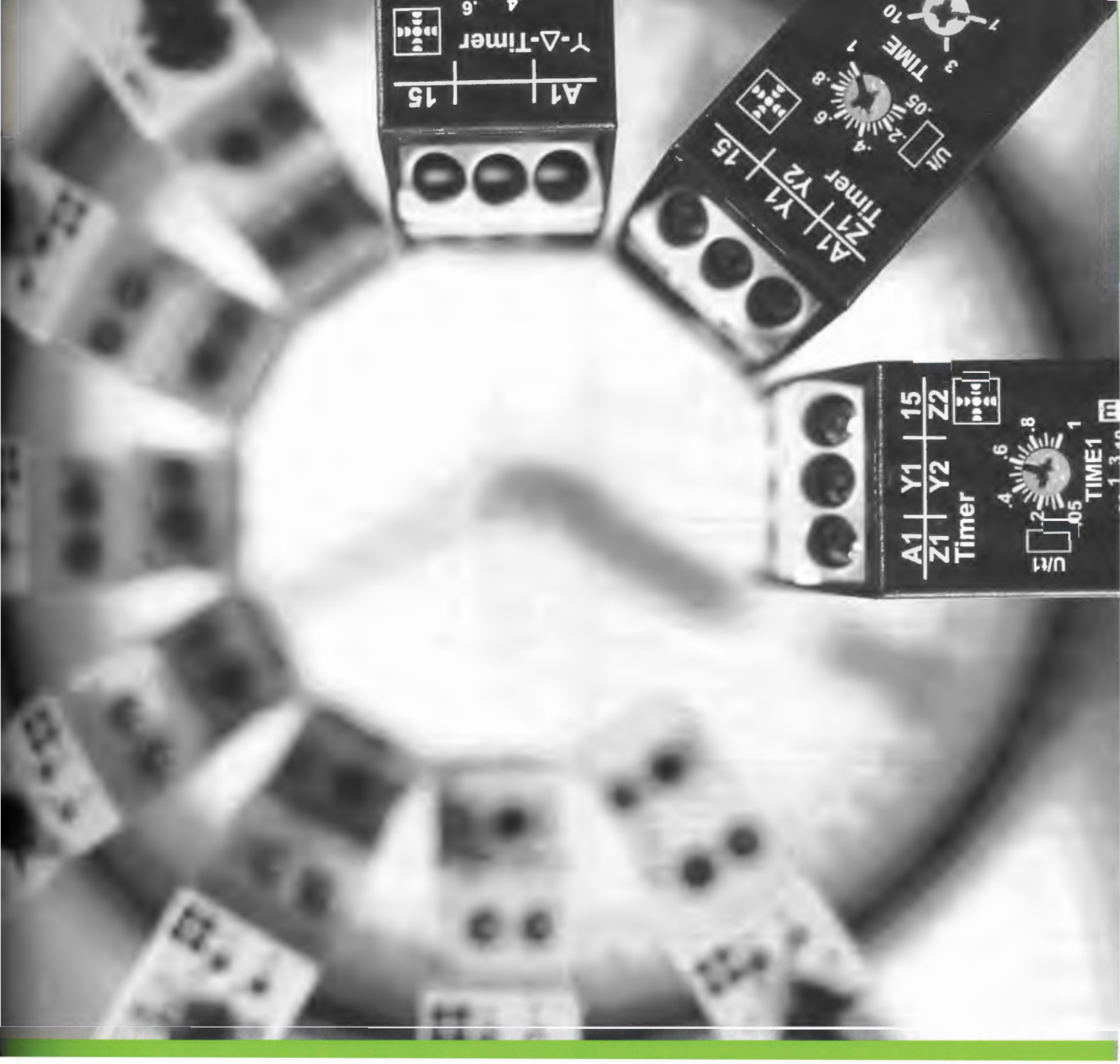
- True power monitoring in 1- or 3-phase mains for Under- and Overload
- True Power or Power Factor Monitoring
- Start-Up Suppression or Tripping Delay
- Fault Latch
- Supply: Plug-in-Powermodules
- 1 or 2 change-over contacts

VOX Series

Active power monitoring

These devices have been developed specially for monitoring active electric power, the output torque can be determined very accurately. They are used in mills, stone crushers, conveyors and other application where blocking can occur.

- True power monitoring in 1- or 3-phase mains for Under- and Overload
- True Power Monitoring
- Temperature Monitoring (PTC)
- Start-Up Suppression a. Tripping Delay
- Fault Latch
- Supply: Plug-in-Powermodules
- Relay setting invertible
- 1 or 2 change-over contacts
- Analogue output


A1 Y1 15 Z2
Z1 Y2
Timer
TIME1
U/t1
A1 Y1 15
Z1 Y2
Timer
TIME
U/t
A1 15
Y-Δ-Timer

Time Relays

	G2ZMF11 24-240VAC/DC	G2ZMF11	G2ZM20 12-240VAC/DC	G2ZIF2024-240VAC/DC	G2ZIF20	G2ZI20 12-240VAC/DC	G2ZE10 400VAC	G2ZS20 24-240VAC/DC	G2ZS20	E1ZM10 12-240VAC/DC	E1ZM10 24-240VAC/DC	E3ZM20 12-240VAC/DC
Supply voltage	24-240V AC/DC coolZoom	12-400V AC with TR2	12-240VAC/DC	24-240VAC/DC coolZoom	12-400V AC with TR2	12-240V AC/DC	400V AC	24-240VAC/DC coolZoom	12-440V AC with TR2	12-240V AC/DC	24-240V AC/DC	12-240V AC/DC
A - OFF Delay without Auxiliary Voltage												
Bi - Flasher pulse first	■		■									
Bp - Flasher pause first	■		■							■		■
E - ON delay	■		■				■			■		■
ER - ON and OFF delay with control contact				■		■						
Es - ON delay with control contact	■		■							■		■
EWs - ON delay and single shot leading edge with control contact				■		■						
EWu - ON delay and single shot leading edge voltage controlled				■		■						
Ii - Asymmetric flasher pulse first				■		■						
Ip - Asymmetric flasher pause first				■		■						
R - OFF delay	■		■							■		■
S - Star-Delta start-up									■			
Wa - Single shot trailing edge with control contact	■		■							■		■
Ws - Single shot leading edge with control contact	■		■							■		■
WsWa - Single shot leading and trailing edge with control contact				■		■						
Wt - Pulse detection				■								
Wu - Single shot leading edge voltage controlled	■		■							■		■
Time Ranges	16		7	10 / 10		7 / 7	16	4 / 4		7		7
Remote Potentiometer	■			■								
Potential free signal contact	■			■								
Instantaneous Contact	■			■								
Kind/Number of Outputs	2CO		2CO	2CO		2CO	1CO	2CO		1CO		2CO
Width in mm	22,5		22,5	22,5		22,5	22,5	22,5		17,5		35
Industrial Design (DIN-Rail)	■		■	■		■	■	■				
Industrial Design (Plug-In)												
Industrial Design (Front Panel Mounting)												
Installation Design										■		■
Catalogue Page	97		97	99		99	101	103		105		105

A

Bi

Bp

E

E1ZMQ10 24-240VAC/DC	E1ZMW10 24-240VAC/DC	E1ZI10 12-240VAC/DC	E3ZI20 12-240VAC/DC	E1Z1E10 24-240VAC/DC	E3ZS20 12-240VAC/DC	E1ZNT 230VAC	D6M 12-240VAC/DC	D6DM 24VAC/DC 110-240VAC	D6DQ 24VAC/DC 110-240VAC	D6DE 24VAC/DC 110VAC	D6DE 24VAC/DC 230VAC	D6DET 4MIN 12-240VAC/DC	D6DET 40MIN 12-240VAC/DC	D6DR 24VAC/DC 110VAC	D6DR 24VAC/DC 230VAC	D6DA 3MIN 24VAC/DC 110-240VAC	D6DA 10MIN 24VAC/DC 110-240VAC	D6DI 24VAC/DC 110-240VAC	D6DS 24VAC/DC 110-240VAC	PM20 12-240VAC/DC	PM20P 12-240VAC/DC
24-240V AC/DC	24-240V AC/DC	12-240V AC/DC	12-240V AC/DC	24-240V AC/DC	12-240V AC/DC	230V AC	12-240V AC/DC	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	230V AC	selectable through wire link 12-60V AC/DC or 60-240V AC	24V AC/DC or 110V AC Dualvoltage	24V AC/DC or 230VAC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	12-240V AC/DC	12-240V AC/DC
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■	■						■	■	■											■	■
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																					■
1CO	1CO	1CO	2CO	1CO	2CO	1CO	1CO	1CO	1CO	1T	1CO	1CO	1CO	2NO	2CO	2CO
17,5	17,5	17,5	35	17,5	35	17,5	22,5	22,5	22,5	22,5	22,5	22,5	22,5	22,5	38	38
							■	■	■	■	■	■	■	■		
															■	■
■	■	■	■	■	■	■										
105	105	107	107	109	111	115	117	117	119	119	121	121	123	125	127	127

Es

EWs

EWu

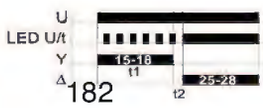
Ii

PDM20 24VAC/DC 110-240VAC	PDM20F 24VAC/DC 110-240VAC	PDM11 24VAC/DC 110-240VAC	PDM10 24VAC/DC 110-240VAC	PDA20 24VAC/DC 110-240VAC	PDI20 24VAC/DC 110-240VAC	PDI20F 24VAC/DC 110-240VAC	PDS20 24VAC/DC 110-240VAC	FSM10 24VAC/DC	FSM10 100-240VAC	COM3TP 24-240VAC/DC	SRE2-PNP .. 24VDC	SRW2-PNP ... 24VDC	
24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC or 110-240V AC Dualvoltage	24V AC/DC	100-240V AC	24-240V AC/DC	24V DC	24V DC	Supply voltage
				■									**A** - OFF Delay without Auxiliary Voltage
								■		■			**Bi** - Flasher pulse first
■	■	■	■					■		■			**Bp** - Flasher pause first
■	■	■	■					■		■	■		**E** - ON delay
					■	■							**ER** - ON and OFF delay with control contact
■	■	■	■					■		■			**Es** - ON delay with control contact
					■	■							**EWs** - ON delay and single shot leading edge with control contact
					■	■							**EWu** - ON delay and single shot leading edge voltage controlled
					■	■							**Ii** - Asymmetric flasher pulse first
					■	■							**Ip** - Asymmetric flasher pause first
■	■	■	■					■		■			**R** - OFF delay
							■						**S** - Star-Delta start-up
■	■	■	■							■			**Wa** - Single shot trailing edge with control contact
■	■	■	■					■		■			**Ws** - Single shot leading edge with control contact
													WsWa - Single shot leading and trailing edge with control contact
■	■	■	■										**Wt** - Pulse detection
■	■	■	■							■		■	**Wu** - Single shot leading edge voltage controlled
8	8	16	8	4	8 / 8	8 / 8	4 / 4	digital		8	1	1	Time Ranges
	■					■							Remote Potentiometer
													Potential free signal contact
		■											Instantaneous Contact
2CO	1CO 1NO	2CO	1CO	2CO	2CO	1O, 1 NO	2CO	1CO		2/3CO	PNP	PNP	Kind/Number of Outputs
38	38	38	38	38	38	38	38	48		35	28	28	Width in mm
													Industrial Design (DIN-Rail)
■	■	■	■	■	■	■	■			■			Industrial Design (Plug-In)
								■			■	■	Industrial Design (Front Panel Mounting)
													Installation Design
129	129	129	129	129	131	131	133	135		137	139	143	Catalogue Page

Ip

R

S



Wa

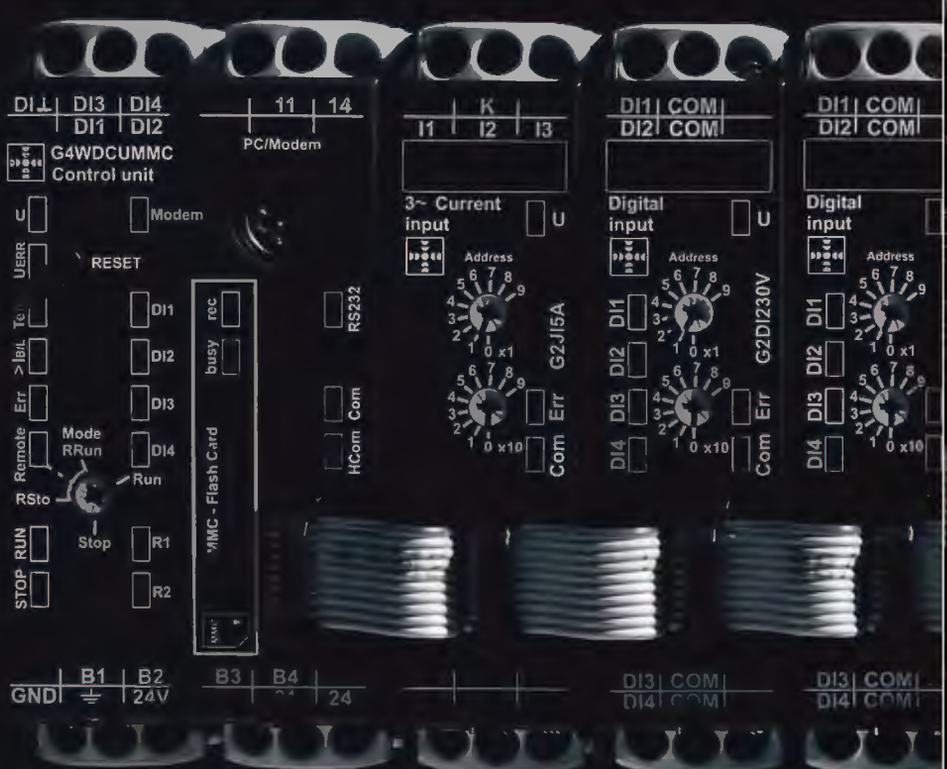
Wi

WatchDog pro

A milestone in monitoring technology

WatchDog pro is a modular, industry-compliant monitoring system that combines classical monitoring and time-related functions with the communication potentia of fieldbusses, SMS and e-mail. The central control unit makes the systen intelligent, so that sophisticated monitoring and automation functions can alsc be implemented. As the problem solver for stationary and mobile applications i the mechanical engineering field as well as for industrial and building systems **WatchDog pro** combines the flexibility of PLC with a robust monitoring systen for industrial applications. Thanks to its withstand voltage, clearances, creepage distances and rated surge voltage it can perform under the harshest industria conditions. Its modular design will bring end-to-end advantages from planning through start-up to plant expansion.

WatchDog pro is thus above the equipment class to which classical time an monitoring relays belong. The monitoring functions for current, voltage, phase sequence, phase failure, active power and temperature have been combined int an integrated, modular monitoring scheme with a system application in in mind



By combining all necessary monitoring and control functions it meets the requirements placed on an automation system.
An integral component of the central control unit is the datalogger. Supported by **WatchDog pro**, plant and system data can be logged on a memory card and used for high-speed evaluating. Forming another part of an efficient maintenance management system, the interfaces (fieldbuses, web server, SMS) will allow simple remote maintenance as well as integration into a more comprehensive process control system.
WatchDog pro is a quantum leap in the field of monitoring technology, building on the long-established TELE products of the GAMMA industrial series. Typical applications are to be found in the areas of water supply and waste water disposal, power distribution as well as heating, ventilation and air conditioning. The system's modular design and industry compliance make it perfectly suitable for monitoring small and medium-sized machines and plant as well as for use in the process industry.