TECHNICAL GUIDANCE

NMR5000

Tank Gauge Receiver

OUTLINE

The **NMR5000** is a tank gauge receiver that can accept up to 256 transmitters.

Users can access the inside from the front panel side, making maintenance much easier than with conventional models. The inner board uses the slot system and supports hot swapping, enabling users to replace the board and other parts during operation. Although the NMR5000 has no exhaust fan, it can withstand an ambient temperature of up to 50°C. It is also lightweight and power-saving. The operating system is Windows 10 IoT. Simple replacement makes it easy to upgrade from the existing NMR series and gauge receiver of other companies.



STANDARD SPECIFICATIONS

Connection	: Max. 256 transmitters (two-way)					
External communication	: LAN, RS-232C, parallel communi- cation, etc.					
Power supply	: 100 to 240 V AC \pm 10% 50/60 Hz					
Power consumption	: 100 VA (max.)					
Cooling fan	: N/A					
Ambient temperature	: 0 to 50°C					
Ambient humidity	: 20 to 80% (No condensation)					
Installation	: Panel mount, desktop, 19-inch rack mount					
Storage	: Solid state drive (SSD)					
Panel cutout	: 392 (W) $ imes$ 177 (H) (mm)					
External dimensions	: 388 (W) $ imes$ 200 (H) $ imes$ 302 (D) (mm)					
Mass	: Approx. 10 kg					
Maintenance	: Front access, hot swapping					
Replacement parts	: Power supply unit (5 years)*					
	Fuse (5 years)					
	Other parts (7 years)					

* Figures in parentheses are the recommended replacement period.

FUNCTIONS

Self-diagnosis

Judges whether automatically sampled data are correct or incorrect. The status of transmitters and interfaces is also diagnosed.

□ Alarm monitoring

Data are continuously monitored, and when they reach alarm points, users are immediately notified by lamp and buzzer (contact output is also available). Level alarms can be set at up to four points, and temperature alarms at up to two points for each transmitter.

Level gauge control

Through operations on the display, operators can remotely perform hoisting up and other operations on level meters. Operations differ depending on the connected transmitter.

Host computer interface

Data on level and temperature are sent to a host computer. One port for LAN and two ports for RS-232C serial communication are provided as standard. Parallel communication is also available as an option.

Capacity display (optional)

By registering a tank table, the apparent capacity can be displayed. The capacity calculated from JIS K-2249 and ASTM D-1250 Tables 54A and 54B can also be displayed.

TOKYO KEISO CO., LTD.

TG-L1034-E01 2nd edition Dec 2019 K 1st edition Dec 2018 K

BASIC MODEL CODE

							Ba	sic	m :	od	el d	:00	de															Description		
NMR5000		-	Τ			Π	Τ	Τ							-	Γ							-	Τ				Description		
Communication board	IF1 IF2 IF3 IF4 IF5 IF6 IF7 IF8	- *	* *	* *	_	*	*	_	* *	_	*	*		**														Internal board specifications * Select one by referring to Table1 "Internal board specification code".		
Connector board	CN1 CN2 CN3 CN4 CN5 CN5 CN5 CN5 CN5	2 3 4 5 7													-	*	*	*	*	* *	*	*						Rear face connector board specifications * Select one by referring to Table2 "Rear face connector board specification code".		
																							- (ז				N/A		
Watch dog timer	CNS)																				Ī	- 1	1				M4 screw terminal 3P		
																							- 2	2				Amphenol 14P		
																								0				1 port for LAN and 2 ports for RS-232C		
Number of ports	for a	wtor	nol	000	~~~			+10	n															1				2 ports for LAN and 1 port for RS-232C		
Number of ports		, ALGI	IIai	COI		Ium	ica	uo																2				1 port for LAN and 3 to 6 ports for RS-232C		
																								3				2 ports for LAN and 2 to 5 ports for RS-232C		
																									0			N/A		
Display																									1			8.4 inch		
		2															12.1 inch													
																										0		Panel mount		
Installation																										1		Desktop		
Installation		2													19-inch rack mount															
																										3		19-inch rack mount (front surface alignment)		
Coffuero hoci		i e e t																									0	Level and temperature monitoring		
Software basic s	Deci	licat	ions	5																							1	Custom specification		

Table1: Internal board specification code

Sp	pecifications	Cc	bde	
No boards		0	0	
Two-way communication board	FW/DM-II format	W	0	
	DM format	S	(
One way communication board	DB-M format (36V)	S	-	
One-way communication board	DB-ML format	S	2	
	DB-M format (24V)	S	3	
	Ch1: Other company format	F	(
Two-way communication board	Ch2: Other company format		1	
other company (MDP/V1 format)	Ch1: Other company format	F		
	Ch2: TIC format			
Digital input board	Photocoupler input (internal power supply)	1	1	
(input: 32 points)	Photocoupler input (external power supply)	1		
	Photocoupler input (internal power supply)	2		
	Photocoupler output (internal power supply)	2	ľ	
	Photocoupler input (external power supply)			
	Photocoupler output (external power supply)	2		
	Photocoupler input (internal power supply)	2	:	
Digital input/output board	Photo relay output	2	4	
(input: 16 points, output: 16 points)	Photocoupler input (external power supply)	2	:	
	Photo relay output	2		
	Photocoupler input (internal power supply)	2		
	Photo relay output (output: 8 points) *1	2	Ľ	
	Photocoupler input (external power supply)	2		
	Photo relay output (output: 8 points) *1	2	ľ	
	Photocoupler output (internal power supply)	3	(
Digital output board	Photocoupler output (external power supply)	3		
(output: 32 points)	Photo relay output	3	1	
	Photo relay output (output: 16 points) *1	3	;	
Analog input board	Current input	4	(
(input: 4 points)	Voltage input	4		
Analog output board	Current input	5	1	
(output: 4 points)	Voltage input	5		

*1: Specification when using 2-line communication for a single output signal, in which each output is isolated and the number of output points is halved.

Table 2: Rear face connector board specification code

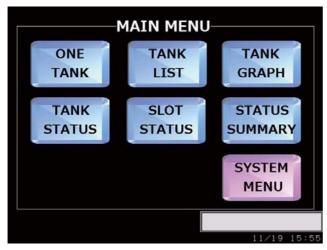
Specifications	Code
No connectors	0
M4 screw terminal 6P	1
Plug type terminal	2
Amphenol 36P	3
Amphenol 50P	4
D-sub 9P (male) inch screw	5

INDICATION

The touch panel LCD can display the following:

- Main menu
- One tank
- Tank list (8 tanks and 16 tanks)
- Tank graph (2 tanks and 4 tanks)
- Tank status (error, level alarm, temp. alarm)
- Slot status
- Status summary (error summary and alarm summary)

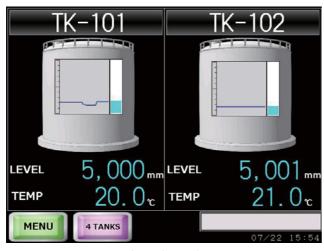
EXAMPLE OF DISPLAY



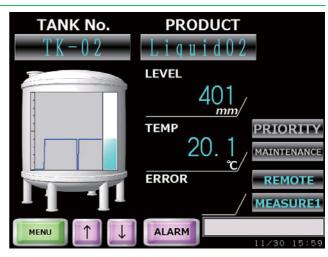
Main menu

TANK No.	PRODUCT	LEVEL(mm)	темр(°С)	ERROR
TK-101	LIQUID_A	5, 512	10.1	
TK-102	LIQQID_B	5, 002	10.2	
TK-103	LIQUID_C	5,003	10.3	
TK-104	LIQUID_D	5,004	10.4	
TK-105	LIQUID_E	25,005	10.5	
TK-106	LIQUID_F	5,006	60.0	
TK-107	LIQUID_G	5,007	10.7	
TK-108	LIQUID_H	5,008	10.8	
MENU	$\uparrow \downarrow$	16 TANKS	11	/19 16:08

List (8 tanks)



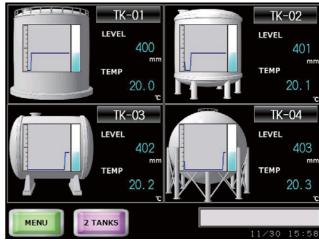
Graph (2 tanks)



One tank

TANK No.	PRODUCT	LEVEL(mm)	TEMP(℃)	ERROR
TK-101	LIQUID_A	5, 518	10.1	
TK-102	LIQGID_B	5,002	10.2	
TK-103	LIQUID_C	5,003	10.3	
TK-104	LIQUID_D	5,004	10.4	
TK-105	LIQUID_E	25,005	10.5	
TK-106	LIQUID_F	5,006	60.0	
TK-107	LIQUID_G	5,007	10.7	
TK-108	LIQUID_H	5,008	10.8	
TK-109	LIQUID_I	5,009	10.9	
TK-110	LIQUID_J	5,010	11.0	
TK-111	LIQUID_K	5,011	11.1	
TK-112	LIQUID_L	5.012	11.2	
TK-113	LIQUID_M	5.013	11.3	
TK-114	LIQUID_N	5,014	11.4	
TK-115	LIQUID_O	5,015	11.5	
TK-116	LIQUID_P	5,016	11.6	

List (16 tanks)



Graph (4 tanks)

ERROR	LEVEL	ТЕМР		
No:1-32		IORMAL	ERROR	MAINT
TK-101	TK-10	09		
TK-102	TK-1	10		
TK-103	TK-1	11		
TK-104	TK-1	12		
TK-105	TK-1	13		
TK-106	TK-1	14		
💷 TK-107	TK-1	15		
TK-108	TK-1	16		
MENU	$\uparrow] \downarrow]$			07/22 16:27

Tank status (error)

ERROR	LEVEL	TEMP		
No:1-32		NORMAL	•]H/L	
TK-101	TK-10)9		
TK-102	TK-1	0		
TK-103	TK-1	1		
TK-104	TK-11	2		
TK-105	TK-11	3		
TK-106	TK-11	4		
TK-107	TK-11	5		
TK-108	TK-11	6		
MENU	$\uparrow] \downarrow]$			07/22 16:27

Tank status (temp. alarm)

ERRO	R SUMM	IARY			
001	11/19	16:16:45	5 TK-108	2-002	
002	11/19	16:16:39	9 TK-108	2-002	
003	11/19	16:08:23	3 TK-108	2-002	\downarrow
004	11/19	15:58:55	5 TK-102	2-002	
005	11/19	15:57:26	6 TK-102	2-002	CONFIRM
TAN	K INFOR	MATION	EF	RROR INFO	RMATION
TANK	(No :TK	-108	TIME :2019	11/19	16:16:45 Close
CO	MM : FV	V-9000	TYPE : TR EF	ROR	STS :OCCUR
SL	_OT : 2		INFO :No re	sponse fr	om transmitter
AD	DR : 00	8	again	st the rea	quest
м	NU				
		ALARM			11/19 16:21

Status summary (error summary)

ERROR	LEVEL	ТЕМР		
No:1-32	NORMA	L <mark>E H/L</mark>	💽 HH/LL 🚺	MAINT
TK-101	TK-109			
TK-102	TK-110			
TK-103	TK-111			
TK-104	TK-112			
TK-105	TK-113			
TK-106	TK-114			
TK-107	TK-115			
TK-108	TK-116			
MENU	$\uparrow \qquad \downarrow \qquad $		07/2	22 16:27

Tank status (level alarm)



Slot status

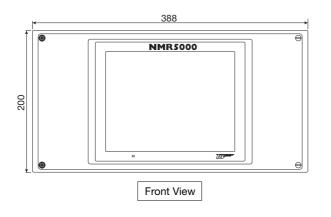
ALAR	M SUMM	1ARY			_	•
001	11/19	16:16:53	3 TK-105	LVL H	н	
002	11/19	16:16:53	3 TK-105	LVL H	ł	
003	11/19	16:16:48	3 TK-105	LVL H	ł	\downarrow
004	11/19	16:16:48	3 TK-105	LVL F	IH	
005	11/19	16:07:50) TK-106	TMP I	Н	CONFIRM
TAN	K INFOR	MATION	ALA	ARM INFO	RMATION	1 · · ·
TANK	(No : Tk		TIME :2019	11/19	16:16:	53 CLOSE
-	HH :	7000 mm	TYPE : LVL I	нн	STS : C	DCCUR
	H: L:	6000 mm 1000 mm	VALUE: 25	005 mm		
	LL:	0 mm				_
		-				
ME	NU	ERROR⇔ ALARM			11/1	9 19:58

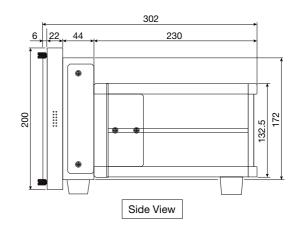
Status summary (alarm summary)

EXTERNAL DIMENSIONS

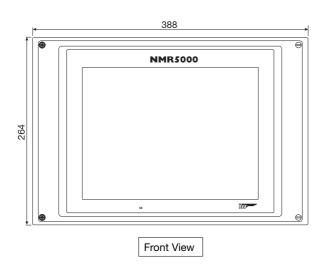
Unit: mm

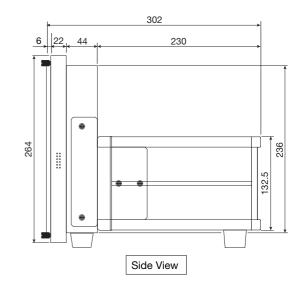
[Display size: 8.4 inch]



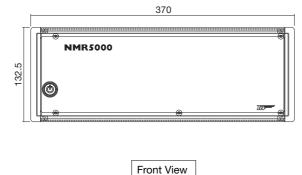


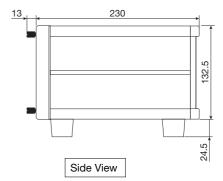
[Display size: 12.1 inch]



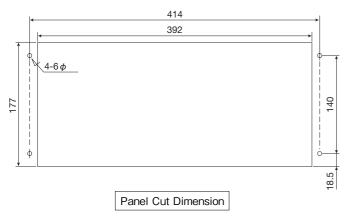


[No display size]

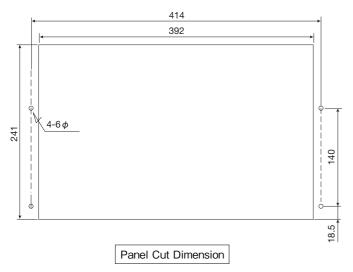




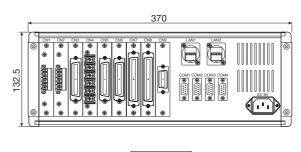
[Display size: 8.4 inch]



[Display size: 12.1 inch]



[Common]



Rear View

* Specification is subject to change without notice.

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