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You can read the recommendations in the user guide, the technical guide or the installation guide for OMRON K3GN. You'll find the answers to all your questions on the OMRON K3GN in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

- User manual OMRON K3GN
- User guide OMRON K3GN
- Operating instructions OMRON K3GN
- Instructions for use OMRON K3GN
- Instruction manual OMRON K3GN

omron

1/32 DIN Digital Panel Meter
K3GN

Compact and Intelligent Digital Panel Meter

- A single Panel Meter covering a wide range of applications.
- 3 main applicable functions:
 - Process meter (DC voltage/current input).
 - RPM processor/tachometer (frequency input).
 - Digital data display for PC/PLC (RS-485 communications).
- Easy configuration
 - Multi-range analog input: applicable for all standard analog signals.
 - 6 input ranges available: 4 to 20 mA/0 to 20 mA, 1 to 5 VDC/0 to 5 VDC, ±5 VDC, ±10 VDC.
 - 5 KHz max. input-pulse frequency range.
 - Scaling in a wide range of engineering units.
 - Programmable output operation action, decimal point position setting, teaching function for input range, leading zero suppression, average processing.
- Advanced and compact design
 - Very compact 1/32 DIN housing: 48 (W) x 24 (H) x 83 (D).
 - 5-digit display with programmable display color in red or green.
 - Good visibility: High contrast backlit LCD display.
 - High protection against water and dust: NEMA4X/IP66 front panel.
- Selectable outputs: 2 relay outputs, 3 transistor outputs, RS-485, and combinations of these.
- High accuracy: ±0.1% full scale.
- Easy to configure through the front panel or via RS-485.
- EN/IEC conformity with CE marking and UL/CSA approval.



CE UL

Model Number Structure

■ **Model Number Legend**

K3GN - 1 - 2 - 3 24 VDC

1. Input Type
 ND: DC voltage/current, NPN
 PD: DC voltage/current, PNP

2. Output Type
 C: 2 relay contact outputs (SPST-NO)
 T1: 3 transistor outputs (NPN open collector)
 T2: 3 transistor outputs (PNP open collector)

3. Communications Output Type
 None: Communications not supported
 FLK: RS-485

1/32 DIN Digital Panel Meter **K3GN** K-7



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Manual abstract:

· Digital data display for PC/PLC (RS-485 communications). @@@@ - 5 KHz max. input-pulse frequency range. · Scaling in a wide range of engineering units. · Programmable output operation action, decimal point position setting, teaching function for input range, leading zero suppression, average processing. · Advanced and compact design · Very compact 1/32 DIN housing: 48 (W) x 24 (H) x 83 (D). · 5-digit display with programmable display color in red or green. · Good visibility: High contrast backlit LCD display. · High protection against water and dust: NEMA4X/IP66 front panel. · Selectable outputs: 2 relay outputs, 3 transistor outputs, RS-485, and combinations of these.

· High accuracy: $\pm 0.1\%$ full scale. · Easy to configure through the front panel or via RS-485. · EN/IEC conformity with CE marking and UL/CSA approval. ® Model Number Structure Model Number Legend K3GN 1 2 3 24 VDC 1.

Input Type ND: DC voltage/current, NPN PD: DC voltage/current, PNP 2. Output Type C: 2 relay contact outputs (SPST-NO) T1: 3 transistor outputs (NPN open collector) T2: 3 transistor outputs (PNP open collector) 3. Communications Output Type None: Communications not supported FLK: RS-485 1/32 DIN Digital Panel Meter K3GN K-7 Panel indicators Ordering Information List of Models Input type DC voltage/current, NPN DC voltage/current, PNP Supply voltage 24 VDC Output Dual relays (SPST-NO) Three NPN open collector Dual relays (SPST-NO) Three PNP open collector K3GN-NDC 24 VDC K3GN-NDT1 24 VDC K3GN-PDC 24 VDC K3GN-PDT2 24 VDC Communications No communications RS-485 K3GN-NDC-FLK 24 VDC K3GN-NDT1-FLK 24 VDC K3GN-PDC-FLK 24 VDC K3GN-PDT2-FLK 24 VDC Specifications Ratings Supply voltage Operating voltage range Power consumption (see note) Insulation resistance Dielectric strength Noise immunity Vibration resistance Shock resistance 24 VDC 85% to 110% of the rated supply voltage 2.5 W max. (at max.

DC load with all indicators lit) 20 M min. (at 500 VDC) between external terminal and case. Insulation provided between inputs, outputs, and power supply. 1,000 VAC for 1 min between external terminal and case. Insulation provided between inputs, outputs, and power supply. ± 480 V on power supply terminals in normal mode, $\pm 1,500$ V in common mode, ± 1 μ s, or 100 ns for squarewave noise with 1 ns Malfunction: 10 to 55 Hz, 10 min each in X, Y, and Z directions; acceleration: 9.8 m/s² Destruction: 10 to 55 Hz, 30 min each in X, Y, and Z directions; acceleration: 19.6 m/s² Malfunction: Models with transistor outputs: 196 m/s² for 3 times each in X, Y, and Z directions Models with relay contact outputs: 98 m/s² for 3 times each in X, Y, and Z directions Destruction: 294 m/s² for 3 times each in X, Y, and Z directions Operating: Storage: Operating: -10°C to 55°C (with no condensation or icing) -25°C to 65°C (with no condensation or icing) 25% to 85% (with no condensation) Ambient temperature Ambient humidity EMC EN61326+A1 Industry CISPR 11 Group 1 class A: CISRP16-1/-2 CISPR 11 Group 1 class A: CISRP16-1/-2 EN61326+A1 Industry EN61000-4-2: 4 kV contact discharge (level 2) 8 kV air discharge (level 3) Immunity RF-interference: EN61000-4-3: 10 V/m (amplitude-modulated, 80 MHz to 1 GHz) (level 3) Immunity Fast Transient Noise: EN61000-4-4: 2 kV (power line) (level 3) Immunity Burst Noise: 1 kV line to line (I/O signal line) Immunity Surge: EN61000-4-5: 1 kV line to line 2 kV line to ground (power line) Immunity Conducted Disturbance EN61000-4-6: 3 V (0.15 to 80 MHz) (level 2) Immunity Voltage Dip/Interrupting EN61000-4-11: 0.5 cycles, 0, 180°, 100% (rated voltage) UL508, CSA22.

2; Conforms to EN61326+A1, EN61010-1 (IEC61010-1) Conforms to VDE0106/P100 (finger protection) when the terminal cover is mounted. Approx. 100 g (EMI) Emission Enclosure: Emission AC Mains: (EMS) Immunity ESD: Approved standards Weight Note: A control power supply capacity greater than the rated capacity is required when the Digital Panel Meter is turned ON. Do not forget to take this into consideration when using several Digital Panel Meters. When power is supplied, all indicators will light and outputs will be OFF. When using startup compensation time operation, the display will read "00000" and all outputs will be OFF. K-8 1/32 DIN Digital Panel Meter K3GN Characteristics Input signal Process voltage (1 to 5 V, 0 to 5 V, ± 5 V, ± 10 V) Process current (4 to 20 mA, 0 to 20 mA) Digital data display (by RS-485 No-voltage contact (30 Hz max. with ON/OFF pulse width communication) of 16 ms min.) Open collector (5 kHz max. with ON/OFF pulse width of 90 μ s min.)

) ---- A/D conversion Sampling period Display refresh period Pulse measurement method Double integral method 14 bit resolution 250 ms Sampling period (sampling times multiplied by number of averaging times if average processing is selected.) --Periodic measurement --- Connectable Sensors --- ON residual voltage: 2.5 V max. OFF leakage current: 0.1 mA max.

Load current: Must have a switching capacity of 15 mA min. Must be able to reliably switch load currents of 5 mA max. Max. displayed digits 5 digits (-19999 to 99999) Display Polarity display Zero display Scaling function External controls (see note 1) Hysteresis setting Other functions 7-segment digital display, character height: 7.0 mm "-" is displayed automatically with a negative input signal.

Leading zeros are not displayed. Programmable with front-panel key inputs (range of display: -19999 to 99999). The decimal point position can be set as desired. HOLD: (Measurement value held) ZERO: (Forced-zero) --- Programmable with front-panel key inputs (0001 to 9999). Programmable Color Display Selectable output operating action Teaching set values Average processing (simple average) Lockout configuration Communications writing control (communications output models only) Forced-zero set with front panel keys Startup compensation time (0.00 to 99.9 s) Control inputs (HOLD/ZERO) selection Auto-zero time (0.0 to 19.9 s) via front panel keys Field calibration Output Relays: 2 SPST-NO Transistors: 3 NPN open collector 3 PNP open collector Combinations: Communications output (RS-485) + relay outputs (2 SPST-NO); Communications output (RS-485) + transistor outputs (3 NPN open collector); Communications output (RS-485) + transistor outputs (3 PNP open collector) Communications Communications function: RS-485 Delay in comparative 750 ms max. outputs (transistor outputs) Degree of protection Front panel: NEMA4X for indoor use (equivalent to IP66) Rear case: IEC standard IP20 Terminals: IEC standard IP20 Panel indicators Non-volatile memory (EEPROM) (possible to rewrite 100,000 times) Memory protection Note 1.

The minimum input time for control signals is 80 ms. 2. Refer to N102 Operation Manual for more details. 1/32 DIN Digital Panel Meter K3GN K-9 Measuring Ranges Process Voltage/Current Inputs Input DC voltage Measuring range 1.



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000 to 5.000 V/0.000 to 5.000 V -5.000 to 5.000 V -10.
00 to 10.00 V DC current 4.00 to 20.00 mA/ 0.00 to 20.

00 mA Measuring accuracy $\pm 0.1\%$ FS ± 1 digit max. (at $23\pm 3^\circ\text{C}$) $\pm 0.1\%$ FS ± 1 digit max. (at $23\pm 5^\circ\text{C}$) ± 0 .

1% FS ± 1 digit max. (at $23\pm 3^\circ\text{C}$) 60 Input impedance 1 M min. Displayable range -19999 to 99999 (with scaling function) No-voltage Contact/Open Collector Inputs Input No-voltage contact (30 Hz max.) with ON/OFF pulse width of 16 ms min. Open collector (5 kHz max.) with ON/OFF pulse width of 90 μs min. Measuring range 0.05 to 30.00 HZ 0 to 5000 HZ Measuring accuracy (at $23\pm 5^\circ\text{C}$) $\pm 0.1\%$ FS ± 1 digit max.

Displayable range -19999 to 99999 (with scaling function) Digital Data Display (By RS-485 Communications) Displayable range -19999 to 99999 Input/Output Ratings Relay Contact Output (Incorporating G6K Relays) Item Rated load Rated carry current Max. contact voltage Max. contact current Max. switching capacity Min. permissible load (P level, reference value) Mechanical life Electrical life (at an ambient temperature of 23°C) 1 A at 30 VDC 1 A max. (at COM terminal) 60 VDC 1 A (at COM terminal) 30 VA 10 mV, 10 μA 50,000,000 times min. (at a switching frequency of 36,000 times/hr) 100,000 times min. (at the rated load with a switching frequency of 1,800 times/hr) Resistive load ($\cos = 1$) Transistor Output Rated load voltage Max. load current Leakage current 24 VDC 50 mA 100 μA max. Communications Specifications Item Transmission method Synchronization method Baud rate Transmission code Communications 2-wire, half-duplex Start-stop synchronization 1,200/2,400/4,800/9,600/19,200 bps ASCII Reading/Writing to Read/write set values, read/write scaling values, enable/disable the writing of data through commuthe K3GN nications, forced-zero control, and other data. RS-485 Refer to NI02 Operation Manual for more details. K-10 1/32 DIN Digital Panel Meter K3GN Connections Terminal Arrangement Output terminals Input terminals Models with relay outputs Models without communications OUT1 NC OUT2 COM NC NC 9 10 11 12 7 8 C D Models with Models with PNP transistor outputs NPN transistor outputs Models with communications C 7 RS-485 8 2 3 9 10 11 12 4 5 6 B OUT1 PASS OUT2 COM 9 10 11 12 7 B (+) 8 A (-) 1 A D Models with PNP inputs Models with NPN inputs OUT1 PASS OUT2 COM 1 Operation power supply 24 VDC* 2 3 9 10 11 12 Event or pulse/contact input A Operation power supply 24 VDC* Analog input 1 2 3 B 4 5 6 COM Voltage Current Analog input Event or pulse/contact input Note: *Operation power supply 24VDC: Recommended DC power supply: eg. OMRON s8VS Terminal No. A-B C-B C-A Operation power Event input or pulse/contact input Name Description Connect the operation power supply. Operates as follows depending on parameter setting: · Holds process value. · Calibrate the process value to zero and clear the forced-zero function. · Pulse or contact input. Connect the voltage or current analog input. Outputs relay or transistor outputs. There is also a PASS output for models with transistor outputs. Panel indicators RS-485 communications terminals. D,F-E G-H I,K-L I,J,K-L Analog input Communications Outputs 1/32 DIN Digital Panel Meter K3GN K-11 Wiring Block Diagram Key Display Analog input terminal Input circuit A/D conversion circuit Transistor output (See note 1.) Drive circuit EEPROM Microcomputer Drive circuit Output circuit Contact output (See note 2.) Pulse/ Control input terminal Drive circuit Control input circuit Waveform rectification circuit Communications driver Communications terminal (See note 3.) Constant voltage circuit 1 Constant voltage circuit 2 Power supply circuit Note: 1. Transistor output models only. 2. Relay output models only. 3. Models with communications functions only.

Operating power supply Input Circuits Analog Input (DC Voltage/Current) Voltage input 4 A To A/D Current input 6 B 60 To A/D COM 5 A+B=1 M COM 5 Pulse Input/Control Event Input (HOLD/ZERO) NPN Input 24 VDC + PNP Input 24 VDC + 4.7 k 1 2.35 k 1 2.35 k Hold/Zero Pulse 3 Hold/Zero Pulse 3 4.7 k 24 VDC - 2 24 VDC - 2 K-12 1/32 DIN Digital Panel Meter K3GN Output Circuits Contact Output 5V 9 OUT1 5V 11 OUT2 12 OUT3 Transistor Output NPN Output 8.2 PNP Output 9 OUT1 12 8.2 COM 8.2 10 PASS 11 OUT2 8.2 11 8.2 OUT2 10 PASS 8.

2 12 COM 9 OUT1 1/32 DIN Digital Panel Meter K3GN K-13 Panel indicators Operation Main Functions Input Types and Ranges Input type (setting parameter) Analog input (analg) Function Selects DC voltage/current signal input. Input range (setting parameters) 4 to 20 mA/0 to 20 mA (4-20) 1 to 5 V/0 to 5 V (1-5) ± 5 V (5) ± 10 V (10) Pulse input (pulse) Remote (rmt) Selects pulse input signal. Displays digital data from PLC or PC. 0.05 to 30 Hz (30) 0 to and lower limit (L set value) can be set independently.

The output is turned ON when the measured value is greater than upper-limit set value or less than the lower-limit set value. Only transistor outputs have a PASS output which is output when both OUT1 and OUT2 are OFF. Upper Limit (High Acting) Lower Limit (Low Acting) Upper and Lower Limits (Outside Band Acting) Upper-limit set value for OUT1/2 Hysteresis OUT1/2 set value Measurement value Hysteresis Measurement value OUT1/2 set value ON Hysteresis Measurement value Lower-limit set value for OUT1/2 ON Output OFF Hysteresis Output OFF ON Output OFF The three types of output operations shown above can be combined as desired. The following are examples of possible combinations. Upper Limit 2-stage Output Threshold Output Upper-limit OUT2 set value Combination of Upper Limit and Upper/Lower Limits Measurement value Upper-limit OUT2 set value OUT1 set value Measurement value Lower-limit OUT2 set value OUT2 set value Measurement value OUT1 set value Upper-limit OUT1 set value Lower-limit OUT1 set value Lower-limit OUT2 set value OUT2 ON OFF OUT1 ON OFF OUT2 ON OFF OUT2 OUT1 ON OFF ON OFF ON OFF ON OUT1 OFF 1/32 DIN Digital Panel Meter K3GN K-15 Panel indicators Nomenclature 1.

Main display 2. Status indicators 2. Status indicators 3. Level indicator 4. Level key 5. Mode key Name 1. Main display 2. Status indicators OUT1 OUT2 SV T Lit when output 1 is ON. Lit when output 2 is ON. 6.

Shift key 7. Up/Zero key Functions Displays process values, parameters, and set values. Lit when a set value is being displayed or changed. Lit when the teaching function is enabled. Flashes when the K3GN is in teaching operation.



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Lit when a calibration value is being displayed during user calibration. Flashes while reading a calibration value. Lit while the forced-zero function is activated. Lit when HOLD input is ON. Lit when communications writing is "enabled" and is out when it is "disabled."

" Displays the current level that the K3GN is in. (See below for details.) Used to change the level. Used to allow the Main display to indicate parameters sequentially. Used to enable that set value to be changed.

When changing a set value, this key is used to move along the digits. Used to change a set value. Used to set or clear a forced-zero function when a measurement value is being displayed. ZERO HOLD CMW 3. Level indicator 4.

Level Key 5. Mode Key 6. Shift Key 7. Up/Zero Key Level indicator Level Protect Operation Adjustment Initial setting Communications setting Advanced function setting User calibration p Not lit a s c f u K-16 1/32 DIN Digital Panel Meter K3GN Dimensions Note: All units are in millimeters unless otherwise indicated. Panel Cutouts Separate mounting 45 0 22.2 0 +0.3 +0.6 Gang Mounting (48 × No. of Panels - 2.5) +1.

0 0 +0.3 0 22.2 40 min. The products cannot be made waterproof when gang-mounted. The K3GN uses M3 terminals. A terminal cover is provided. Main Display Character Size 7 mm 3.6 mm Application Examples Detection of Dust Exhaust The change in the density of the dust is detected via the E3SA and discriminated by the K3GN. Exhaust Monitoring of Tank Pressure The output of the pressure sensor is processed and the pressure is displayed. Remote monitoring of the operation is possible with the communications function.

4 to 20 mA E3SA K3GN E8AA Pressure Sensor K3GN Host PC Foam RS-485 RS-232C Grinder Dust collecting machine Beer Pump OUT2 (Upper upperlimit alarm) Device stops OUT1 (Upper-limit alarm) Output reduction instruction Tank Exhaust valve 1/32 DIN Digital Panel Meter K3GN K-17 Panel indicators

Monitoring of Motor Load Current If the startup time compensation of the K3GN is enabled, the K3GN will not be influenced by the inrush current from starting the motor, and no signal will be output from the K3GN. Power supply* Electromagnetic relay Signal input Monitoring the Remaining Quantity of Soup The distance to the surface of the soup is detected with an ultrasonic sensor and, based on this distance, the K3GN displays the remaining quantity.

When the remaining quantity of soup decreases to less than 20%, the K3GN lights the "Replenish" indicator. 24-VDC power supply* E4PA-LS50-M1 Ultrasonic Sensor OUT1 (Upper-limit alarm) K3GN OUT2 (Lower-limit alarm) 4 to 20 mA K3GN 100 % Volume of soup Replenish OUT 1 Large cup Medium cup K3FK CT Converter 20 % Small cup Note: *Power Supply: Recommended DC power supply: eg. OMRON S8VS.

Monitoring Difference between Two Line Speeds The difference between the two line speeds is calculated by the PLC and the result is written via RS-485 to the K3GN where it is displayed. RS-485 communications output (calculation result) Monitoring Number of Motor Revolutions Power supply* Signal input 24-VDC power supply* Electromagnetic relay 4 to 20 mA K3GN (Set the input type to "Remote"). OUT1 (Upper limit) 0 to 1 A K3FK CT Converter K3GN-NDC OUT1 (Upper limit) E2E Proximity Sensor OUT2 (Lower limit) K3GN-NDC OUT2 (Lower limit) Position Indication on X-Y Table The position on the X-Y table is calculated by the PLC and the result is written via RS-485 to the K3GN where it is displayed. @@@@Doing so may result in electric shock. @@@Electrical shock may result via the screwdriver.

6. @@@@7. Use the K3GN within the specified temperature and humidity ranges. @@@@8. Store the K3GN within the specified temperature and humidity ranges. 9. Do not lay heavy objects on the product during use or storage. Doing so may deform or deteriorate the K3GN. 10. Conduct aging for 15 minutes min.

@@@@@@Use screws to secure the K3GN. To make the K3GN waterproof, insert watertight packing in the K3GN. Install the watertight packing in the proper direction. Note that the packing is direction-sensitive. @@@Mount the K3GN as horizontally as possible. @@@@@@@The recommended tightening torque is 0.5 N·m. @@@@@@@@@Product failure may prevent operation of comparative outputs. @@@Observe the following precautions to ensure safety: 1. Do not connect anything to unused terminals.

2. Be sure to check each terminal for correct number and polarity before connection. Incorrect or reverse connection may damage or burn out internal components of the K3GN. 3. Do not use the product in locations subject to the following: · Dust or explosive gasses (e.g., sulfide gas or ammonia gas). · Condensation or icing as a result of high humidity. · Outdoors or in direct sunlight. · Splashing liquid or oil atmosphere. · Direct radiant heat from heating equipment. · Extreme changes in temperature. 4. Do not block heat dissipation around the product, i.e., provide sufficient space for heat dissipation. Do not block the ventilation holes on the back of the product. 5. Do not use paint thinner for cleaning. Use commercially available alcohol.

Wiring Wire the power supply with the correct polarity. Wiring with incorrect polarity may result in damage or burning. Wire the terminals using crimp terminals. Tighten terminal screws to a torque of approx. 0.5 N·m. Wire signal lines and power lines separately to reduce the influence of noise. Panel indicators Use M3 crimp terminals of the type shown below. 5.8 mm max.

5.8 mm max. 1/32 DIN Digital Panel Meter K3GN K-19 Operating Procedures Initial Settings Power ON Press the Level Key @ for 3 s min. to move to the initial setting level. Select the input type and specify the analog input range or pulse frequency input range.

Set the scaling values and specify output operating action as required. With communications output models, press the Level Key @ for less than 1 s to move to the communications setting level. After making communications settings, press the Level Key @ for less than 1 s to move to the initial setting level. Move to the advanced function setting level and make settings for average processing, HOLD/ZERO selection, hysteresis values, auto-zero time, startup compensation time, display color programming, and other advanced function parameters as required. Press the Level Key @ for less than 1 s min.

to return to the operation level. Specify set value of OUT 1 and 2. Measurement starts. K-20 1/32 DIN Digital Panel Meter K3GN Levels "Level" refers to a grouping of parameters. The following table lists the operations that are possible in each of the levels, and how to move between levels. There are some parameters that are not displayed for certain models. Level name Protect Operation Adjustment Initial setting Communications setting Advanced function setting Calibration Setting lockouts.



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Function Continue Displaying process values, setting/clearing forced-zero function, and Continue setting OUT 1/2 set values. Setting communications writing control. Continue Making initial settings of input type, scaling, output operating action, Stopped and other parameters.

Setting baud rate, word length, and other communications data. Setting average processing, display color settings, and other advanced function parameters. Setting user calibration of the inputs. Stopped Stopped Stopped Measurement Power ON + Time set by user (see note) Operation Adjustment Less than 1 s Flashing stops if key is released. 1 s min. Protection + 1 s min. 1 s min. -1234.5 Continue to press the key for 2 s min. Indicates change of level.

Initial setting Communications setting Less than 1 s Password "-0169" 1 s min. Advanced function setting Password "1201" Calibration Panel indicators Note: The move to protection level time can be set in the advanced function setting level. 1/32 DIN Digital Panel Meter K3GN K-21 Parameters Note: 1. Some parameters are not displayed for certain models. 2.

The K3GN will stop measurement if the level is changed to the initial setting level, the advanced function setting level, the communications setting level, or the calibration level. 3. If the input range is changed, some parameters are set to default values. Therefore, set the input range first. 4.

Settings displayed in reverse black/white are defaults. Power ON Adjustment level Press Level Key for less than 1 s. Operation level Communications writing control Process value OUT1 set value - Changing Set Values While parameters are being displayed, set values can be displayed by pressing the Shift Key (monitor status). Pressing the Shift Key again will make it possible for this set value to be changed (setting status). The part that can be changed will flash. Change the set value as required, and press the Mode Key to register the setting and move to the next parameter. Set one of these. Upper-limit OUT1 set value - Lower-limit OUT1 set value - OUT2 set value - Monitor Status Setting Status Set one of these. Upper-limit OUT2 set value Lower-limit OUT2 set value - Next parameter Change the set value using the The set value If there is no key op- Up Key and flashes. eration for 5 seconds, the Shift Key .

the setting is registered and the display returns to monitor status. - K-22 1/32 DIN Digital Panel Meter K3GN Press Level Key for less than 1 s. Communications setting level Communications unit no. - Baud rate Word length Stop bits Parity bits None Even Odd Press Level Key for more than 3 s. Press Level Key for more than 1 s. Initial setting level Press Level Key for more than 1 s. Input type Advanced function setting level Enter password "-0169" Analog Pulse Parameter initialization Remote (digital data display) For analog input Analog input range Average processing Unit: times For pulse input Input-pulse frequency range For analog/ remote input Unit: Hz HOLD/ ZERO selection For analog/ remote input Input value 1 for scaling Display value 1 for scaling Input value 2 for scaling Display value 2 for scaling - OUT1 Hysteresis - - - OUT2 Hysteresis - - - For pulse input Auto-zero time Startup compensation time Display color change - Unit: s - - Unit: s Green (red) Green Red (green) Red For pulse input Input value for scaling - Display value for scaling - Display Auto-return time - - Unit: s - - Unit: s Operating Action for OUT1 set value Operating Action for OUT2 set value Move to advanced function setting level Upper Limit Lower Limit Upper/Lower Limits Upper Limit Lower Limit Upper/Lower Limits Send waiting time - - Unit: ms For analog input Move to calibration level - - - Enter password "1201" Calibration level 1/32 DIN Digital Panel Meter K3GN K-23 Panel indicators Decimal point position Move-toprotectlevel time Protect level p Operation/adjustment lockouts - Prohibits menu display, writing, etc., for operation level and adjustment level. p Initial setting/communications lockouts · Prohibits access to menu display, initial setting level, communications setting level, and advanced function setting level. p Setting change lockout · Prohibits setting changes using front panel keys.

p Forced-zero shift lockout · Prohibits use of the forced-zero function using front panel keys. Operation/Adjustment Lockouts Prohibits key operations for operation level and adjustment level. Setting Operation level Process value display 0 1 2 Allowed Allowed Allowed Set value display Allowed Allowed Prohibited Moving to adjustment level Allowed Prohibited Prohibited Initial Setting/Communications Lockouts Prohibits moving to the initial setting level, the communications setting level, and the advanced function setting level. Setting Moving to initial setting level Moving to communications setting level 0 · Initial setting is 0. · When the set value is 0 (the initial setting), protection is not set.

Allowed (message for mov- Allowed ing to advanced function setting level displayed) Allowed (message for mov- Allowed ing to advanced function setting level not displayed) Prohibited Prohibited 1 Setting Change Lockout Prohibits setting changes. Setting OFF Meaning Setting changes using front panel keys allowed (i.e., it is possible to move to the state where changes to settings can be made). @@Setting OFF ON Meaning Executing and clearing of forced-zero allowed.

@@@@@Main display e111 (E111) e111 (E111) Level display Not lit 5 Error contents RAM memory error EEPROM memory error Input error or input range exceeded Countermeasure Turn the power supply OFF and ON again. If the same error is displayed even after the power is turned OFF and ON, it is necessary to replace the memory. If normal operation is restored by turning the power supply OFF and ON, it is possible that there is noise interference.

Check that there is nothing in the vicinity that may be the source of noise. All outputs turn OFF. Check for incorrect input wiring, for disconnected power lines, for shortcircuiting, and the input type. Bring the input value within range. This is not an operational error. These messages are displayed when a value to be displayed lies outside the displayable range, even if the input value is within the input range and the range for which measurement is possible. Bring the input value and display value within range.

s.err (S.Err) (Flashes at 0.5-s intervals) Not lit 99999 (Flashes at 0.5-s intervals) -19999 (Flashes at 0.5-s intervals) Not lit Not lit Greater than displayable range Less than displayable range 1/32 DIN Digital Panel Meter K3GN K-25 Panel indicators Additional Information Application as a Process Meter The initial settings required when using the K3GN a process meter are explained below using the following example.



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Setting Example Inputs in the range 1 to 5 V are scaled to the range 0 to 100.0 kg and displayed. If the measurement value goes over 70.0 kg, output 1 turns ON.

If the measurement value goes below 50.0 kg, output 2 turns ON. Initial Setting Procedure 1. Check the wiring and turn ON the power. 2.

Set analog input as the input type. If a measurement value is displayed (operation level), move to the initial setting level by holding down the Level Key for 3 s min. Set parameter in-t to analg. 3. Set the analog range to 1 to 5 V.

Set parameter range to 1-5. 4. Set the scaling values. Set parameter inp.1 to 1.000. Set parameter dsp.1 to 0. Set parameter inp.2 to 5.

000. Set parameter dsp.2 to 1000. 5. Set the position of the decimal point. Set parameter dp to %%%%.%. 6. Operating action for OUT1 and OUT2 set values. Set parameter out1.

t to hi. Set parameter out2.t to lo. 7. Set OUT1 set value to 70.

0 and OUT2 set value to 50.0. If an initial setting level parameter is displayed, press the Level Key for 1 s min. to return to the operation level. Set parameter out1 to 70.

0. Set parameter out2 to 50.0. 8. Start actual operation. Displayed value 100.0 kg 0.0 kg 1.000 V 5.000 V Input value Output 2 Normal 50.

0 kg Output 1 70.0 kg Application as a Tachometer Setting Example The speed of a conveyor belt is displayed in m/min units. For every revolution of the shaft, 4 pulses are output. The diameter of the axis of rotation is 12 cm. If the Rotational speed goes over 10.500 m/min, output 1 turns ON. If the speed goes below 9.500 m/min, output 2 turns ON. The initial settings required when using the K3GN as a tachometer are explained below using the following example.

Speed (m/min) = 5654.

866... × Input frequency (Hz) Displayed value 56549 Output 2 12 cm Normal Output 1 9.500 m/min 10.

500 m/min 10 Hz Input value To limit inaccuracies due to scaling, select a round number (e.g., 10) as the input value and select a display value of as many digits as possible. In this example, scaling is performed so that an input value of 10 gives a displayed value of 56549. Deciding the Scaling Value Rotational speed (m/min) = × Diameter (m) × Revolutions per minute (rpm) Revolutions per minute (rpm) = Input frequency (Hz) ÷ Number of pulses per revolution ×

60 Applying the appropriate values to these 2 equations gives: Speed (m/min) = 5.

654866... × Input frequency (Hz) Multiply by 1,000 to display the first 3 digits to the right of the decimal point. K-26 1/32 DIN Digital Panel Meter K3GN Initial Setting Procedure 1. Check the wiring and turn ON the power. 2. Set pulse input as the input type. If a measurement value is displayed (operation level), move to the initial setting level by holding down the Level Key for 3 s min. Set parameter in-t to pulse.

3. Set the pulse frequency to 30 Hz. The input pulse frequency for the application is approximately 2 Hz and so can be assumed not to exceed 30 Hz. Set parameter p-fre to 30. 4. Set the scaling values. Set parameter inp to 10. Set parameter dsp to 56549. 5. Set the decimal point.

Set parameter dp to %%.%.%. 6. Operating action for OUT1 and OUT2 set values. Set parameter out1.

t to hi. Set parameter out2.t to lo. 7. Set OUT1 set value to 10.

500 and OUT2 set value to 9.500. If an initial setting level parameter is displayed, press the Level Key for 1 s min. to return to the operation level. Set parameter out1 to 10.500. Set parameter out2 to 9.500. 8. Start actual operation.

1/32 DIN Digital Panel Meter K3GN K-27 Panel indicators ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527. Cat. No. N101-E1-03 In the interest of product improvement, specifications are subject to change without notice. K-28 1/32 DIN Digital Panel Meter K3GN.



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