



ABW – OCR P-type / S-type MODBUS Protocol

1. Introduction

MODBUS RTU protocol

2. Physical Layer

Communication port: RS485, Fiber optic

Asynchronous format: One character consists of 10 or 11bit. (1 start bit + 8 data bits + (1 parity bit) +1 stop bit)

Baud rate: 9600, 19200, 38400 bps

Parity: Even, Odd, no parity

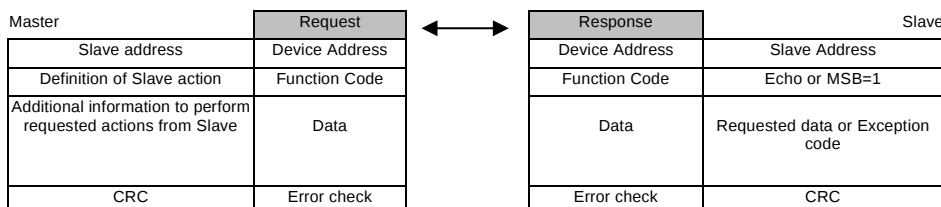
It has the communication method of Master-Slave, Master only can carry out a request action, and Slave sends the requested data received from Master or responses to the requested performance.

3. Data Link Layer

If Master sends the request frame to Slave, Slave sends back the response frame. Each frame is separated by its dead time.

The general mode for sending/receiving frame is as follows:

DESCRIPTION	SIZE
SLAVE ADDRESS	1 byte
FUNCTION CODE	1 byte
DATA	N byte
CRC	2 byte
DEAD TIME	3.5 bytes transmission time



SLAVE ADDRESS

Valid slave device address range: 0~247 decimal Actually used slave device address range: 1~247 decimal
In case the slave device address of frame where Master requests to Slave is in the range of zero, it means that Master device is broadcasting to all slaves.

When Master requests to Slave, transmit address field after filling it out with corresponding address. When Slave responses to Master, transmit address field after filling it out with Slave address.

FUNCTION CODE Valid range: 1~255

normal: 1~127, error: 129 ~ 255(normal + 0x80)

It defines the action that Master can request to Slave. Slave inputs the following information.

In case of normal response: Echo the function code value of request as it is.

In case of exception response: Fill out the function code value of request after setting MSB as 1.

DATA

Register address

The amount of item to handle Byte quantity of actual data



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CRC

It is used for error checking method. CRC-16

CRC Generation Function

```
unsigned short CRC16(puchMsg, usDataLen)
    unsigned char *puchMsg ; /* message to calculate CRC upon */
    unsigned short usDataLen ; /* quantity of bytes in message */
{
    unsigned char uchCRCHi = 0xFF ; /* high byte of CRC initialized */
    unsigned char uchCRCLo = 0xFF ; /* low byte of CRC initialized */
    unsigned uIndex ; /* will index into CRC lookup table */

    while (usDataLen—) /* pass through message buffer */
    {
        uIndex = uchCRCHi ^ *puchMsgg++ ; /* calculate the CRC */
        uchCRCHi = uchCRCLo ^ auchCRCHi[uIndex] ;
        uchCRCLo = auchCRCLo[uIndex] ;
    }

    return (uchCRCHi << 8 | uchCRCLo) ;
}
```

DEAD TIME

Frame is finished when it has a silent interval more than 3.5 charter time after receiving the final character.

MODBUS Exception Codes

code	Name
01h	ILLEGAL FUNCTION
02h	ILLEGAL DATA ADDRESS
03h	ILLEGAL DATA VALUE
04h	SLAVE DEVICE FAILURE
05h	ACKNOWLEDGE
06h	SLAVE DEVICE BUSY
10h	No Data of Event/Fault record
11h	SBO TIME OUT
12h	ILLEGAL ADU LENGTH
13h	LOCAL MODE
14h	MAIN_NAK

Examples

(1) 03(0x03) Read Holding Registers

Example of a Request/response to read registers 40001 ... 40002 from slave device 1

Request		Response	
Field Name	(Hex)	Field Name	(Hex)
Slave Address	01	Slave Address	01
Function	03	Function	03
Starting Address Hi	00	Byte Count	04
Starting Address Lo	00	Register value Hi(40001)	42
Quantity of Inputs Hi	00	Register value Lo(40001)	DC
Quantity of Inputs Lo	02	Register value Hi(40002)	00
CRC Lo	-	Register value Lo(40002)	00
CRC Hi	-	CRC Lo	-
		CRC Hi	-

(2) 04(0x04) Read Input Registers

Example of a Request/response to read registers 30001 ... 30002 from slave device 1

Request		↔	Response	
Field Name	(Hex)		Field Name	(Hex)
Slave Address	01		Slave Address	01
Function	04		Function	04
Starting Address Hi	00		Byte Count	04
Starting Address Lo	00		Register value Hi(30001)	00
Quantity of Inputs Hi	00		Register value Lo(30001)	00
Quantity of Inputs Lo	02		Register value Hi(30002)	00
CRC Lo	-		Register value Lo(30002)	00
CRC Hi	-		CRC Lo	-
			CRC Hi	-

(3) 05(0x05) Write Single Coil

Example of a Request/response to force coil 1 ON in slave device 1

Request		↔	Response	
Field Name	(Hex)		Field Name	(Hex)
Slave Address	01		Slave Address	01
Function	05		Function	05
Starting Address Hi	00		Starting Address Hi	00
Starting Address Lo	00		Starting Address Lo	00
Force Data Hi	FF		Force Data Hi	FF
Force Data Lo	00		Force Data Lo	00
CRC Lo	-		CRC Lo	-
CRC Hi	-		CRC Hi	-

(4) 16(0x10) Write Multiple Registers

Example of a Request/response to preset two registers starting at 40001 to 42 DC and 00 00 hex, in slave device 1

Request		↔	Response	
Field Name	(Hex)		Field Name	(Hex)
Slave Address	01		Slave Address	01
Function	10		Function	10
Starting Address Hi	00		Starting Address Hi	00
Starting Address Lo	00		Starting Address Lo	00
Number of Registers Hi	00		Number of Registers Hi	00
Number of Registers L	02		Number of Registers Lo	02
Byte Count	04		CRC Lo	-
Data Hi	42		CRC Hi	-
Data Lo	DC			
Data Hi	00			
Data Lo	00			
CRC Lo	-			
CRC Hi	-			



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<Important Facts>

* MAX register read count : 56

(03h, 04h) : Register can be read from one to several

If reading the several registers, it can be read up to 56 ones.

(5) Exception Codes

If abnormal request frame is transmitted, Slave responses to it with following frame.

Response	
Field Name	(Hex)
Slave Address	01
Function	0x80 + Function Code
Starting Address Hi	Corresponding Exception Code
CRC Lo	-
CRC Hi	-

Ex) If Master tries to READ the 30501Register under the condition where 301501Register is not defined at the register map, Slave device responses to it with ILLEGAL DATA ADDRESS(02).

Request	
Field Name	(Hex)
Slave Address	01
Function	04
Starting Address Hi	77
Starting Address Lo	24
Quantity of Inputs Hi	00
Quantity of Inputs Lo	01
CRC Lo	-
CRC Hi	-

Response	
Field Name	(Hex)
Slave Address	01
Function	84
Exception Code	02
CRC Lo	-
CRC Hi	-

P_OCR Address Map

REGISTER	ADDRESS	REGISTER NAME	RANGE	UNIT	STEP	FORMAT	Property
1	0	DO1 ON select	-	-	-	F001	W
2	1	DO1 ON op	-	-	-	F001	W
3	2	DO1 OFF select	-	-	-	F001	W
4	3	DO1 OFF op	-	-	-	F001	W
5	4	DO2 ON select	-	-	-	F001	W
6	5	DO2 ON op	-	-	-	F001	W
7	6	DO2 OFF select	-	-	-	F001	W
8	7	DO2 OFF op	-	-	-	F001	W
9	8	DO3 ON select	-	-	-	F001	W
10	9	DO3 ON op	-	-	-	F001	W
11	10	DO3 OFF select	-	-	-	F001	W
12	11	DO3 OFF op	-	-	-	F001	W

101	100	FAULT RESET	-	-	-	F001	W
102	101	EVENT CLEAR	-	-	-	F001	W
103	102	TRIP EVENT CLEAR	-	-	-	F001	W
104	103	Reserved	-	-	-	F001	W
105	104	DEMAND RESET	-	-	-	F001	W



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106	105	MAX W RESET	-	-	-	F001	W
107	106	ENERGY RESET(WH, VARH, rWH, rVARH)	-	-	-	F001	W
108	107	Operation Time RESET	-	-	-	F001	W
109	108	Circuit Breaker Conducting Time RESET	-	-	-	F001	W
110	109	Number of times CB Operating RESET	-	-	-	F001	W

30001	0	Mechanical State Information #1				F112	R
30003	2	Mechanical State Information #2				F212	R
30005	4	R-Phase Current				F004	R
30007	6	S-Phase Current				F004	R
30009	8	T-Phase Current				F004	R
30011	10	N-Phase Current				F004	R
30013	12	R-Phase Voltage (Phase Voltage)				F004	R
30015	14	S-Phase Voltage (Phase Voltage)				F004	R
30017	16	T-Phase Voltage (Phase Voltage)				F004	R
30019	18	Zero-Phase Voltage				F004	R
30021	20	RS-Phase Voltage (Line Voltage)				F004	R
30023	22	ST-Phase Voltage (Line Voltage)				F004	R
30025	24	TR-Phase Voltage (Line Voltage)				F004	R
30027	26	Power-factor				F004	R
30029	28	TOTAL Power				F004	R
30031	30	TOTAL Reactive Power				F004	R
30033	32	TOTAL ApparentPower				F004	R
30035	34	Frequency				F004	R
30037	36	Active Power Energy				F004	R
30039	38	Reactive Power Energy				F004	R
30041	40	Reverse Active Power Energy				F004	R
30043	42	Reverse Reactive Power Energy				F004	R
30045	44	Reserve				F004	R
30047	46	Normal Phase Voltage				F004	R
30049	48	Reverse Phase Voltage				F004	R
30051	50	Voltage Unbalance Factor				F004	R
30053	52	Normal Phase Current				F004	R
30055	54	Reverse Phase Current				F004	R
30057	56	Current Unbalance Factor				F004	R
30059	58	Reserved				F004	R
30061	60	R-Phase Voltage Phase				F004	R
30063	62	S-Phase Voltage Phase				F004	R
30065	64	T-Phase Voltage Phase				F004	R
30067	66	RS-Phase Voltage Phase				F004	R
30069	68	ST-Phase Voltage Phase				F004	R
30071	70	TR-Phase Voltage Phase				F004	R
30073	72	R-Phase Current Phase				F004	R
30075	74	S-Phase Current Phase				F004	R
30077	76	T-Phase Current Phase				F004	R
30079	78	R-Phase Current Power-factor				F004	R
30081	80	S-Phase Current Power-factor				F004	R
30083	82	T-Phase Current Power-factor				F004	R
30085	84	R-Phase Active Power(Reverse Active Power)				F004	R



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30087	86	S-Phase Power(Reverse Active Power)				F004	R
30089	88	T-Phase Power(Reverse Active Power)				F004	R
30091	90	R-Phase Reactive Power				F004	R
30093	92	S-Phase Reactive Power				F004	R
30095	94	T-Phase Reactive Power				F004	R
30097	96	R-Phase ApparentPower				F004	R
30099	98	S-Phase ApparentPower				F004	R
30101	100	T-Phase ApparentPower				F004	R
30103	102	R-Phase Active Power Energy				F004	R
30105	104	S-Phase Active Power Energy				F004	R
30107	106	T-Phase Active Power Energy				F004	R
30109	108	R-Phase Reactive Power Energy				F004	R
30111	110	S-Phase Reactive Power Energy				F004	R
30113	112	T-Phase Reactive Power Energy				F004	R
30115	114	R-Phase Reverse Active Power Energy				F004	R
30117	116	S-Phase Reverse Active Power Energy				F004	R
30119	118	T-Phase Reverse Active Power Energy				F004	R
30121	120	R-Phase Reverse Reactive Power Energy				F004	
30123	122	S-Phase Reverse Reactive Power Energy				F004	
30125	124	T-Phase Reverse Reactive Power Energy				F004	
30127	126	DEMAND Ia				F004	R
30129	128	DEMAND Ib				F004	R
30131	130	DEMAND Ic				F004	R
30133	132	Max DEMAND W				F004	R
30135	134	Max W				F004	R
30137	136	R-Phase(3P4W) / RS-Phase(3P3W) Voltage THD				F004	R
30139	138	S-Phase(3P4W) / ST-Phase(3P3W) Voltage THD				F004	R
30141	140	T-Phase(3P4W) / TR-Phase(3P3W) Voltage THD				F004	R
30143	142	R-Phase Current THD				F004	R
30145	144	S-Phase Current THD				F004	R
30147	146	T-Phase Current THD				F004	R
30149	148	R-Phase Voltage Fundamental Harmonic				F004	R
30151	150					F004	R
30153	152	R-Phase Voltage 3Harmonics				F004	R
30155	154	R-Phase Voltage 4Harmonics				F004	R
30157	156	R-Phase Voltage 5Harmonics				F004	R
30159	158	R-Phase Voltage 6Harmonics				F004	R
30161	160	R-Phase Voltage 7Harmonics				F004	R
30163	162	R-Phase Voltage 8Harmonics				F004	R
30165	164	R-Phase Voltage 9Harmonics				F004	R
30167	166	R-Phase Voltage 10Harmonics				F004	R
30169	168	R-Phase Voltage 11Harmonics				F004	R
30171	170	R-Phase Voltage 12Harmonics				F004	R
30173	172	R-Phase Voltage 13Harmonics				F004	R
30175	174	R-Phase Voltage 14Harmonics				F004	R
30177	176	R-Phase Voltage 15Harmonics				F004	R
30179	178	R-Phase Voltage 16Harmonics				F004	R
30181	180	R-Phase Voltage 17Harmonics				F004	R
30183	182	R-Phase Voltage 18Harmonics				F004	R



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30185	184	R-Phase Voltage 19Harmonics				F004	R
30187	186	R-Phase Voltage 20Harmonics				F004	R
30189	188	R-Phase Voltage 21Harmonics				F004	R
30191	190	R-Phase Voltage 22Harmonics				F004	R
30193	192	R-Phase Voltage 23Harmonics				F004	R
30195	194	R-Phase Voltage 24Harmonics				F004	R
30197	196	R-Phase Voltage 25Harmonics				F004	R
30199	198	R-Phase Voltage 26Harmonics				F004	R
30201	200	R-Phase Voltage 27Harmonics				F004	R
30203	202	R-Phase Voltage 28Harmonics				F004	R
30205	204	R-Phase Voltage 29Harmonics				F004	R
30207	206	R-Phase Voltage 30Harmonics				F004	R
30209	208	R-Phase Voltage 31Harmonics				F004	R
30211	210	R-Phase Voltage 32Harmonics				F004	R
30213	212	R-Phase Voltage 33Harmonics				F004	R
30215	214	R-Phase Voltage 34Harmonics				F004	R
30217	216	R-Phase Voltage 35Harmonics				F004	R
30219	218	R-Phase Voltage 36Harmonics				F004	R
30221	220	R-Phase Voltage 37Harmonics				F004	R
30223	222	R-Phase Voltage 38Harmonics				F004	R
30225	224	R-Phase Voltage 39Harmonics				F004	R
30227	226	R-Phase Voltage 40Harmonics				F004	R
30229	228	R-Phase Voltage 41Harmonics				F004	R
30231	230	R-Phase Voltage 42Harmonics				F004	R
30233	232	R-Phase Voltage 43Harmonics				F004	R
30235	234	R-Phase Voltage 44Harmonics				F004	R
30237	236	R-Phase Voltage 45Harmonics				F004	R
30239	238	R-Phase Voltage 46Harmonics				F004	R
30241	240	R-Phase Voltage 47Harmonics				F004	R
30243	242	R-Phase Voltage 48Harmonics				F004	R
30245	244	R-Phase Voltage 49Harmonics				F004	R
30247	246	R-Phase Voltage 50Harmonics				F004	R
30249	248	R-Phase Voltage 51Harmonics				F004	R
30251	250	R-Phase Voltage 52Harmonics				F004	R
30253	252	R-Phase Voltage 53Harmonics				F004	R
30255	254	R-Phase Voltage 54Harmonics				F004	R
30257	256	R-Phase Voltage 55Harmonics				F004	R
30259	258	R-Phase Voltage 56Harmonics				F004	R
30261	260	R-Phase Voltage 57Harmonics				F004	R
30263	262	R-Phase Voltage 58Harmonics				F004	R
30265	264	R-Phase Voltage 59Harmonics				F004	R
30267	266	R-Phase Voltage 60Harmonics				F004	R
30269	268	R-Phase Voltage 61Harmonics				F004	R
30271	270	R-Phase Voltage 62Harmonics				F004	R
30273	272	R-Phase Voltage 63Harmonics				F004	R
30275	274	S-Phase Voltage Fundamental Harmonic				F004	R
30277	276	S-Phase Voltage 2Harmonics				F004	R
30279	278	S-Phase Voltage 3Harmonics				F004	R
30281	280	S-Phase Voltage 4Harmonics				F004	R



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30283	282	S-Phase Voltage 5Harmonics				F004	R
30285	284	S-Phase Voltage 6Harmonics				F004	R
30287	286	S-Phase Voltage 7Harmonics				F004	R
30289	288	S-Phase Voltage 8Harmonics				F004	R
30291	290	S-Phase Voltage 9Harmonics				F004	R
30293	292	S-Phase Voltage 10Harmonics				F004	R
30295	294	S-Phase Voltage 11Harmonics				F004	R
30297	296	S-Phase Voltage 12Harmonics				F004	R
30299	298	S-Phase Voltage 13Harmonics				F004	R
30301	300	S-Phase Voltage 14Harmonics				F004	R
30303	302	S-Phase Voltage 15Harmonics				F004	R
30305	304	S-Phase Voltage 16Harmonics				F004	R
30307	306	S-Phase Voltage 17Harmonics				F004	R
30309	308	S-Phase Voltage 18Harmonics				F004	R
30311	310	S-Phase Voltage 19Harmonics				F004	R
30313	312	S-Phase Voltage 20Harmonics				F004	R
30315	314	S-Phase Voltage 21Harmonics				F004	R
30317	316	S-Phase Voltage 22Harmonics				F004	R
30319	318	S-Phase Voltage 23Harmonics				F004	R
30321	320	S-Phase Voltage 24Harmonics				F004	R
30323	322	S-Phase Voltage 25Harmonics				F004	R
30325	324	S-Phase Voltage 26Harmonics				F004	R
30327	326	S-Phase Voltage 27Harmonics				F004	R
30329	328	S-Phase Voltage 28Harmonics				F004	R
30331	330	S-Phase Voltage 29Harmonics				F004	R
30333	332	S-Phase Voltage 30Harmonics				F004	R
30335	334	S-Phase Voltage 31Harmonics				F004	R
30337	336	S-Phase Voltage 32Harmonics				F004	R
30339	338	S-Phase Voltage 33Harmonics				F004	R
30341	340	S-Phase Voltage 34Harmonics				F004	R
30343	342	S-Phase Voltage 35Harmonics				F004	R
30345	344	S-Phase Voltage 36Harmonics				F004	R
30347	346	S-Phase Voltage 37Harmonics				F004	R
30349	348	S-Phase Voltage 38Harmonics				F004	R
30351	350	S-Phase Voltage 39Harmonics				F004	R
30353	352	S-Phase Voltage 40Harmonics				F004	R
30355	354	S-Phase Voltage 41Harmonics				F004	R
30357	356	S-Phase Voltage 42Harmonics				F004	R
30359	358	S-Phase Voltage 43Harmonics				F004	R
30361	360	S-Phase Voltage 44Harmonics				F004	R
30363	362	S-Phase Voltage 45Harmonics				F004	R
30365	364	S-Phase Voltage 46Harmonics				F004	R
30367	366	S-Phase Voltage 47Harmonics				F004	R
30369	368	S-Phase Voltage 48Harmonics				F004	R
30371	370	S-Phase Voltage 49Harmonics				F004	R
30373	372	S-Phase Voltage 50Harmonics				F004	R
30375	374	S-Phase Voltage 51Harmonics				F004	R
30377	376	S-Phase Voltage 52Harmonics				F004	R
30379	378	S-Phase Voltage 53Harmonics				F004	R



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30381	380	S-Phase Voltage 54Harmonics				F004	R
30383	382	S-Phase Voltage 55Harmonics				F004	R
30385	384	S-Phase Voltage 56Harmonics				F004	R
30387	386	S-Phase Voltage 57Harmonics				F004	R
30389	388	S-Phase Voltage 58Harmonics				F004	R
30391	390	S-Phase Voltage 59Harmonics				F004	R
30393	392	S-Phase Voltage 60Harmonics				F004	R
30395	394	S-Phase Voltage 61Harmonics				F004	R
30397	396	S-Phase Voltage 62Harmonics				F004	R
30399	398	S-Phase Voltage 63Harmonics				F004	R
30401	400	T-Phase Voltage Fundamental Harmonic				F004	R
30403	402	T-Phase Voltage 2Harmonics				F004	R
30405	404	T-Phase Voltage 3Harmonics				F004	R
30407	406	T-Phase Voltage 4Harmonics				F004	R
30409	408	T-Phase Voltage 5Harmonics				F004	R
30411	410	T-Phase Voltage 6Harmonics				F004	R
30413	412	T-Phase Voltage 7Harmonics				F004	R
30415	414	T-Phase Voltage 8Harmonics				F004	R
30417	416	T-Phase Voltage 9Harmonics				F004	R
30419	418	T-Phase Voltage 10Harmonics				F004	R
30421	420	T-Phase Voltage 11Harmonics				F004	R
30423	422	T-Phase Voltage 12Harmonics				F004	R
30425	424	T-Phase Voltage 13Harmonics				F004	R
30427	426	T-Phase Voltage 14Harmonics				F004	R
30429	428	T-Phase Voltage 15Harmonics				F004	R
30431	430	T-Phase Voltage 16Harmonics				F004	R
30433	432	T-Phase Voltage 17Harmonics				F004	R
30435	434	T-Phase Voltage 18Harmonics				F004	R
30437	436	T-Phase Voltage 19Harmonics				F004	R
30439	438	T-Phase Voltage 20Harmonics				F004	R
30441	440	T-Phase Voltage 21Harmonics				F004	R
30443	442	T-Phase Voltage 22Harmonics				F004	R
30445	444	T-Phase Voltage 23Harmonics				F004	R
30447	446	T-Phase Voltage 24Harmonics				F004	R
30449	448	T-Phase Voltage 25Harmonics				F004	R
30451	450	T-Phase Voltage 26Harmonics				F004	R
30453	452	T-Phase Voltage 27Harmonics				F004	R
30455	454	T-Phase Voltage 28Harmonics				F004	R
30457	456	T-Phase Voltage 29Harmonics				F004	R
30459	458	T-Phase Voltage 30Harmonics				F004	R
30461	460	T-Phase Voltage 31Harmonics				F004	R
30463	462	T-Phase Voltage 32Harmonics				F004	R
30465	464	T-Phase Voltage 33Harmonics				F004	R
30467	466	T-Phase Voltage 34Harmonics				F004	R
30469	468	T-Phase Voltage 35Harmonics				F004	R
30471	470	T-Phase Voltage 36Harmonics				F004	R
30473	472	T-Phase Voltage 37Harmonics				F004	R
30475	474	T-Phase Voltage 38Harmonics				F004	R
30477	476	T-Phase Voltage 39Harmonics				F004	R



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30479	478	T-Phase Voltage 40Harmonics				F004	R
30481	480	T-Phase Voltage 41Harmonics				F004	R
30483	482	T-Phase Voltage 42Harmonics				F004	R
30485	484	T-Phase Voltage 43Harmonics				F004	R
30487	486	T-Phase Voltage 44Harmonics				F004	R
30489	488	T-Phase Voltage 45Harmonics				F004	R
30491	490	T-Phase Voltage 46Harmonics				F004	R
30493	492	T-Phase Voltage 47Harmonics				F004	R
30495	494	T-Phase Voltage 48Harmonics				F004	R
30497	496	T-Phase Voltage 49Harmonics				F004	R
30499	498	T-Phase Voltage 50Harmonics				F004	R
30501	500	T-Phase Voltage 51Harmonics				F004	R
30503	502	T-Phase Voltage 52Harmonics				F004	R
30505	504	T-Phase Voltage 53Harmonics				F004	R
30507	506	T-Phase Voltage 54Harmonics				F004	R
30509	508	T-Phase Voltage 55Harmonics				F004	R
30511	510	T-Phase Voltage 56Harmonics				F004	R
30513	512	T-Phase Voltage 57Harmonics				F004	R
30515	514	T-Phase Voltage 58Harmonics				F004	R
30517	516	T-Phase Voltage 59Harmonics				F004	R
30519	518	T-Phase Voltage 60Harmonics				F004	R
30521	520	T-Phase Voltage 61Harmonics				F004	R
30523	522	T-Phase Voltage 62Harmonics				F004	R
30525	524	T-Phase Voltage 63Harmonics				F004	R
30527	526	R-Phase Current Fundamental Harmonic				F004	R
30529	528	R-Phase Current 2Harmonics				F004	R
30531	530	R-Phase Current 3Harmonics				F004	R
30533	532	R-Phase Current 4Harmonics				F004	R
30535	534	R-Phase Current 5Harmonics				F004	R
30537	536	R-Phase Current 6Harmonics				F004	R
30539	538	R-Phase Current 7Harmonics				F004	R
30541	540	R-Phase Current 8Harmonics				F004	R
30543	542	R-Phase Current 9Harmonics				F004	R
30545	544	R-Phase Current 10Harmonics				F004	R
30547	546	R-Phase Current 11Harmonics				F004	R
30549	548	R-Phase Current 12Harmonics				F004	R
30551	550	R-Phase Current 13Harmonics				F004	R
30553	552	R-Phase Current 14Harmonics				F004	R
30555	554	R-Phase Current 15Harmonics				F004	R
30557	556	R-Phase Current 16Harmonics				F004	R
30559	558	R-Phase Current 17Harmonics				F004	R
30561	560	R-Phase Current 18Harmonics				F004	R
30563	562	R-Phase Current 19Harmonics				F004	R
30565	564	R-Phase Current 20Harmonics				F004	R
30567	566	R-Phase Current 21Harmonics				F004	R
30569	568	R-Phase Current 22Harmonics				F004	R
30571	570	R-Phase Current 23Harmonics				F004	R
30573	572	R-Phase Current 24Harmonics				F004	R
30575	574	R-Phase Current 25Harmonics				F004	R



ABW – OCR P-type / S-type MODBUS Protocol

30577	576	R-Phase Current 26Harmonics				F004	R
30579	578	R-Phase Current 27Harmonics				F004	R
30581	580	R-Phase Current 28Harmonics				F004	R
30583	582	R-Phase Current 29Harmonics				F004	R
30585	584	R-Phase Current 30Harmonics				F004	R
30587	586	R-Phase Current 31Harmonics				F004	R
30589	588	R-Phase Current 32Harmonics				F004	R
30591	590	R-Phase Current 33Harmonics				F004	R
30593	592	R-Phase Current 34Harmonics				F004	R
30595	594	R-Phase Current 35Harmonics				F004	R
30597	596	R-Phase Current 36Harmonics				F004	R
30599	598	R-Phase Current 37Harmonics				F004	R
30601	600	R-Phase Current 38Harmonics				F004	R
30603	602	R-Phase Current 39Harmonics				F004	R
30605	604	R-Phase Current 40Harmonics				F004	R
30607	606	R-Phase Current 41Harmonics				F004	R
30609	608	R-Phase Current 42Harmonics				F004	R
30611	610	R-Phase Current 43Harmonics				F004	R
30613	612	R-Phase Current 44Harmonics				F004	R
30615	614	R-Phase Current 45Harmonics				F004	R
30617	616	R-Phase Current 46Harmonics				F004	R
30619	618	R-Phase Current 47Harmonics				F004	R
30621	620	R-Phase Current 48Harmonics				F004	R
30623	622	R-Phase Current 49Harmonics				F004	R
30625	624	R-Phase Current 50Harmonics				F004	R
30627	626	R-Phase Current 51Harmonics				F004	R
30629	628	R-Phase Current 52Harmonics				F004	R
30631	630	R-Phase Current 53Harmonics				F004	R
30633	632	R-Phase Current 54Harmonics				F004	R
30635	634	R-Phase Current 55Harmonics				F004	R
30637	636	R-Phase Current 56Harmonics				F004	R
30639	638	R-Phase Current 57Harmonics				F004	R
30641	640	R-Phase Current 58Harmonics				F004	R
30643	642	R-Phase Current 59Harmonics				F004	R
30645	644	R-Phase Current 60Harmonics				F004	R
30647	646	R-Phase Current 61Harmonics				F004	R
30649	648	R-Phase Current 62Harmonics				F004	R
30651	650	R-Phase Current 63Harmonics				F004	R
	652	S-Phase Current Fundamental Harmonic				F004	R
30655	654	S-Phase Current 2Harmonics				F004	R
30657	656	S-Phase Current 3Harmonics				F004	R
30659	658	S-Phase Current 4Harmonics				F004	R
30661	660	S-Phase Current 5Harmonics				F004	R
30663	662	S-Phase Current 6Harmonics				F004	R
30665	664	S-Phase Current 7Harmonics				F004	R
30667	666	S-Phase Current 8Harmonics				F004	R
30669	668	S-Phase Current 9Harmonics				F004	R
30671	670	S-Phase Current 10Harmonics				F004	R
30673	672	S-Phase Current 11Harmonics				F004	R



ABW – OCR P-type / S-type MODBUS Protocol

30675	674	S-Phase Current 12Harmonics				F004	R
30677	676	S-Phase Current 13Harmonics				F004	R
30679	678	S-Phase Current 14Harmonics				F004	R
30681	680	S-Phase Current 15Harmonics				F004	R
30683	682	S-Phase Current 16Harmonics				F004	R
30685	684	S-Phase Current 17Harmonics				F004	R
30687	686	S-Phase Current 18Harmonics				F004	R
30689	688	S-Phase Current 19Harmonics				F004	R
30691	690	S-Phase Current 20Harmonics				F004	R
30693	692	S-Phase Current 21Harmonics				F004	R
30695	694	S-Phase Current 22Harmonics				F004	R
30697	696	S-Phase Current 23Harmonics				F004	R
30699	698	S-Phase Current 24Harmonics				F004	R
30701	700	S-Phase Current 25Harmonics				F004	R
30703	702	S-Phase Current 26Harmonics				F004	R
30705	704	S-Phase Current 27Harmonics				F004	R
30707	706	S-Phase Current 28Harmonics				F004	R
30709	708	S-Phase Current 29Harmonics				F004	R
30711	710	S-Phase Current 30Harmonics				F004	R
30713	712	S-Phase Current 31Harmonics				F004	R
30715	714	S-Phase Current 32Harmonics				F004	R
30717	716	S-Phase Current 33Harmonics				F004	R
30719	718	S-Phase Current 34Harmonics				F004	R
30721	720	S-Phase Current 35Harmonics				F004	R
30723	722	S-Phase Current 36Harmonics				F004	R
30725	724	S-Phase Current 37Harmonics				F004	R
30727	726	S-Phase Current 38Harmonics				F004	R
30729	728	S-Phase Current 39Harmonics				F004	R
30731	730	S-Phase Current 40Harmonics				F004	R
30733	732	S-Phase Current 41Harmonics				F004	R
30735	734	S-Phase Current 42Harmonics				F004	R
30737	736	S-Phase Current 43Harmonics				F004	R
30739	738	S-Phase Current 44Harmonics				F004	R
30741	740	S-Phase Current 45Harmonics				F004	R
30743	742	S-Phase Current 46Harmonics				F004	R
30745	744	S-Phase Current 47Harmonics				F004	R
30747	746	S-Phase Current 48Harmonics				F004	R
30749	748	S-Phase Current 49Harmonics				F004	R
30751	750	S-Phase Current 50Harmonics				F004	R
30753	752	S-Phase Current 51Harmonics				F004	R
30755	754	S-Phase Current 52Harmonics				F004	R
30757	756	S-Phase Current 53Harmonics				F004	R
30759	758	S-Phase Current 54Harmonics				F004	R
30761	760	S-Phase Current 55Harmonics				F004	R
30763	762	S-Phase Current 56Harmonics				F004	R
30765	764	S-Phase Current 57Harmonics				F004	R
30767	766	S-Phase Current 58Harmonics				F004	R
30769	768	S-Phase Current 59Harmonics				F004	R
30771	770	S-Phase Current 60Harmonics				F004	R



ABW – OCR P-type / S-type MODBUS Protocol

30773	772	S-Phase Current 61Harmonics				F004	R
30775	774	S-Phase Current 62Harmonics				F004	R
30777	776	S-Phase Current 63Harmonics				F004	R
30779	778	T-Phase Current Fundamental Harmonic				F004	R
30781	780	T-Phase Current 2Harmonics				F004	R
30783	782	T-Phase Current 3Harmonics				F004	R
30785	784	T-Phase Current 4Harmonics				F004	R
30787	786	T-Phase Current 5Harmonics				F004	R
30789	788	T-Phase Current 6Harmonics				F004	R
30791	790	T-Phase Current 7Harmonics				F004	R
30793	792	T-Phase Current 8Harmonics				F004	R
30795	794	T-Phase Current 9Harmonics				F004	R
30797	796	T-Phase Current 10Harmonics				F004	R
30799	798	T-Phase Current 11Harmonics				F004	R
30801	800	T-Phase Current 12Harmonics				F004	R
30803	802	T-Phase Current 13Harmonics				F004	R
30805	804	T-Phase Current 14Harmonics				F004	R
30807	806	T-Phase Current 15Harmonics				F004	R
30809	808	T-Phase Current 16Harmonics				F004	R
30811	810	T-Phase Current 17Harmonics				F004	R
30813	812	T-Phase Current 18Harmonics				F004	R
30815	814	T-Phase Current 19Harmonics				F004	R
30817	816	T-Phase Current 20Harmonics				F004	R
30819	818	T-Phase Current 21Harmonics				F004	R
30821	820	T-Phase Current 22Harmonics				F004	R
30823	822	T-Phase Current 23Harmonics				F004	R
30825	824	T-Phase Current 24Harmonics				F004	R
30827	826	T-Phase Current 25Harmonics				F004	R
30829	828	T-Phase Current 26Harmonics				F004	R
30831	830	T-Phase Current 27Harmonics				F004	R
30833	832	T-Phase Current 28Harmonics				F004	R
30835	834	T-Phase Current 29Harmonics				F004	R
30837	836	T-Phase Current 30Harmonics				F004	R
30839	838	T-Phase Current 31Harmonics				F004	R
30841	840	T-Phase Current 32Harmonics				F004	R
30843	842	T-Phase Current 33Harmonics				F004	R
30845	844	T-Phase Current 34Harmonics				F004	R
30847	846	T-Phase Current 35Harmonics				F004	R
30849	848	T-Phase Current 36Harmonics				F004	R
30851	850	T-Phase Current 37Harmonics				F004	R
30853	852	T-Phase Current 38Harmonics				F004	R
30855	854	T-Phase Current 39Harmonics				F004	R
30857	856	T-Phase Current 40Harmonics				F004	R
30859	858	T-Phase Current 41Harmonics				F004	R
30861	860	T-Phase Current 42Harmonics				F004	R
30863	862	T-Phase Current 43Harmonics				F004	R
30865	864	T-Phase Current 44Harmonics				F004	R
30867	866	T-Phase Current 45Harmonics				F004	R
30869	868	T-Phase Current 46Harmonics				F004	R



ABW – OCR P-type / S-type MODBUS Protocol

30871	870	T-Phase Current 47Harmonics				F004	R
30873	872	T-Phase Current 48Harmonics				F004	R
30875	874	T-Phase Current 49Harmonics				F004	R
30877	876	T-Phase Current 50Harmonics				F004	R
30879	878	T-Phase Current 51Harmonics				F004	R
30881	880	T-Phase Current 52Harmonics				F004	R
30883	882	T-Phase Current 53Harmonics				F004	R
30885	884	T-Phase Current 54Harmonics				F004	R
30887	886	T-Phase Current 55Harmonics				F004	R
30889	888	T-Phase Current 56Harmonics				F004	R
30891	890	T-Phase Current 57Harmonics				F004	R
30893	892	T-Phase Current 58Harmonics				F004	R
30895	894	T-Phase Current 59Harmonics				F004	R
30897	896	T-Phase Current 60Harmonics				F004	R
30899	898	T-Phase Current 61Harmonics				F004	R
30901	900	T-Phase Current 62Harmonics				F004	R
30903	902	T-Phase Current 63Harmonics				F004	R
30905	904	R-Phase Current TDD				F004	R
30907	906	S-Phase Current TDD				F004	R
30909	908	T-Phase Current TDD				F004	R
30911	910	R-Phase Current Kfactor				F004	R
30913	912	S-Phase Current Kfactor				F004	R
30915	914	T-Phase Current Kfactor				F004	R
30917	916	OCR Current R-Phase				F004	R
30919	918	OCR Current S-Phase				F004	R
30921	920	OCR Current T-Phase				F004	R
30923	922	OCR Current N-Phase				F004	R
30925	924	OCGR Current				F004	R
30926	925	OCGR Current				F005	R

31001	1000	MAX DEMAND W time		-	-	F113	R
31004	1003	Reserved		-	-	F113	R
31007	1006	MAX W Time		-	-	F113	R

Has to read
with 3 multiple
Register Count

40002	1	OCR H/W Setting Information (DIP SW Information)				F038(F117)	R
40003	2	Connection Method, Frequency, Demand, OCR FineSet, OCGR..				F038(F118)	R

40011	10	Long-time delay Reference Current(Ir) [A]		A		F038	R
40012	11	Long-time delay Operation Time(Tr) [0.1 sec]		0.1sec		F038	R
40013	12	Short-time delay Operation Current(Is) [A]		A		F038	R
40014	13	Short-time delay Operation Time(Ts) [ms]		ms		F038	R



ABW – OCR P-type / S-type MODBUS Protocol

40015	14	Instantaneous delay Operation Current(Ii) [A]		A		F022	R	Has to read 2 registers at the same time
40021	20	Ground-fault(Leakage, PTA) Operation Current(Ig, Ip) [A] ※ Outer CT Ground-fault, Leakage Function, Indicates ×10 value in a Setting ×10(means 50→5A, 5→0.5A) ※ Function as PTA, Indicates Setting PTA Operation Current [A]		A/×10A		F038	R	
40022	21	Ground-fault(Leakage, PTA) Operation Time(Tg, Tp)[ms] ※ Function as PTA, Setting PTA Time unit is [sec]		ms/sec		F038	R	
40031	30	OVR/UVR Operation Action [None, Event, DO1, DO2, DO3]				F116 (F038)	R	MSB8[UVR], LSB8[OVR]
40032	31	V/I Unbalance Relay Operation Action [None, Event, DO1, DO2, DO3]				F116 (F038)	R	MSB8[I], LSB8[V]
40033	32	rPower/rRot Relay Operation Action [None, Event, DO1, DO2, DO3]				F116 (F038)	R	MSB8[rRot], LSB8[rPower]
40034	33	OFR/UFR Relay Operation Action [None, Event, DO1, DO2, DO3]				F116 (F038)	R	MSB8[UFR], LSB8[OFR]
40035	34	OVR Operation Reference [V]		V		F038	R	
40036	35	UVR Operation Reference		V		F038	R	
40037	36	V unbalance Operation Reference [%]		%		F038	R	
40038	37	I Unbalance Operation Reference		%		F038	R	
40039	38	Reverse Power Operation Reference [kW]		kW		F038	R	
40040	39	Reserve		-		F038	R	
40041	40	OFR Operation Reference [Hz]		Hz		F038	R	
40042	41	UFR Operation Reference		Hz		F038	R	
40043	42	OVR Operation Time [0.1 sec]		0.1Sec		F038	R	
40044	43	UVR Operation Time [0.1 sec]		0.1Sec		F038	R	
40045	44	V unbalance Operation Time [0.1 sec]		0.1Sec		F038	R	
40046	45	I Unbalance Operation Time [0.1 sec]		0.1Sec		F038	R	
40047	46	Reverse Power Operation Time [0.1 sec]		0.1Sec		F038	R	
40048	47	OFR Operation Time [0.1 sec]		0.1Sec		F038	R	
40049	48	UFR Operation Time [0.1 sec]		0.1Sec		F038	R	
40050	49	Reserve		-		F038	R	
41001	1000	Operation Time	0~232 -1	Sec	1	F006	R	Single Read
41003	1002	Circuit Breaker Conducting Time	0~232 -1	Sec	1	F006	R	Single Read
41005	1004	CBOperation number of times	0~65535	Times	1	F038	R	Single Read
42101	2100	Event Record	-	-	-	F114	R	
42201	2200	Trip Event Record	-	-	-	F115	R	



ABW – OCR P-type / S-type MODBUS Protocol

Wave Record Map about Last Trip

44001		4000	Last Trip Wave #1 Vr /Vrs				F038	R
44002		4001	Last Trip Wave #1 Is				F038	R
44003		4002	Last Trip Wave #1 Vs /Vst				F038	R
44004		4003	Last Trip Wave #1 Is				F038	R
44005		4004	Last Trip Wave #1 Vt /Vtr				F038	R
44006		4005	Last Trip Wave #1 It				F038	R
44007		4006	Last Trip Wave #2 Vr /Vrs				F038	R
44008		4007	Last Trip Wave #2 Is				F038	R
44009		4008	Last Trip Wave #2 Vs /Vst				F038	R
44010		4009	Last Trip Wave #2 Is				F038	R
44011		4010	Last Trip Wave #2 Vt /Vtr				F038	R
44012		4011	Last Trip Wave #2 It				F038	R
44013		4012	Last Trip Wave #3 Vr /Vrs				F038	R
44014		4013	Last Trip Wave #3 Is				F038	R
44015		4014	Last Trip Wave #3 Vs /Vst				F038	R
44016		4015	Last Trip Wave #3 Is				F038	R
44017		4016	Last Trip Wave #3 Vt /Vtr				F038	R
44018		4017	Last Trip Wave #3 It				F038	R
44019		4018	Last Trip Wave #4 Vr /Vrs				F038	R
44020		4019	Last Trip Wave #4 Is				F038	R
44021		4020	Last Trip Wave #4 Vs /Vst				F038	R
44022		4021	Last Trip Wave #4 Is				F038	R
44023		4022	Last Trip Wave #4 Vt /Vtr				F038	R
44024		4023	Last Trip Wave #4 It				F038	R
44025		4024	Last Trip Wave #5 Vr /Vrs				F038	R
44026		4025	Last Trip Wave #5 Is				F038	R
44027		4026	Last Trip Wave #5 Vs /Vst				F038	R
44028		4027	Last Trip Wave #5 Is				F038	R
44029		4028	Last Trip Wave #5 Vt /Vtr				F038	R
44030		4029	Last Trip Wave #5 It				F038	R
44031		4030	Last Trip Wave #6 Vr /Vrs				F038	R
44032		4031	Last Trip Wave #6 Is				F038	R
44033		4032	Last Trip Wave #6 Vs /Vst				F038	R
44034		4033	Last Trip Wave #6 Is				F038	R
44035		4034	Last Trip Wave #6 Vt /Vtr				F038	R
44036		4035	Last Trip Wave #6 It				F038	R
44037		4036	Last Trip Wave #7 Vr /Vrs				F038	R
44038		4037	Last Trip Wave #7 Is				F038	R
44039		4038	Last Trip Wave #7 Vs /Vst				F038	R
44040		4039	Last Trip Wave #7 Is				F038	R
44041		4040	Last Trip Wave #7 Vt /Vtr				F038	R
44042		4041	Last Trip Wave #7 It				F038	R
44043		4042	Last Trip Wave #8 Vr /Vrs				F038	R
44044		4043	Last Trip Wave #8 Is				F038	R
44045		4044	Last Trip Wave #8 Vs /Vst				F038	R
44046		4045	Last Trip Wave #8 Is				F038	R
44047		4046	Last Trip Wave #8 Vt /Vtr				F038	R



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44048		4047	Last Trip Wave #8 It				F038	R
44049		4048	Last Trip Wave #9 Vr /Vrs				F038	R
44050		4049	Last Trip Wave #9 Is				F038	R
44051		4050	Last Trip Wave #9 Vs /Vst				F038	R
44052		4051	Last Trip Wave #9 Is				F038	R
44053		4052	Last Trip Wave #9 Vt /Vtr				F038	R
44054		4053	Last Trip Wave #9 It				F038	R
44055		4054	Last Trip Wave #10 Vr /Vrs				F038	R
44056		4055	Last Trip Wave #10 Is				F038	R
44057		4056	Last Trip Wave #10 Vs /Vst				F038	R
44058		4057	Last Trip Wave #10 Is				F038	R
44059		4058	Last Trip Wave #10 Vt /Vtr				F038	R
44060		4059	Last Trip Wave #10 It				F038	R
44061		4060	Last Trip Wave #11 Vr /Vrs				F038	R
44062		4061	Last Trip Wave #11 Is				F038	R
44063		4062	Last Trip Wave #11 Vs /Vst				F038	R
44064		4063	Last Trip Wave #11 Is				F038	R
44065		4064	Last Trip Wave #11 Vt /Vtr				F038	R
44066		4065	Last Trip Wave #11 It				F038	R
44067		4066	Last Trip Wave #12 Vr /Vrs				F038	R
44068		4067	Last Trip Wave #12 Is				F038	R
44069		4068	Last Trip Wave #12 Vs /Vst				F038	R
44070		4069	Last Trip Wave #12 Is				F038	R
44071		4070	Last Trip Wave #12 Vt /Vtr				F038	R
44072		4071	Last Trip Wave #12 It				F038	R
44073		4072	Last Trip Wave #13 Vr /Vrs				F038	R
44074		4073	Last Trip Wave #13 Is				F038	R
44075		4074	Last Trip Wave #13 Vs /Vst				F038	R
44076		4075	Last Trip Wave #13 Is				F038	R
44077		4076	Last Trip Wave #13 Vt /Vtr				F038	R
44078		4077	Last Trip Wave #13 It				F038	R
44079		4078	Last Trip Wave #14 Vr /Vrs				F038	R
44080		4079	Last Trip Wave #14 Is				F038	R
44081		4080	Last Trip Wave #14 Vs /Vst				F038	R
44082		4081	Last Trip Wave #14 Is				F038	R
44083		4082	Last Trip Wave #14 Vt /Vtr				F038	R
44084		4083	Last Trip Wave #14 It				F038	R
44085		4084	Last Trip Wave #15 Vr /Vrs				F038	R
44086		4085	Last Trip Wave #15 Is				F038	R
44087		4086	Last Trip Wave #15 Vs /Vst				F038	R
44088		4087	Last Trip Wave #15 Is				F038	R
44089		4088	Last Trip Wave #15 Vt /Vtr				F038	R
44090		4089	Last Trip Wave #15 It				F038	R
44091		4090	Last Trip Wave #16 Vr /Vrs				F038	R
44092		4091	Last Trip Wave #16 Is				F038	R
44093		4092	Last Trip Wave #16 Vs /Vst				F038	R
44094		4093	Last Trip Wave #16 Is				F038	R
44095		4094	Last Trip Wave #16 Vt /Vtr				F038	R
44096		4095	Last Trip Wave #16 It				F038	R



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44097		4096	Last Trip Wave #17 Vr /Vrs				F038	R
44098		4097	Last Trip Wave #17 Is				F038	R
44099		4098	Last Trip Wave #17 Vs /Vst				F038	R
44100		4099	Last Trip Wave #17 Is				F038	R
44101		4100	Last Trip Wave #17 Vt /Vtr				F038	R
44102		4101	Last Trip Wave #17 It				F038	R
44103		4102	Last Trip Wave #18 Vr /Vrs				F038	R
44104		4103	Last Trip Wave #18 Is				F038	R
44105		4104	Last Trip Wave #18 Vs /Vst				F038	R
44106		4105	Last Trip Wave #18 Is				F038	R
44107		4106	Last Trip Wave #18 Vt /Vtr				F038	R
44108		4107	Last Trip Wave #18 It				F038	R
44109		4108	Last Trip Wave #19 Vr /Vrs				F038	R
44110		4109	Last Trip Wave #19 Is				F038	R
44111		4110	Last Trip Wave #19 Vs /Vst				F038	R
44112		4111	Last Trip Wave #19 Is				F038	R
44113		4112	Last Trip Wave #19 Vt /Vtr				F038	R
44114		4113	Last Trip Wave #19 It				F038	R
44115		4114	Last Trip Wave #20 Vr /Vrs				F038	R
44116		4115	Last Trip Wave #20 Is				F038	R
44117		4116	Last Trip Wave #20 Vs /Vst				F038	R
44118		4117	Last Trip Wave #20 Is				F038	R
44119		4118	Last Trip Wave #20 Vt /Vtr				F038	R
44120		4119	Last Trip Wave #20 It				F038	R
44121		4120	Last Trip Wave #21 Vr /Vrs				F038	R
44122		4121	Last Trip Wave #21 Is				F038	R
44123		4122	Last Trip Wave #21 Vs /Vst				F038	R
44124		4123	Last Trip Wave #21 Is				F038	R
44125		4124	Last Trip Wave #21 Vt /Vtr				F038	R
44126		4125	Last Trip Wave #21 It				F038	R
44127		4126	Last Trip Wave #22 Vr /Vrs				F038	R
44128		4127	Last Trip Wave #22 Is				F038	R
44129		4128	Last Trip Wave #22 Vs /Vst				F038	R
44130		4129	Last Trip Wave #22 Is				F038	R
44131		4130	Last Trip Wave #22 Vt /Vtr				F038	R
44132		4131	Last Trip Wave #22 It				F038	R
44133		4132	Last Trip Wave #23 Vr /Vrs				F038	R
44134		4133	Last Trip Wave #23 Is				F038	R
44135		4134	Last Trip Wave #23 Vs /Vst				F038	R
44136		4135	Last Trip Wave #23 Is				F038	R
44137		4136	Last Trip Wave #23 Vt /Vtr				F038	R
44138		4137	Last Trip Wave #23 It				F038	R
44139		4138	Last Trip Wave #24 Vr /Vrs				F038	R
44140		4139	Last Trip Wave #24 Is				F038	R
44141		4140	Last Trip Wave #24 Vs /Vst				F038	R
44142		4141	Last Trip Wave #24 Is				F038	R
44143		4142	Last Trip Wave #24 Vt /Vtr				F038	R
44144		4143	Last Trip Wave #24 It				F038	R
44145		4144	Last Trip Wave #25 Vr /Vrs				F038	R



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44146		4145	Last Trip Wave #25 Is				F038	R
44147		4146	Last Trip Wave #25 Vs /Vst				F038	R
44148		4147	Last Trip Wave #25 Is				F038	R
44149		4148	Last Trip Wave #25 Vt /Vtr				F038	R
44150		4149	Last Trip Wave #25 It				F038	R
44151		4150	Last Trip Wave #26 Vr /Vrs				F038	R
44152		4151	Last Trip Wave #26 Is				F038	R
44153		4152	Last Trip Wave #26 Vs /Vst				F038	R
44154		4153	Last Trip Wave #26 Is				F038	R
44155		4154	Last Trip Wave #26 Vt /Vtr				F038	R
44156		4155	Last Trip Wave #26 It				F038	R
44157		4156	Last Trip Wave #27 Vr /Vrs				F038	R
44158		4157	Last Trip Wave #27 Is				F038	R
44159		4158	Last Trip Wave #27 Vs /Vst				F038	R
44160		4159	Last Trip Wave #27 Is				F038	R
44161		4160	Last Trip Wave #27 Vt /Vtr				F038	R
44162		4161	Last Trip Wave #27 It				F038	R
44163		4162	Last Trip Wave #28 Vr /Vrs				F038	R
44164		4163	Last Trip Wave #28 Is				F038	R
44165		4164	Last Trip Wave #28 Vs /Vst				F038	R
44166		4165	Last Trip Wave #28 Is				F038	R
44167		4166	Last Trip Wave #28 Vt /Vtr				F038	R
44168		4167	Last Trip Wave #28 It				F038	R
44169		4168	Last Trip Wave #29 Vr /Vrs				F038	R
44170		4169	Last Trip Wave #29 Is				F038	R
44171		4170	Last Trip Wave #29 Vs /Vst				F038	R
44172		4171	Last Trip Wave #29 Is				F038	R
44173		4172	Last Trip Wave #29 Vt /Vtr				F038	R
44174		4173	Last Trip Wave #29 It				F038	R
44175		4174	Last Trip Wave #30 Vr /Vrs				F038	R
44176		4175	Last Trip Wave #30 Is				F038	R
44177		4176	Last Trip Wave #30 Vs /Vst				F038	R
44178		4177	Last Trip Wave #30 Is				F038	R
44179		4178	Last Trip Wave #30 Vt /Vtr				F038	R
44180		4179	Last Trip Wave #30 It				F038	R
44181		4180	Last Trip Wave #31 Vr /Vrs				F038	R
44182		4181	Last Trip Wave #31 Is				F038	R
44183		4182	Last Trip Wave #31 Vs /Vst				F038	R
44184		4183	Last Trip Wave #31 Is				F038	R
44185		4184	Last Trip Wave #31 Vt /Vtr				F038	R
44186		4185	Last Trip Wave #31 It				F038	R
44187		4186	Last Trip Wave #32 Vr /Vrs				F038	R
44188		4187	Last Trip Wave #32 Is				F038	R
44189		4188	Last Trip Wave #32 Vs /Vst				F038	R
44190		4189	Last Trip Wave #32 Is				F038	R
44191		4190	Last Trip Wave #32 Vt /Vtr				F038	R
44192		4191	Last Trip Wave #32 It				F038	R
44193		4192	Last Trip Wave #33 Vr /Vrs				F038	R
44194		4193	Last Trip Wave #33 Is				F038	R



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44195		4194	Last Trip Wave #33 Vs /Vst				F038	R
44196		4195	Last Trip Wave #33 Is				F038	R
44197		4196	Last Trip Wave #33 Vt /Vtr				F038	R
44198		4197	Last Trip Wave #33 It				F038	R
44199		4198	Last Trip Wave #34 Vr /Vrs				F038	R
44200		4199	Last Trip Wave #34 Is				F038	R
44201		4200	Last Trip Wave #34 Vs /Vst				F038	R
44202		4201	Last Trip Wave #34 Is				F038	R
44203		4202	Last Trip Wave #34 Vt /Vtr				F038	R
44204		4203	Last Trip Wave #34 It				F038	R
44205		4204	Last Trip Wave #35 Vr /Vrs				F038	R
44206		4205	Last Trip Wave #35 Is				F038	R
44207		4206	Last Trip Wave #35 Vs /Vst				F038	R
44208		4207	Last Trip Wave #35 Is				F038	R
44209		4208	Last Trip Wave #35 Vt /Vtr				F038	R
44210		4209	Last Trip Wave #35 It				F038	R
44211		4210	Last Trip Wave #36 Vr /Vrs				F038	R
44212		4211	Last Trip Wave #36 Is				F038	R
44213		4212	Last Trip Wave #36 Vs /Vst				F038	R
44214		4213	Last Trip Wave #36 Is				F038	R
44215		4214	Last Trip Wave #36 Vt /Vtr				F038	R
44216		4215	Last Trip Wave #36 It				F038	R
44217		4216	Last Trip Wave #37 Vr /Vrs				F038	R
44218		4217	Last Trip Wave #37 Is				F038	R
44219		4218	Last Trip Wave #37 Vs /Vst				F038	R
44220		4219	Last Trip Wave #37 Is				F038	R
44221		4220	Last Trip Wave #37 Vt /Vtr				F038	R
44222		4221	Last Trip Wave #37 It				F038	R
44223		4222	Last Trip Wave #38 Vr /Vrs				F038	R
44224		4223	Last Trip Wave #38 Is				F038	R
44225		4224	Last Trip Wave #38 Vs /Vst				F038	R
44226		4225	Last Trip Wave #38 Is				F038	R
44227		4226	Last Trip Wave #38 Vt /Vtr				F038	R
44228		4227	Last Trip Wave #38 It				F038	R
44229		4228	Last Trip Wave #39 Vr /Vrs				F038	R
44230		4229	Last Trip Wave #39 Is				F038	R
44231		4230	Last Trip Wave #39 Vs /Vst				F038	R
44232		4231	Last Trip Wave #39 Is				F038	R
44233		4232	Last Trip Wave #39 Vt /Vtr				F038	R
44234		4233	Last Trip Wave #39 It				F038	R
44235		4234	Last Trip Wave #40 Vr /Vrs				F038	R
44236		4235	Last Trip Wave #40 Is				F038	R
44237		4236	Last Trip Wave #40 Vs /Vst				F038	R
44238		4237	Last Trip Wave #40 Is				F038	R
44239		4238	Last Trip Wave #40 Vt /Vtr				F038	R
44240		4239	Last Trip Wave #40 It				F038	R
44241		4240	Last Trip Wave #41 Vr /Vrs				F038	R
44242		4241	Last Trip Wave #41 Is				F038	R
44243		4242	Last Trip Wave #41 Vs /Vst				F038	R



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44244		4243	Last Trip Wave #41 Is				F038	R
44245		4244	Last Trip Wave #41 Vt /Vtr				F038	R
44246		4245	Last Trip Wave #41 It				F038	R
44247		4246	Last Trip Wave #42 Vr /Vrs				F038	R
44248		4247	Last Trip Wave #42 Is				F038	R
44249		4248	Last Trip Wave #42 Vs /Vst				F038	R
44250		4249	Last Trip Wave #42 Is				F038	R
44251		4250	Last Trip Wave #42 Vt /Vtr				F038	R
44252		4251	Last Trip Wave #42 It				F038	R
44253		4252	Last Trip Wave #43 Vr /Vrs				F038	R
44254		4253	Last Trip Wave #43 Is				F038	R
44255		4254	Last Trip Wave #43 Vs /Vst				F038	R
44256		4255	Last Trip Wave #43 Is				F038	R
44257		4256	Last Trip Wave #43 Vt /Vtr				F038	R
44258		4257	Last Trip Wave #43 It				F038	R
44259		4258	Last Trip Wave #44 Vr /Vrs				F038	R
44260		4259	Last Trip Wave #44 Is				F038	R
44261		4260	Last Trip Wave #44 Vs /Vst				F038	R
44262		4261	Last Trip Wave #44 Is				F038	R
44263		4262	Last Trip Wave #44 Vt /Vtr				F038	R
44264		4263	Last Trip Wave #44 It				F038	R
44265		4264	Last Trip Wave #45 Vr /Vrs				F038	R
44266		4265	Last Trip Wave #45 Is				F038	R
44267		4266	Last Trip Wave #45 Vs /Vst				F038	R
44268		4267	Last Trip Wave #45 Is				F038	R
44269		4268	Last Trip Wave #45 Vt /Vtr				F038	R
44270		4269	Last Trip Wave #45 It				F038	R
44271		4270	Last Trip Wave #46 Vr /Vrs				F038	R
44272		4271	Last Trip Wave #46 Is				F038	R
44273		4272	Last Trip Wave #46 Vs /Vst				F038	R
44274		4273	Last Trip Wave #46 Is				F038	R
44275		4274	Last Trip Wave #46 Vt /Vtr				F038	R
44276		4275	Last Trip Wave #46 It				F038	R
44277		4276	Last Trip Wave #47 Vr /Vrs				F038	R
44278		4277	Last Trip Wave #47 Is				F038	R
44279		4278	Last Trip Wave #47 Vs /Vst				F038	R
44280		4279	Last Trip Wave #47 Is				F038	R
44281		4280	Last Trip Wave #47 Vt /Vtr				F038	R
44282		4281	Last Trip Wave #47 It				F038	R
44283		4282	Last Trip Wave #48 Vr /Vrs				F038	R
44284		4283	Last Trip Wave #48 Is				F038	R
44285		4284	Last Trip Wave #48 Vs /Vst				F038	R
44286		4285	Last Trip Wave #48 Is				F038	R
44287		4286	Last Trip Wave #48 Vt /Vtr				F038	R
44288		4287	Last Trip Wave #48 It				F038	R
44289		4288	Last Trip Wave #49 Vr /Vrs				F038	R
44290		4289	Last Trip Wave #49 Is				F038	R
44291		4290	Last Trip Wave #49 Vs /Vst				F038	R
44292		4291	Last Trip Wave #49 Is				F038	R



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44293		4292	Last Trip Wave #49 Vt /Vtr				F038	R
44294		4293	Last Trip Wave #49 It				F038	R
44295		4294	Last Trip Wave #50 Vr /Vrs				F038	R
44296		4295	Last Trip Wave #50 Is				F038	R
44297		4296	Last Trip Wave #50 Vs /Vst				F038	R
44298		4297	Last Trip Wave #50 Is				F038	R
44299		4298	Last Trip Wave #50 Vt /Vtr				F038	R
44300		4299	Last Trip Wave #50 It				F038	R
44301		4300	Last Trip Wave #51 Vr /Vrs				F038	R
44302		4301	Last Trip Wave #51 Is				F038	R
44303		4302	Last Trip Wave #51 Vs /Vst				F038	R
44304		4303	Last Trip Wave #51 Is				F038	R
44305		4304	Last Trip Wave #51 Vt /Vtr				F038	R
44306		4305	Last Trip Wave #51 It				F038	R
44307		4306	Last Trip Wave #52 Vr /Vrs				F038	R
44308		4307	Last Trip Wave #52 Is				F038	R
44309		4308	Last Trip Wave #52 Vs /Vst				F038	R
44310		4309	Last Trip Wave #52 Is				F038	R
44311		4310	Last Trip Wave #52 Vt /Vtr				F038	R
44312		4311	Last Trip Wave #52 It				F038	R
44313		4312	Last Trip Wave #53 Vr /Vrs				F038	R
44314		4313	Last Trip Wave #53 Is				F038	R
44315		4314	Last Trip Wave #53 Vs /Vst				F038	R
44316		4315	Last Trip Wave #53 Is				F038	R
44317		4316	Last Trip Wave #53 Vt /Vtr				F038	R
44318		4317	Last Trip Wave #53 It				F038	R
44319		4318	Last Trip Wave #54 Vr /Vrs				F038	R
44320		4319	Last Trip Wave #54 Is				F038	R
44321		4320	Last Trip Wave #54 Vs /Vst				F038	R
44322		4321	Last Trip Wave #54 Is				F038	R
44323		4322	Last Trip Wave #54 Vt /Vtr				F038	R
44324		4323	Last Trip Wave #54 It				F038	R
44325		4324	Last Trip Wave #55 Vr /Vrs				F038	R
44326		4325	Last Trip Wave #55 Is				F038	R
44327		4326	Last Trip Wave #55 Vs /Vst				F038	R
44328		4327	Last Trip Wave #55 Is				F038	R
44329		4328	Last Trip Wave #55 Vt /Vtr				F038	R
44330		4329	Last Trip Wave #55 It				F038	R
44331		4330	Last Trip Wave #56 Vr /Vrs				F038	R
44332		4331	Last Trip Wave #56 Is				F038	R
44333		4332	Last Trip Wave #56 Vs /Vst				F038	R
44334		4333	Last Trip Wave #56 Is				F038	R
44335		4334	Last Trip Wave #56 Vt /Vtr				F038	R
44336		4335	Last Trip Wave #56 It				F038	R
44337		4336	Last Trip Wave #57 Vr /Vrs				F038	R
44338		4337	Last Trip Wave #57 Is				F038	R
44339		4338	Last Trip Wave #57 Vs /Vst				F038	R
44340		4339	Last Trip Wave #57 Is				F038	R
44341		4340	Last Trip Wave #57 Vt /Vtr				F038	R



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44342		4341	Last Trip Wave #57 It				F038	R
44343		4342	Last Trip Wave #58 Vr /Vrs				F038	R
44344		4343	Last Trip Wave #58 Is				F038	R
44345		4344	Last Trip Wave #58 Vs /Vst				F038	R
44346		4345	Last Trip Wave #58 Is				F038	R
44347		4346	Last Trip Wave #58 Vt /Vtr				F038	R
44348		4347	Last Trip Wave #58 It				F038	R
44349		4348	Last Trip Wave #59 Vr /Vrs				F038	R
44350		4349	Last Trip Wave #59 Is				F038	R
44351		4350	Last Trip Wave #59 Vs /Vst				F038	R
44352		4351	Last Trip Wave #59 Is				F038	R
44353		4352	Last Trip Wave #59 Vt /Vtr				F038	R
44354		4353	Last Trip Wave #59 It				F038	R
44355		4354	Last Trip Wave #60 Vr /Vrs				F038	R
44356		4355	Last Trip Wave #60 Is				F038	R
44357		4356	Last Trip Wave #60 Vs /Vst				F038	R
44358		4357	Last Trip Wave #60 Is				F038	R
44359		4358	Last Trip Wave #60 Vt /Vtr				F038	R
44360		4359	Last Trip Wave #60 It				F038	R
44361		4360	Last Trip Wave #61 Vr /Vrs				F038	R
44362		4361	Last Trip Wave #61 Is				F038	R
44363		4362	Last Trip Wave #61 Vs /Vst				F038	R
44364		4363	Last Trip Wave #61 Is				F038	R
44365		4364	Last Trip Wave #61 Vt /Vtr				F038	R
44366		4365	Last Trip Wave #61 It				F038	R
44367		4366	Last Trip Wave #62 Vr /Vrs				F038	R
44368		4367	Last Trip Wave #62 Is				F038	R
44369		4368	Last Trip Wave #62 Vs /Vst				F038	R
44370		4369	Last Trip Wave #62 Is				F038	R
44371		4370	Last Trip Wave #62 Vt /Vtr				F038	R
44372		4371	Last Trip Wave #62 It				F038	R
44373		4372	Last Trip Wave #63 Vr /Vrs				F038	R
44374		4373	Last Trip Wave #63 Is				F038	R
44375		4374	Last Trip Wave #63 Vs /Vst				F038	R
44376		4375	Last Trip Wave #63 Is				F038	R
44377		4376	Last Trip Wave #63 Vt /Vtr				F038	R
44378		4377	Last Trip Wave #63 It				F038	R
44379		4378	Last Trip Wave #64 Vr /Vrs				F038	R
44380		4379	Last Trip Wave #64 Is				F038	R
44381		4380	Last Trip Wave #64 Vs /Vst				F038	R
44382		4381	Last Trip Wave #64 Is				F038	R
44383		4382	Last Trip Wave #64 Vt /Vtr				F038	R
44384		4383	Last Trip Wave #64 It				F038	R
44385		4384	Last Trip Wave #65 Vr /Vrs				F038	R
44386		4385	Last Trip Wave #65 Is				F038	R
44387		4386	Last Trip Wave #65 Vs /Vst				F038	R
44388		4387	Last Trip Wave #65 Is				F038	R
44389		4388	Last Trip Wave #65 Vt /Vtr				F038	R
44390		4389	Last Trip Wave #65 It				F038	R



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44391		4390	Last Trip Wave #66 Vr /Vrs				F038	R
44392		4391	Last Trip Wave #66 Is				F038	R
44393		4392	Last Trip Wave #66 Vs /Vst				F038	R
44394		4393	Last Trip Wave #66 Is				F038	R
44395		4394	Last Trip Wave #66 Vt /Vtr				F038	R
44396		4395	Last Trip Wave #66 It				F038	R
44397		4396	Last Trip Wave #67 Vr /Vrs				F038	R
44398		4397	Last Trip Wave #67 Is				F038	R
44399		4398	Last Trip Wave #67 Vs /Vst				F038	R
44400		4399	Last Trip Wave #67 Is				F038	R
44401		4400	Last Trip Wave #67 Vt /Vtr				F038	R
44402		4401	Last Trip Wave #67 It				F038	R
44403		4402	Last Trip Wave #68 Vr /Vrs				F038	R
44404		4403	Last Trip Wave #68 Is				F038	R
44405		4404	Last Trip Wave #68 Vs /Vst				F038	R
44406		4405	Last Trip Wave #68 Is				F038	R
44407		4406	Last Trip Wave #68 Vt /Vtr				F038	R
44408		4407	Last Trip Wave #68 It				F038	R
44409		4408	Last Trip Wave #69 Vr /Vrs				F038	R
44410		4409	Last Trip Wave #69 Is				F038	R
44411		4410	Last Trip Wave #69 Vs /Vst				F038	R
44412		4411	Last Trip Wave #69 Is				F038	R
44413		4412	Last Trip Wave #69 Vt /Vtr				F038	R
44414		4413	Last Trip Wave #69 It				F038	R
44415		4414	Last Trip Wave #70 Vr /Vrs				F038	R
44416		4415	Last Trip Wave #70 Is				F038	R
44417		4416	Last Trip Wave #70 Vs /Vst				F038	R
44418		4417	Last Trip Wave #70 Is				F038	R
44419		4418	Last Trip Wave #70 Vt /Vtr				F038	R
44420		4419	Last Trip Wave #70 It				F038	R
44421		4420	Last Trip Wave #71 Vr /Vrs				F038	R
44422		4421	Last Trip Wave #71 Is				F038	R
44423		4422	Last Trip Wave #71 Vs /Vst				F038	R
44424		4423	Last Trip Wave #71 Is				F038	R
44425		4424	Last Trip Wave #71 Vt /Vtr				F038	R
44426		4425	Last Trip Wave #71 It				F038	R
44427		4426	Last Trip Wave #72 Vr /Vrs				F038	R
44428		4427	Last Trip Wave #72 Is				F038	R
44429		4428	Last Trip Wave #72 Vs /Vst				F038	R
44430		4429	Last Trip Wave #72 Is				F038	R
44431		4430	Last Trip Wave #72 Vt /Vtr				F038	R
44432		4431	Last Trip Wave #72 It				F038	R
44433		4432	Last Trip Wave #73 Vr /Vrs				F038	R
44434		4433	Last Trip Wave #73 Is				F038	R
44435		4434	Last Trip Wave #73 Vs /Vst				F038	R
44436		4435	Last Trip Wave #73 Is				F038	R
44437		4436	Last Trip Wave #73 Vt /Vtr				F038	R
44438		4437	Last Trip Wave #73 It				F038	R
44439		4438	Last Trip Wave #74 Vr /Vrs				F038	R



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44440		4439	Last Trip Wave #74 Is				F038	R
44441		4440	Last Trip Wave #74 Vs /Vst				F038	R
44442		4441	Last Trip Wave #74 Is				F038	R
44443		4442	Last Trip Wave #74 Vt /Vtr				F038	R
44444		4443	Last Trip Wave #74 It				F038	R
44445		4444	Last Trip Wave #75 Vr /Vrs				F038	R
44446		4445	Last Trip Wave #75 Is				F038	R
44447		4446	Last Trip Wave #75 Vs /Vst				F038	R
44448		4447	Last Trip Wave #75 Is				F038	R
44449		4448	Last Trip Wave #75 Vt /Vtr				F038	R
44450		4449	Last Trip Wave #75 It				F038	R
44451		4450	Last Trip Wave #76 Vr /Vrs				F038	R
44452		4451	Last Trip Wave #76 Is				F038	R
44453		4452	Last Trip Wave #76 Vs /Vst				F038	R
44454		4453	Last Trip Wave #76 Is				F038	R
44455		4454	Last Trip Wave #76 Vt /Vtr				F038	R
44456		4455	Last Trip Wave #76 It				F038	R
44457		4456	Last Trip Wave #77 Vr /Vrs				F038	R
44458		4457	Last Trip Wave #77 Is				F038	R
44459		4458	Last Trip Wave #77 Vs /Vst				F038	R
44460		4459	Last Trip Wave #77 Is				F038	R
44461		4460	Last Trip Wave #77 Vt /Vtr				F038	R
44462		4461	Last Trip Wave #77 It				F038	R
44463		4462	Last Trip Wave #78 Vr /Vrs				F038	R
44464		4463	Last Trip Wave #78 Is				F038	R
44465		4464	Last Trip Wave #78 Vs /Vst				F038	R
44466		4465	Last Trip Wave #78 Is				F038	R
44467		4466	Last Trip Wave #78 Vt /Vtr				F038	R
44468		4467	Last Trip Wave #78 It				F038	R
44469		4468	Last Trip Wave #79 Vr /Vrs				F038	R
44470		4469	Last Trip Wave #79 Is				F038	R
44471		4470	Last Trip Wave #79 Vs /Vst				F038	R
44472		4471	Last Trip Wave #79 Is				F038	R
44473		4472	Last Trip Wave #79 Vt /Vtr				F038	R
44474		4473	Last Trip Wave #79 It				F038	R
44475		4474	Last Trip Wave #80 Vr /Vrs				F038	R
44476		4475	Last Trip Wave #80 Is				F038	R
44477		4476	Last Trip Wave #80 Vs /Vst				F038	R
44478		4477	Last Trip Wave #80 Is				F038	R
44479		4478	Last Trip Wave #80 Vt /Vtr				F038	R
44480		4479	Last Trip Wave #80 It				F038	R
44481		4480	Last Trip Wave #81 Vr /Vrs				F038	R
44482		4481	Last Trip Wave #81 Is				F038	R
44483		4482	Last Trip Wave #81 Vs /Vst				F038	R
44484		4483	Last Trip Wave #81 Is				F038	R
44485		4484	Last Trip Wave #81 Vt /Vtr				F038	R
44486		4485	Last Trip Wave #81 It				F038	R
44487		4486	Last Trip Wave #82 Vr /Vrs				F038	R
44488		4487	Last Trip Wave #82 Is				F038	R



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44489		4488	Last Trip Wave #82 Vs /Vst				F038	R
44490		4489	Last Trip Wave #82 Is				F038	R
44491		4490	Last Trip Wave #82 Vt /Vtr				F038	R
44492		4491	Last Trip Wave #82 It				F038	R
44493		4492	Last Trip Wave #83 Vr /Vrs				F038	R
44494		4493	Last Trip Wave #83 Is				F038	R
44495		4494	Last Trip Wave #83 Vs /Vst				F038	R
44496		4495	Last Trip Wave #83 Is				F038	R
44497		4496	Last Trip Wave #83 Vt /Vtr				F038	R
44498		4497	Last Trip Wave #83 It				F038	R
44499		4498	Last Trip Wave #84 Vr /Vrs				F038	R
44500		4499	Last Trip Wave #84 Is				F038	R
44501		4500	Last Trip Wave #84 Vs /Vst				F038	R
44502		4501	Last Trip Wave #84 Is				F038	R
44503		4502	Last Trip Wave #84 Vt /Vtr				F038	R
44504		4503	Last Trip Wave #84 It				F038	R
44505		4504	Last Trip Wave #85 Vr /Vrs				F038	R
44506		4505	Last Trip Wave #85 Is				F038	R
44507		4506	Last Trip Wave #85 Vs /Vst				F038	R
44508		4507	Last Trip Wave #85 Is				F038	R
44509		4508	Last Trip Wave #85 Vt /Vtr				F038	R
44510		4509	Last Trip Wave #85 It				F038	R
44511		4510	Last Trip Wave #86 Vr /Vrs				F038	R
44512		4511	Last Trip Wave #86 Is				F038	R
44513		4512	Last Trip Wave #86 Vs /Vst				F038	R
44514		4513	Last Trip Wave #86 Is				F038	R
44515		4514	Last Trip Wave #86 Vt /Vtr				F038	R
44516		4515	Last Trip Wave #86 It				F038	R
44517		4516	Last Trip Wave #87 Vr /Vrs				F038	R
44518		4517	Last Trip Wave #87 Is				F038	R
44519		4518	Last Trip Wave #87 Vs /Vst				F038	R
44520		4519	Last Trip Wave #87 Is				F038	R
44521		4520	Last Trip Wave #87 Vt /Vtr				F038	R
44522		4521	Last Trip Wave #87 It				F038	R
44523		4522	Last Trip Wave #88 Vr /Vrs				F038	R
44524		4523	Last Trip Wave #88 Is				F038	R
44525		4524	Last Trip Wave #88 Vs /Vst				F038	R
44526		4525	Last Trip Wave #88 Is				F038	R
44527		4526	Last Trip Wave #88 Vt /Vtr				F038	R
44528		4527	Last Trip Wave #88 It				F038	R
44529		4528	Last Trip Wave #89 Vr /Vrs				F038	R
44530		4529	Last Trip Wave #89 Is				F038	R
44531		4530	Last Trip Wave #89 Vs /Vst				F038	R
44532		4531	Last Trip Wave #89 Is				F038	R
44533		4532	Last Trip Wave #89 Vt /Vtr				F038	R
44534		4533	Last Trip Wave #89 It				F038	R
44535		4534	Last Trip Wave #90 Vr /Vrs				F038	R
44536		4535	Last Trip Wave #90 Is				F038	R
44537		4536	Last Trip Wave #90 Vs /Vst				F038	R



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44538		4537	Last Trip Wave #90 Is				F038	R
44539		4538	Last Trip Wave #90 Vt /Vtr				F038	R
44540		4539	Last Trip Wave #90 It				F038	R
44541		4540	Last Trip Wave #91 Vr /Vrs				F038	R
44542		4541	Last Trip Wave #91 Is				F038	R
44543		4542	Last Trip Wave #91 Vs /Vst				F038	R
44544		4543	Last Trip Wave #91 Is				F038	R
44545		4544	Last Trip Wave #91 Vt /Vtr				F038	R
44546		4545	Last Trip Wave #91 It				F038	R
44547		4546	Last Trip Wave #92 Vr /Vrs				F038	R
44548		4547	Last Trip Wave #92 Is				F038	R
44549		4548	Last Trip Wave #92 Vs /Vst				F038	R
44550		4549	Last Trip Wave #92 Is				F038	R
44551		4550	Last Trip Wave #92 Vt /Vtr				F038	R
44552		4551	Last Trip Wave #92 It				F038	R
44553		4552	Last Trip Wave #93 Vr /Vrs				F038	R
44554		4553	Last Trip Wave #93 Is				F038	R
44555		4554	Last Trip Wave #93 Vs /Vst				F038	R
44556		4555	Last Trip Wave #93 Is				F038	R
44557		4556	Last Trip Wave #93 Vt /Vtr				F038	R
44558		4557	Last Trip Wave #93 It				F038	R
44559		4558	Last Trip Wave #94 Vr /Vrs				F038	R
44560		4559	Last Trip Wave #94 Is				F038	R
44561		4560	Last Trip Wave #94 Vs /Vst				F038	R
44562		4561	Last Trip Wave #94 Is				F038	R
44563		4562	Last Trip Wave #94 Vt /Vtr				F038	R
44564		4563	Last Trip Wave #94 It				F038	R
44565		4564	Last Trip Wave #95 Vr /Vrs				F038	R
44566		4565	Last Trip Wave #95 Is				F038	R
44567		4566	Last Trip Wave #95 Vs /Vst				F038	R
44568		4567	Last Trip Wave #95 Is				F038	R
44569		4568	Last Trip Wave #95 Vt /Vtr				F038	R
44570		4569	Last Trip Wave #95 It				F038	R
44571		4570	Last Trip Wave #96 Vr /Vrs				F038	R
44572		4571	Last Trip Wave #96 Is				F038	R
44573		4572	Last Trip Wave #96 Vs /Vst				F038	R
44574		4573	Last Trip Wave #96 Is				F038	R
44575		4574	Last Trip Wave #96 Vt /Vtr				F038	R
44576		4575	Last Trip Wave #96 It				F038	R
44577		4576	Last Trip Wave #97 Vr /Vrs				F038	R
44578		4577	Last Trip Wave #97 Is				F038	R
44579		4578	Last Trip Wave #97 Vs /Vst				F038	R
44580		4579	Last Trip Wave #97 Is				F038	R
44581		4580	Last Trip Wave #97 Vt /Vtr				F038	R
44582		4581	Last Trip Wave #97 It				F038	R
44583		4582	Last Trip Wave #98 Vr /Vrs				F038	R
44584		4583	Last Trip Wave #98 Is				F038	R
44585		4584	Last Trip Wave #98 Vs /Vst				F038	R
44586		4585	Last Trip Wave #98 Is				F038	R



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44587		4586	Last Trip Wave #98 Vt /Vtr				F038	R
44588		4587	Last Trip Wave #98 It				F038	R
44589		4588	Last Trip Wave #99 Vr /Vrs				F038	R
44590		4589	Last Trip Wave #99 Is				F038	R
44591		4590	Last Trip Wave #99 Vs /Vst				F038	R
44592		4591	Last Trip Wave #99 Is				F038	R
44593		4592	Last Trip Wave #99 Vt /Vtr				F038	R
44594		4593	Last Trip Wave #99 It				F038	R
44595		4594	Last Trip Wave #100 Vr /Vrs				F038	R
44596		4595	Last Trip Wave #100 Is				F038	R
44597		4596	Last Trip Wave #100 Vs /Vst				F038	R
44598		4597	Last Trip Wave #100 Is				F038	R
44599		4598	Last Trip Wave #100 Vt /Vtr				F038	R
44600		4599	Last Trip Wave #100 It				F038	R
44601		4600	Last Trip Wave #101 Vr /Vrs				F038	R
44602		4601	Last Trip Wave #101 Is				F038	R
44603		4602	Last Trip Wave #101 Vs /Vst				F038	R
44604		4603	Last Trip Wave #101 Is				F038	R
44605		4604	Last Trip Wave #101 Vt /Vtr				F038	R
44606		4605	Last Trip Wave #101 It				F038	R
44607		4606	Last Trip Wave #102 Vr /Vrs				F038	R
44608		4607	Last Trip Wave #102 Is				F038	R
44609		4608	Last Trip Wave #102 Vs /Vst				F038	R
44610		4609	Last Trip Wave #102 Is				F038	R
44611		4610	Last Trip Wave #102 Vt /Vtr				F038	R
44612		4611	Last Trip Wave #102 It				F038	R
44613		4612	Last Trip Wave #103 Vr /Vrs				F038	R
44614		4613	Last Trip Wave #103 Is				F038	R
44615		4614	Last Trip Wave #103 Vs /Vst				F038	R
44616		4615	Last Trip Wave #103 Is				F038	R
44617		4616	Last Trip Wave #103 Vt /Vtr				F038	R
44618		4617	Last Trip Wave #103 It				F038	R
44619		4618	Last Trip Wave #104 Vr /Vrs				F038	R
44620		4619	Last Trip Wave #104 Is				F038	R
44621		4620	Last Trip Wave #104 Vs /Vst				F038	R
44622		4621	Last Trip Wave #104 Is				F038	R
44623		4622	Last Trip Wave #104 Vt /Vtr				F038	R
44624		4623	Last Trip Wave #104 It				F038	R
44625		4624	Last Trip Wave #105 Vr /Vrs				F038	R
44626		4625	Last Trip Wave #105 Is				F038	R
44627		4626	Last Trip Wave #105 Vs /Vst				F038	R
44628		4627	Last Trip Wave #105 Is				F038	R
44629		4628	Last Trip Wave #105 Vt /Vtr				F038	R
44630		4629	Last Trip Wave #105 It				F038	R
44631		4630	Last Trip Wave #106 Vr /Vrs				F038	R
44632		4631	Last Trip Wave #106 Is				F038	R
44633		4632	Last Trip Wave #106 Vs /Vst				F038	R
44634		4633	Last Trip Wave #106 Is				F038	R
44635		4634	Last Trip Wave #106 Vt /Vtr				F038	R



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44636		4635	Last Trip Wave #106 It				F038	R
44637		4636	Last Trip Wave #107 Vr /Vrs				F038	R
44638		4637	Last Trip Wave #107 Is				F038	R
44639		4638	Last Trip Wave #107 Vs /Vst				F038	R
44640		4639	Last Trip Wave #107 Is				F038	R
44641		4640	Last Trip Wave #107 Vt /Vtr				F038	R
44642		4641	Last Trip Wave #107 It				F038	R
44643		4642	Last Trip Wave #108 Vr /Vrs				F038	R
44644		4643	Last Trip Wave #108 Is				F038	R
44645		4644	Last Trip Wave #108 Vs /Vst				F038	R
44646		4645	Last Trip Wave #108 Is				F038	R
44647		4646	Last Trip Wave #108 Vt /Vtr				F038	R
44648		4647	Last Trip Wave #108 It				F038	R
44649		4648	Last Trip Wave #109 Vr /Vrs				F038	R
44650		4649	Last Trip Wave #109 Is				F038	R
44651		4650	Last Trip Wave #109 Vs /Vst				F038	R
44652		4651	Last Trip Wave #109 Is				F038	R
44653		4652	Last Trip Wave #109 Vt /Vtr				F038	R
44654		4653	Last Trip Wave #109 It				F038	R
44655		4654	Last Trip Wave #110 Vr /Vrs				F038	R
44656		4655	Last Trip Wave #110 Is				F038	R
44657		4656	Last Trip Wave #110 Vs /Vst				F038	R
44658		4657	Last Trip Wave #110 Is				F038	R
44659		4658	Last Trip Wave #110 Vt /Vtr				F038	R
44660		4659	Last Trip Wave #110 It				F038	R
44661		4660	Last Trip Wave #111 Vr /Vrs				F038	R
44662		4661	Last Trip Wave #111 Is				F038	R
44663		4662	Last Trip Wave #111 Vs /Vst				F038	R
44664		4663	Last Trip Wave #111 Is				F038	R
44665		4664	Last Trip Wave #111 Vt /Vtr				F038	R
44666		4665	Last Trip Wave #111 It				F038	R
44667		4666	Last Trip Wave #112 Vr /Vrs				F038	R
44668		4667	Last Trip Wave #112 Is				F038	R
44669		4668	Last Trip Wave #112 Vs /Vst				F038	R
44670		4669	Last Trip Wave #112 Is				F038	R
44671		4670	Last Trip Wave #112 Vt /Vtr				F038	R
44672		4671	Last Trip Wave #112 It				F038	R
44673		4672	Last Trip Wave #113 Vr /Vrs				F038	R
44674		4673	Last Trip Wave #113 Is				F038	R
44675		4674	Last Trip Wave #113 Vs /Vst				F038	R
44676		4675	Last Trip Wave #113 Is				F038	R
44677		4676	Last Trip Wave #113 Vt /Vtr				F038	R
44678		4677	Last Trip Wave #113 It				F038	R
44679		4678	Last Trip Wave #114 Vr /Vrs				F038	R
44680		4679	Last Trip Wave #114 Is				F038	R
44681		4680	Last Trip Wave #114 Vs /Vst				F038	R
44682		4681	Last Trip Wave #114 Is				F038	R
44683		4682	Last Trip Wave #114 Vt /Vtr				F038	R
44684		4683	Last Trip Wave #114 It				F038	R



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44685		4684	Last Trip Wave #115 Vr /Vrs				F038	R
44686		4685	Last Trip Wave #115 Is				F038	R
44687		4686	Last Trip Wave #115 Vs /Vst				F038	R
44688		4687	Last Trip Wave #115 Is				F038	R
44689		4688	Last Trip Wave #115 Vt /Vtr				F038	R
44690		4689	Last Trip Wave #115 It				F038	R
44691		4690	Last Trip Wave #116 Vr /Vrs				F038	R
44692		4691	Last Trip Wave #116 Is				F038	R
44693		4692	Last Trip Wave #116 Vs /Vst				F038	R
44694		4693	Last Trip Wave #116 Is				F038	R
44695		4694	Last Trip Wave #116 Vt /Vtr				F038	R
44696		4695	Last Trip Wave #116 It				F038	R
44697		4696	Last Trip Wave #117 Vr /Vrs				F038	R
44698		4697	Last Trip Wave #117 Is				F038	R
44699		4698	Last Trip Wave #117 Vs /Vst				F038	R
44700		4699	Last Trip Wave #117 Is				F038	R
44701		4700	Last Trip Wave #117 Vt /Vtr				F038	R
44702		4701	Last Trip Wave #117 It				F038	R
44703		4702	Last Trip Wave #118 Vr /Vrs				F038	R
44704		4703	Last Trip Wave #118 Is				F038	R
44705		4704	Last Trip Wave #118 Vs /Vst				F038	R
44706		4705	Last Trip Wave #118 Is				F038	R
44707		4706	Last Trip Wave #118 Vt /Vtr				F038	R
44708		4707	Last Trip Wave #118 It				F038	R
44709		4708	Last Trip Wave #119 Vr /Vrs				F038	R
44710		4709	Last Trip Wave #119 Is				F038	R
44711		4710	Last Trip Wave #119 Vs /Vst				F038	R
44712		4711	Last Trip Wave #119 Is				F038	R
44713		4712	Last Trip Wave #119 Vt /Vtr				F038	R
44714		4713	Last Trip Wave #119 It				F038	R
44715		4714	Last Trip Wave #120 Vr /Vrs				F038	R
44716		4715	Last Trip Wave #120 Is				F038	R
44717		4716	Last Trip Wave #120 Vs /Vst				F038	R
44718		4717	Last Trip Wave #120 Is				F038	R
44719		4718	Last Trip Wave #120 Vt /Vtr				F038	R
44720		4719	Last Trip Wave #120 It				F038	R
44721		4720	Last Trip Wave #121 Vr /Vrs				F038	R
44722		4721	Last Trip Wave #121 Is				F038	R
44723		4722	Last Trip Wave #121 Vs /Vst				F038	R
44724		4723	Last Trip Wave #121 Is				F038	R
44725		4724	Last Trip Wave #121 Vt /Vtr				F038	R
44726		4725	Last Trip Wave #121 It				F038	R
44727		4726	Last Trip Wave #122 Vr /Vrs				F038	R
44728		4727	Last Trip Wave #122 Is				F038	R
44729		4728	Last Trip Wave #122 Vs /Vst				F038	R
44730		4729	Last Trip Wave #122 Is				F038	R
44731		4730	Last Trip Wave #122 Vt /Vtr				F038	R
44732		4731	Last Trip Wave #122 It				F038	R
44733		4732	Last Trip Wave #123 Vr /Vrs				F038	R



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44734		4733	Last Trip Wave #123 Is				F038	R
44735		4734	Last Trip Wave #123 Vs /Vst				F038	R
44736		4735	Last Trip Wave #123 Is				F038	R
44737		4736	Last Trip Wave #123 Vt /Vtr				F038	R
44738		4737	Last Trip Wave #123 It				F038	R
44739		4738	Last Trip Wave #124 Vr /Vrs				F038	R
44740		4739	Last Trip Wave #124 Is				F038	R
44741		4740	Last Trip Wave #124 Vs /Vst				F038	R
44742		4741	Last Trip Wave #124 Is				F038	R
44743		4742	Last Trip Wave #124 Vt /Vtr				F038	R
44744		4743	Last Trip Wave #124 It				F038	R
44745		4744	Last Trip Wave #125 Vr /Vrs				F038	R
44746		4745	Last Trip Wave #125 Is				F038	R
44747		4746	Last Trip Wave #125 Vs /Vst				F038	R
44748		4747	Last Trip Wave #125 Is				F038	R
44749		4748	Last Trip Wave #125 Vt /Vtr				F038	R
44750		4749	Last Trip Wave #125 It				F038	R
44751		4750	Last Trip Wave #126 Vr /Vrs				F038	R
44752		4751	Last Trip Wave #126 Is				F038	R
44753		4752	Last Trip Wave #126 Vs /Vst				F038	R
44754		4753	Last Trip Wave #126 Is				F038	R
44755		4754	Last Trip Wave #126 Vt /Vtr				F038	R
44756		4755	Last Trip Wave #126 It				F038	R
44757		4756	Last Trip Wave #127 Vr /Vrs				F038	R
44758		4757	Last Trip Wave #127 Is				F038	R
44759		4758	Last Trip Wave #127 Vs /Vst				F038	R
44760		4759	Last Trip Wave #127 Is				F038	R
44761		4760	Last Trip Wave #127 Vt /Vtr				F038	R
44762		4761	Last Trip Wave #127 It				F038	R
44763		4762	Last Trip Wave #128 Vr /Vrs				F038	R
44764		4763	Last Trip Wave #128 Is				F038	R
44765		4764	Last Trip Wave #128 Vs /Vst				F038	R
44766		4765	Last Trip Wave #128 Is				F038	R
44767		4766	Last Trip Wave #128 Vt /Vtr				F038	R
44768		4767	Last Trip Wave #128 It				F038	R
44769		4768	Last Trip Wave #129 Vr /Vrs				F038	R
44770		4769	Last Trip Wave #129 Is				F038	R
44771		4770	Last Trip Wave #129 Vs /Vst				F038	R
44772		4771	Last Trip Wave #129 Is				F038	R
44773		4772	Last Trip Wave #129 Vt /Vtr				F038	R
44774		4773	Last Trip Wave #129 It				F038	R
44775		4774	Last Trip Wave #130 Vr /Vrs				F038	R
44776		4775	Last Trip Wave #130 Is				F038	R
44777		4776	Last Trip Wave #130 Vs /Vst				F038	R
44778		4777	Last Trip Wave #130 Is				F038	R
44779		4778	Last Trip Wave #130 Vt /Vtr				F038	R
44780		4779	Last Trip Wave #130 It				F038	R
44781		4780	Last Trip Wave #131 Vr /Vrs				F038	R
44782		4781	Last Trip Wave #131 Is				F038	R



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44783		4782	Last Trip Wave #131 Vs /Vst				F038	R
44784		4783	Last Trip Wave #131 Is				F038	R
44785		4784	Last Trip Wave #131 Vt /Vtr				F038	R
44786		4785	Last Trip Wave #131 It				F038	R
44787		4786	Last Trip Wave #132 Vr /Vrs				F038	R
44788		4787	Last Trip Wave #132 Is				F038	R
44789		4788	Last Trip Wave #132 Vs /Vst				F038	R
44790		4789	Last Trip Wave #132 Is				F038	R
44791		4790	Last Trip Wave #132 Vt /Vtr				F038	R
44792		4791	Last Trip Wave #132 It				F038	R
44793		4792	Last Trip Wave #133 Vr /Vrs				F038	R
44794		4793	Last Trip Wave #133 Is				F038	R
44795		4794	Last Trip Wave #133 Vs /Vst				F038	R
44796		4795	Last Trip Wave #133 Is				F038	R
44797		4796	Last Trip Wave #133 Vt /Vtr				F038	R
44798		4797	Last Trip Wave #133 It				F038	R
44799		4798	Last Trip Wave #134 Vr /Vrs				F038	R
44800		4799	Last Trip Wave #134 Is				F038	R
44801		4800	Last Trip Wave #134 Vs /Vst				F038	R
44802		4801	Last Trip Wave #134 Is				F038	R
44803		4802	Last Trip Wave #134 Vt /Vtr				F038	R
44804		4803	Last Trip Wave #134 It				F038	R
44805		4804	Last Trip Wave #135 Vr /Vrs				F038	R
44806		4805	Last Trip Wave #135 Is				F038	R
44807		4806	Last Trip Wave #135 Vs /Vst				F038	R
44808		4807	Last Trip Wave #135 Is				F038	R
44809		4808	Last Trip Wave #135 Vt /Vtr				F038	R
44810		4809	Last Trip Wave #135 It				F038	R
44811		4810	Last Trip Wave #136 Vr /Vrs				F038	R
44812		4811	Last Trip Wave #136 Is				F038	R
44813		4812	Last Trip Wave #136 Vs /Vst				F038	R
44814		4813	Last Trip Wave #136 Is				F038	R
44815		4814	Last Trip Wave #136 Vt /Vtr				F038	R
44816		4815	Last Trip Wave #136 It				F038	R
44817		4816	Last Trip Wave #137 Vr /Vrs				F038	R
44818		4817	Last Trip Wave #137 Is				F038	R
44819		4818	Last Trip Wave #137 Vs /Vst				F038	R
44820		4819	Last Trip Wave #137 Is				F038	R
44821		4820	Last Trip Wave #137 Vt /Vtr				F038	R
44822		4821	Last Trip Wave #137 It				F038	R
44823		4822	Last Trip Wave #138 Vr /Vrs				F038	R
44824		4823	Last Trip Wave #138 Is				F038	R
44825		4824	Last Trip Wave #138 Vs /Vst				F038	R
44826		4825	Last Trip Wave #138 Is				F038	R
44827		4826	Last Trip Wave #138 Vt /Vtr				F038	R
44828		4827	Last Trip Wave #138 It				F038	R
44829		4828	Last Trip Wave #139 Vr /Vrs				F038	R
44830		4829	Last Trip Wave #139 Is				F038	R
44831		4830	Last Trip Wave #139 Vs /Vst				F038	R



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44832		4831	Last Trip Wave #139 Is				F038	R
44833		4832	Last Trip Wave #139 Vt /Vtr				F038	R
44834		4833	Last Trip Wave #139 It				F038	R
44835		4834	Last Trip Wave #140 Vr /Vrs				F038	R
44836		4835	Last Trip Wave #140 Is				F038	R
44837		4836	Last Trip Wave #140 Vs /Vst				F038	R
44838		4837	Last Trip Wave #140 Is				F038	R
44839		4838	Last Trip Wave #140 Vt /Vtr				F038	R
44840		4839	Last Trip Wave #140 It				F038	R
44841		4840	Last Trip Wave #141 Vr /Vrs				F038	R
44842		4841	Last Trip Wave #141 Is				F038	R
44843		4842	Last Trip Wave #141 Vs /Vst				F038	R
44844		4843	Last Trip Wave #141 Is				F038	R
44845		4844	Last Trip Wave #141 Vt /Vtr				F038	R
44846		4845	Last Trip Wave #141 It				F038	R
44847		4846	Last Trip Wave #142 Vr /Vrs				F038	R
44848		4847	Last Trip Wave #142 Is				F038	R
44849		4848	Last Trip Wave #142 Vs /Vst				F038	R
44850		4849	Last Trip Wave #142 Is				F038	R
44851		4850	Last Trip Wave #142 Vt /Vtr				F038	R
44852		4851	Last Trip Wave #142 It				F038	R
44853		4852	Last Trip Wave #143 Vr /Vrs				F038	R
44854		4853	Last Trip Wave #143 Is				F038	R
44855		4854	Last Trip Wave #143 Vs /Vst				F038	R
44856		4855	Last Trip Wave #143 Is				F038	R
44857		4856	Last Trip Wave #143 Vt /Vtr				F038	R
44858		4857	Last Trip Wave #143 It				F038	R
44859		4858	Last Trip Wave #144 Vr /Vrs				F038	R
44860		4859	Last Trip Wave #144 Is				F038	R
44861		4860	Last Trip Wave #144 Vs /Vst				F038	R
44862		4861	Last Trip Wave #144 Is				F038	R
44863		4862	Last Trip Wave #144 Vt /Vtr				F038	R
44864		4863	Last Trip Wave #144 It				F038	R
44865		4864	Last Trip Wave #145 Vr /Vrs				F038	R
44866		4865	Last Trip Wave #145 Is				F038	R
44867		4866	Last Trip Wave #145 Vs /Vst				F038	R
44868		4867	Last Trip Wave #145 Is				F038	R
44869		4868	Last Trip Wave #145 Vt /Vtr				F038	R
44870		4869	Last Trip Wave #145 It				F038	R
44871		4870	Last Trip Wave #146 Vr /Vrs				F038	R
44872		4871	Last Trip Wave #146 Is				F038	R
44873		4872	Last Trip Wave #146 Vs /Vst				F038	R
44874		4873	Last Trip Wave #146 Is				F038	R
44875		4874	Last Trip Wave #146 Vt /Vtr				F038	R
44876		4875	Last Trip Wave #146 It				F038	R
44877		4876	Last Trip Wave #147 Vr /Vrs				F038	R
44878		4877	Last Trip Wave #147 Is				F038	R
44879		4878	Last Trip Wave #147 Vs /Vst				F038	R
44880		4879	Last Trip Wave #147 Is				F038	R



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44881		4880	Last Trip Wave #147 Vt /Vtr				F038	R
44882		4881	Last Trip Wave #147 It				F038	R
44883		4882	Last Trip Wave #148 Vr /Vrs				F038	R
44884		4883	Last Trip Wave #148 Is				F038	R
44885		4884	Last Trip Wave #148 Vs /Vst				F038	R
44886		4885	Last Trip Wave #148 Is				F038	R
44887		4886	Last Trip Wave #148 Vt /Vtr				F038	R
44888		4887	Last Trip Wave #148 It				F038	R
44889		4888	Last Trip Wave #149 Vr /Vrs				F038	R
44890		4889	Last Trip Wave #149 Is				F038	R
44891		4890	Last Trip Wave #149 Vs /Vst				F038	R
44892		4891	Last Trip Wave #149 Is				F038	R
44893		4892	Last Trip Wave #149 Vt /Vtr				F038	R
44894		4893	Last Trip Wave #149 It				F038	R
44895		4894	Last Trip Wave #150 Vr /Vrs				F038	R
44896		4895	Last Trip Wave #150 Is				F038	R
44897		4896	Last Trip Wave #150 Vs /Vst				F038	R
44898		4897	Last Trip Wave #150 Is				F038	R
44899		4898	Last Trip Wave #150 Vt /Vtr				F038	R
44900		4899	Last Trip Wave #150 It				F038	R
44901		4900	Last Trip Wave #151 Vr /Vrs				F038	R
44902		4901	Last Trip Wave #151 Is				F038	R
44903		4902	Last Trip Wave #151 Vs /Vst				F038	R
44904		4903	Last Trip Wave #151 Is				F038	R
44905		4904	Last Trip Wave #151 Vt /Vtr				F038	R
44906		4905	Last Trip Wave #151 It				F038	R
44907		4906	Last Trip Wave #152 Vr /Vrs				F038	R
44908		4907	Last Trip Wave #152 Is				F038	R
44909		4908	Last Trip Wave #152 Vs /Vst				F038	R
44910		4909	Last Trip Wave #152 Is				F038	R
44911		4910	Last Trip Wave #152 Vt /Vtr				F038	R
44912		4911	Last Trip Wave #152 It				F038	R
44913		4912	Last Trip Wave #153 Vr /Vrs				F038	R
44914		4913	Last Trip Wave #153 Is				F038	R
44915		4914	Last Trip Wave #153 Vs /Vst				F038	R
44916		4915	Last Trip Wave #153 Is				F038	R
44917		4916	Last Trip Wave #153 Vt /Vtr				F038	R
44918		4917	Last Trip Wave #153 It				F038	R
44919		4918	Last Trip Wave #154 Vr /Vrs				F038	R
44920		4919	Last Trip Wave #154 Is				F038	R
44921		4920	Last Trip Wave #154 Vs /Vst				F038	R
44922		4921	Last Trip Wave #154 Is				F038	R
44923		4922	Last Trip Wave #154 Vt /Vtr				F038	R
44924		4923	Last Trip Wave #154 It				F038	R
44925		4924	Last Trip Wave #155 Vr /Vrs				F038	R
44926		4925	Last Trip Wave #155 Is				F038	R
44927		4926	Last Trip Wave #155 Vs /Vst				F038	R
44928		4927	Last Trip Wave #155 Is				F038	R
44929		4928	Last Trip Wave #155 Vt /Vtr				F038	R



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44930		4929	Last Trip Wave #155 It				F038	R
44931		4930	Last Trip Wave #156 Vr /Vrs				F038	R
44932		4931	Last Trip Wave #156 Is				F038	R
44933		4932	Last Trip Wave #156 Vs /Vst				F038	R
44934		4933	Last Trip Wave #156 Is				F038	R
44935		4934	Last Trip Wave #156 Vt /Vtr				F038	R
44936		4935	Last Trip Wave #156 It				F038	R
44937		4936	Last Trip Wave #157 Vr /Vrs				F038	R
44938		4937	Last Trip Wave #157 Is				F038	R
44939		4938	Last Trip Wave #157 Vs /Vst				F038	R
44940		4939	Last Trip Wave #157 Is				F038	R
44941		4940	Last Trip Wave #157 Vt /Vtr				F038	R
44942		4941	Last Trip Wave #157 It				F038	R
44943		4942	Last Trip Wave #158 Vr /Vrs				F038	R
44944		4943	Last Trip Wave #158 Is				F038	R
44945		4944	Last Trip Wave #158 Vs /Vst				F038	R
44946		4945	Last Trip Wave #158 Is				F038	R
44947		4946	Last Trip Wave #158 Vt /Vtr				F038	R
44948		4947	Last Trip Wave #158 It				F038	R
44949		4948	Last Trip Wave #159 Vr /Vrs				F038	R
44950		4949	Last Trip Wave #159 Is				F038	R
44951		4950	Last Trip Wave #159 Vs /Vst				F038	R
44952		4951	Last Trip Wave #159 Is				F038	R
44953		4952	Last Trip Wave #159 Vt /Vtr				F038	R
44954		4953	Last Trip Wave #159 It				F038	R
44955		4954	Last Trip Wave #160 Vr /Vrs				F038	R
44956		4955	Last Trip Wave #160 Is				F038	R
44957		4956	Last Trip Wave #160 Vs /Vst				F038	R
44958		4957	Last Trip Wave #160 Is				F038	R
44959		4958	Last Trip Wave #160 Vt /Vtr				F038	R
44960		4959	Last Trip Wave #160 It				F038	R
44961		4960	Last Trip Wave #161 Vr /Vrs				F038	R
44962		4961	Last Trip Wave #161 Is				F038	R
44963		4962	Last Trip Wave #161 Vs /Vst				F038	R
44964		4963	Last Trip Wave #161 Is				F038	R
44965		4964	Last Trip Wave #161 Vt /Vtr				F038	R
44966		4965	Last Trip Wave #161 It				F038	R
44967		4966	Last Trip Wave #162 Vr /Vrs				F038	R
44968		4967	Last Trip Wave #162 Is				F038	R
44969		4968	Last Trip Wave #162 Vs /Vst				F038	R
44970		4969	Last Trip Wave #162 Is				F038	R
44971		4970	Last Trip Wave #162 Vt /Vtr				F038	R
44972		4971	Last Trip Wave #162 It				F038	R
44973		4972	Last Trip Wave #163 Vr /Vrs				F038	R
44974		4973	Last Trip Wave #163 Is				F038	R
44975		4974	Last Trip Wave #163 Vs /Vst				F038	R
44976		4975	Last Trip Wave #163 Is				F038	R
44977		4976	Last Trip Wave #163 Vt /Vtr				F038	R
44978		4977	Last Trip Wave #163 It				F038	R



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44979		4978	Last Trip Wave #164 Vr /Vrs				F038	R
44980		4979	Last Trip Wave #164 Is				F038	R
44981		4980	Last Trip Wave #164 Vs /Vst				F038	R
44982		4981	Last Trip Wave #164 Is				F038	R
44983		4982	Last Trip Wave #164 Vt /Vtr				F038	R
44984		4983	Last Trip Wave #164 It				F038	R
44985		4984	Last Trip Wave #165 Vr /Vrs				F038	R
44986		4985	Last Trip Wave #165 Is				F038	R
44987		4986	Last Trip Wave #165 Vs /Vst				F038	R
44988		4987	Last Trip Wave #165 Is				F038	R
44989		4988	Last Trip Wave #165 Vt /Vtr				F038	R
44990		4989	Last Trip Wave #165 It				F038	R
44991		4990	Last Trip Wave #166 Vr /Vrs				F038	R
44992		4991	Last Trip Wave #166 Is				F038	R
44993		4992	Last Trip Wave #166 Vs /Vst				F038	R
44994		4993	Last Trip Wave #166 Is				F038	R
44995		4994	Last Trip Wave #166 Vt /Vtr				F038	R
44996		4995	Last Trip Wave #166 It				F038	R
44997		4996	Last Trip Wave #167 Vr /Vrs				F038	R
44998		4997	Last Trip Wave #167 Is				F038	R
44999		4998	Last Trip Wave #167 Vs /Vst				F038	R
45000		4999	Last Trip Wave #167 Is				F038	R
45001		5000	Last Trip Wave #167 Vt /Vtr				F038	R
45002		5001	Last Trip Wave #167 It				F038	R
45003		5002	Last Trip Wave #168 Vr /Vrs				F038	R
45004		5003	Last Trip Wave #168 Is				F038	R
45005		5004	Last Trip Wave #168 Vs /Vst				F038	R
45006		5005	Last Trip Wave #168 Is				F038	R
45007		5006	Last Trip Wave #168 Vt /Vtr				F038	R
45008		5007	Last Trip Wave #168 It				F038	R
45009		5008	Last Trip Wave #169 Vr /Vrs				F038	R
45010		5009	Last Trip Wave #169 Is				F038	R
45011		5010	Last Trip Wave #169 Vs /Vst				F038	R
45012		5011	Last Trip Wave #169 Is				F038	R
45013		5012	Last Trip Wave #169 Vt /Vtr				F038	R
45014		5013	Last Trip Wave #169 It				F038	R
45015		5014	Last Trip Wave #170 Vr /Vrs				F038	R
45016		5015	Last Trip Wave #170 Is				F038	R
45017		5016	Last Trip Wave #170 Vs /Vst				F038	R
45018		5017	Last Trip Wave #170 Is				F038	R
45019		5018	Last Trip Wave #170 Vt /Vtr				F038	R
45020		5019	Last Trip Wave #170 It				F038	R
45021		5020	Last Trip Wave #171 Vr /Vrs				F038	R
45022		5021	Last Trip Wave #171 Is				F038	R
45023		5022	Last Trip Wave #171 Vs /Vst				F038	R
45024		5023	Last Trip Wave #171 Is				F038	R
45025		5024	Last Trip Wave #171 Vt /Vtr				F038	R
45026		5025	Last Trip Wave #171 It				F038	R
45027		5026	Last Trip Wave #172 Vr /Vrs				F038	R



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45028		5027	Last Trip Wave #172 Is				F038	R
45029		5028	Last Trip Wave #172 Vs /Vst				F038	R
45030		5029	Last Trip Wave #172 Is				F038	R
45031		5030	Last Trip Wave #172 Vt /Vtr				F038	R
45032		5031	Last Trip Wave #172 It				F038	R
45033		5032	Last Trip Wave #173 Vr /Vrs				F038	R
45034		5033	Last Trip Wave #173 Is				F038	R
45035		5034	Last Trip Wave #173 Vs /Vst				F038	R
45036		5035	Last Trip Wave #173 Is				F038	R
45037		5036	Last Trip Wave #173 Vt /Vtr				F038	R
45038		5037	Last Trip Wave #173 It				F038	R
45039		5038	Last Trip Wave #174 Vr /Vrs				F038	R
45040		5039	Last Trip Wave #174 Is				F038	R
45041		5040	Last Trip Wave #174 Vs /Vst				F038	R
45042		5041	Last Trip Wave #174 Is				F038	R
45043		5042	Last Trip Wave #174 Vt /Vtr				F038	R
45044		5043	Last Trip Wave #174 It				F038	R
45045		5044	Last Trip Wave #175 Vr /Vrs				F038	R
45046		5045	Last Trip Wave #175 Is				F038	R
45047		5046	Last Trip Wave #175 Vs /Vst				F038	R
45048		5047	Last Trip Wave #175 Is				F038	R
45049		5048	Last Trip Wave #175 Vt /Vtr				F038	R
45050		5049	Last Trip Wave #175 It				F038	R
45051		5050	Last Trip Wave #176 Vr /Vrs				F038	R
45052		5051	Last Trip Wave #176 Is				F038	R
45053		5052	Last Trip Wave #176 Vs /Vst				F038	R
45054		5053	Last Trip Wave #176 Is				F038	R
45055		5054	Last Trip Wave #176 Vt /Vtr				F038	R
45056		5055	Last Trip Wave #176 It				F038	R
45057		5056	Last Trip Wave #177 Vr /Vrs				F038	R
45058		5057	Last Trip Wave #177 Is				F038	R
45059		5058	Last Trip Wave #177 Vs /Vst				F038	R
45060		5059	Last Trip Wave #177 Is				F038	R
45061		5060	Last Trip Wave #177 Vt /Vtr				F038	R
45062		5061	Last Trip Wave #177 It				F038	R
45063		5062	Last Trip Wave #178 Vr /Vrs				F038	R
45064		5063	Last Trip Wave #178 Is				F038	R
45065		5064	Last Trip Wave #178 Vs /Vst				F038	R
45066		5065	Last Trip Wave #178 Is				F038	R
45067		5066	Last Trip Wave #178 Vt /Vtr				F038	R
45068		5067	Last Trip Wave #178 It				F038	R
45069		5068	Last Trip Wave #179 Vr /Vrs				F038	R
45070		5069	Last Trip Wave #179 Is				F038	R
45071		5070	Last Trip Wave #179 Vs /Vst				F038	R
45072		5071	Last Trip Wave #179 Is				F038	R
45073		5072	Last Trip Wave #179 Vt /Vtr				F038	R
45074		5073	Last Trip Wave #179 It				F038	R
45075		5074	Last Trip Wave #180 Vr /Vrs				F038	R
45076		5075	Last Trip Wave #180 Is				F038	R



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45077		5076	Last Trip Wave #180 Vs /Vst				F038	R
45078		5077	Last Trip Wave #180 Is				F038	R
45079		5078	Last Trip Wave #180 Vt /Vtr				F038	R
45080		5079	Last Trip Wave #180 It				F038	R
45081		5080	Last Trip Wave #181 Vr /Vrs				F038	R
45082		5081	Last Trip Wave #181 Is				F038	R
45083		5082	Last Trip Wave #181 Vs /Vst				F038	R
45084		5083	Last Trip Wave #181 Is				F038	R
45085		5084	Last Trip Wave #181 Vt /Vtr				F038	R
45086		5085	Last Trip Wave #181 It				F038	R
45087		5086	Last Trip Wave #182 Vr /Vrs				F038	R
45088		5087	Last Trip Wave #182 Is				F038	R
45089		5088	Last Trip Wave #182 Vs /Vst				F038	R
45090		5089	Last Trip Wave #182 Is				F038	R
45091		5090	Last Trip Wave #182 Vt /Vtr				F038	R
45092		5091	Last Trip Wave #182 It				F038	R
45093		5092	Last Trip Wave #183 Vr /Vrs				F038	R
45094		5093	Last Trip Wave #183 Is				F038	R
45095		5094	Last Trip Wave #183 Vs /Vst				F038	R
45096		5095	Last Trip Wave #183 Is				F038	R
45097		5096	Last Trip Wave #183 Vt /Vtr				F038	R
45098		5097	Last Trip Wave #183 It				F038	R
45099		5098	Last Trip Wave #184 Vr /Vrs				F038	R
45100		5099	Last Trip Wave #184 Is				F038	R
45101		5100	Last Trip Wave #184 Vs /Vst				F038	R
45102		5101	Last Trip Wave #184 Is				F038	R
45103		5102	Last Trip Wave #184 Vt /Vtr				F038	R
45104		5103	Last Trip Wave #184 It				F038	R
45105		5104	Last Trip Wave #185 Vr /Vrs				F038	R
45106		5105	Last Trip Wave #185 Is				F038	R
45107		5106	Last Trip Wave #185 Vs /Vst				F038	R
45108		5107	Last Trip Wave #185 Is				F038	R
45109		5108	Last Trip Wave #185 Vt /Vtr				F038	R
45110		5109	Last Trip Wave #185 It				F038	R
45111		5110	Last Trip Wave #186 Vr /Vrs				F038	R
45112		5111	Last Trip Wave #186 Is				F038	R
45113		5112	Last Trip Wave #186 Vs /Vst				F038	R
45114		5113	Last Trip Wave #186 Is				F038	R
45115		5114	Last Trip Wave #186 Vt /Vtr				F038	R
45116		5115	Last Trip Wave #186 It				F038	R
45117		5116	Last Trip Wave #187 Vr /Vrs				F038	R
45118		5117	Last Trip Wave #187 Is				F038	R
45119		5118	Last Trip Wave #187 Vs /Vst				F038	R
45120		5119	Last Trip Wave #187 Is				F038	R
45121		5120	Last Trip Wave #187 Vt /Vtr				F038	R
45122		5121	Last Trip Wave #187 It				F038	R
45123		5122	Last Trip Wave #188 Vr /Vrs				F038	R
45124		5123	Last Trip Wave #188 Is				F038	R
45125		5124	Last Trip Wave #188 Vs /Vst				F038	R



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45126		5125	Last Trip Wave #188 Is				F038	R
45127		5126	Last Trip Wave #188 Vt /Vtr				F038	R
45128		5127	Last Trip Wave #188 It				F038	R
45129		5128	Last Trip Wave #189 Vr /Vrs				F038	R
45130		5129	Last Trip Wave #189 Is				F038	R
45131		5130	Last Trip Wave #189 Vs /Vst				F038	R
45132		5131	Last Trip Wave #189 Is				F038	R
45133		5132	Last Trip Wave #189 Vt /Vtr				F038	R
45134		5133	Last Trip Wave #189 It				F038	R
45135		5134	Last Trip Wave #190 Vr /Vrs				F038	R
45136		5135	Last Trip Wave #190 Is				F038	R
45137		5136	Last Trip Wave #190 Vs /Vst				F038	R
45138		5137	Last Trip Wave #190 Is				F038	R
45139		5138	Last Trip Wave #190 Vt /Vtr				F038	R
45140		5139	Last Trip Wave #190 It				F038	R
45141		5140	Last Trip Wave #191 Vr /Vrs				F038	R
45142		5141	Last Trip Wave #191 Is				F038	R
45143		5142	Last Trip Wave #191 Vs /Vst				F038	R
45144		5143	Last Trip Wave #191 Is				F038	R
45145		5144	Last Trip Wave #191 Vt /Vtr				F038	R
45146		5145	Last Trip Wave #191 It				F038	R
45147		5146	Last Trip Wave #192 Vr /Vrs				F038	R
45148		5147	Last Trip Wave #192 Is				F038	R
45149		5148	Last Trip Wave #192 Vs /Vst				F038	R
45150		5149	Last Trip Wave #192 Is				F038	R
45151		5150	Last Trip Wave #192 Vt /Vtr				F038	R
45152		5151	Last Trip Wave #192 It				F038	R
45153		5152	Last Trip Wave #193 Vr /Vrs				F038	R
45154		5153	Last Trip Wave #193 Is				F038	R
45155		5154	Last Trip Wave #193 Vs /Vst				F038	R
45156		5155	Last Trip Wave #193 Is				F038	R
45157		5156	Last Trip Wave #193 Vt /Vtr				F038	R
45158		5157	Last Trip Wave #193 It				F038	R
45159		5158	Last Trip Wave #194 Vr /Vrs				F038	R
45160		5159	Last Trip Wave #194 Is				F038	R
45161		5160	Last Trip Wave #194 Vs /Vst				F038	R
45162		5161	Last Trip Wave #194 Is				F038	R
45163		5162	Last Trip Wave #194 Vt /Vtr				F038	R
45164		5163	Last Trip Wave #194 It				F038	R
45165		5164	Last Trip Wave #195 Vr /Vrs				F038	R
45166		5165	Last Trip Wave #195 Is				F038	R
45167		5166	Last Trip Wave #195 Vs /Vst				F038	R
45168		5167	Last Trip Wave #195 Is				F038	R
45169		5168	Last Trip Wave #195 Vt /Vtr				F038	R
45170		5169	Last Trip Wave #195 It				F038	R
45171		5170	Last Trip Wave #196 Vr /Vrs				F038	R
45172		5171	Last Trip Wave #196 Is				F038	R
45173		5172	Last Trip Wave #196 Vs /Vst				F038	R
45174		5173	Last Trip Wave #196 Is				F038	R



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45175		5174	Last Trip Wave #196 Vt /Vtr				F038	R
45176		5175	Last Trip Wave #196 It				F038	R
45177		5176	Last Trip Wave #197 Vr /Vrs				F038	R
45178		5177	Last Trip Wave #197 Is				F038	R
45179		5178	Last Trip Wave #197 Vs /Vst				F038	R
45180		5179	Last Trip Wave #197 Is				F038	R
45181		5180	Last Trip Wave #197 Vt /Vtr				F038	R
45182		5181	Last Trip Wave #197 It				F038	R
45183		5182	Last Trip Wave #198 Vr /Vrs				F038	R
45184		5183	Last Trip Wave #198 Is				F038	R
45185		5184	Last Trip Wave #198 Vs /Vst				F038	R
45186		5185	Last Trip Wave #198 Is				F038	R
45187		5186	Last Trip Wave #198 Vt /Vtr				F038	R
45188		5187	Last Trip Wave #198 It				F038	R
45189		5188	Last Trip Wave #199 Vr /Vrs				F038	R
45190		5189	Last Trip Wave #199 Is				F038	R
45191		5190	Last Trip Wave #199 Vs /Vst				F038	R
45192		5191	Last Trip Wave #199 Is				F038	R
45193		5192	Last Trip Wave #199 Vt /Vtr				F038	R
45194		5193	Last Trip Wave #199 It				F038	R
45195		5194	Last Trip Wave #200 Vr /Vrs				F038	R
45196		5195	Last Trip Wave #200 Is				F038	R
45197		5196	Last Trip Wave #200 Vs /Vst				F038	R
45198		5197	Last Trip Wave #200 Is				F038	R
45199		5198	Last Trip Wave #200 Vt /Vtr				F038	R
45200		5199	Last Trip Wave #200 It				F038	R
45201		5200	Last Trip Wave #201 Vr /Vrs				F038	R
45202		5201	Last Trip Wave #201 Is				F038	R
45203		5202	Last Trip Wave #201 Vs /Vst				F038	R
45204		5203	Last Trip Wave #201 Is				F038	R
45205		5204	Last Trip Wave #201 Vt /Vtr				F038	R
45206		5205	Last Trip Wave #201 It				F038	R
45207		5206	Last Trip Wave #202 Vr /Vrs				F038	R
45208		5207	Last Trip Wave #202 Is				F038	R
45209		5208	Last Trip Wave #202 Vs /Vst				F038	R
45210		5209	Last Trip Wave #202 Is				F038	R
45211		5210	Last Trip Wave #202 Vt /Vtr				F038	R
45212		5211	Last Trip Wave #202 It				F038	R
45213		5212	Last Trip Wave #203 Vr /Vrs				F038	R
45214		5213	Last Trip Wave #203 Is				F038	R
45215		5214	Last Trip Wave #203 Vs /Vst				F038	R
45216		5215	Last Trip Wave #203 Is				F038	R
45217		5216	Last Trip Wave #203 Vt /Vtr				F038	R
45218		5217	Last Trip Wave #203 It				F038	R
45219		5218	Last Trip Wave #204 Vr /Vrs				F038	R
45220		5219	Last Trip Wave #204 Is				F038	R
45221		5220	Last Trip Wave #204 Vs /Vst				F038	R
45222		5221	Last Trip Wave #204 Is				F038	R
45223		5222	Last Trip Wave #204 Vt /Vtr				F038	R



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45224		5223	Last Trip Wave #204 It				F038	R
45225		5224	Last Trip Wave #205 Vr /Vrs				F038	R
45226		5225	Last Trip Wave #205 Is				F038	R
45227		5226	Last Trip Wave #205 Vs /Vst				F038	R
45228		5227	Last Trip Wave #205 Is				F038	R
45229		5228	Last Trip Wave #205 Vt /Vtr				F038	R
45230		5229	Last Trip Wave #205 It				F038	R
45231		5230	Last Trip Wave #206 Vr /Vrs				F038	R
45232		5231	Last Trip Wave #206 Is				F038	R
45233		5232	Last Trip Wave #206 Vs /Vst				F038	R
45234		5233	Last Trip Wave #206 Is				F038	R
45235		5234	Last Trip Wave #206 Vt /Vtr				F038	R
45236		5235	Last Trip Wave #206 It				F038	R
45237		5236	Last Trip Wave #207 Vr /Vrs				F038	R
45238		5237	Last Trip Wave #207 Is				F038	R
45239		5238	Last Trip Wave #207 Vs /Vst				F038	R
45240		5239	Last Trip Wave #207 Is				F038	R
45241		5240	Last Trip Wave #207 Vt /Vtr				F038	R
45242		5241	Last Trip Wave #207 It				F038	R
45243		5242	Last Trip Wave #208 Vr /Vrs				F038	R
45244		5243	Last Trip Wave #208 Is				F038	R
45245		5244	Last Trip Wave #208 Vs /Vst				F038	R
45246		5245	Last Trip Wave #208 Is				F038	R
45247		5246	Last Trip Wave #208 Vt /Vtr				F038	R
45248		5247	Last Trip Wave #208 It				F038	R
45249		5248	Last Trip Wave #209 Vr /Vrs				F038	R
45250		5249	Last Trip Wave #209 Is				F038	R
45251		5250	Last Trip Wave #209 Vs /Vst				F038	R
45252		5251	Last Trip Wave #209 Is				F038	R
45253		5252	Last Trip Wave #209 Vt /Vtr				F038	R
45254		5253	Last Trip Wave #209 It				F038	R
45255		5254	Last Trip Wave #210 Vr /Vrs				F038	R
45256		5255	Last Trip Wave #210 Is				F038	R
45257		5256	Last Trip Wave #210 Vs /Vst				F038	R
45258		5257	Last Trip Wave #210 Is				F038	R
45259		5258	Last Trip Wave #210 Vt /Vtr				F038	R
45260		5259	Last Trip Wave #210 It				F038	R
45261		5260	Last Trip Wave #211 Vr /Vrs				F038	R
45262		5261	Last Trip Wave #211 Is				F038	R
45263		5262	Last Trip Wave #211 Vs /Vst				F038	R
45264		5263	Last Trip Wave #211 Is				F038	R
45265		5264	Last Trip Wave #211 Vt /Vtr				F038	R
45266		5265	Last Trip Wave #211 It				F038	R
45267		5266	Last Trip Wave #212 Vr /Vrs				F038	R
45268		5267	Last Trip Wave #212 Is				F038	R
45269		5268	Last Trip Wave #212 Vs /Vst				F038	R
45270		5269	Last Trip Wave #212 Is				F038	R
45271		5270	Last Trip Wave #212 Vt /Vtr				F038	R
45272		5271	Last Trip Wave #212 It				F038	R



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45273		5272	Last Trip Wave #213 Vr /Vrs				F038	R
45274		5273	Last Trip Wave #213 Is				F038	R
45275		5274	Last Trip Wave #213 Vs /Vst				F038	R
45276		5275	Last Trip Wave #213 Is				F038	R
45277		5276	Last Trip Wave #213 Vt /Vtr				F038	R
45278		5277	Last Trip Wave #213 It				F038	R
45279		5278	Last Trip Wave #214 Vr /Vrs				F038	R
45280		5279	Last Trip Wave #214 Is				F038	R
45281		5280	Last Trip Wave #214 Vs /Vst				F038	R
45282		5281	Last Trip Wave #214 Is				F038	R
45283		5282	Last Trip Wave #214 Vt /Vtr				F038	R
45284		5283	Last Trip Wave #214 It				F038	R
45285		5284	Last Trip Wave #215 Vr /Vrs				F038	R
45286		5285	Last Trip Wave #215 Is				F038	R
45287		5286	Last Trip Wave #215 Vs /Vst				F038	R
45288		5287	Last Trip Wave #215 Is				F038	R
45289		5288	Last Trip Wave #215 Vt /Vtr				F038	R
45290		5289	Last Trip Wave #215 It				F038	R
45291		5290	Last Trip Wave #216 Vr /Vrs				F038	R
45292		5291	Last Trip Wave #216 Is				F038	R
45293		5292	Last Trip Wave #216 Vs /Vst				F038	R
45294		5293	Last Trip Wave #216 Is				F038	R
45295		5294	Last Trip Wave #216 Vt /Vtr				F038	R
45296		5295	Last Trip Wave #216 It				F038	R
45297		5296	Last Trip Wave #217 Vr /Vrs				F038	R
45298		5297	Last Trip Wave #217 Is				F038	R
45299		5298	Last Trip Wave #217 Vs /Vst				F038	R
45300		5299	Last Trip Wave #217 Is				F038	R
45301		5300	Last Trip Wave #217 Vt /Vtr				F038	R
45302		5301	Last Trip Wave #217 It				F038	R
45303		5302	Last Trip Wave #218 Vr /Vrs				F038	R
45304		5303	Last Trip Wave #218 Is				F038	R
45305		5304	Last Trip Wave #218 Vs /Vst				F038	R
45306		5305	Last Trip Wave #218 Is				F038	R
45307		5306	Last Trip Wave #218 Vt /Vtr				F038	R
45308		5307	Last Trip Wave #218 It				F038	R
45309		5308	Last Trip Wave #219 Vr /Vrs				F038	R
45310		5309	Last Trip Wave #219 Is				F038	R
45311		5310	Last Trip Wave #219 Vs /Vst				F038	R
45312		5311	Last Trip Wave #219 Is				F038	R
45313		5312	Last Trip Wave #219 Vt /Vtr				F038	R
45314		5313	Last Trip Wave #219 It				F038	R
45315		5314	Last Trip Wave #220 Vr /Vrs				F038	R
45316		5315	Last Trip Wave #220 Is				F038	R
45317		5316	Last Trip Wave #220 Vs /Vst				F038	R
45318		5317	Last Trip Wave #220 Is				F038	R
45319		5318	Last Trip Wave #220 Vt /Vtr				F038	R
45320		5319	Last Trip Wave #220 It				F038	R
45321		5320	Last Trip Wave #221 Vr /Vrs				F038	R



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45322		5321	Last Trip Wave #221 Is				F038	R
45323		5322	Last Trip Wave #221 Vs /Vst				F038	R
45324		5323	Last Trip Wave #221 Is				F038	R
45325		5324	Last Trip Wave #221 Vt /Vtr				F038	R
45326		5325	Last Trip Wave #221 It				F038	R
45327		5326	Last Trip Wave #222 Vr /Vrs				F038	R
45328		5327	Last Trip Wave #222 Is				F038	R
45329		5328	Last Trip Wave #222 Vs /Vst				F038	R
45330		5329	Last Trip Wave #222 Is				F038	R
45331		5330	Last Trip Wave #222 Vt /Vtr				F038	R
45332		5331	Last Trip Wave #222 It				F038	R
45333		5332	Last Trip Wave #223 Vr /Vrs				F038	R
45334		5333	Last Trip Wave #223 Is				F038	R
45335		5334	Last Trip Wave #223 Vs /Vst				F038	R
45336		5335	Last Trip Wave #223 Is				F038	R
45337		5336	Last Trip Wave #223 Vt /Vtr				F038	R
45338		5337	Last Trip Wave #223 It				F038	R
45339		5338	Last Trip Wave #224 Vr /Vrs				F038	R
45340		5339	Last Trip Wave #224 Is				F038	R
45341		5340	Last Trip Wave #224 Vs /Vst				F038	R
45342		5341	Last Trip Wave #224 Is				F038	R
45343		5342	Last Trip Wave #224 Vt /Vtr				F038	R
45344		5343	Last Trip Wave #224 It				F038	R
45345		5344	Last Trip Wave #225 Vr /Vrs				F038	R
45346		5345	Last Trip Wave #225 Is				F038	R
45347		5346	Last Trip Wave #225 Vs /Vst				F038	R
45348		5347	Last Trip Wave #225 Is				F038	R
45349		5348	Last Trip Wave #225 Vt /Vtr				F038	R
45350		5349	Last Trip Wave #225 It				F038	R
45351		5350	Last Trip Wave #226 Vr /Vrs				F038	R
45352		5351	Last Trip Wave #226 Is				F038	R
45353		5352	Last Trip Wave #226 Vs /Vst				F038	R
45354		5353	Last Trip Wave #226 Is				F038	R
45355		5354	Last Trip Wave #226 Vt /Vtr				F038	R
45356		5355	Last Trip Wave #226 It				F038	R
45357		5356	Last Trip Wave #227 Vr /Vrs				F038	R
45358		5357	Last Trip Wave #227 Is				F038	R
45359		5358	Last Trip Wave #227 Vs /Vst				F038	R
45360		5359	Last Trip Wave #227 Is				F038	R
45361		5360	Last Trip Wave #227 Vt /Vtr				F038	R
45362		5361	Last Trip Wave #227 It				F038	R
45363		5362	Last Trip Wave #228 Vr /Vrs				F038	R
45364		5363	Last Trip Wave #228 Is				F038	R
45365		5364	Last Trip Wave #228 Vs /Vst				F038	R
45366		5365	Last Trip Wave #228 Is				F038	R
45367		5366	Last Trip Wave #228 Vt /Vtr				F038	R
45368		5367	Last Trip Wave #228 It				F038	R
45369		5368	Last Trip Wave #229 Vr /Vrs				F038	R
45370		5369	Last Trip Wave #229 Is				F038	R



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45371		5370	Last Trip Wave #229 Vs /Vst				F038	R
45372		5371	Last Trip Wave #229 Is				F038	R
45373		5372	Last Trip Wave #229 Vt /Vtr				F038	R
45374		5373	Last Trip Wave #229 It				F038	R
45375		5374	Last Trip Wave #230 Vr /Vrs				F038	R
45376		5375	Last Trip Wave #230 Is				F038	R
45377		5376	Last Trip Wave #230 Vs /Vst				F038	R
45378		5377	Last Trip Wave #230 Is				F038	R
45379		5378	Last Trip Wave #230 Vt /Vtr				F038	R
45380		5379	Last Trip Wave #230 It				F038	R
45381		5380	Last Trip Wave #231 Vr /Vrs				F038	R
45382		5381	Last Trip Wave #231 Is				F038	R
45383		5382	Last Trip Wave #231 Vs /Vst				F038	R
45384		5383	Last Trip Wave #231 Is				F038	R
45385		5384	Last Trip Wave #231 Vt /Vtr				F038	R
45386		5385	Last Trip Wave #231 It				F038	R
45387		5386	Last Trip Wave #232 Vr /Vrs				F038	R
45388		5387	Last Trip Wave #232 Is				F038	R
45389		5388	Last Trip Wave #232 Vs /Vst				F038	R
45390		5389	Last Trip Wave #232 Is				F038	R
45391		5390	Last Trip Wave #232 Vt /Vtr				F038	R
45392		5391	Last Trip Wave #232 It				F038	R
45393		5392	Last Trip Wave #233 Vr /Vrs				F038	R
45394		5393	Last Trip Wave #233 Is				F038	R
45395		5394	Last Trip Wave #233 Vs /Vst				F038	R
45396		5395	Last Trip Wave #233 Is				F038	R
45397		5396	Last Trip Wave #233 Vt /Vtr				F038	R
45398		5397	Last Trip Wave #233 It				F038	R
45399		5398	Last Trip Wave #234 Vr /Vrs				F038	R
45400		5399	Last Trip Wave #234 Is				F038	R
45401		5400	Last Trip Wave #234 Vs /Vst				F038	R
45402		5401	Last Trip Wave #234 Is				F038	R
45403		5402	Last Trip Wave #234 Vt /Vtr				F038	R
45404		5403	Last Trip Wave #234 It				F038	R
45405		5404	Last Trip Wave #235 Vr /Vrs				F038	R
45406		5405	Last Trip Wave #235 Is				F038	R
45407		5406	Last Trip Wave #235 Vs /Vst				F038	R
45408		5407	Last Trip Wave #235 Is				F038	R
45409		5408	Last Trip Wave #235 Vt /Vtr				F038	R
45410		5409	Last Trip Wave #235 It				F038	R
45411		5410	Last Trip Wave #236 Vr /Vrs				F038	R
45412		5411	Last Trip Wave #236 Is				F038	R
45413		5412	Last Trip Wave #236 Vs /Vst				F038	R
45414		5413	Last Trip Wave #236 Is				F038	R
45415		5414	Last Trip Wave #236 Vt /Vtr				F038	R
45416		5415	Last Trip Wave #236 It				F038	R
45417		5416	Last Trip Wave #237 Vr /Vrs				F038	R
45418		5417	Last Trip Wave #237 Is				F038	R
45419		5418	Last Trip Wave #237 Vs /Vst				F038	R



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45420		5419	Last Trip Wave #237 Is				F038	R
45421		5420	Last Trip Wave #237 Vt /Vtr				F038	R
45422		5421	Last Trip Wave #237 It				F038	R
45423		5422	Last Trip Wave #238 Vr /Vrs				F038	R
45424		5423	Last Trip Wave #238 Is				F038	R
45425		5424	Last Trip Wave #238 Vs /Vst				F038	R
45426		5425	Last Trip Wave #238 Is				F038	R
45427		5426	Last Trip Wave #238 Vt /Vtr				F038	R
45428		5427	Last Trip Wave #238 It				F038	R
45429		5428	Last Trip Wave #239 Vr /Vrs				F038	R
45430		5429	Last Trip Wave #239 Is				F038	R
45431		5430	Last Trip Wave #239 Vs /Vst				F038	R
45432		5431	Last Trip Wave #239 Is				F038	R
45433		5432	Last Trip Wave #239 Vt /Vtr				F038	R
45434		5433	Last Trip Wave #239 It				F038	R
45435		5434	Last Trip Wave #240 Vr /Vrs				F038	R
45436		5435	Last Trip Wave #240 Is				F038	R
45437		5436	Last Trip Wave #240 Vs /Vst				F038	R
45438		5437	Last Trip Wave #240 Is				F038	R
45439		5438	Last Trip Wave #240 Vt /Vtr				F038	R
45440		5439	Last Trip Wave #240 It				F038	R
45441		5440	Last Trip Wave #241 Vr /Vrs				F038	R
45442		5441	Last Trip Wave #241 Is				F038	R
45443		5442	Last Trip Wave #241 Vs /Vst				F038	R
45444		5443	Last Trip Wave #241 Is				F038	R
45445		5444	Last Trip Wave #241 Vt /Vtr				F038	R
45446		5445	Last Trip Wave #241 It				F038	R
45447		5446	Last Trip Wave #242 Vr /Vrs				F038	R
45448		5447	Last Trip Wave #242 Is				F038	R
45449		5448	Last Trip Wave #242 Vs /Vst				F038	R
45450		5449	Last Trip Wave #242 Is				F038	R
45451		5450	Last Trip Wave #242 Vt /Vtr				F038	R
45452		5451	Last Trip Wave #242 It				F038	R
45453		5452	Last Trip Wave #243 Vr /Vrs				F038	R
45454		5453	Last Trip Wave #243 Is				F038	R
45455		5454	Last Trip Wave #243 Vs /Vst				F038	R
45456		5455	Last Trip Wave #243 Is				F038	R
45457		5456	Last Trip Wave #243 Vt /Vtr				F038	R
45458		5457	Last Trip Wave #243 It				F038	R
45459		5458	Last Trip Wave #244 Vr /Vrs				F038	R
45460		5459	Last Trip Wave #244 Is				F038	R
45461		5460	Last Trip Wave #244 Vs /Vst				F038	R
45462		5461	Last Trip Wave #244 Is				F038	R
45463		5462	Last Trip Wave #244 Vt /Vtr				F038	R
45464		5463	Last Trip Wave #244 It				F038	R
45465		5464	Last Trip Wave #245 Vr /Vrs				F038	R
45466		5465	Last Trip Wave #245 Is				F038	R
45467		5466	Last Trip Wave #245 Vs /Vst				F038	R
45468		5467	Last Trip Wave #245 Is				F038	R



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45469		5468	Last Trip Wave #245 Vt /Vtr				F038	R
45470		5469	Last Trip Wave #245 It				F038	R
45471		5470	Last Trip Wave #246 Vr /Vrs				F038	R
45472		5471	Last Trip Wave #246 Is				F038	R
45473		5472	Last Trip Wave #246 Vs /Vst				F038	R
45474		5473	Last Trip Wave #246 Is				F038	R
45475		5474	Last Trip Wave #246 Vt /Vtr				F038	R
45476		5475	Last Trip Wave #246 It				F038	R
45477		5476	Last Trip Wave #247 Vr /Vrs				F038	R
45478		5477	Last Trip Wave #247 Is				F038	R
45479		5478	Last Trip Wave #247 Vs /Vst				F038	R
45480		5479	Last Trip Wave #247 Is				F038	R
45481		5480	Last Trip Wave #247 Vt /Vtr				F038	R
45482		5481	Last Trip Wave #247 It				F038	R
45483		5482	Last Trip Wave #248 Vr /Vrs				F038	R
45484		5483	Last Trip Wave #248 Is				F038	R
45485		5484	Last Trip Wave #248 Vs /Vst				F038	R
45486		5485	Last Trip Wave #248 Is				F038	R
45487		5486	Last Trip Wave #248 Vt /Vtr				F038	R
45488		5487	Last Trip Wave #248 It				F038	R
45489		5488	Last Trip Wave #249 Vr /Vrs				F038	R
45490		5489	Last Trip Wave #249 Is				F038	R
45491		5490	Last Trip Wave #249 Vs /Vst				F038	R
45492		5491	Last Trip Wave #249 Is				F038	R
45493		5492	Last Trip Wave #249 Vt /Vtr				F038	R
45494		5493	Last Trip Wave #249 It				F038	R
45495		5494	Last Trip Wave #250 Vr /Vrs				F038	R
45496		5495	Last Trip Wave #250 Is				F038	R
45497		5496	Last Trip Wave #250 Vs /Vst				F038	R
45498		5497	Last Trip Wave #250 Is				F038	R
45499		5498	Last Trip Wave #250 Vt /Vtr				F038	R
45500		5499	Last Trip Wave #250 It				F038	R
45501		5500	Last Trip Wave #251 Vr /Vrs				F038	R
45502		5501	Last Trip Wave #251 Is				F038	R
45503		5502	Last Trip Wave #251 Vs /Vst				F038	R
45504		5503	Last Trip Wave #251 Is				F038	R
45505		5504	Last Trip Wave #251 Vt /Vtr				F038	R
45506		5505	Last Trip Wave #251 It				F038	R
45507		5506	Last Trip Wave #252 Vr /Vrs				F038	R
45508		5507	Last Trip Wave #252 Is				F038	R
45509		5508	Last Trip Wave #252 Vs /Vst				F038	R
45510		5509	Last Trip Wave #252 Is				F038	R
45511		5510	Last Trip Wave #252 Vt /Vtr				F038	R
45512		5511	Last Trip Wave #252 It				F038	R
45513		5512	Last Trip Wave #253 Vr /Vrs				F038	R
45514		5513	Last Trip Wave #253 Is				F038	R
45515		5514	Last Trip Wave #253 Vs /Vst				F038	R
45516		5515	Last Trip Wave #253 Is				F038	R
45517		5516	Last Trip Wave #253 Vt /Vtr				F038	R



ABW – OCR P-type / S-type MODBUS Protocol

45518		5517	Last Trip Wave #253 It				F038	R
45519		5518	Last Trip Wave #254 Vr /Vrs				F038	R
45520		5519	Last Trip Wave #254 Is				F038	R
45521		5520	Last Trip Wave #254 Vs /Vst				F038	R
45522		5521	Last Trip Wave #254 Is				F038	R
45523		5522	Last Trip Wave #254 Vt /Vtr				F038	R
45524		5523	Last Trip Wave #254 It				F038	R
45525		5524	Last Trip Wave #255 Vr /Vrs				F038	R
45526		5525	Last Trip Wave #255 Is				F038	R
45527		5526	Last Trip Wave #255 Vs /Vst				F038	R
45528		5527	Last Trip Wave #255 Is				F038	R
45529		5528	Last Trip Wave #255 Vt /Vtr				F038	R
45530		5529	Last Trip Wave #255 It				F038	R
45531		5530	Last Trip Wave #256 Vr /Vrs				F038	R
45532		5531	Last Trip Wave #256 Is				F038	R
45533		5532	Last Trip Wave #256 Vs /Vst				F038	R
45534		5533	Last Trip Wave #256 Is				F038	R
45535		5534	Last Trip Wave #256 Vt /Vtr				F038	R
45536		5535	Last Trip Wave #256 It				F038	R

46001	6000	TimeSync				F012	W
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Unique PRESET_MULTIPLE_REGISTERS(0x10h)



ABW – OCR P-type / S-type MODBUS Protocol

Format Descriptions

F001

F038 Format

0xFF00 : ON, OFF

F004

IEEE754 32bit short float form

F005

Write 0.0(F004) when reset. (Function Code: 10h)

F006

F022 Format

Write 0 when Reset. (Function Code: 10h)

Read value is based on SEC.

F012

Set [Y][M][D][H][M][S][mS] with 7word(F038 Format) BCD.

1 st word	2 nd word	3 rd word	4 th word	5 th word	6 th word	7 th word
Year	Month	Day	Hour	Minute	Second	Millisecond

Ex) If setting 2004yr February 20th 12hours 26mins 00sec 0000[ms], Frame is as follows:

01 10 17 70 00 07 0E 20 04 00 02 00 20 00 12 00 26 00 00 00 00 CRC CRC

F022

32bit Unsigned Long type

F038

16Bit Unsigned Integer type

F112 (F022 Format)

D31	D30	D29	D28	D27	D26	D25	D24	D23	D22	D21	D20	D19	D18	D17	D16
ZSI Output 1:Output	ZSI Input 1:Input	Relation between Trip and ZSI (Ref. F112-1)		Reserve	CB State (1:Close, 0:Open)	Pre Alarm Inform. (Ref. F112-2)		Reserve	D03 State 0:open	D02 State	D01 State	Reserve	Reserve	Battery State (0:low)	Reserve
D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
UFR	OFR	rPower	Iunbal	Vunbal	UVR	OVr	Ground-fault leakage	Short-time delay Instantaneo	Long-time Delay	Ground-fault relay time	Short-time Delay relay time setting	Trip Event	Sys Event	SWAP (1:Set)	L/R (0:Local)

1: i2T(on) 0: Off

F112-1:

00-Trip not relevant to ZSI,

01- Trip without delay due to the absence of ZSI signal,

10- normal delayed Trip with ZSI signal

Only meaningful in state of CB Trip-if executing in state of Local Reset/Remote Reset(communication+Remote Reset), it initializes as 00.

F112-2:

00- State of General Load,

01- more than 90% less than105%,

10-more than105%

F212 (F022 Format)

D31	D30	D29	D28	D27	D26	D25	D24	D23	D22	D21	D20	D19	D18	D17	D16
MTD Error 1: Error															



ABW – OCR P-type / S-type MODBUS Protocol

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
				DO#3 current Trip alarm setting Ref. F212-1				DO#2 current Trip alarm setting Ref. F212-1				DO#1 current Trip alarm setting Ref. F212-1			

F212-1:

0:None,
1:LTD,
2:STD,INS,
3:GND,
4:PTA,
5:Load Alarm

F113 (BCD Format)

ex) 10 (DEC) --> BYTE (BCD): 0x10

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte
Year	Month	Day	Hour	Minute	Second

F114 (System EVENT Format.)

Respond with 'Exception code = 0x10' if no corresponding record exists.

	Byte
Event Record(F038 Format), Ref. F114-1 Format as below	2
EventTime Tag: Year(BCD)	1
EventTime Tag: Month(BCD), ex)BCD 10(DEC) -> BYTE(BCD):0x10	1
EventTime Tag: Day(BCD)	1
EventTime Tag: Hour(BCD)	1
EventTime Tag: Minute(BCD)	1
EventTime Tag: Sec(BCD)	1
EventTime Tag: mSec(F038 Format)	2

10

F115 (Trip Event Format)

Respond with 'Exception code = 0x10' if no corresponding record exists.

	Byte
Trip Value (321:321V, 5442:5442A etc.)	2
Trip Event Format(F038) Ref. F115-1 Format as below.	2
EventTime Tag: Year(BCD)	1
EventTime Tag: Month(BCD), ex)BCD 10(DEC) -> BYTE(BCD):0x10	1
EventTime Tag: Day(BCD)	1
EventTime Tag: Hour(BCD)	1
EventTime Tag: Minute(BCD)	1
EventTime Tag: Sec(BCD)	1
EventTime Tag: mSec(F038 Format)	2

12

MSB

F116

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
UVR(30) / I unbalance(31) / rROT(32) / UFR(33)								OVR(30) / V unbalance(31) / rPower(32) / OFR(33)							
0:None, 1:Event, 2:DO#1, 3:DO#2, 4:DO#3								0:None, 1:Event, 2:DO#1, 3:DO#2, 4:DO#3							

F117

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
Reserve								Freq	Thermal Image	Special Function		Ampere Frame			
								0: 60 Hz 1: 50Hz	0: Disable 1: Enable						
								0:OCGR(3P) 1:PTA, 2:OCGR(Outer) 3:OCGR(4P)		0000:400AF, 0001:630AF, 0010:800AF, 0011:1000AF, 0100:1250AF, 0101:1600AF, 0110:2000AF, 0111:2500AF, 1000:3200AF, 1001:4000AF, 1010:5000AF, 1011:6300AF, 1100:10000AF, 1101:200AF 1110-1111: Do not use					



ABW – OCR P-type / S-type MODBUS Protocol

F118

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
IDMTL Set	IDMTL Type			Reserve		OCGR Fine Set	OCR Fine set	SWAP	Demand				OCR Type	Wiring	L/R

0: Notset 1: Set	0: Disable 1: DT 2: SIT 3: VIT 4: EIT 5: HIF			0: Noset 1: Fineset	0: Noset 1: Fineset	Set: 1	0: 1; 1: 2min; 2: 3min; 3: 4min; 4: 5min; 5: 6min; 7: 15min; 8:20min; 9:30min; 10: 60min	0: Ptype 1: Stype	0: 3P4W 1: 3P3W	0: Local 1: Remote
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ABW – OCR P-type / S-type MODBUS Protocol

F114-1 (Event Information, F038)

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
				R/L	Num3			Num2		Num1				kind of Event	

0x0000	Wire Change	
0x0004	Comm Set	
0x0008	Password Change	
0x000C	Time Reset	Remote 0x080C
0x0010	PT Ratio Change	
0x0014	Demand Time Change	
0x0018	DO Configure	
0x001C	OCR Fine Set	
0x0020	OCGR Fine Set	
0x0024	OUV/OVR Relay Set	
0x0028	V/I Unbalance Relay Set	
0x002C	rPower rROT Relay Set	
0x0030	OFR/UFR Relay Set	
0x0034	OCR Knob Change	
0x0038	OCGR Knob Change	
0x003C	PTA Knob Change	
0x0001	Internal Communication Error	
0x0005	MTD Contracting Error	
0x0002	Local to Remote	
0x0006	Remote to Local	
0x000a	Power On	Remote 0x080C
0x0012	Trip Event Reset	Remote 0x0812
0x0016	DO#1 Control Off	Remote 0x0816
0x0056	DO#1 Control On	Remote 0x0856
0x001a	DO#2 Control Off	Remote 0x081a
0x005a	DO#2 Control On	Remote 0x085a
0x001e	DO#3 Control Off	Remote 0x081e
0x005e	DO#3 Control On	Remote 0x085e
0x0022	CB Close	Remote 0x0822
0x0026	CB Open	Remote 0x0826
0x0003	Reset Max V0	Remote 0x0803
0x0007	Reset Max P	Remote 0x0807
0x000b	Reset Max Demand	Remote 0x080b
0x000f	Reset Energy	Remote 0x080f
0x0013	Reset System Event List	Remote 0x0813
0x0017	Reset Trip Event List	Remote 0x0817

F115-1 (Fault List Information, F038 Format)

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
Reserved										Accident Phase		kind of Fault List			

Kind Of Fault List										Accident Phase					
0x0000	OCR(Long-time delay)									0 R Phase					
0x0001	OCR(Short-time delay)									1 S Phase					
0x0002	OCR(Instantaneous delay)									2 T Phase					
0x0003	OCR(Ground-fault)									3 N Phase					
0x0004	OCR(Leakage)														
0x0005	PTA(Pre-Trip Alarm)														
0x0006	OVR														
0x0007	UVR														
0x0008	V Imbalance Ratio														
0x0009	I Imbalance Ratio														
0x000A	Reverse Power Relay														
0x000B	Reverse Rotation(Not used)														
0x000C	OFR														
0x000D	UFR														